

REQUEST FOR BIDS

BURNDALE HOMES OFFICE TI & ENVELOPES

930 18TH Place NE
Auburn, WA 98002

RELEASED BY:



CAPITAL CONSTRUCTION DEPARTMENT
700 ANDOVER PARK WEST, SUITE C
TUKWILA, WA 98188

BID DATES

ISSUANCE DATE: APRIL 4, 2024

DUE DATE: APRIL 25, 2024

TIME: 1:00PM



TABLE OF CONTENTS SECTIONS

- A. INFORMATIONAL FORMS**
- B. BID PROPOSAL**
- BB. NO PARTICIPATION – RESPONSE FORM**
- C. CONTRACT DOCUMENTS**
- D. THIRD PARTY REPORTS**
- E. DRAWINGS AND SPECIFICATIONS**

A - SECTION

INFORMATIONAL FORMS

- A.1 Invitation to Bid**
- A.2 Notice to All Bidders**
- A.3 Instructions to Bidders for Contracts (form HUD 5369)**
- A.4 Fair Housing / Accessibility Notice**
- A.5 Pre-Bid Conference – MANDATORY ATTENDANCE**
- A.6 Project Wage Rates**
- A.7 Tax Applications**
- A.8 Section 3**
 - a. Clause**
 - b. Supplemental Instruction to Bidders**
- A.9 Progress Payment Suspension Criteria**
- A.10 Executive Order 11246 (as Amended)**
- A.11 Compliance with Executive Order 13496**
- A.12 Requirements for Public Works Jobs**
 - a. Requirements for Public Works Jobs**
 - b. Screenshots of Intent**
 - c. Davis Bacon & Related Acts Provisions; Contract Work Hours & Safety Standards Act; General Information**



INVITATION FOR BID **DUE DATE: APRIL 25, 2024**

The King County Housing Authority (KCHA) will accept bids from qualified general contractors to furnish labor, materials and necessary equipment to perform the following:

SCOPE OF WORK: BURNDALE HOMES OFFICE TI & ENVELOPE

The Burndale management office building is a single-story wood-framed building built in 1971. The building currently houses the Burndale management offices, maintenance office and equipment storage, and the Auburn food bank. The remodeling of the existing office building will expand the office space to house the KCHA regional office and Maintenance with the food bank moving to a new location. The building renovation will include selective demolition of building elements for alteration purposes as indicated on drawings.

Interior:

- *Removal of existing interior wall and ceiling assemblies, including mechanical, electrical, plumbing as noted on AD2.1.*
- *Removal of interior flooring, case work, doors, frames hardware and trim.*
- *Removal of selective concrete flooring and framed flooring.*
- *Restructuring of interior walls, installation of posts and beams, reframing selective floor and floor supports, and new footings.*
- *The new floor plan will have office spaces, meeting and conference rooms, restrooms, break rooms, and expanded spaces for maintenance operations. All new electrical, data, security, plumbing, and mechanical systems will be installed to accommodate the new floor plan.*
- *The security camera system and some mechanical equipment are to be reused. The contractor will be responsible for installing all finishes, including new flooring, wall treatments, millwork, paint, fixtures, and built-in cabinetry.*

Exterior:

- *Removal of existing roofing assembly, gutters, downspouts, barge and fascia board.*
- *Removal of siding, insulation, windows, doors, trim and hardware.*
- *Modifications to the existing roof overhangs, infill of existing gable vents.*
- *Work will included installation of seismic hardware as noted per structural plans.*
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The new floor plan will have office spaces, meeting and conference rooms, restrooms, break rooms, and expanded spaces for maintenance operations. All new electrical, data, security, plumbing, and mechanical systems will be installed to accommodate the new floor plan.

For complete scope, please see E.1 Scope of Work and Technical Specifications

DRAWINGS – PROJECT MANUAL DISTRIBUTION:

Drawing and bid documents can be downloaded from:

<https://www.kcha.org/business/construction/open>

PRE-BID CONFERENCE:

Date: **April 11, 2024**
Time: **11:00 AM**
Jobsite Address: **930 18th Place N.E., Auburn, WA 98002**
Notation: Attendance of the Pre-Bid Site Visit is **MANDATORY**.
Questions / Direct Questions, Requests or Clarification by Email or Fax to:
Contact Person: Project Manager: Carl Frankel
Email Address: CarlF@kcha.org



**KCHA – BURNDALE HOMES OFFICE TI & ENVELOPE
CAPITAL CONSTRUCTION DEPARTMENT**

Phone Number: 206-574-1249
No Later Than: April 18, 2024

Website Posting: <https://www.kcha.org/business/construction/open>

All responses shall be in the form of Addenda
All Addenda(s) will post As Occurs
Plan Holder’s List posts every Friday

BIDS ARE DUE:

Date: **April 25, 2024**
Time: **1:00 pm**
Address: King County Housing Authority
600 Andover Park West, Tukwila, WA 98188

Submittal Procedure: **Envelope MUST BE:**

- a. Sealed
- b. List Name and Address of your Firm/Company
- c. List Due Date and Time
- d. List Project Name:

BURNDALE HOMES OFFICE TI

- e. Mailing / Shipping Package or Wrapping **must also be marked** with this information.

KCHA Process: **All Bids MUST BE Time and Date Stamped at King County Housing Authority’s Central Campus by the above Due Date and Time.**

- a. No Bids will be accepted after that Date and Time.
 - b. No Bids Faxed or Emailed will be accepted.
 - c. A KCHA representative will be present at the front desk at **600 Andover Park West, Tukwila, WA 98188** to time stamp bids.
 - d. Bids will be accepted between **NOON – 1:00PM ONLY**.
 - e. At 1:00PM bidding will be closed and no further bids will be accepted.
 - f. Bids received on or before 1:00 PM will be opened and read in the presence of one or more witnesses which includes KCHA staff (project manager and project specialist). **Bidding Contractors are invited to attend the public opening.**
 - g. Bids will be tabulated and bidders notified by email of the bid results.
- **NOTE:** Contractors have the option to mail in bids, but bids must be received by the deadline of 1:00PM. KCHA does not recommend mailing in bids due to possible complications or difficulties that may arise with the mail delivery.

BID BOND OR CERTIFIED CHECK:

Amount: **Five (5%) Percent** of the Total bid must accompany Each Bid **greater than one hundred fifty (\$150,000) dollars.**
Payable to: King County Housing Authority
Process: Bid Bond or Certified Check will be returned to the Unsuccessful Bidders within **Ten (10) Days** after the Contract Award.

BONDS MUST BE ORIGINAL, NO PHOTOCOPIES OR SCANNED BONDS WILL BE ALLOWED

MASKING COMPLIANCE

Contractor’s employees and all sub-contractors’ employees will be required to wear a mask if they are asked to do so by a resident or property manager while in a building or a resident’s unit.



ASSURANCE OF COMPLETION:

Projects valued over one hundred fifty thousand (\$150,000) dollars **require** a one hundred (100%) percent Performance and Payment Bond. (See Section C – Contract Documents)

BONDING CAPACITY:

Provide **with your bid proposal**, a written statement from the contractor’s bonding agent of the contractor’s ability and capacity for providing a one hundred (100%) percent Performance and Payment Bond for the project. The statement shall be made on the official letterhead of the bonding company and signed by an authorized agent of the bonding company.

BONDING & INSURANCE FOR CONTRACT AWARD:

The contract award will be contingent on full performance bonding, or equivalent and contractor’s ability to meet KCHA insurance requirements as outlined in the bid documents.

HUD NON-ROUTINE MAINTENANCE WAGE RATES:

Bidders should note that the current HUD Non-Routine Maintenance wage rates and weekly payroll reporting requirements apply to this project.

WASHINGTON STATE REQUIREMENT:

All contractors and subcontractors working on this project are required to file a “Statement of Intent to Pay Prevailing Wages”, “Affidavit of Wages Paid” and certified payroll with L&I. (See Form **A.12** for additional information.)

EEOE:

The King County Housing Authority is an Equal Employment Opportunity Employer and strongly encourages minority-owned and women-owned businesses, socially and economically disadvantaged businesses, and small businesses to submit bids or to participate as subcontractors and suppliers on KCHA Contracts.

KCHA RESERVED RIGHTS:

The King County Housing Authority reserves the right to reject any or all bids or to waive any informality in the bidding. No bid shall be withdrawn for a period of thirty (30) calendar days subsequent to the opening of the bids without the written consent of KCHA.

The King County Housing Authority also reserves the right to reject all bids, for any reason, prior to Contract Execution.

PUBLIC RECORDS:

All information submitted to KCHA will become public records, as per RCW 42.56. If you are submitting information, which you think is confidential and/or proprietary to your business, KCHA recommends that you do not submit that information, as KCHA cannot guarantee that type of information will be withheld from a public disclosure request.

PLAN CENTERS:

Bid documents, including drawings, specifications and conditions of the agreements may be examined at the following offices:

BUILDERS EXCHANGE OF WA
2607 Wetmore Ave.
Everett, WA 98201
www.bxwa.com
425-258-1303

PLAN CENTER NW
P.O. Box 2486
Clackamas, OR 97015
<https://plancenternw.com/>
503-650-0148



KCHA – BURNDALE HOMES OFFICE TI & ENVELOPE
CAPITAL CONSTRUCTION DEPARTMENT

DAILY JOURNAL OF COMMERCE

www.djc.com
206-622-8272

DODGE CONSTRUCTION
NETWORK

www.construction.com
877-784-9556

ISQFT

www.isqft.com
800-364-2059 x7051

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PUBLICATION: Daily Journal of Commerce Daily
The Seattle Medium Wednesday
Northwest Asian Weekly Thursday
KCHA Web Site www.kcha.org/business/construction/open

CONTACT PERSON: Carl Frankel Project Manager
206-574-1249 Phone Number
Carlfr@kcha.org Email Address



EXAMPLE OF SEALED ENVELOPE PROCEDURE / PREPARATION:

<p>FROM:</p> <p>ENTER YOUR COMPANY NAME Street Address City, State, Zip Code</p> <p>TO:</p> <p>KING COUNTY HOUSING AUTHORITY CAPITAL CONSTRUCTION DEPARTMENT 700 Andover Park West, Suite C Tukwila, WA 98188</p> <p>BID DUE:</p> <p>Date: April 25, 2024 Time: 1:00 PM</p> <p>PROJECT NAME: BURNDALE HOMES OFFICE TI & ENVELOPE</p>
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**Upon Receipt, the Envelope will be Time and Date Stamped by
King County Housing Authority**

NOTICE TO ALL BIDDERS

In order to be considered as **RESPONSIVE BIDS**, all bidders **MUST** submit Signed Section B forms no later than the **Bid Due Date and Time**:

- B.1 Bid Form**
- B.2 Bidder’s Experience Record**
- B.3 Contractor Certification**
- B.4 Non-Collusive Affidavit**
- B.5 Equal Opportunity**
- B.6 Bid Security (Submit only for bids greater than \$150,000)**
- B.7 Debarment / Suspension Compliance Certification**
- B.8 Proposed Subcontractor List**
- B.9 Section 3**
 - a. Business Certification**
 - b. Subcontractor Work Plan**
- B.10 Harassment and Discrimination Policies**
- B.11 WMBE Survey (Form is not required to be responsive, but requested)**
- B.12 Preliminary Project Schedule – Provided by Contractor**

FORM 5369

From HUD Website 2021

**U.S. Department of Housing and
Urban Development**
Office of Public and Indian Housing

**Instructions to Bidders for Contracts
Public and Indian Housing Programs**

Instructions to Bidders for Contracts

Public and Indian Housing Programs

Table of Contents

Clause	Page
1. Bid Preparation and Submission	1
2. Explanations and Interpretations to Prospective Bidders	1
3. Amendments to Invitations for Bids	1
4. Responsibility of Prospective Contractor	1
5. Late Submissions, Modifications, and Withdrawal of Bids	1
6. Bid Opening	2
7. Service of Protest	2
8. Contract Award	2
9. Bid Guarantee	3
10. Assurance of Completion	3
11. Preconstruction Conference	3
12. Indian Preference Requirements	3

1. Bid Preparation and Submission

(a) Bidders are expected to examine the specifications, drawings, all instructions, and, if applicable, the construction site (see also the contract clause entitled **Site Investigation and Conditions Affecting the Work** of the *General Conditions of the Contract for Construction*). Failure to do so will be at the bidders' risk.

(b) All bids must be submitted on the forms provided by the Public Housing Agency/Indian Housing Authority (PHA/IHA). Bidders shall furnish all the information required by the solicitation. Bids must be signed and the bidder's name typed or printed on the bid sheet and each continuation sheet which requires the entry of information by the bidder. Erasures or other changes must be initialed by the person signing the bid. Bids signed by an agent shall be accompanied by evidence of that agent's authority. (Bidders should retain a copy of their bid for their records.)

(c) ~~Bidders must submit as part of their bid a completed form HUD-5369-A, "Representations, Certifications, and Other Statements of Bidders."~~

(d) All bid documents shall be sealed in an envelope which shall be clearly marked with the words "Bid Documents," the Invitation for Bids (IFB) number, any project or other identifying number, the bidder's name, and the date and time for receipt of bids.

(e) If this solicitation requires bidding on all items, failure to do so will disqualify the bid. If bidding on all items is not required, bidders should insert the words "No Bid" in the space provided for any item on which no price is submitted.

(f) Unless expressly authorized elsewhere in this solicitation, alternate bids will not be considered.

(g) Unless expressly authorized elsewhere in this solicitation, bids submitted by telegraph or facsimile (fax) machines will not be considered.

(h) If the proposed contract is for a Mutual Help project (as described in 24 CFR Part 905, Subpart E) that involves Mutual Help contributions of work, material, or equipment, supplemental information regarding the bid advertisement is provided as an attachment to this solicitation.

HUD 5369-A is covered by other forms within this project Bid Document. See last page for listing.

2. Explanations and Interpretations to Prospective Bidders

(a) Any prospective bidder desiring an explanation or interpretation of the solicitation, specifications, drawings, etc., must request it at least 7 days before the scheduled time for bid opening. Requests may be oral or written. Oral requests must be confirmed in writing. The only oral clarifications that will be provided will be those clearly related to solicitation procedures, i.e., not substantive technical information. No other oral explanation or interpretation will be provided. Any information given a prospective bidder concerning this solicitation will be furnished promptly to all other prospective bidders as a written amendment to the solicitation, if that information is necessary in submitting bids, or if the lack of it would be prejudicial to other prospective bidders.

(b) Any information obtained by, or provided to, a bidder other than by formal amendment to the solicitation shall not constitute a change to the solicitation.

3. Amendments to Invitations for Bids

(a) If this solicitation is amended, then all terms and conditions which are not modified remain unchanged.

(b) Bidders shall acknowledge receipt of any amendment to this solicitation (1) by signing and returning the amendment, (2) by identifying the amendment number and date on the bid form, or (3) by letter, telegram, or facsimile, if those methods are authorized in the solicitation. The PHA/IHA must receive acknowledgement by the time and at the place specified for receipt of bids. Bids which fail to acknowledge the bidder's receipt of any amendment will result in the rejection of the bid if the amendment(s) contained information which substantively changed the PHA's/IHA's requirements.

(c) Amendments will be on file in the offices of the PHA/IHA and the Architect at least 7 days before bid opening.

4. Responsibility of Prospective Contractor

(a) The PHA/IHA will award contracts only to responsible prospective contractors who have the ability to perform successfully under the terms and conditions of the proposed contract. In determining the responsibility of a bidder, the PHA/IHA will consider such matters as the bidder's:

- (1) Integrity;
- (2) Compliance with public policy;
- (3) Record of past performance; and
- (4) Financial and technical resources (including construction and technical equipment).

(b) Before a bid is considered for award, the bidder may be requested by the PHA/IHA to submit a statement or other documentation regarding any of the items in paragraph (a) above. Failure by the bidder to provide such additional information shall render the bidder nonresponsible and ineligible for award.

5. Late Submissions, Modifications, and Withdrawal of Bids

(a) Any bid received at the place designated in the solicitation after the exact time specified for receipt will not be considered unless it is received before award is made and it:

(1) Was sent by registered or certified mail not later than the fifth calendar day before the date specified for receipt of offers (e.g., an offer submitted in response to a solicitation requiring receipt of offers by the 20th of the month must have been mailed by the 15th);

(2) Was sent by mail, or if authorized by the solicitation, was sent by telegram or via facsimile, and it is determined by the PHA/IHA that the late receipt was due solely to mishandling by the PHA/IHA after receipt at the PHA/IHA; or

(3) Was sent by U.S. Postal Service Express Mail Next Day Service - Post Office to Addressee, not later than 5:00 p.m. at the place of mailing two working days prior to the date specified for receipt of proposals. The term "working days" excludes weekends and observed holidays.

(b) Any modification or withdrawal of a bid is subject to the same conditions as in paragraph (a) of this provision.

(c) The only acceptable evidence to establish the date of mailing of a late bid, modification, or withdrawal sent either by registered or certified mail is the U.S. or Canadian Postal Service postmark both on the envelope or wrapper and on the original receipt from the U.S. or Canadian Postal Service. Both postmarks must show a legible date or the bid, modification, or withdrawal shall be processed as if mailed late. "Postmark" means a printed, stamped, or otherwise placed impression (exclusive of a postage meter machine impression) that is readily identifiable without further action as having been supplied and affixed by employees of the U.S. or Canadian Postal Service on the date of mailing. Therefore, bidders should request the postal clerk to place a hand cancellation bull's-eye postmark on both the receipt and the envelope or wrapper.

(d) The only acceptable evidence to establish the time of receipt at the PHA/IHA is the time/date stamp of PHA/IHA on the proposal wrapper or other documentary evidence of receipt maintained by the PHA/IHA.

(e) The only acceptable evidence to establish the date of mailing of a late bid, modification, or withdrawal sent by Express Mail Next Day Service-Post Office to Addressee is the date entered by the post office receiving clerk on the "Express Mail Next Day Service-Post Office to Addressee" label and the postmark on both the envelope or wrapper and on the original receipt from the U.S. Postal Service. "Postmark" has the same meaning as defined in paragraph (c) of this provision, excluding postmarks of the Canadian Postal Service. Therefore, bidders should request the postal clerk to place a legible hand cancellation bull's eye postmark on both the receipt and Failure by a bidder to acknowledge receipt of the envelope or wrapper.

(f) Notwithstanding paragraph (a) of this provision, a late modification of an otherwise successful bid that makes its terms more favorable to the PHA/IHA will be considered at any time it is received and may be accepted.

(g) Bids may be withdrawn by written notice, or if authorized by this solicitation, by telegram (including mailgram) or facsimile machine transmission received at any time before the exact time set for opening of bids; provided that written confirmation of telegraphic or facsimile withdrawals over the signature of the bidder is mailed and postmarked prior to the specified bid opening time. A bid may be withdrawn in person by a bidder or its authorized representative if, before the exact time set for opening of bids, the identity of the person requesting withdrawal is established and the person signs a receipt for the bid.

6. Bid Opening

All bids received by the date and time of receipt specified in the solicitation will be publicly opened and read. The time and place of opening will be as specified in the solicitation. Bidders and other interested persons may be present.

7. Service of Protest

(a) Definitions. As used in this provision:

"Interested party" means an actual or prospective bidder whose direct economic interest would be affected by the award of the contract.

"Protest" means a written objection by an interested party to this solicitation or to a proposed or actual award of a contract pursuant to this solicitation.

(b) Protests shall be served on the Contracting Officer by obtaining written and dated acknowledgement from —

Contracting Officer
Capital Construction Department
King County Housing Authority
600 Andover Park West
Tukwila, WA 98188

[Contracting Officer designate the official or location where a protest may be served on the Contracting Officer]

(c) All protests shall be resolved in accordance with the PHA's/IHA's protest policy and procedures, copies of which are maintained at the PHA/IHA.

8. Contract Award

(a) The PHA/IHA will evaluate bids in response to this solicitation without discussions and will award a contract to the responsible bidder whose bid, conforming to the solicitation, will be most advantageous to the PHA/IHA considering only price and any price-related factors specified in the solicitation.

(b) If the apparent low bid received in response to this solicitation exceeds the PHA's/IHA's available funding for the proposed contract work, the PHA/IHA may either accept separately priced items (see 8(e) below) or use the following procedure to determine contract award. The PHA/IHA shall apply in turn to each bid (proceeding in order from the apparent low bid to the high bid) each of the separately priced bid deductible items, if any, in their priority order set forth in this solicitation. If upon the application of the first deductible item to all initial bids, a new low bid is within the PHA's/IHA's available funding, then award shall be made to that bidder. If no bid is within the available funding amount, then the PHA/IHA shall apply the second deductible item. The PHA/IHA shall continue this process until an evaluated low bid, if any, is within the PHA's/IHA's available funding. If upon the application of all deductibles, no bid is within the PHA's/IHA's available funding, or if the solicitation does not request separately priced deductibles, the PHA/IHA shall follow its written policy and procedures in making any award under this solicitation.

(c) In the case of tie low bids, award shall be made in accordance with the PHA's/IHA's written policy and procedures.

(d) The PHA/IHA may reject any and all bids, accept other than the lowest bid (e.g., the apparent low bid is unreasonably low), and waive informalities or minor irregularities in bids received, in accordance with the PHA's/IHA's written policy and procedures.

(e) Unless precluded elsewhere in the solicitation, the PHA/IHA may accept any item or combination of items bid.

(f) The PHA/IHA may reject any bid as nonresponsive if it is materially unbalanced as to the prices for the various items of work to be performed. A bid is materially unbalanced when it is based on prices significantly less than cost for some work and prices which are significantly overstated for other work.

(g) A written award shall be furnished to the successful bidder within the period for acceptance specified in the bid and shall result in a binding contract without further action by either party.

9. Bid Guarantee ~~(applicable to construction and equipment contracts exceeding \$25,000)~~

KCHA Procurement Policy requires Bid Guarantees for Projects valued at \$150,000 or more.

All bids must be accompanied by a negotiable bid guarantee which shall not be less than five percent (5%) of the amount of the bid. The bid guarantee may be a certified check, bank draft, U.S. Government Bonds at par value, or a bid bond secured by a surety company acceptable to the U.S. Government and authorized to do business in the state where the work is to be performed. In the case where the work under the contract will be performed on an Indian reservation area, the bid guarantee may also be an irrevocable Letter of Credit (see provision 10, Assurance of Completion, below). Certified checks and bank drafts must be made payable to the order of the PHA/IHA. The bid guarantee shall insure the execution of the contract and the furnishing of a method of assurance of completion by the successful bidder as required by the solicitation. Failure to submit a bid guarantee with the bid shall result in the rejection of the bid. Bid guarantees submitted by unsuccessful bidders will be returned as soon as practicable after bid opening.

10. Assurance of Completion

(a) Unless otherwise provided in State law, the successful bidder shall furnish an assurance of completion prior to the execution of any contract under this solicitation. This assurance may be [Contracting Officer check applicable items] —

(1) a performance and payment bond in a penal sum of 100 percent of the contract price; or, as may be required or permitted by State law;

(2) separate performance and payment bonds, each for 50 percent or more of the contract price;

(3) a 20 percent cash escrow;

(4) a 25 percent irrevocable letter of credit; or,

(5) an irrevocable letter of credit for 10 percent of the total contract price with a monitoring and disbursements agreement with the IHA (applicable only to contracts awarded by an IHA under the Indian Housing Program).

(b) Bonds must be obtained from guarantee or surety companies acceptable to the U.S. Government and authorized to do business in the state where the work is to be performed. Individual sureties will not be considered. U.S. Treasury Circular Number 570, published annually in the Federal Register, lists companies approved to act as sureties on bonds securing Government contracts, the maximum underwriting limits on each contract bonded, and the States in which the company is licensed to do business. Use of companies listed in this circular is mandatory. Copies of the circular may be downloaded on the U.S. Department of Treasury website <http://www.fms.treas.gov/c570/index.html>, or ordered for a minimum fee by contacting the Government Printing Office at (202) 512-2168.

Treasury website: <https://www.fiscal.treasury.gov/surety-bonds/>

(c) Each bond shall clearly state the rate of premium and the total amount of premium charged. The current power of attorney for the person who signs for the surety company must be attached to the bond. The effective date of the power of attorney shall not precede the date of the bond. The effective date of the bond shall be on or after the execution date of the contract.

(d) Failure by the successful bidder to obtain the required assurance of completion within the time specified, or within such extended period as the PHA/IHA may grant based upon reasons determined adequate by the PHA/IHA, shall render the bidder ineligible for award. The PHA/IHA may then either award the contract to the next lowest responsible bidder or solicit new bids. The PHA/IHA may retain the ineligible bidder's bid guarantee.

11. Preconstruction Conference (applicable to construction contracts)

After award of a contract under this solicitation and prior to the start of work, the successful bidder will be required to attend a preconstruction conference with representatives of the PHA/IHA and its architect/engineer, and other interested parties convened by the PHA/IHA. The conference will serve to acquaint the participants with the general plan of the construction operation and all other requirements of the contract (e.g., Equal Employment Opportunity, Labor Standards). The PHA/IHA will provide the successful bidder with the date, time, and place of the conference.

12. Indian Preference Requirements ~~(applicable only if this solicitation is for a contract to be performed on a project for an Indian Housing Authority)~~

~~(a) HUD has determined that the contract awarded under this solicitation is subject to the requirements of section 7(b) of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 450e(b)). Section 7(b) requires that any contract or subcontract entered into for the benefit of Indians shall require that, to the greatest extent feasible~~

~~(1) Preferences and opportunities for training and employment (other than core crew positions; see paragraph (h) below) in connection with the administration of such contracts or subcontracts be given to qualified "Indians." The Act defines "Indians" to mean persons who are members of an Indian tribe and defines "Indian tribe" to mean any Indian tribe, band, nation, or other organized group or community, including any Alaska Native village or regional or village corporation as defined in or established pursuant to the Alaska Native Claims Settlement Act, which is recognized as eligible for the special programs and services provided by the United States to Indians because of their status as Indians; and,~~

~~(2) Preference in the award of contracts or subcontracts in connection with the administration of contracts be given to Indian organizations and to Indian-owned economic enterprises, as defined in section 3 of the Indian Financing Act of 1974 (25 U.S.C. 1452). That Act defines "economic enterprise" to mean any Indian-owned commercial, industrial, or business activity established or organized for the purpose of profit, except that the Indian ownership must constitute not less than 51 percent of the enterprise; "Indian organization" to mean the governing body of any Indian tribe or entity established or recognized by such governing body; "Indian" to mean any person who is a member of any tribe, band, group, pueblo, or community which is recognized by the Federal Government as eligible for services from the Bureau of Indian Affairs and any "Native" as defined in the Alaska Native Claims Settlement Act; and "Indian tribe" to mean any Indian tribe, band, group, pueblo, or community including Native villages and Native groups (including~~

~~corporations organized by Kenai, Juneau, Sitka, and Kodiak) as defined in the Alaska Native Claims Settlement Act, which is recognized by the Federal Government as eligible for services from the Bureau of Indian Affairs.~~

~~(b) (1) The successful Contractor under this solicitation shall comply with the requirements of this provision in awarding all subcontracts under the contract and in providing training and employment opportunities.~~

~~(2) A finding by the IHA that the contractor, either (i) awarded a subcontract without using the procedure required by the IHA, (ii) falsely represented that subcontracts would be awarded to Indian enterprises or organizations; or, (iii) failed to comply with the contractor's employment and training preference bid statement shall be grounds for termination of the contract or for the assessment of penalties or other remedies.~~

~~(c) If specified elsewhere in this solicitation, the IHA may restrict the solicitation to qualified Indian-owned enterprises and Indian organizations. If two or more (or a greater number as specified elsewhere in the solicitation) qualified Indian-owned enterprises or organizations submit responsive bids, award shall be made to the qualified enterprise or organization with the lowest responsive bid. If fewer than the minimum required number of qualified Indian-owned enterprises or organizations submit responsive bids, the IHA shall reject all bids and readvertise the solicitation in accordance with paragraph (d) below.~~

~~(d) If the IHA prefers not to restrict the solicitation as described in paragraph (c) above, or if after having restricted a solicitation an insufficient number of qualified Indian enterprises or organizations submit bids, the IHA may advertise for bids from non-Indian as well as Indian-owned enterprises and Indian organizations. Award shall be made to the qualified Indian enterprise or organization with the lowest responsive bid if that bid is-~~

~~(1) Within the maximum HUD approved budget amount established for the specific project or activity for which bids are being solicited; and~~

~~(2) No more than the percentage specified in 24 CFR 905.175(c) higher than the total bid price of the lowest responsive bid from any qualified bidder. If no responsive bid by a qualified Indian-owned economic enterprise or organization is within the stated range of the total bid price of the lowest responsive bid from any qualified enterprise, award shall be made to the bidder with the lowest bid.~~

~~(e) Bidders seeking to qualify for preference in contracting or subcontracting shall submit proof of Indian ownership with their bids. Proof of Indian ownership shall include but not be limited to:~~

~~(1) Certification by a tribe or other evidence that the bidder is an Indian. The IHA shall accept the certification of a tribe that an individual is a member.~~

~~(2) Evidence such as stock ownership, structure, management, control, financing and salary or profit sharing arrangements of the enterprise.~~

~~(f) (1) All bidders must submit with their bids a statement describing how they will provide Indian preference in the award of subcontracts. The specific requirements of that statement and the factors to be used by the IHA in determining the statement's adequacy are included as an attachment to this solicitation. Any bid that fails to include the required statement shall be rejected as nonresponsive. The IHA may require that comparable statements be provided by subcontractors to the successful Contractor, and may require the Contractor to reject any bid or proposal by a subcontractor that fails to include the statement.~~

~~(2) Bidders and prospective subcontractors shall submit a certification (supported by credible evidence) to the IHA in any instance where the bidder or subcontractor believes it is infeasible to provide Indian preference in subcontracting. The acceptance or rejection by the IHA of the certification shall be final. Rejection shall disqualify the bid from further consideration.~~

~~(g) All bidders must submit with their bids a statement detailing their employment and training opportunities and their plans to provide preference to Indians in implementing the contract; and the number or percentage of Indians anticipated to be employed and trained. Comparable statements from all proposed subcontractors must be submitted. The criteria to be used by the IHA in determining the statement(s)'s adequacy are included as an attachment to this solicitation. Any bid that fails to include the required statement(s), or that includes a statement that does not meet minimum standards required by the IHA shall be rejected as nonresponsive.~~

~~(h) Core crew employees. A core crew employee is an individual who is a bona fide employee of the contractor at the time the bid is submitted; or an individual who was not employed by the bidder at the time the bid was submitted, but who is regularly employed by the bidder in a supervisory or other key skilled position when work is available. Bidders shall submit with their bids a list of all core crew employees.~~

~~(i) Preference in contracting, subcontracting, employment, and training shall apply not only on-site, on the reservation, or within the IHA's jurisdiction, but also to contracts with firms that operate outside these areas (e.g., employment in modular or manufactured housing construction facilities).~~

~~(j) Bidders should contact the IHA to determine if any additional local preference requirements are applicable to this solicitation.~~

~~(k) The IHA [] does [] does not [Contracting Officer check applicable box] maintain lists of Indian-owned economic enterprises and Indian organizations by specialty (e.g., plumbing, electrical, foundations), which are available to bidders to assist them in meeting their responsibility to provide preference in connection with the administration of contracts and subcontracts.~~

The following documents cover all sections in HUD form HUD-5369-A:

- Bid Form (Return Form B.1)
- Contractor Certification (Return Form B.3)
- Non-Collusive Affidavit (Return Form B.4)
- Equal Opportunity Form (Return Form B.5)
- WMBE (Return Form B.11)
- Certification of Payments to Influence Federal Transactions (Contract Form C.7)
- Disclosure of Lobbying Activities (Contract Form C.8)

FAIR HOUSING/ACCESSIBILITY NOTICE

A. SUBJECT:

Accessibility Notice: Section 504 of the Rehabilitation Act of 1973; the Americans with Disabilities Act of 1990; the Architectural Barriers Act of 1968 and the Fair Housing Act of 1988.

B. PURPOSE:

The purpose of this Notice is to remind recipients of Federal funds (in this instance, the Public Housing Authority) of their obligation to comply with pertinent laws and implementing regulations which provide for non-discrimination and accessibility in Federally funded housing and non-housing programs for people with disabilities.

C. NOTIFICATIONS:

Public housing agencies (PHAs) and other recipients of Federal PIH funds are responsible for providing this Notice to all current and future contractors participating in covered programs / activities or performing work covered under the above subject legislation and implementing regulations.

D. TO READ THE FULL TEXT OF THE NOTICE:

Go to www.kcha.org/business/requirements

Scroll down to Fair Housing Laws and Read: **Fair Housing / Accessibility Notice**



PRE-BID CONFERENCE

There will be a Pre-Bid Conference prior to the date of the bid opening for the purpose of providing a general discussion and review of any questions that might pertain to the bidding documents and procedures. All interested contractors are required to attend this meeting after reading the Project Manual. Please bring Project Manual and drawings, if any, to this conference. ATTENDANCE OF THE PRE-BID CONFERENCE IS REQUIRED FOR ACCEPTANCE OF BID FROM THE CONTRACTOR.

PROJECT SITE ADDRESS: **Burndale Homes**
930 18th Place NE
Auburn, WA 98002

CONFERENCE DATE: **April 11, 2024**

TIME: **11:00 AM**

CONTACT NAME: **Carl Frankel**

EMAIL: **Carlf@kcha.org**

PROJECT WAGE RATES

A. DAVIS BACON WAGE RATES (NA)

B. HUD NON-ROUTINE MAINTENANCE WAGES

TYPE OF WAGE RATES: HUD NON-ROUTINE MAINTENANCE

WAGE DATE: 02-01-2024

For contracts entered into pursuant to competitive bidding procedures, the bid opening date “locks-in” the Non-Routine Maintenance Wage Rates that will be used during the course of the project.

NOTE: The awarded bidder will be required to submit, along with other contractual documentation, Form C.9 Certification of Compliance with Washington State Wage Payment Statutes.



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TAX APPLICATIONS

TAX APPLICATIONS

If you have questions regarding the application of the retail sales tax exemption to the King County Housing Authority, please call your personal tax advisor or the Washington State Department of Revenue Office toll-free for one-on-one help: Telephone Information Center 1-800-647-7706.

WAC 458-20-17001

Government contracting -- Construction, installations, or improvements to government real property.

(1) Special business and occupation tax applications and special sales/use tax applications pertain for prime and subcontractors who perform certain construction, installation, and improvements to real property of or for the United States, its instrumentalities, or a county or city housing authority created pursuant to chapter 35.82 RCW. These specific construction activities are excluded from the definition of "sale at retail" under RCW 82.04.050. All other sales to the United States, its agencies or instrumentalities are taxable as retail sales or wholesale sales, as appropriate. See WAC 458-20-190.

(2) The definitions of terms and general provisions contained in WAC 458-20-170 apply equally for this rule, as appropriate. In addition, the terms, "clearing land" and "moving earth" include well drilling, core drilling, and hole digging, whether or not casing materials are installed and any grading or clearing of land, including the razing of buildings or other structures.

Business and Occupation Tax

(3) Amounts derived from constructing, repairing, decorating, or improving new or existing buildings or other structures, including installing or attaching tangible personal property therein or thereto, and clearing land or moving earth, of or for the United States, its instrumentalities, or county or city housing authorities of chapter 35.82 RCW are taxable under the government contracting classification of business and occupation tax. The measure of the tax is the gross contract price.

(4) Government contractors who manufacture or produce any tangible personal property for their own commercial or industrial use as consumers in performing government contracting activities are subject to the manufacturing classification of business and occupation tax measured by the value of the property manufactured or produced. See also, WAC 458-20-134. The manufacturing tax applies even though the property manufactured or produced for commercial use may be subsequently incorporated into buildings or other structures under the government contract and may thereby enhance the gross contract price.

Retail Sales Tax

(5) The retail sales tax does not apply to the gross contract price, or any part thereof, for any business activities taxable under the government contracting classification. Prime and subcontractors who perform such activities are themselves included within the statutory definition of "consumer" under RCW 82.04.190 and are required to pay retail sales tax upon all purchases of materials, including prefabricated and precast items, equipment, and other tangible personal property which is installed, applied, attached, or otherwise incorporated in their government contracting work. This applies for all such purchases of tangible personal property for installation, etc., even though the full purchase price of such property will be reimbursed by the government or housing authority in the gross contract price. It also applies notwithstanding that the contract may contain an immediate title vesting clause which provides that the title to the property vests in the government or housing authority immediately upon its acquisition by the contractor.

(6) Also, the retail sales tax must be paid by government contractors upon their purchases and leases or rentals of tools, consumables, and other tangible personal property used by them as consumers in performing government contracting.

Use Tax

(7) The use tax applies upon the value of all materials, equipment, and other tangible personal property purchased at retail, acquired as a bailee or donee, or manufactured or produced by the contractor for commercial or industrial use in performing government contracting and upon which no retail sales tax has been paid by the contractor, its bailor or donor.

(8) Thus the use tax applies to all property provided by the federal government to the contractor for installation or inclusion in the contract work as well as to all government provided tooling.

(9) The use tax is to be reported and paid by the government contractor who actually installs or applies the property to the contract. Where the actual installing contractor pays the tax, no further use tax is due upon such property by any other contractor.

(10) Note to contractors: The United States Supreme Court has sustained the government contracting tax applications for this state, even though the ultimate economic burden of the tax is borne by the United States Government (Washington v. US, 75 L.Ed 2d 264, 1983).

(11) This rule does not apply to public road construction. See WAC 458-20-171.
[Statutory Authority: RCW 82.32.300. 86-10-016 (Order ET 86-9), § 458-20-17001, filed 5/1/86.]

SECTION 3 - CLAUSE

- A. The work to be performed under this contract is subject to the requirements of Section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. 1701u (Section 3) as implemented by HUD under 24 CFR Part 75 (collectively, the “Section 3 Regulations”). The purpose of Section 3 is to ensure that employment and other economic opportunities generated by HUD assistance or HUD- assisted projects covered by Section 3, shall, to the greatest extent feasible, be directed to low- and very low-income persons, including persons who are recipients of HUD assistance for housing, with preference for both targeted workers living in the service area or neighborhood of the Development and YouthBuild participants.
- B. The parties to this contract agree to comply with Section 3 Regulations. As evidenced by their execution of this contract, the parties to this contract certify that they are under no contractual obligation or other impediment that would prevent them from complying with Section 3 Regulations.
- C. The Contractor agrees to send to each labor organization or representative of workers with which the Contractor has a collective bargaining agreement or other understanding, if any, a notice advising the labor organization or workers' representative of the Contractor's commitments under this Section 3 clause, and will post copies of the notice in conspicuous places at the work site where both employees and applicants for training and employment positions can see the notice. The notice shall describe the Section 3 preference, shall set forth minimum number and job titles subject to hire, availability of apprenticeship and training positions, the qualifications for each; and the name and location of the person(s) taking applications for each of the positions; and the anticipated date the work shall begin.
- D. The Contractor agrees to include this Section 3 clause in every subcontract subject to compliance with Section 3 Regulations, and agrees to take appropriate action, as provided in an applicable provision of the subcontract or in this Section 3 clause, upon a finding that the subcontractor is in violation of Section 3 Regulations. The Contractor will not subcontract with any subcontractor where the Contractor has notice or knowledge that the subcontractor has been found in violation of Section 3 Regulations.
- E. The Contractor will certify that any vacant employment positions, including training positions, that are filled; (1) after the Contractor is selected but before the contract is executed, and (2) with persons other than those to whom Section 3 Regulations require employment opportunities to be directed, were not filled to circumvent the Contractor's obligations under Section 3 Regulations.
- F. Noncompliance with HUD's Section 3 Regulations may result in sanctions, termination of this contract for default, and debarment or suspension from future HUD assisted contracts.
- G. Section 3 Employment and Training. Without limiting Contractor’s obligation to comply with Section 3 Regulations, the Contractor specifically agrees to use best efforts to provide employment and training opportunities to Section 3 workers in the following order of priority:
1. To residents of the KCHA development where the work is being performed;
 2. To residents of other KCHA developments or for residents of Section 8–assisted housing managed by KCHA;
 3. To participants in YouthBuild programs; and

4. To low- and very low-income persons residing within the Puget Sound Region.
- H. Section 3 Contracting. Without limiting Contractor’s obligation to comply with Section 3 Regulations, Contractor specifically agrees to use best efforts to award contracts and subcontracts to business concerns that provide economic opportunities to Section 3 workers in the following order of priority:
1. To Section 3 business concerns that provide economic opportunities for KCHA residents of the development where the work is being performed;
 2. To Section 3 business concerns that provide economic opportunities for KCHA residents of other KCHA developments or Section–8 assisted housing managed by KCHA;
 3. To YouthBuild programs; and
 4. To Section 3 business concerns that provide economic opportunities to Section 3 workers residing within the Puget Sound Region.

SECTION 3 – SUPPLEMENTAL INSTRUCTIONS TO BIDDERS

LOCAL RESIDENT HIRING AND CONTRACTING (SECTION 3) REQUIREMENTS:

The Owner’s or King County Housing Authority’s (KCHA) goal for this project is to participate in Section 3 activities by including efforts that will provide employment opportunities to Section 3 workers and contracting opportunities to Section 3 businesses. (Section 3 workers and Section 3 Businesses are defined below and in 24 CFR 75.)

The Contractor and its Subcontractors at all tiers for this specific contract will partner with the Owner to contribute to the Owner’s overall “Section 3” goals, as described below.

Because local hiring and contracting requirements are defined under Section 3 of the Housing and Community Development Act of 1968, these requirements are commonly referred to as Section 3. The definitions and goals are defined in Sections A and B below. Section C describes the process. Section D discusses consequences of non-compliance with Section 3 goals and Section E describes some local hiring resources. For more information on the Owner’s employment and training efforts, or compliance with Section 3, please contact KCHA by email at Section3@kcha.org.

A. Section 3 Definitions

For the purposes of this solicitation:

1. “Section 3 worker” means any worker who currently fits or when hired within the past five years fit at least one of the following categories, as documented:
 - a. The worker's income for the previous or annualized calendar year is below the income limit established by HUD. (See Pg. 4 of this section for HUD income limits)
 - b. The worker is employed by a Section 3 business concern.
 - c. The worker is a YouthBuild participant.
2. “Targeted Section 3 worker” means a Section 3 worker who is:
 - a. A worker employed by a Section 3 business concern; or
 - b. A worker who currently fits or when hired fit at least one of the following categories, as documented within the past five years:
 - i. A resident of public housing or Section 8–assisted housing;
 - ii. A resident of other public housing projects or Section 8–assisted housing managed by the PHA that is providing the assistance; or
 - iii. A YouthBuild participant.
3. “Business concern” means a business entity formed in accordance with State law, and which is licensed under State, county, or municipal law to engage in the type of business activity for which it was formed.
4. “Section 3 business concern” means a business concern meeting at least one of the following criteria, documented within the last six-month period:
 - a. It is at least 51 percent owned and controlled by low- or very low-income persons;
 - b. Over 75 percent of the labor hours performed for the business over the prior three-month period are performed by Section 3 workers; or
 - c. It is a business at least 51 percent owned and controlled by current public housing residents or residents who currently live in Section 8–assisted housing.
5. The greatest extent feasible means:
 - a. Completing and submitting a Section 3 Work Plan to designated Owner staff prior to contract signing (template to be provided by the Owner).
 - b. If contracting with Section 3 business concerns:
 - i. Placing qualified business enterprises on solicitation lists.

- ii. Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation of qualified Section 3 businesses.
- iii. Using the services and assistance of the U.S. Small Business Administration, the Minority Business Development Agency of the U.S. Department of Commerce and State and local governmental small business agencies to identify potential Section 3 businesses.
- iv. Ensuring that small and minority businesses and women’s business enterprises are solicited whenever they are potential sources.
- c. If hiring Section 3 workers:
 - i. Post job opportunities for a mutually agreed upon length of time through the Owner’s employment agency service partners and at project site as appropriate.
 - ii. Conduct interviews with qualified Section 3 workers.
 - iii. Notify designated Owner (KCHA) staff of all new hires.
- d. For both: Complete Section 3 compliance and tracking paperwork as necessary.

B. Section 3 Goals

The Owner will require, to the greatest extent feasible, for the Contractor to demonstrate participation in the local hiring and contracting requirements as defined under Section 3 of the Housing and Community Development Act of 1968.

1. Bidders shall demonstrate compliance with the Section 3 goals by making a best faith effort to achieve the following benchmarks:
 - a. Twenty-five (25) percent or more of the total number of labor hours worked by all workers are Section 3 workers; and
 - b. Five (5) percent or more of the total number of labor hours worked by all workers are Targeted Section 3 workers.
2. The successful bidder and covered subcontractors shall direct their efforts to provide Section 3 employment opportunities to Section 3 workers in the following order of priority:
 - a. First Priority: Current residents of KCHA development(s) benefitting from project.
 - b. Second Priority: Other Owner public housing and Section 8 voucher- assisted residents.
 - c. Third Priority: Participants in HUD Youthbuild programs.
 - d. Fourth Priority: Other low or very low income individuals in the Housing Authorities metropolitan area (Puget Sound region) who are at or below the Area’s Low Income calculation.
3. The Contractor and covered subcontractors shall direct their efforts to award contracts to Section 3 business concerns in the following order of priority:
 - a. First Priority: To Section 3 business concern that provides economic opportunities for KCHA residents at the site(s) where the work will take place.
 - b. Second Priority: To Section 3 business concerns that provide economic opportunities for residents of other KCHA developments or Section–8 assisted housing managed by KCHA.
 - c. Third Priority: A subcontractor that is a HUD Youthbuild company.
 - d. Fourth Priority: To Section 3 business concerns that provide economic opportunities to Section 3 workers residing within the metropolitan area (Puget Sound).
4. Sealed Bidding
In order for KCHA to meet or exceed its adopted goal that 3% of all non-construction contracts and 10% of construction contracts paid in whole or in part with HUD funds be awarded to Section 3 businesses, KCHA may elect, on a contract-by-contract basis, to award a competitively bid contract to a responsible bidder other than the lowest responsive bidder by using the following procedure:

Bids shall be solicited from both Section 3 and non-Section 3 business concerns. KCHA may award the contract to the qualified Section 3 business concern with the highest priority ranking



and with the lowest responsive bid if:

- a. the specific project or KCHA as an agency is otherwise not expected to meet Section 3 utilization goals; and,
- b. the bid is within the maximum total contract price established in KCHA’s budget for the specific project for which bids are being taken; and,
- c. the sources of funds for the project are such that there are no conflicts between this procedure and applicable state law; and,
- d. the bid is not more than five percent (5%) higher than the total bid price for the lowest responsive bid from any responsible, bidder.

If no responsive bid by a Section 3 business concern meets the requirements above, the contract shall be awarded to a responsible bidder with the lowest responsive bid.

C. The Process

- 1. Contract is awarded to lowest responsible Bidder.
- 2. Section 3 orientation with Owner. Once the Notice of Intent to Award has been issued to the successful Bidder, Owner’s staff will contact that Bidder and arrange for a meeting to discuss local hiring and contracting goals and strategies in greater detail. At this meeting, the Contractor will be provided a packet that will include a Section 3 overview, Section 3 certification form, and all Section 3 compliance and tracking forms that will be used throughout the contract.
- 3. Contractor reports on Section 3 activities monthly.

D. Penalties for Non-compliance

Owner’s commitment to this program is reflected in part by the cost of administering the program. Failure to make a good faith effort to the greatest extent feasible negates such funding and impairs the Owner’s efforts to promote workforce diversity and to provide fair and equal opportunities to the public as a whole as a result of the expenditure of public funds. Therefore, if awarded this contract, the parties will mutually agree that failure to meet the requirements, including but not limited to the submission of required documentation, constitutes a material breach of contract. In the event of such breach, Owner may take any or all of the actions as contained in the Contract Documents.

E. Local Hiring Resources

Contact KCHA by email at Section3@kcha.org to obtain a list of local hiring resources.

SECTION 3 – 2023 INCOME GUIDELINES

Location	Income Limit 1 person		
	Extremely Low Income	Very Low Income	Low Income
Kitsap County (Bremerton, Silverdale)	\$22,900	\$38,150	\$61,000
King/ Snohomish Counties (Seattle, Bellevue, Everett)	\$28,800	\$47,950	\$70,650
Pierce County (Tacoma)	\$22,600	\$37,650	\$60,200
Skagit County (Sedro-Woolley)	\$19,150	\$31,900	\$51,050
Thurston County (Olympia, Tumwater)	\$21,550	\$35,900	\$57,400

PROGRESS PAYMENT SUSPENSION CRITERIA

CRITERIA will include:

1. Non-submittal of Certified Payroll documents (see Informational Form A.12)
2. Non-submittal of Section 3 Labor Hours Benchmark Status Report (see Section C for sample)
3. No lien release with Application for Payment
4. Insurance expires
5. Federal and/or State liens on general contractor
6. Suspension/expiration of WA State contractor's license
7. Work not accomplished
8. Work not approved/ accepted
9. Repeated safety violations not resolved if warnings from KCHA are ignored
10. Incorrect Application for Payment or invoice (whichever is applicable)
11. Non-submittal of the GC Certification Upon Application for Payment (see Section E, Division 1 for sample of KCHA Pay Application which includes the continuation sheet, the payment application and the GC Certification)

EXECUTIVE ORDER 11246 (as AMENDED)

---DISCLAIMER--- <http://www.dol.gov/general/disclaim#statutory>

Executive Order 11246 - Equal Employment Opportunity

SOURCE: The provisions of Executive Order 11246 of Sept. 24, 1965, appear at 30 FR 12319, 12935, 3 CFR, 1964-1965 Comp., p.339, unless otherwise noted.

Under and by virtue of the authority vested in me as President of the United States by the Constitution and statutes of the United States, it is ordered as follows:

Part I - Nondiscrimination in Government Employment

[Part I superseded by EO 11478 of Aug. 8, 1969, 34 FR 12985, 3 CFR, 1966-1970 Comp., p. 803]

Part II - Nondiscrimination in Employment by Government Contractors and Subcontractors**Subpart A - Duties of the Secretary of Labor**

SEC. 201. The Secretary of Labor shall be responsible for the administration and enforcement of Parts II and III of this Order. The Secretary shall adopt such rules and regulations and issue such orders as are deemed necessary and appropriate to achieve the purposes of Parts II and III of this Order.

[Sec. 201 amended by EO 12086 of Oct. 5, 1978, 43 FR 46501, 3 CFR, 1978 Comp., p. 230]

Subpart B - Contractors' Agreements

SEC. 202. Except in contracts exempted in accordance with Section 204 of this Order, all Government contracting agencies shall include in every Government contract hereafter entered into the following provisions:

During the performance of this contract, the contractor agrees as follows:

(1) The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex or national origin. Such action shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the contracting officer setting forth the provisions of this nondiscrimination clause.

(2) The contractor will, in all solicitations or advancements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex or national origin.

(3) The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice, to be provided by the agency contracting officer, advising the labor union or workers' representative of the contractor's commitments under Section 202 of Executive Order No. 11246 of September 24, 1965, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(4) The contractor will comply with all provisions of Executive Order No. 11246 of Sept. 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.



KCHA – BURNDALE HOMES OFFICE TI & ENVELOPE
CAPITAL CONSTRUCTION DEPARTMENT

(5) The contractor will furnish all information and reports required by Executive Order No. 11246 of September 24, 1965, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the contracting agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(6) In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of such rules, regulations, or orders, this contract may be cancelled, terminated, or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts in accordance with procedures authorized in Executive Order No. 11246 of Sept. 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order No. 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

(7) The contractor will include the provisions of paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order No. 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as may be directed by the Secretary of Labor as a means of enforcing such provisions including sanctions for noncompliance: Provided, however, that in the event the contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction, the contractor may request the United States to enter into such litigation to protect the interests of the United States."

[Sec. 202 amended by EO 11375 of Oct. 13, 1967, 32 FR 14303, 3 CFR, 1966-1970 Comp., p. 684, EO 12086 of Oct. 5, 1978, 43 FR 46501, 3 CFR, 1978 Comp., p. 230]

SEC. 203. Each contractor having a contract containing the provisions prescribed in Section 202 shall file, and shall cause each of his subcontractors to file, Compliance Reports with the contracting agency or the Secretary of Labor as may be directed. Compliance Reports shall be filed within such times and shall contain such information as to the practices, policies, programs, and employment policies, programs, and employment statistics of the contractor and each subcontractor, and shall be in such form, as the Secretary of Labor may prescribe.

(b) Bidders or prospective contractors or subcontractors may be required to state whether they have participated in any previous contract subject to the provisions of this Order, or any preceding similar Executive order, and in that event to submit, on behalf of themselves and their proposed subcontractors, Compliance Reports prior to or as an initial part of their bid or negotiation of a contract.

(c) Whenever the contractor or subcontractor has a collective bargaining agreement or other contract or understanding with a labor union or an agency referring workers or providing or supervising apprenticeship or training for such workers, the Compliance Report shall include such information as to such labor union's or agency's practices and policies affecting compliance as the Secretary of Labor may prescribe: Provided, That to the extent such information is within the exclusive possession of a labor union or an agency referring workers or providing or supervising apprenticeship or training and such labor union or agency shall refuse to furnish such information to the contractor, the contractor shall so certify to the Secretary of Labor as part of its Compliance Report and shall set forth what efforts he has made to obtain such information.

(d) The Secretary of Labor may direct that any bidder or prospective contractor or subcontractor shall submit, as part of his Compliance Report, a statement in writing, signed by an authorized officer or agent on behalf of any labor union or any agency referring workers or providing or supervising apprenticeship or other training, with which the bidder or prospective contractor deals, with supporting information, to the effect that the signer's practices and policies do not discriminate on the grounds of race, color, religion, sex or national origin, and that the signer either will affirmatively cooperate in the implementation of the policy and provisions of this Order or that it consents and agrees that recruitment, employment, and the terms and conditions of employment under the proposed contract shall be in accordance with the purposes and



provisions of the order. In the event that the union, or the agency shall refuse to execute such a statement, the Compliance Report shall so certify and set forth what efforts have been made to secure such a statement and such additional factual material as the Secretary of Labor may require.

[Sec. 203 amended by EO 11375 of Oct. 13, 1967, 32 FR 14303, 3 CFR, 1966-1970 Comp., p. 684; EO 12086 of Oct. 5, 1978, 43 FR 46501, 3 CFR, 1978 Comp., p. 230]

SEC. 204 (a) The Secretary of Labor may, when the Secretary deems that special circumstances in the national interest so require, exempt a contracting agency from the requirement of including any or all of the provisions of Section 202 of this **Order** in any specific contract, subcontract, or purchase **order**.

(b) The Secretary of Labor may, by rule or regulation, exempt certain classes of contracts, subcontracts, or purchase orders (1) whenever work is to be or has been performed outside the United States and no recruitment of workers within the limits of the United States is involved; (2) for standard commercial supplies or raw materials; (3) involving less than specified amounts of money or specified numbers of workers; or (4) to the extent that they involve subcontracts below a specified tier.

(c) Section 202 of this **Order** shall not apply to a Government contractor or subcontractor that is a religious corporation, association, educational institution, or society, with respect to the employment of individuals of a particular religion to perform work connected with the carrying on by such corporation, association, educational institution, or society of its activities. Such contractors and subcontractors are not exempted or excused from complying with the other requirements contained in this **Order**.

(d) The Secretary of Labor may also provide, by rule, regulation, or **order**, for the exemption of facilities of a contractor that are in all respects separate and distinct from activities of the contractor related to the performance of the contract: provided, that such an exemption will not interfere with or impede the effectuation of the purposes of this **Order**: and provided further, that in the absence of such an exemption all facilities shall be covered by the provisions of this **Order**."

[Sec. 204 amended by EO 13279 of Dec. 16, 2002, 67 FR 77141, 3 CFR, 2002 Comp., p. 77141 - 77144]

Subpart C - Powers and Duties of the Secretary of Labor and the Contracting Agencies

SEC. 205. The Secretary of Labor shall be responsible for securing compliance by all Government contractors and subcontractors with this Order and any implementing rules or regulations. All contracting agencies shall comply with the terms of this Order and any implementing rules, regulations, or orders of the Secretary of Labor. Contracting agencies shall cooperate with the Secretary of Labor and shall furnish such information and assistance as the Secretary may require.

[Sec. 205 amended by EO 12086 of Oct. 5, 1978, 43 FR 46501, 3 CFR, 1978 Comp., p. 230]

SEC. 206. The Secretary of Labor may investigate the employment practices of any Government contractor or subcontractor to determine whether or not the contractual provisions specified in Section 202 of this Order have been violated. Such investigation shall be conducted in accordance with the procedures established by the Secretary of Labor.

(b) The Secretary of Labor may receive and investigate complaints by employees or prospective employees of a Government contractor or subcontractor which allege discrimination contrary to the contractual provisions specified in Section 202 of this Order.

[Sec. 206 amended by EO 12086 of Oct. 5, 1978, 43 FR 46501, 3 CFR, 1978 Comp., p. 230]

SEC. 207. The Secretary of Labor shall use his/her best efforts, directly and through interested Federal, State, and local agencies, contractors, and all other available instrumentalities to cause any labor union



engaged in work under Government contracts or any agency referring workers or providing or supervising apprenticeship or training for or in the course of such work to cooperate in the implementation of the purposes of this Order. The Secretary of Labor shall, in appropriate cases, notify the Equal Employment Opportunity Commission, the Department of Justice, or other appropriate Federal agencies whenever it has reason to believe that the practices of any such labor organization or agency violate Title VI or Title VII of the Civil Rights Act of 1964 or other provision of Federal law.

[Sec. 207 amended by EO 12086 of Oct. 5, 1978, 43 FR 46501, 3 CFR, 1978 Comp., p. 230]

SEC. 208. The Secretary of Labor, or any agency, officer, or employee in the executive branch of the Government designated by rule, regulation, or order of the Secretary, may hold such hearings, public or private, as the Secretary may deem advisable for compliance, enforcement, or educational purposes.

(b) The Secretary of Labor may hold, or cause to be held, hearings in accordance with Subsection of this Section prior to imposing, ordering, or recommending the imposition of penalties and sanctions under this Order. No order for debarment of any contractor from further Government contracts under Section 209(6) shall be made without affording the contractor an opportunity for a hearing.

Subpart D - Sanctions and Penalties

SEC. 209. In accordance with such rules, regulations, or orders as the Secretary of Labor may issue or adopt, the Secretary may:

(1) Publish, or cause to be published, the names of contractors or unions which it has concluded have complied or have failed to comply with the provisions of this Order or of the rules, regulations, and orders of the Secretary of Labor.

(2) Recommend to the Department of Justice that, in cases in which there is substantial or material violation or the threat of substantial or material violation of the contractual provisions set forth in Section 202 of this Order, appropriate proceedings be brought to enforce those provisions, including the enjoining, within the limitations of applicable law, of organizations, individuals, or groups who prevent directly or indirectly, or seek to prevent directly or indirectly, compliance with the provisions of this Order.

(3) Recommend to the Equal Employment Opportunity Commission or the Department of Justice that appropriate proceedings be instituted under Title VII of the Civil Rights Act of 1964.

(4) Recommend to the Department of Justice that criminal proceedings be brought for the furnishing of false information to any contracting agency or to the Secretary of Labor as the case may be.

(5) After consulting with the contracting agency, direct the contracting agency to cancel, terminate, suspend, or cause to be cancelled, terminated, or suspended, any contract, or any portion or portions thereof, for failure of the contractor or subcontractor to comply with equal employment opportunity provisions of the contract. Contracts may be cancelled, terminated, or suspended absolutely or continuance of contracts may be conditioned upon a program for future compliance approved by the Secretary of Labor.

(6) Provide that any contracting agency shall refrain from entering into further contracts, or extensions or other modifications of existing contracts, with any noncomplying contractor, until such contractor has satisfied the Secretary of Labor that such contractor has established and will carry out personnel and employment policies in compliance with the provisions of this Order.

(b) Pursuant to rules and regulations prescribed by the Secretary of Labor, the Secretary shall make reasonable efforts, within a reasonable time limitation, to secure compliance with the contract provisions of this Order by methods of conference, conciliation, mediation, and persuasion before proceedings shall be instituted under subsection (a)(2) of this Section, or before a contract shall be cancelled or terminated in whole or in part under subsection (a)(5) of this Section.

[Sec. 209 amended by EO 12086 of Oct. 5, 1978, 43 FR 46501, 3 CFR, 1978 Comp., p. 230]

SEC. 210. Whenever the Secretary of Labor makes a determination under Section 209, the Secretary shall promptly notify the appropriate agency. The agency shall take the action directed by the Secretary and shall report the results of the action it has taken to the Secretary of Labor within such time as the Secretary shall specify. If the contracting agency fails to take the action directed within thirty days, the Secretary may take the action directly.

[Sec. 210 amended by EO 12086 of Oct. 5, 1978, 43 FR 46501, 3 CFR, 1978 Comp., p. 230]

SEC. 211. If the Secretary shall so direct, contracting agencies shall not enter into contracts with any bidder or prospective contractor unless the bidder or prospective contractor has satisfactorily complied with the provisions of this Order or submits a program for compliance acceptable to the Secretary of Labor.

[Sec. 211 amended by EO 12086 of Oct. 5, 1978, 43 FR 46501, 3 CFR, 1978 Comp., p. 230]

SEC. 212. When a contract has been cancelled or terminated under Section 209(a)(5) or a contractor has been debarred from further Government contracts under Section 209(a)(6) of this Order, because of noncompliance with the contract provisions specified in Section 202 of this Order, the Secretary of Labor shall promptly notify the Comptroller General of the United States.

[Sec. 212 amended by EO 12086 of Oct. 5, 1978, 43 FR 46501, 3 CFR, 1978 Comp., p. 230]

Subpart E - Certificates of Merit

SEC. 213. The Secretary of Labor may provide for issuance of a United States Government Certificate of Merit to employers or labor unions, or other agencies which are or may hereafter be engaged in work under Government contracts, if the Secretary is satisfied that the personnel and employment practices of the employer, or that the personnel, training, apprenticeship, membership, grievance and representation, upgrading, and other practices and policies of the labor union or other agency conform to the purposes and provisions of this Order.

SEC. 214. Any Certificate of Merit may at any time be suspended or revoked by the Secretary of Labor if the holder thereof, in the judgment of the Secretary, has failed to comply with the provisions of this Order.

SEC. 215. The Secretary of Labor may provide for the exemption of any employer, labor union, or other agency from any reporting requirements imposed under or pursuant to this Order if such employer, labor union, or other agency has been awarded a Certificate of Merit which has not been suspended or revoked.

Part III - Nondiscrimination Provisions in Federally Assisted Construction Contracts

SEC. 301. Each executive department and agency, which administers a program involving Federal financial assistance shall require as a condition for the approval of any grant, contract, loan, insurance, or guarantee thereunder, which may involve a construction contract, that the applicant for Federal assistance undertake and agree to incorporate, or cause to be incorporated, into all construction contracts paid for in whole or in part with funds obtained from the Federal Government or borrowed on the credit of the Federal Government pursuant to such grant, contract, loan, insurance, or guarantee, or undertaken pursuant to any Federal program involving such grant, contract, loan, insurance, or guarantee, the provisions prescribed for Government contracts by Section 202 of this Order or such modification thereof, preserving in substance the contractor's obligations thereunder, as may be approved by the Secretary of Labor, together with such additional provisions as the Secretary deems appropriate to establish and protect the interest of the United States in the enforcement of those obligations. Each such applicant shall also undertake and agree (1) to assist and cooperate actively with the Secretary of Labor in obtaining the compliance of contractors and subcontractors with those contract provisions and with the rules, regulations and relevant orders of the Secretary, (2) to obtain and to furnish to the Secretary of Labor such information as the Secretary may require



KCHA – BURNDALE HOMES OFFICE TI & ENVELOPE
CAPITAL CONSTRUCTION DEPARTMENT

for the supervision of such compliance, (3) to carry out sanctions and penalties for violation of such obligations imposed upon contractors and subcontractors by the Secretary of Labor pursuant to Part II, Subpart D, of this Order, and (4) to refrain from entering into any contract subject to this Order, or extension or other modification of such a contract with a contractor debarred from Government contracts under Part II, Subpart D, of this Order.

[Sec. 301 amended by EO 12086 of Oct. 5, 1978, 43 FR 46501, 3 CFR, 1978 Comp., p. 230]

SEC. 302. "Construction contract" as used in this Order means any contract for the construction, rehabilitation, alteration, conversion, extension, or repair of buildings, highways, or other improvements to real property.

(b) The provisions of Part II of this Order shall apply to such construction contracts, and for purposes of such application the administering department or agency shall be considered the contracting agency referred to therein.

(c) The term "applicant" as used in this Order means an applicant for Federal assistance or, as determined by agency regulation, other program participant, with respect to whom an application for any grant, contract, loan, insurance, or guarantee is not finally acted upon prior to the effective date of this Part, and it includes such an applicant after he/she becomes a recipient of such Federal assistance.

SEC. 303. The Secretary of Labor shall be responsible for obtaining the compliance of such applicants with their undertakings under this Order. Each administering department and agency is directed to cooperate with the Secretary of Labor and to furnish the Secretary such information and assistance as the Secretary may require in the performance of the Secretary's functions under this Order.

(b) In the event an applicant fails and refuses to comply with the applicant's undertakings pursuant to this Order, the Secretary of Labor may, after consulting with the administering department or agency, take any or all of the following actions: (1) direct any administering department or agency to cancel, terminate, or suspend in whole or in part the agreement, contract or other arrangement with such applicant with respect to which the failure or refusal occurred; (2) direct any administering department or agency to refrain from extending any further assistance to the applicant under the program with respect to which the failure or refusal occurred until satisfactory assurance of future compliance has been received by the Secretary of Labor from such applicant; and (3) refer the case to the Department of Justice or the Equal Employment Opportunity Commission for appropriate law enforcement or other proceedings.

(c) In no case shall action be taken with respect to an applicant pursuant to clause (1) or (2) of subsection (b) without notice and opportunity for hearing.

[Sec. 303 amended by EO 12086 of Oct. 5, 1978, 43 FR 46501, 3 CFR, 1978 Comp., p. 230]

SEC. 304. Any executive department or agency which imposes by rule, regulation, or order requirements of nondiscrimination in employment, other than requirements imposed pursuant to this Order, may delegate to the Secretary of Labor by agreement such responsibilities with respect to compliance standards, reports, and procedures as would tend to bring the administration of such requirements into conformity with the administration of requirements imposed under this Order: Provided, That actions to effect compliance by recipients of Federal financial assistance with requirements imposed pursuant to Title VI of the Civil Rights Act of 1964 shall be taken in conformity with the procedures and limitations prescribed in Section 602 thereof and the regulations of the administering department or agency issued thereunder.

Part IV - Miscellaneous

SEC. 401. The Secretary of Labor may delegate to any officer, agency, or employee in the Executive branch of the Government, any function or duty of the Secretary under Parts II and III of this Order.



[Sec. 401 amended by EO 12086 of Oct. 5, 1978, 43 FR 46501, 3 CFR, 1978 Comp., p. 230]

SEC. 402. The Secretary of Labor shall provide administrative support for the execution of the program known as the "Plans for Progress."

SEC. 403. Executive Orders Nos. 10590 (January 19, 1955), 10722 (August 5, 1957), 10925 (March 6, 1961), 11114 (June 22, 1963), and 11162 (July 28, 1964), are hereby superseded and the President's Committee on Equal Employment Opportunity established by Executive Order No. 10925 is hereby abolished. All records and property in the custody of the Committee shall be transferred to the Office of Personnel Management and the Secretary of Labor, as appropriate.

(b) Nothing in this Order shall be deemed to relieve any person of any obligation assumed or imposed under or pursuant to any Executive Order superseded by this Order. All rules, regulations, orders, instructions, designations, and other directives issued by the President's Committee on Equal Employment Opportunity and those issued by the heads of various departments or agencies under or pursuant to any of the Executive orders superseded by this Order, shall, to the extent that they are not inconsistent with this Order, remain in full force and effect unless and until revoked or superseded by appropriate authority. References in such directives to provisions of the superseded orders shall be deemed to be references to the comparable provisions of this Order.

[Sec. 403 amended by EO 12107 of Dec. 28, 1978, 44 FR 1055, 3 CFR, 1978 Comp., p. 264]

SEC. 404. The General Services Administration shall take appropriate action to revise the standard Government contract forms to accord with the provisions of this Order and of the rules and regulations of the Secretary of Labor.

SEC. 405. This Order shall become effective thirty days after the date of this Order.

EXECUTIVE ORDER 13496

New Employee Notification Requirements for Federal Contractors and Subcontractors

Under Department of Labor regulations, www.gpo.gov/fdsys/pkg/FR-2010-05-20/pdf/2010-11639.pdf, contractors holding contracts with the Federal government and their subcontractors are required, beginning on June 21, 2010, to post notices informing employees of their rights under the National Labor Relations Act (NLRA). The notice to employees required by the regulations inform employees about their rights under the NLRA to form, join and assist a union and to bargain collectively with their employer; provides examples of unlawful employer and union conduct that interferes with those rights; and indicates how employees can contact the National Labor Relations Board, the Federal agency that enforces those rights, with questions or to file complaints. Contractors that violate the Labor Department's regulations requiring employee notification of these rights may be subject to sanctions, including suspension or cancellation of the contract.

The regulations require Federal contractors:

1. to post the required employee notice conspicuously in and around their plants and offices so that it is prominent and readily seen by employees who are covered by the NLRA and who engage in contract-related activity;
2. to post the required notice electronically if they communicate with employees electronically, which requires posting a link to the Department of Labor's website containing the employee notice where they customarily place other electronic notices to employees about their jobs; and
3. to insert provisions in their subcontracts that require their subcontractors to comply with the same posting requirements as well.

Contractors and subcontractors may obtain the required poster in any of the three ways. The Labor Department will print posters and provide them to Federal contracting departments and agencies for supply to contractors and subcontractors. In addition, contractors and subcontractors can request posters from the field offices of the Labor Department's Office of Federal Contract Compliance Programs (<http://www.dol.gov/ofccp/contacts/ofnation2.htm>), or Office of Labor-Management Standards (OLMS) (<http://www.dol.gov/olms/contacts/lmskeyp.htm>). Finally, contractors and subcontractors can acquire the poster from OLMS' website by downloading it from <http://www.dol.gov/olms> or by calling (202) 693-0123. Compliance information for contractors and subcontractors can be found at OFCCP's website [Construction Compliance Checks Frequently Asked Questions | U.S. Department of Labor \(dol.gov\)](#)

EXECUTIVE ORDER 13496 - FREQUENTLY ASKED QUESTIONS

[Executive Order 13496 Frequently Asked Questions | U.S. Department of Labor \(dol.gov\)](#)

REQUIREMENTS FOR PUBLIC WORKS PROJECTS

REQUIREMENTS FOR PUBLIC WORKS PROJECTS – All projects require that the contractor and all subcontractors performing labor on the project site must file the Statement of Intent with L&I regardless of the wage determination is set as HUD Non-Routine Maintenance, State Prevailing wages or Davis-Bacon.

Statement of Intent to Pay Prevailing Wages - filed at the start of the project

- A. **Filed Immediately** after the contract is awarded and before work begins, if that is possible. **NO PAYMENTS CAN BE MADE** until the contractor has submitted an Intent form that has been approved by the Industrial Statistician.
- B. **SUBCONTRACTORS must file using the PRIME CONTRACTOR’S “Form ID Number” after the PRIME has received approval for their Statement of Intent.**
- C. Wage payment requirements for this project are determined to be
 - 1. **Davis-Bacon (NA)**
 - 2. **HUD Non-Routine Maintenance**
 - a. The Intent is then filed with the question *“Is this a Housing Act of 1937 Project?” answered as Yes.*
 - b. See the Informational Form A.13b for the sample of Intent to Pay Prevailing Wages with the highlighted statement shown on the form.

Certified Payroll - filed each week for the duration of the project

- A. Submitted on a weekly basis, beginning with the first week that the Contractor works on the Project, and for every week afterward until the Contractor completes the Work.
- B. Consisting of a certified payroll report and a statement of compliance.
- C. See Informational Form A.13c for more information.
NOTE: These requirements will also apply to HUD Non-Routine Maintenance Wages.


Affidavit of Wages Paid - filed at the end of the project

- A. Submitted at the end of the project once all of the work has been completed, showing the wages paid to employees who worked on the project.

SCREEN SHOTS OF INTENT

File Intent: Enter the Project Details

STEP 1 Select Contract Type	STEP 2 Project Details	STEP 3 Intent Details	STEP 4 Add Wages	STEP 5 Review Intent	STEP 6 Payment Details
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Project Details**Contract Type****Bid-Build (Traditional)**Bid Due Date (required) Contract Award Date (required) 

Awarding Agency


KING COUNTY HOUSING AUTHORITY

Awarding Agency Address

700 ANDOVER PARK SW TUKWILA, WA – 98188

Awarding Agency Contact Name (required)

Awarding Agency Contact Phone Number (required)

 Ext Awarding Agency Contract Number (required) 

Project Name (required)


Is apprentice utilization required? (required)

 Yes No

Is OMWBE utilization required? (required)

 Yes No

Is this a Housing Act of 1937 project? (required)

 Yes NoProject Site Address or Directions 

0/1000

DAVIS BACON & RELATED ACTS PROVISIONS; CONTRACT WORK HOURS & SAFETY STANDARDS ACT; GENERAL INFORMATION

A. The Davis-Bacon Act (DBA)*

The DBA, enacted in 1931, applies to contracts in excess of \$2,000 for construction, alteration, and/or repair of public buildings or public works, including painting and decorating, to which the United States or the District of Columbia is a party. This type of applicability is referred to as direct Davis-Bacon Act or DBA coverage. An example of DBA coverage is when HUD contracts directly for repairs to HUD-owned properties. HUD's Office of the Chief Procurement Officer manages these types of contracts. The DBA requires that the advertised specifications for such contracts contain a provision stating that the minimum wages to be paid to various classes of laborers and mechanics must be based upon the wages found to be prevailing by the Secretary of Labor.

Most HUD construction work is not covered by the DBA since HUD does not usually contract directly for construction work. Rather, Davis-Bacon wage rates apply to HUD programs because of prevailing wage requirements expressed in HUD "Related Acts" such as the U. S. Housing Act of 1937 and the Housing and Community Development Act of 1974, as amended. The Related Acts (referred to throughout this Guide as the Davis-Bacon and Related Acts or DBRA) are discussed further in Section 5.9.

The DBA includes provisions that:

1. Require the contractor or subcontractor to pay all mechanics and laborers at least once per week;
2. Prohibit contractors or subcontractors from taking deductions or rebates from wages earned by laborers and mechanics;
3. Require the contractor or subcontractor to pay Davis-Bacon wages to all laborers and mechanics employed on the site of the work regardless of their skill level, and regardless of any contractual relationship alleged to exist between the laborers and mechanics and the contractor or subcontractor;
4. Require the contractor or subcontractor to post the scale of wages to be paid (i.e., the applicable Davis-Bacon wage decision) in a prominent and accessible place at the work site;
5. Define prevailing wages to include fringe benefits;
6. Permit the withholding of payments due to the contractor on account of wage restitution that may be found due to the laborers and mechanics;
7. Permit the payment of wage restitution from amounts withheld from contract payments;
8. Permit the termination of the contract where it is found that any laborer or mechanic is underpaid; and
9. Permit the debarment of persons or firms found to have disregarded their obligations to employees and subcontractors.

B. The Contract Work Hours and Safety Standards Act (CWHSSA)

The CWHSSA applies to both direct federal contracts and to federally-assisted contracts where those contracts require or involve the employment of laborers and mechanics and where federal wage standards (e.g., Davis-Bacon or HUD-determined prevailing wage rates) are applicable.

CWHSSA provisions apply to all laborers and mechanics, including watchmen and guards, employed by any contractor or subcontractor. CWHSSA also applies to maintenance laborers and mechanics employed by contractors or subcontractors engaged in the operation of Public Housing Agencies (PHA), Tribally Designated Housing Entities (TDHE), and Indian Housing Agencies

(IHA) developments. CWHSSA O/T provisions do not apply to laborers and mechanics employed directly by PHAs or IHAs. However, O/T provisions generally apply to these workers under the Fair Labor Standards Act (FLSA). HUD does not have authority to enforce FLSA violations. Refer complaints of FLSA violations to DOL, Wage and Hour Division.

CWHSSA provides that all O/T hours (defined as hours worked in excess of 40 during any workweek on the CWHSSA-covered project site) must be compensated at a rate not less than one and one-half times the regular basic rate of pay. Where CWHSSA O/T provisions are applicable, compensatory time in lieu of premium pay for O/T hours is not permissible. In the event of O/T violations, the CWHSSA renders the contractor liable to the underpaid workers for wage restitution and to the United States Government for liquidated damages computed per person per day at a rate that DOL publishes annually. It is a federal criminal misdemeanor to intentionally violate CWHSSA standards.

Exemptions:

1. CWHSSA O/T provisions do not apply where the federal assistance is only in the nature of a loan guarantee or insurance.
2. CWHSSA O/T provisions do not apply to prime contracts of \$100,000 or less.

*The Davis Bacon provisions also apply to HUD-determined prevailing wage rates.

<http://www.ecfr.gov/current/title-29>

C. GENERAL INFORMATION

1. Employer Responsibilities

- a. All employers (contractors, subcontractors, and any lower-tier subcontractors) are required to pay all laborers and mechanics employed or working on the site of the work unconditionally and not less often than once per week the full amount of wages and bona fide fringe benefits computed at rates not less than those contained in the wage decision.
- b. Employers must prepare, certify, and submit weekly payroll reports reflecting all the laborers and mechanics (employees) engaged in construction on the site of the work.
- c. Employers may also be required to submit related documentation in order to demonstrate compliance.

2. Agency Responsibilities

- a. State, tribal, and local contracting agencies (LCAs) that administer HUD programs agree to administer and enforce Davis-Bacon requirements as a condition for receiving HUD program assistance.
- b. Conduct on-site inspections including interviews with laborers and mechanics employed on the construction project. Ensure that the applicable Davis-Bacon wage decision, DOL's Davis-Bacon poster (Form WH-1321), and additional classifications are displayed at the job site.
- c. Review certified payroll reports (CPRs) and related documentation. Identify any discrepancies and/or violations. Ensure that any needed corrections are made promptly, including the payment of wage restitution as needed, and the assessment and collection of liquidated damages, as appropriate.
- d. Comply with all HUD requirements concerning statutory, program, and/or other requirements.

3. Definitions

a. Employee

Every person who performs the work of a laborer or mechanic is “employed” regardless of any contractual relationship that may be alleged to exist between a contractor or subcontractor and such person.

b. Working subcontractors

Persons who perform the work of laborers or mechanics and who represent themselves to be owners of businesses, sole proprietors, or self-employed are not exempt from prevailing wage requirements. These laborers and mechanics are “employed” and are entitled to the prevailing wage for the type of work they perform, and must be reported on the payroll report for their craft, hours of work, and wages paid.

c. Apprentice

A person employed and individually registered in a bona fide apprenticeship program. Bona fide programs are those that have been registered with DOL, Employment and Training Administration, Office of Apprenticeship, or with a DOL-recognized State Apprenticeship Agency (SAA). (Note that an SAA must also partner with a State Apprenticeship Council (SAC). The SAC must consist of an equal number of representatives of employer and employee organizations.)

d. Prevailing wages or wage rates

Davis-Bacon prevailing wage rates generally appear as a basic hourly rate plus fringe benefits, if any. “Prevailing wage” is made up of two interchangeable components: the basic hourly wage, and fringe benefits. The total of the basic hourly wage and fringe benefits comprises the “prevailing wage” obligation. This obligation may be met by any combination of cash wages and creditable “bona fide” fringe benefits provided by the employer.

e. Overtime

Overtime (O/T) hours are defined as all hours worked in excess of 40 hours in any workweek. Where governed by Federal labor standards, O/T hours shall be compensated at not less than one and one-half times the regular rate of basic pay plus the straight-time (S/T) rate of any required fringe benefits.

f. Site of work

The “site of work” is limited to the physical place or places where the construction called for in the contract will remain when work on it has been completed. “Site of work” includes other adjacent or nearby properties used by the contractor/subcontractor in the construction of the project (e.g., fabrication sites) provided they are dedicated exclusively or nearly so to the performance of the contract or project, and are so located in proximity to the actual construction location that it would be reasonable to include them.

g. Proper designation of trade

Each laborer and mechanic shall be classified in accordance with the work classifications listed on the wage decision and the actual type of work they perform and shall be paid the appropriate wage rate and fringe benefits for the classification regardless of their level of skill. In other words, if someone is performing carpentry work on the project, they must be paid no less than the wage rate on the wage decision for carpenters even if they aren’t considered by the employer to be fully trained as a carpenter. The only people who can be paid less than the rate for their craft are apprentices and trainees registered in approved programs.

h. Split classification

Laborers and mechanics that perform work in more than one classification may be compensated at the rate specified for each classification provided that the employer maintains time records that accurately set forth the time spent in each classification in which the work was performed. If accurate time records are not maintained, the employee shall be compensated at the highest of all wage rates for the classifications in which work was performed.



B - SECTION

BURNDALE HOMES OFFICE TI & ENVELOPE

930 18TH PLACE N.E., AUBURN, WA 98002

DUE DATE: April 25, 2024

TIME: 1:00 pm

In order to be considered as **RESPONSIVE BIDS**, all bidders **MUST** submit the following **Signed Documents (each single sided)** no later than the **Bid Due Date and Time**.

Forms to Return if Bidding

- B.1 Bid Form**
- B.2 Bidder's Experience Record**
- B.3 Contractor Certification**
- B.4 Non-Collusive Affidavit**
- B.5 Equal Opportunity**
- B.6 Bid Security (Submit only for bids greater than \$150,000)**
- B.7 Debarment / Suspension Compliance Certification**
- B.8 Proposed Subcontractor List**
- B.9 Section 3**
 - a. Business Certification**
 - b. Subcontractor Work Plan**
- B.10 Harassment and Discrimination Policies**
- B.11 WMBE Survey (Form is not required to be responsive, but requested)**
- B.12 Preliminary Project Schedule – Provided by Contractor**



BID FORM – RETURN EACH FORM SINGLE SIDED

BID TO:

KING COUNTY HOUSING AUTHORITY
CAPITAL CONSTRUCTION DEPARTMENT
700 Andover Park West, Suite C * Tukwila, WA 98188

PROJECT NAME AND LOCATION:

Burndale Homes Office TI & Envelope
930 18th Place N.E., Auburn, WA 98002

SCOPE OF WORK:

The Burndale management office building is a single-story wood-framed building built in 1971. The building currently houses the Burndale management offices, maintenance office and equipment storage, and the Auburn food bank. The remodeling of the existing office building will expand the office space to house the KCHA regional office and Maintenance with the food bank moving to a new location. The building renovation will include selective demolition of building elements for alteration purposes as indicated on drawings.

Interior:

- *Removal of existing interior wall and ceiling assemblies, including mechanical, electrical, plumbing as noted on AD2.1.*
- *Removal of interior flooring, case work, doors, frames hardware and trim.*
- *Removal of selective concrete flooring and framed flooring.*
- *Restructuring of interior walls, installation of posts and beams, reframing selective floor and floor supports, and new footings.*
- *The new floor plan will have office spaces, meeting and conference rooms, restrooms, break rooms, and expanded spaces for maintenance operations. All new electrical, data, security, plumbing, and mechanical systems will be installed to accommodate the new floor plan.*
- *The security camera system and some mechanical equipment are to be reused. The contractor will be responsible for installing all finishes, including new flooring, wall treatments, millwork, paint, fixtures, and built-in cabinetry.*

Exterior:

- *Removal of existing roofing assembly, gutters, downspouts, barge and fascia board.*
- *Removal of siding, insulation, windows, doors, trim and hardware.*
- *Modifications to the existing roof overhangs, infill of existing gable vents.*
- *Work will included installation of seismic hardware as noted per structural plans.*

The new floor plan will have office spaces, meeting and conference rooms, restrooms, break rooms, and expanded spaces for maintenance operations. All new electrical, data, security, plumbing, and mechanical systems will be installed to accommodate the new floor plan.

For complete scope, please see E.1 Scope of Work and Technical Specifications

Bidding Contractor’s Company Name: _____ Initials: _____



BASE BID:

Bidders must provide a cost for **each and every** bid item (even if the amount is **\$0.00**), for the bid to be considered responsive. Where conflict occurs between the bid item values entered and the total amount written, the bid item price(s) shall prevail, and totals will be corrected to conform thereto. The work of the various items is described throughout the Contract Documents.

Total Base Bid Lump Sum Amount (Gross Contract Price) should include all applicable taxes. King County Housing Authority (KCHA) will only pay this Gross Contract Price. Contractors shall review the State of Washington Department of Revenue Ruling WAC 458-20-17001 (included in bid documents) and all other applicable documents for tax obligations.

Contractor must pay the attached Non-Routine Maintenance as the Minimum Wages and Fringe Benefits for the construction workers under this contract.

The Bidder agrees to accept as full payment for the Work, as specified in the Contract Documents, and based upon the undersigned’s own estimate of quantities and costs, the following stipulated sums.

BASE BID PRICE		
A.	Materials , including all applicable Taxes	\$
B.	Labor	\$
C.	O & P , including all applicable Fees	\$
D.	Owner Allowance for added work contingency, as authorized by KCHA	\$62,000
TOTAL BID AMOUNT: (all costs inclusive – A, B, C & D) Round to Nearest Dollar		\$
And No/100 Dollars		
PRINT (in words) Total Bid Amount. Sample – Three Hundred Thousand, Two Hundred Sixty-Six		

UNIT PRICES:

Unit prices are considered for use when small quantities are needed and additional competitive bidding is not required for price justification. An unforeseen condition requiring large quantities resulting in a substantial change in scope of new work will not be considered applicable for unit pricing. Large deviations in the scope of work will be addressed and evaluated through a bid process or on a Time Material basis as stipulated in the contract documents. Acceptance of any unit pricing is at the Owner’s discretion.

COMPLETE BID:

Contractor shall include all costs of doing the work shown, described, and intended by the Contract Documents, within the lump sum bid prices in the Proposal.

LOW BIDDER DETERMINATION:

The determination of the Low Bidder will be determined on the basis of the Grand Total of the Total Base Bid Price plus Owner-Directed Work Total. The Owner reserves the right to accept any, all, or no Additive items at the time of Award, or at any time thereafter.

RIGHT TO AWARD THE CONTRACT:

KCHA reserves the right to award the Contract to the Contractor based on the Contractor’s Qualifications, Bonding Capacity and ability to Complete the Project within the Completion Time allowed for project. If written notice of the acceptance of this bid is mailed, or delivered to the undersigned within Seven (7) days

Bidding Contractor’s Company Name: _____ Initials: _____



**KCHA – BURNDALE HOMES OFFICE TI & ENVELOPE
CAPITAL CONSTRUCTION DEPARTMENT**

after the opening thereof, or at any time thereafter before this bid is withdrawn, the undersigned agrees to execute and deliver a Contract in the prescribed form within Seven (7) calendar days after the Contract is presented for signature.

RIGHT TO REJECT BIDS:

KCHA Reserves the Right to Reject any and all Bids and select any bid options (Base Bid/Alternate Bid or both). In addition, KCHA Reserves the Right to Refuse to Award a Bid to a Contractor based on the Contractor’s Past Performance, and/or Unresolved Issues with KCHA, as well as unresolved issues with Washington State Labor & Industries. No Extension of Completion is allowed.

KCHA also Reserves the Right to Reject all bids, for any reason, prior to Contract Execution.

The undersigned hereby agrees that this proposal shall be a Valid and Firm Offer for the following calendar days from the date of the Bid Opening.

Calendar Days: SIXTY (60)

If the Contractor’s Bid is determined to be “Not Responsible”, KCHA will issue in writing the specific reasons for this determination. Your company will be allowed to appeal this decision. The appeal must be in writing. The appeal must be delivered to KCHA at the address provided in the determination of ‘Not Responsible’ within two (2) business days after KCHA makes the decision. The appeal may include additional information that was not included in the original Bid Documents. KCHA will make a final determination after the receipt of the appeal. The final determination may not be appealed.

ADDENDUM RECEIPT: (Receipt of the following Addenda is acknowledged)

Addendum No.: _____	Date: _____
Addendum No.: _____	Date: _____
Addendum No.: _____	Date: _____
Addendum No.: _____	Date: _____

NO ADDENDA were received

START TIME OF CONSTRUCTION:

Construction for the project must be started in accordance with the written Notice to Proceed Date issued by KCHA.

COMPLETION TIME OF CONSTRUCTION:

The undersigned hereby agrees to significantly complete the project within the construction period or duration (**Construction Period/Duration: NTP “construction start” to physical completion**) all the work required under the Contract and in accordance with the Contract Documents. Time allowed to complete the project (including punch list items) shall be the following number of Calendar Days from the Notice to Proceed Date issued by KCHA:

Calendar Days: ONE HUNDRED FIFTY (150)*

** This is total construction time and does not include any delays that may be caused by supply chain issues.*

PRELIMINARY SCHEDULE:

Bidding Contractor’s Company Name: _____ Initials: _____



MANDATORY: Contractor is to **provide** a preliminary Master Project Schedule in Microsoft Project, Primavera or similar and will include task durations and a project duration/completion date **at time of bid.**

METHOD OF PAYMENT:

Contract Amount shall be paid by KCHA to the Contractor monthly from the date of Contract, based on Contractor’s Invoice of percentage of ‘Completion’. Contractor shall use the AIA-G702 and G703 forms for Application and Certificate for Payment for Invoice Submittal.

CONTRACT RETENTION:

KCHA will withhold Contract Retention at the following Rate, pursuant to the General Conditions and will be released upon receipt of the Proper clearances from all pertinent state agencies. Release of Retention will not be made until All Requirements for Release, including clearances from State Agencies are received.

Retention Rate: FIVE PERCENT (5%)

CLOSEOUT PERCENTAGE:

Contractor to include in his Schedule of Values **Closeout Costs**; this is a percentage of the contract bid amount for costs associated with closing out the project as described in Section 01 77 00.

Closeout Percentage: TWO AND ONE-HALF PERCENT (2.5%)

LIQUIDATED DAMAGES:

Timely performance and completion of the Work is essential to the Owner and time limits stated in the Agreement are of the essence. Owner will incur serious and substantial damages if Substantial Completion of the Work or Contract Completion of the entire project does not occur in the time limits defined in the Contract or subsequent change order. Liquidated damages are not assessed as a penalty, but as liquidated damages for breach of contract. The amount is fixed and agreed upon by the Contractor and Owner due to the extreme difficulty and impracticability of fixing and ascertaining the actual damages the Owner would sustain.

This amount is construed as actual amount of damages to the Owner and may be retained by the Owner and deducted from any payments to the Contractor. Assessment of liquidated damages does not release the Contractor for obligations in the Agreement. If different and separate completion dates are stated in the Agreement (or subsequent change order) for separate parts or stages of the Work, the amount of liquidated damages shall apply and may be assessed on those parts or stages of the Work which are delays.

If the Contractor fails to complete the Work by the Time for Substantial Completion stated above (or amended by a subsequent change order), then the Contractor agrees to abide by all provision of the Liquidated Damages clause to the Contract. Liquidated Damages shall be in the following DOLLAR AMOUNT per Calendar Days and will be assessed for each day that the Contractor exceeds the time for substantial completion stated above as follows:

Dollar Amount: FIVE HUNDRED DOLLARS AND NO/100 (\$500.00)

INDEMNIFICATION AND HOLD HARMLESS:

The Contractor hereby agrees that, to the fullest extent permitted by law, it will defend, indemnify and hold KCHA and its officials, partners, volunteers, agents and employees (the “Indemnities”) harmless from and against any and all claims, losses, damages and expenses, including attorney’s fees incurred with respect thereto or in enforcing this indemnity, which in any manner arise out of or in connection with, or result from:

Bidding Contractor’s Company Name: _____ Initials: _____



**KCHA – BURNDALE HOMES OFFICE TI & ENVELOPE
CAPITAL CONSTRUCTION DEPARTMENT**

1. The Work to be performed pursuant to this contract (the ‘Work’), or
2. Any Act or Omission of:
 - a. The Contractor;
 - b. Any Subcontractor, Lower Tier Contractor, or Supplier engaged with respect to the Work;
 - c. Any other party acting at the direction, at the request or under the control of the Contractor with respect to this contract or the Work; or
 - d. The Officers, Directors, Partners, Employees, Volunteers or Agents of any of the foregoing, or the successors in interest of any of them.

Notwithstanding the foregoing, however, the Contractor shall not be required to indemnify and Indemnatee against liability for damages arising out of bodily injury to persons or damage to property caused by or resulting from the intentional misconduct or sole negligence of the Indemnatee, and if such damages are caused by or result from the concurrent negligence of the Indemnatee and the Contractor or its employees or agents, then the Contractor’s indemnity hereunder shall be limited to the extent of the negligence of the Contractor or its employees or agents. For purposes of this Indemnity, the Contractor waives its immunity under industrial insurance, Title 51 of the Revised Code of Washington, and acknowledges that the parties have negotiated this waiver for the purposes of this agreement.

The Contractor hereby agrees to require all its Subcontractors or anyone acting under its direction or control or on its behalf in connection with or incidental to the performance of this contract to execute an indemnity agreement substantively identical to the proceeding one, specifically naming KCHA as an indemnitee, and the Contractor’s failure to do so shall constitute a material breach of this contract by the Contractor.

LOCAL RESIDENCE HIRING AND CONTRACTING REQUIREMENTS FOR SECTION 3:

The undersigned agrees to adhere to the Local Resident Hiring and Contracting Requirements as defined in the Section 3 Documents. Failure to comply with this program “to the greatest extent feasible” may result in the withholding of progress payments until the breach of the contract is remedied. See Section 3 Certification Forms attached.

I certify, under penalty of perjury, that my company **Is a Section 3 Business**

Is Not a Section 3 Business

(For further clarification for Section 3 Certification, refer to Sections A.8 and B.10.a)

BID WITHDRAWAL AFTER BID OPENING:

1. A bidder who submits an erroneous low bid may withdraw the bid at the risk of forfeiting the bid bond. The bid withdrawal is permissible if there was an obvious error in the low bid and the mistake is readily apparent from the bid itself. The bidder must notify KCHA and submit evidence of the error within twenty-four (24) hours of the bid opening.
2. Evaluating factors for return or forfeiture of bid bonds should include:
 - a. Whether the bidder acted in good faith;
 - b. Whether the bidder acted without gross negligence;
 - c. Whether the bidder gave prompt notice of the error;
 - d. Whether the bidder will suffer substantial detriment by forfeiture;
 - e. Whether KCHA’s status has not greatly changed, and no substantial hardship will be caused.

Bidding Contractor’s Company Name: _____ Initials: _____



3. Any low bidder who withdraws its bid is prohibited from bidding on the same project if it is subsequently re-solicited.

NOTIFICATION:

Contractors submitting bids must have current industrial insurance and not be disqualified from bidding (not suspended or debarred by any federal, state, or other public agency).

All or a portion of this contract is paid for by Federal Funds. As a result, Successful Contractors are subject to the following statutes: Section 504 of the Rehabilitation Act of 1973; the Americans with Disabilities Act of 1990; the Architectural Barriers Act of 1968 and the Fair Housing Act of 1988.

It will be the Contractor’s obligation to comply with pertinent laws and implementing regulations, which provide for non-discrimination and accessibility in Federally Funded Housing and Non-Housing Programs for people with Disabilities. To read the full text of the Notice go to www.kcha.org/business/requirements Scroll down to Fair Housing Laws and Read: **Fair Housing / Accessibility Notice**

The undersigned acknowledges:

1. To have carefully reviewed and understood the scope of work and requirements under the Contract Documents and the complete scope of work as required under the Bid Proposal,
2. To have been provided the opportunity to physically assess the project site,
3. And affirms that the bid entered herein, shall be a complete bid in accordance with the terms of the Contract Documents,
4. That no person or company was employed or retained to solicit or obtain this contract and no payment of, or agreement to pay any person or company to solicit or obtain this contract any commission, percentage, brokerage, or other fee contingent upon or resulting from the award of this contract.
 - a. Should any misrepresentation of the bidder be found, KCHA will have the right to 1) terminate the contract; 2) at its discretion, deduct from the contract payment amounts the amount of any commission, percentage, brokerage, or other contingent fee; or 3) any other remedy pursuant to the contract.
5. And hereby agrees to complete the Work required under the terms of the Contract Documents by the Completion Dates enumerated therein, and
6. That all Documents Submitted to KCHA will become Public Records, as per RCW 42.56. If you are submitting information, which you think is confidential and / or proprietary to your business; KCHA recommends that you do not submit that information, as KCHA cannot guarantee that type of information will be withheld from a public disclosure request.

Bidding Contractor’s Company Name: _____ Initials: _____



COMPANY INFORMATION *(please print all information):*

Name of Bidder’s Company _____

Physical Street Address:
(Contractor MUST have a Physical Street Address) _____

City-State-Zip: _____

Mailing Address if different than Physical: _____

City-State-Zip: _____

Telephone: _____

Name of Person Authorized to Sign Contract:
(if Company is Awarded Contract) _____

Title of Person Authorized to Sign Contract:
(if Company is Awarded Contract) _____

Email Address of Person Authorized to Sign Contract:
(if Company is Awarded Contract) _____

Website: _____

Contractor’s License (WA State) Number: _____

UBI (Unified Business License) Number: _____

Employment Security Account Number: _____

State Excise Tax Registration Number: _____

Federal Tax I.D. Number: _____

Exempt

Public Works Training (RCW39.04.350): Not Exempt – signed Compliance Statement in Accordance with RCW 9A.72.085 is provided

Bidding Contractor’s Company Name: _____ Initials: _____



**KCHA – BURNDALE HOMES OFFICE TI & ENVELOPE
CAPITAL CONSTRUCTION DEPARTMENT**

- Check Box if your company is a Corporation and name the State Incorporated in below.
- Check Box if your company is a Partnership and provide Full Name(s) and Address of all parties below.
- Check Box if your company is also known as (aka) and list that name and address below.

NOTE: The penalty for making false statements in offer is prescribed in 18 U.S.C. 1001.

SUBMITTED ON: _____ Day of _____, 20____

Signature of Bidder

Print Name and Title

Bidding Contractor’s Company Name: _____ Initials: _____



BIDDER'S EXPERIENCE RECORD – RETURN EACH FORM SINGLE SIDED

KCHA WILL AWARD CONTRACTS ONLY TO RESPONSIBLE PROSPECTIVE CONTRACTORS WHO HAVE THE ABILITY TO PERFORM SUCCESSFULLY UNDER THE TERMS AND CONDITIONS OF THE PROPOSED CONTRACT. PRINT ALL INFORMATION.

ATTACH ADDITIONAL SHEETS AS NECESSARY TO FULLY PROVIDE THE INFORMATION REQUIRED.

NAME OF BIDDER: _____

PHYSICAL ADDRESS: _____

CITY-STATE-ZIP: _____

MAILING ADDRESS: _____

CITY-STATE-ZIP: _____

CONTRACTOR'S LICENSE NUMBER: _____ **EMPLOYMENT SECURITY NUMBER:** _____
(Must be a valid WA State License)

BOND REGISTRATION NUMBER: _____ **L&I's WORKERS' COMP. ACCT. ID:** _____

L&I PUBLIC WORKS TRAINING: YES NO

BIDDER IS A(N): INDIVIDUAL PARTNERSHIP
JOINT VENTURE INCORPORATION IN STATE OF _____

CONTINUOUSLY BEEN IN BUSINESS FROM YEAR _____ **NO. OF REGULAR FULL TIME EMPLOYEES** _____

TOTAL NUMBER OF PROJECT COMPLETED IN THE PAST 5 YEARS _____

NUMBER OF PROJECTS COMPLETED _____ **AHEAD** _____ **ON-TIME** _____ **BEHIND**

BIDDER HAS HAD EXPERIENCE IN WORK COMPARABLE TO THAT REQUIRED FOR THIS PROJECT

AS FOLLOWS: **AS PRIME CONTRACTOR:** _____ **AS SUB-CONTRACTOR:** _____
NO. OF YEARS NO. OF YEARS

BIDDERS LIST THE FOLLOWING INFORMATION: PRINT ALL INFORMATION

NAME OF BONDING COMPANY: _____

ADDRESS: _____

PHONE NUMBER: _____

CONTACT PERSON: _____

BONDING CAPACITY: _____



LIST THE SUPERVISORY PERSONNEL TO BE EMPLOYED BY THE BIDDER AND AVAILABLE FOR, AND INTENDED TO WORK ON THIS PROJECT (PROJECT MANAGER, PRINCIPAL FOREPERSON, SUPERINTENDENTS AND ENGINEERS): **PRINT ALL INFORMATION**

NAME	TITLE	HOW LONG WITH BIDDER
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

LIST ALL PUBLICLY FUNDED PROJECTS OF SIMILAR NATURE & SIZE COMPLETED BY BIDDER WITHIN THE PAST 5 YEARS. INCLUDE A REFERENCE FOR EACH. IF NECESSARY, ATTACH A SEPARATE SHEET(S), USING THE FORMAT BELOW. **PRINT ALL INFORMATION**

PROJECT NAME: _____

OWNER/CONTACT NAME & NUMBER: _____

TOTAL CONTRACT AMOUNT: _____

IF SUB, YOUR CONTRACT AMOUNT: _____

YEAR PROJECT COMPLETED: _____

PROJECT NAME: _____

OWNER/CONTACT NAME & NUMBER: _____

TOTAL CONTRACT AMOUNT: _____

IF SUB, YOUR CONTRACT AMOUNT: _____

YEAR PROJECT COMPLETED: _____

PROJECT NAME: _____

OWNER/CONTACT NAME & NUMBER: _____

TOTAL CONTRACT AMOUNT: _____

IF SUB, YOUR CONTRACT AMOUNT: _____

YEAR PROJECT COMPLETED: _____

PROJECT NAME: _____

OWNER/CONTACT NAME & NUMBER: _____

TOTAL CONTRACT AMOUNT: _____

IF SUB, YOUR CONTRACT AMOUNT: _____

YEAR PROJECT COMPLETED: _____



IF ANY OF THE PROJECTS LISTED ABOVE WERE NOT COMPLETED WITHIN THEIR ORIGINALLY SCHEDULED PERIOD, EXPLAIN WHY: **PRINT ALL INFORMATION**

LIST ALL PROJECTS UNDERTAKEN IN THE LAST 5 YEARS WHICH HAVE RESULTED IN PARTIAL OR FINAL SETTLEMENT OF THE CONTRACT BY ARBITRATION OR LITIGATION IN THE COURTS: **PRINT ALL INFORMATION**

<u>NAME OF CLIENT & PROJECT</u>	<u>CONTRACT AMT.</u>	<u>TOTAL CLAIM ARBITRATED / LITIGATED</u>	<u>AMT. OF SETTLEMENTS OF CLAIM</u>
<hr/>	<hr/>	<hr/>	<hr/>
<hr/>	<hr/>	<hr/>	<hr/>
<hr/>	<hr/>	<hr/>	<hr/>
<hr/>	<hr/>	<hr/>	<hr/>
<hr/>	<hr/>	<hr/>	<hr/>

HAS BIDDER, OR ANY REPRESENTATIVE OR PARTNER THEREOF, EVER FAILED TO COMPLETE A CONTRACT? **PRINT ALL INFORMATION**

NO YES IF YES, EXPLAIN _____

HAS THE BIDDER EVER HAD ANY PAYMENT / PERFORMANCE BOND CALLED AS A RESULT OF THIS WORK? **PRINT ALL INFORMATION**

NO YES *IF YES, COMPLETE THE FOLLOWING:*

<u>PROJECT NAME</u>	<u>CONTRACTING PARTY</u>	<u>BOND AMOUNT</u>
<hr/>	<hr/>	<hr/>
<hr/>	<hr/>	<hr/>

HAS BIDDER EVER BEEN FOUND GUILTY OF VIOLATING ANY STATE OR FEDERAL EMPLOYMENT LAWS? **PRINT ALL INFORMATION**

NO YES IF YES, EXPLAIN _____

HAS BIDDER EVER FILED FOR PROTECTION UNDER ANY PROVISION OF THE FEDERAL BANKRUPTCY LAWS OR STATE INSOLVENCY LAWS? **PRINT ALL INFORMATION**

NO YES IF YES, EXPLAIN _____



HAS ANY ADVERSE LEGAL JUDGEMENT RELATED TO CONSTRUCTION BEEN RENDERED AGAINST THE BIDDER IN THE LATE 5 YEARS? **PRINT ALL INFORMATION**

NO YES IF YES, EXPLAIN _____

HAS BIDDER OR ANY OF ITS EMPLOYEES FILED ANY CLAIMS WITH WASHINGTON STATE WORKER'S COMPENSATION OR OTHER INSURANCE COMPANY FOR ACCIDENTS RESULTING IN FATAL INJURY OR DISMEMBERMENT IN THE PAST 5 YEARS? **PRINT ALL INFORMATION**

NO YES IF YES, COMPLETE THE FOLLOWING:

DATE	TYPE OF INJURY	AGENCY RECEIVING CLAIM
_____	_____	_____
_____	_____	_____
_____	_____	_____

BIDDER'S EXPERIENCE MODIFICATION RATE (EMR): 2021 _____ 2022 _____ 2023 _____
(IF BIDDER IS SELF-INSURED, ATTACH PROOF OF EMR STATED, SHOWING COMPLETE WORKSHEET CALCULATIONS)

NOTES TO BIDDERS: SAFETY IS A PRIMARY CONCERN ON THIS PROJECT. KCHA reserves the right to disqualify Bidders where either the current or three (3) year average of the Experience Modification Rate (EMR) EXCEEDS 1.0. KCHA may require additional information from Bidders that have an EMR of more than 1.0.

DESCRIBE ALL VIOLATION CITATIONS ISSUED AGAINST BIDDER IN THE LAST 5 YEARS UNDER OSHA, WISHA OR OTHER APPLICABLE WORKPLACE SAFETY PROGRAMS. **PRINT ALL INFORMATION**

SUBJECT OF VIOLATION	DATE OF INSPECTION / INCIDENT	OSHA ACTIVITY NO.	CLOSED / PENDING
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

ADDITIONAL INFORMATION:

BEFORE A BID IS CONSIDERED FOR AWARD, THE BIDDER MAY BE REQUESTED BY KCHA TO SUBMIT A STATEMENT OR OTHER DOCUMENTATION REGARDING ANY OF THE BASIC QUALIFICATIONS LISTED ABOVE. FAILURE BY THE BIDDER TO PROVIDE SUCH ADDITIONAL INFORMATION SHALL RENDER THE BIDDER NON-RESPONSIVE AND NON-RESPONSIBLE, AND INELIGIBLE FOR AWARD.

THE UNDERSIGNED WARRANTS UNDER PENALTY OF PERJURY THAT THE FOREGOING INFORMATION IS COMPLETE, TRUE AND ACCURATE TO THE BEST OF HIS / HER KNOWLEDGE. THE UNDERSIGNED AUTHORIZES THE KING COUNTY HOUSING AUTHORITY TO VERIFY ALL INFORMATION CONTAINED HEREIN. (IF THIS INFORMATION IS NOT COMPLETE AND ACCURATE THE BID MAY BE CONSIDERED NON-RESPONSIVE.)

BIDDER'S SIGNATURE BIDDER'S NAME (PLEASE PRINT)

BIDDER'S TITLE (PLEASE PRINT) DATE



CONTRACTOR CERTIFICATION – RETURN EACH FORM SINGLE SIDED

PROJECT NAME: **B**

NAME OF COMPANY: _____

PHYSICAL STREET ADDRESS: _____

CITY – STATE – ZIP: _____

MAILING ADDRESS: _____

CITY – STATE – ZIP: _____

PHONE NUMBER: _____

FEDERAL TAX ID NO.: _____ **WA STATE UBI NO.:** _____

TYPE OF BUSINESS: _____ **CORPORATION** _____ **LLC - PARTNERSHIP** _____ **SOLE PROPRIETOR**

OWNERS OF THIS COMPANY (List All Owners from the inception of the Company. Use an additional sheet of paper if necessary.)

NAME OF OWNER(S)	DATE(S) OF OWNERSHIP (from – to)
_____	_____
_____	_____
_____	_____

UNDER PENALTIES OF PERJURY, _____ **I** / _____ **We** hereby certify that: (Check the appropriate responses)

- There are no contractual obligation or other disabilities that would prevent the achievement of the various requirements contained in the Bid Documents to the greatest extent feasible and with good faith efforts to attempt to meet the attached goals.
- _____ **I** / _____ **We** do not and will not maintain, nor permit _____ **My** / _____ **Our** employees to work in a location where segregated facilities are maintained, except for separate or single-user toilets and changing facilities, if necessary, to assure privacy between the sexes.
- Any facility used in the performance of this project _____ **Is** / _____ **Is Not** listed on the Environmental Protection Agency list of violating facilities; and,
- _____ **I** / _____ **We** will notify KCHA, PRIOR TO award, of the receipt of any communication from the Environmental Protection Agency indicating that any facility proposed to be used in the performance of this project is under consideration to be listed on the EPA List of Violating Facilities; and,
- _____ **I** / _____ **We** will include a certification substantially the same as this certification in every non-exempt contract.
- _____ **I** / _____ **We** that _____ **Have** / _____ **Have Not** participated in an Equal Employment Opportunity Plan in the past that required filing reports with the Government; and that if _____ **I** / _____ **We** have, _____ **I** / _____ **We** _____ **Have** / _____ **Have Not** filed all reports due. If not, the reports will be filed within the next (_____) days.



KCHA – BURNDALE HOMES OFFICE TI & ENVELOPE
CAPITAL CONSTRUCTION DEPARTMENT

7. The number shown on this form is the correct Taxpayer Identification Number OR if no Taxpayer Identification Number is listed, a notarized explanation as to why is attached to these Bid Documents and

8. _____ I / _____ We further certify that _____ I / _____ We are **not** subject to Backup Withholding because;

_____ Exempt from Backup Withholding, or
_____ No notification from the Internal Revenue Service (IRS) for failing to report all interest or
_____ dividends, or

_____ No long subject to Backup Withholding per notification from the IRS
(If you ARE subject to Backup Withholding, leave \$5 blank and go to #6)

9. _____ I / _____ We have been notified by the IRS that _____ I Am / _____ We Are currently subject to Backup Withholding because of under reporting interest or dividends.
(If you filled out #5 – you are NOT subject to Backup Withholding, leave #6 blank)

_____, who is by title the _____
of our firm/company and has been designated, as the responsible official to ensure required reports are submitted, and record keeping complies with all the applicable regulations.

AUTHORIZED OFFICIAL:

SIGNATURE

NAME (PLEASE PRINT)

TITLE (PLEASE PRINT)

DATE



NON-COLLUSIVE AFFIDAVIT – RETURN EACH FORM SINGLE SIDED

FOR CONTRACTS AND EQUIPMENT \$50,000 AND ABOVE

STATE OF WASHINGTON)
)
COUNTY OF KING) ss

_____, being first duly sworn, deposes and says:

That he / she is a Partner or Officer of the Firm of, etc. _____

The party making the forgoing proposal or bid, that such proposal or bid is genuine and not collusive or a sham; that said bidder has not colluded, conspired, connived or agreed, directly or indirectly, with any bidder or person, to put in a sham bid or to refrain from bidding, and has not in any manner, directly or indirectly, sought by agreement or collusion, or communication or conference, with any person, to fix the bid price of affiant or of any other bidder, or to fix any overhead, profit or cost element of said bid price, or of that of any other bidder, or to secure any advantage against KING COUNTY HOUSING AUTHORITY or any person interested in the proposed contract; and that all statements in said proposal or bid are true.

SIGNATURE OF AUTHORIZED OFFICIAL

Bidder, if the Bidder is an **Individual**

Partner, if the Bidder is a **Partnership**

Officer, if the Bidder is a **Corporation**

SUBSCRIBED AND SWORN to before me:

this _____ day of _____, 20 _____

(Signature)

(Print Name)

My Commission Expires: _____, 20_____

Bidding Contractor's Company Name: _____ Initials: _____



EQUAL OPPORTUNITY CLAUSE – RETURN EACH FORM SINGLE SIDED

DURING THE PERFORMANCE OF THIS CONTRACT, THE CONTRACTOR AGREES AS FOLLOWS:

1. The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin, citizenship status, creed, age, marital status, physical or mental disability, sexual orientation, political ideology, or status as a Vietnam era or specially disabled veteran. The Contractor will take affirmative action to ensure that applicants are employed and the employees are treated during employment without regard to the aforementioned conditions. Such action shall include, but not be limited to, the following: Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the Contracting Officer setting forth the provisions of this nondiscrimination clause.
2. The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to the aforementioned conditions of paragraph 1 above.
3. The Contractor will send to each labor union or representative of workers with which he/she has a collective bargaining agreement or other contract or understanding, a notice advising the labor union or workers' representative of the Contractor's commitments under Section 202 of Executive Order 11246 of September 24, 1965, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
4. The Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations and relevant orders of the Secretary of Labor.
5. The Contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by the rules, regulations and relevant orders of the Secretary of Labor, or pursuant thereto, and will permit access to his/her books, records and accounts by the Owner and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations and orders.
6. In the event of the Contractor's non-compliance with the non-discrimination clauses of the Contract or with any of such rules, regulations or orders, this Contract may be canceled, terminated or suspended in whole or in part and the Contractor may be declared ineligible for further Government Contracts, in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rules, regulation, or order of the Secretary of Labor, or as otherwise provided by law.
7. The Contractor will include the provisions of paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulation, or order of the Secretary of Labor issued pursuant to Section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as the Owner may direct as a means of enforcing such provisions including sanctions for noncompliance: Provided, however, that in the event the Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the Owner, the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

AUTHORIZED OFFICIAL:

SIGNATURE

NAME (PLEASE PRINT)

TITLE (PLEASE PRINT)

DATE

Bidding Contractor's Company Name: _____ Initials: _____



BID SECURITY – RETURN EACH FORM SINGLE SIDED

BID DEPOSIT:

The undersigned Principal hereby deposits a Bid Deposit with the King County Housing Authority in the form of a cash deposit, certified or cashier's check, or postal money order in the amount of:

_____ Dollars (\$_____)

-- OR --

BID BOND:

The undersigned, _____ (Principal), and

_____ (Surety), are held and firmly bound unto the King County Housing Authority (Owner) in the penal sum of:

_____ Dollars (\$_____),

which for the payment of which Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally. The liability of surety under this Bid Bond shall be limited to the penal sum of this Bid Bond.

CONDITIONS:

The Bid Deposit or Bid Bond shall be an amount not less than **five percent (5%)** of the total bid, including any Alternates, Additives, and Owner-Directed Work, if any, including sales tax, if any, and is submitted by Principal to Owner in connection with a Proposal in according to the terms of the Proposal and Bid Documents for:

BURNDALE HOMES OFFICE TI & ENVELOPE

NOW THEREFORE:

- a. If Principal requests, in writing, to withdraw its Bid, prior to Bid Opening, or
- b. If the Proposal is rejected by Owner, or
- c. Owner in accordance with the terms of the Proposal and furnishes a bond for the faithful performance of said Project and for the payment of all persons performing labor or furnishing materials in connection therewith, with Surety or Sureties approved by Owner,

then this Bid Security shall be released; otherwise it shall remain in full force and effect and Principal shall forfeit the Bid Deposit or Surety shall immediately pay and forfeit to Owner the amount of the Bid Bond, as penalty and liquidated damages.

The obligations of Surety and its Bid Bond shall be in no way impaired or affected by any extension of time within which Owner may accept bids; and Surety does hereby waive notice of any such extension.

Bidding Contractor's Company Name: _____ Initials: _____



**KCHA – BURNDALE HOMES OFFICE TI & ENVELOPE
CAPITAL CONSTRUCTION DEPARTMENT**

SIGNED AND DATED THIS _____ Day of _____, 20 _____.

ATTEST to Principal’s Signature:

PRINCIPAL (Print Company Name)

Signature of Authorized Official

Printed Name

Title (Please Print)

Corporate Seal (if Applicable)

Signature

Printed Name

Title (Please Print)

ATTEST to Surety’s Signature:

SURETY (Print Company Name)

Signature of Authorized Official

Printed Name

Title (Please Print)

Corporate Seal (if Applicable)

Signature

Printed Name

Title (Please Print)

The above is Attorney in Fact:

Yes No
(If Yes, attach Power of Attorney)

Local Office of Agent and / or Surety Company (please print):

Name: _____

Street Address: _____

City, State, Zip: _____

Power of Attorney of person signing for Surety Company must be attached to this Bond Form.

Surety Companies executing Bonds must appear on the current Authorized Insurance List in the State of Washington.

Bidding Contractor’s Company Name: _____ Initials: _____



DEBARMENT / SUSPENSION COMPLIANCE CERTIFICATION
RETURN EACH FORM SINGLE SIDED

The Bidder certifies to the best of its knowledge and belief, that it and its principals:

1. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any federal department or agency;
2. Have not within a three (3) -year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (federal, state or local) transaction or contract under a public transaction; violation of federal or state antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
3. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (federal, state, or local) with commission of any of the offenses enumerated in paragraph (2) of this certification; and
4. Have not within a three-year period preceding this application/proposal had one or more public transactions (federal, state or local) terminated for cause or default.

BIDDING COMPANY

Company Name

Physical Street Address

City / State / Zip

Print Name of Authorized Official

Title

Signature of Authorized Official

Date

SUBSCRIBED AND SWORN to before me:

this _____ day of _____, 20 _____

(Signature)

(Print Name)

My Commission Expires: _____, 20 _____

Bidding Contractor's Company Name: _____ Initials: _____



SUBCONTRACTOR – FIRST TIER – LISTING – RETURN EACH FORM SINGLE SIDED

NAME OF BIDDING COMPANY: _____

PHYSICAL STREET ADDRESS: _____

CITY / STATE / ZIP: _____

1. List Approximate Percent (%) of Work Your Company will actually Perform: _____

2. Do You Intend on using Subcontractor(s) for this Project? Yes No

3. (If Yes, you must show on this form the name and information of All First Tier Subcontractors performing work that will be associated with this Bid.) Attach additional sheets if necessary. This form needs to be completed to the best of the Bidder’s ability at time of bid. If Bidder is Awarded Contract a final subcontractor list will be submitted prior to Notice to Proceed. **PRINT ALL INFORMATION**

SUBCONTRACTOR – FIRST TIER - LIST

Business Name: _____ Trade: _____
Address: _____ Contact: _____
Phone: _____ Years of Experience: _____
UBI No.: _____

Business Name: _____ Trade: _____
Address: _____ Contact: _____
Phone: _____ Years of Experience: _____
UBI No.: _____

Business Name: _____ Trade: _____
Address: _____ Contact: _____
Phone: _____ Years of Experience: _____
UBI No.: _____

Business Name: _____ Trade: _____
Address: _____ Contact: _____
Phone: _____ Years of Experience: _____
UBI No.: _____

The Bidder hereby certifies that the information contained in this Proposed Subcontractor List, including any attached sheets, is accurate, complete, and current:

Print Name of Authorized Official

Title

Signature

Date

Bidding Contractor’s Company Name: _____ Initials: _____



SECTION 3 – BUSINESS CERTIFICATION RETURN FORM SINGLE SIDED

THIS FORM MUST BE SIGNED AND RETURNED

Project Name: _____

Company Name: _____

Address: _____

Contact Name: _____ Contact Title: _____

Contact Phone: _____ Contact Email: _____

Type of Trade or Business: _____

Current Number of Regular, Full Time Employees (Puget Sound Region): _____

1. Have over **75 percent** of the labor hours performed for your business over the prior three-month period been performed by Section 3 workers?

Yes **No** **If “yes” is checked, submit the section 3 Individual Certification form(s) for all the regular, full-time employees (Puget Sound Region).**

2. Is **51% or more** of your business owned and controlled by low- or very low-income persons (persons who earn 80% or less of the median income level for the past 12 months - see attached income guidelines)?

Yes **No** **If “yes” is checked, submit either the section 3 Individual Certification form(s) or the Section 3 Subcontractor Business Work Plan form.**

3. Does your business provide economic opportunities for KCHA residents at the site(s) where the work will take place?

Yes **No** **If “yes” is checked, please provide supporting documentation.**

4. Does your business provide economic opportunities for residents of other KCHA developments or Section-8 assisted housing managed by KCHA?

Yes **No** **If “yes” is checked, please provide supporting documentation.**

5. Does your business provide economic opportunities to Section 3 workers residing within the metropolitan area (Puget Sound Region)?

Yes **No** **If “yes” is checked, please provide supporting documentation.**



I certify, under penalty of perjury, that my company ___ Is ___ Is Not a Section 3 Business.

I further certify that, **if my company is awarded the bid, and needs to hire additional employees for the project**, we will carry out Section 3 hiring, training and subcontracting requirements to the best of our ability.

_____ Signature	_____ Name
_____ Title	_____ Date
_____ Phone Number	_____ Email Address

If you have more specific questions about Section 3 requirements, contact KCHA at section3@kcha.org.

SECTION 3 – 2023 INCOME GUIDELINES

Location	Income Limit 1 person		
	Extremely Low Income	Very Low Income	Low Income
Kitsap County (Bremerton, Silverdale)	\$22,900	\$38,150	\$61,000
King/ Snohomish Counties (Seattle, Bellevue, Everett)	\$28,800	\$47,950	\$70,650
Pierce County (Tacoma)	\$22,600	\$37,650	\$60,200
Skagit County (Sedro-Woolley)	\$19,150	\$31,900	\$51,050
Thurston County (Olympia, Tumwater)	\$21,550	\$35,900	\$57,400



SECTION 3 – SUBCONTRACTOR WORK PLAN RETURN FORM SINGLE SIDED

RETURN THIS FORM WITH THE BID ***IF:***
CLAIMING **YES** TO QUESTION **3** or **4** on the SECTION 3 BUSINESS CERTIFICATION FORM

Project Name: _____

Company Name: _____

Address: _____

Contact Name: _____ Contact Title: _____

Contact Phone: _____ Contact Email: _____

SECTION 3 BUSINESS CONCERN			SUBCONTRACTED TASK(S)	SUBCONTRACT AMOUNT	% OF OVERALL CONTRACT
1.	Subcontractor's Name:				
	Subcontractor's Address:				
	Subcontractor's Phone No.:				
2.	Subcontractor's Name:				
	Subcontractor's Address:				
	Subcontractor's Phone No.:				
3.	Subcontractor's Name:				
	Subcontractor's Address:				
	Subcontractor's Phone No.:				
4.	Subcontractor's Name:				
	Subcontractor's Address:				
	Subcontractor's Phone No.:				

TOTAL CONTRACT VALUE: _____ **TOTAL SUBCONTRACT VALUE:** _____

PERCENTAGE OF TOTAL BID: _____

For a list of Section 3 Certified Businesses, please go to:
<https://portalapps.hud.gov/Sec3BusReg/BRegistry/SearchBusiness>



**SUMMARY OF HARASSMENT AND DISCRIMINATION
RETURN EACH FORM SINGLE SIDED**

KCHA prohibits harassment and discrimination based on race, color, national origin, citizenship status, creed, religion, sex, age, marital or veteran’s status, physical or mental disability, sexual orientation, political ideology, or any other basis protected by law (“protected status”). This policy applies to KCHA’s employees, vendors, contractors, visitors and others who conduct business with KCHA. The following are examples of prohibited conduct. This list is not exclusive; employees should see KCHA’s Personnel Policies and Procedures for more details and vendors/contractors should contact the Human Resources Department for more details:

- Unwelcome conduct based on protected status when sufficiently severe or pervasive to create a hostile work environment; or a supervisor’s improper conduct results in a tangible change in an employee’s status or benefits (demotion, termination, etc.).
- Unwelcome sexual advances, requests for sexual favors and other verbal or physical conduct of a sexual nature when (1) submission to such conduct is made an implicit or explicit condition of employment; (2) submission to or rejection of such conduct affects employment opportunities or decisions; or (3) such conduct interferes with an employee's work or creates an intimidating, hostile or offensive work environment.
- Sexually suggestive or racially derogatory words, pictures, videos, cartoons, emails, etc.
- Leering, staring in a sexually suggestive manner or making offensive remarks about looks, clothing, or body.
- Touching in a way that may make an individual feel uncomfortable, such as patting, pinching or intentional brushing against another’s body.
- Gestures, pictures or drawings which would offend a particular racial or ethnic group or other protected class.
- Comments about an individual’s skin color, accent, or other racial/ethnic characteristics.
- Disparaging remarks or stereotypes about an individual’s gender, race, birthplace, ethnicity or ancestry.
- Negative comments about an individual’s religious beliefs (or lack of religious beliefs).
- Negative comments regarding an individual’s age if age 40 and over.
- Derogatory or intimidating references to an employee’s mental or physical impairment.

Anyone who has been harassed and/or discriminated against is expected to promptly report the alleged incident(s) to the Supervisor, Department Director, Director of Human Resources, Deputy Executive Director/Chief Administrative Officer or the Executive Director. KCHA will protect the confidentiality of such complaints to the extent possible. Complaints will be promptly, thoroughly and impartially investigated and KCHA will take immediate and appropriate corrective action when it determines that harassment has occurred. Individuals who make complaints or provide information related to complaints will be protected from retaliation.

The Bidder hereby certifies that the information contained above is understood and agreed upon.

Bidder’s Company Name: _____

Print Name of Authorized Official

Title

Signature

Date

Bidding Contractor’s Company Name: _____ Initials: _____



WMBE SURVEY – RETURN EACH FORM SINGLE SIDED

PLEASE COMPLETE THIS SURVEY AND RETURN WITH YOUR BID / PROPOSAL DOCUMENTS.
**NOT SUBMITTING THIS SURVEY WILL NOT DISQUALIFY YOUR BID/PROPOSAL.
THIS IS FOR INFORMATIONAL PURPOSES ONLY.**

Bidding Company Name: _____

Address: _____

City / State / Zip: _____

Type of Business: _____ Incorporated – Federal ID#: _____

_____ Sole Proprietorship – SS#: _____

_____ Other – Describe: _____

WMBE: _____ Yes _____ No

Describe: _____ Disadvantage Owned (Disabled – DBE)

_____ Women Owned (WBE)

_____ Minority Owned (MBE or MWBE) (Check Applicable)

_____ 1. White American

_____ 4. Hispanic American

_____ 2. Black American

_____ 5. Asian – Pacific American

_____ 3. Native American

_____ 6. Hasidic Jew

Registered WMBE: _____ Yes _____ No _____ Registration in Progress

Authorized Signer

Print Name and Title

Date

FOR KCHA USE ONLY: IF THIS COMPANY HAS BEEN AWARDED THE CONTRACT, FORWARD THIS FORM

**TO: Tim Baker – KCHA Senior Management Analyst
Phone: 206-574-1111 Email: timb@kcha.org**

Bidding Contractor's Company Name: _____ Initials: _____



CONTRACTOR’S SUPPLIED SCHEDULE – RETURN EACH FORM SINGLE SIDED

- A. Gantt-Chart Schedule: Submit to the Owner a comprehensive, fully developed, horizontal Gantt-chart-type, Contractor's Final Master Project Schedule within fourteen (14) days of date after Letter of Award. Base schedule on the Preliminary Master Project Schedule and whatever updating and feedback was received since the start of Project. The Gantt-Chart Final Master Project Schedule can be either in MS Project or equivalent format.
- B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.
 - 1. For construction activities that require three (3) months or longer to complete, indicate an estimated completion percentage in ten (10%) percent increments within time bar.
- C. Contractor's Final Master Project Schedule Updating: At two (2) week intervals, update schedule to reflect actual construction progress and activities. Issue schedule three (3) days before each regularly scheduled progress meeting.
 - 1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
 - 2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
 - 3. As the Work progresses, indicate Actual Completion percentage for each activity.

**CONTRACTOR
TO INSERT
PRELIMINARY
MASTER PROJECT
SCHEDULE HERE
MUST BE IN
MICROSOFT PROJECT,
PRIMAVERA or SIMILAR**

Bidding Contractor’s Company Name: _____ Initials: _____



BB - SECTION

NO PARTICIPATION for Bid Package

BB.1 No Participation Form



NO PARTICIPATION RESPONSE FORM

IF YOU CHOOSE NOT TO BID ON THIS PROJECT
RETURN ONLY THIS FORM PRIOR TO THE BID DUE DATE.

(NOT RETURNING THIS DOCUMENT COULD RESULT IN YOUR NAME BEING REMOVED FROM FURTHER KCHA SOLICITATIONS.)

BID DUE DATE: April 25, 2024
PROJECT NAME: Burndale Homes Office TI & Envelope
RETURN FORM TO: Carlf@kcha.org

****NOTE: Contractors have the option to mail in the No Participation Response Form, but this form must be received by the deadline of 1:00PM. KCHA does not recommend mailing in this form due to possible complications or difficulties that may arise with the mail delivery.**

If using the mail please return the form to: KING COUNTY HOUSING AUTHORITY
ATTN: Carl Frankel, Project Manager
700 Andover Park West, Suite C
Tukwila, WA 98188

1. My Company is NOT BIDDING on this Contract because: (check all response(s) that apply:

- Does not perform the requested type of work
- Has other work which would interfere with the proposed work schedule
- Job is too big
- Job is too small
- Can't meet the bonding and/or insurance requirements
- The documents were not received in time to prepare a bid
- The specifications were not clear. Please describe:

Other:

2. I would have Bid on this Contract if:

COMPANY NAME: _____

ADDRESS: _____

CITY-STATE-ZIP _____

SIGNATURE: _____
PRINCIPAL OR OFFICER DATE

C - SECTION

CONTRACT DOCUMENTS for Bid Package

- C.1 Construction Contract and General Conditions – Sample Template
- C.2 Performance and Payment Bond with Directions (for projects \$35,000 & over)
- C.3 Certificate as to Corporate Principal (If Performance & Payment Bonds are required)
- C.4 Instructions to Bidders for Insurance Requirements
- C.5 Site Specific Safety Plan – List of Plan Requirements
- C.6 Subcontractor Verification
- C.7 Certification of Payments to Influence Federal Transactions (for all subcontracts \$100,000 & over)
- C.8 Disclosure of Lobbying Activities (for all subcontracts \$100,000 & over)
- C.9 Certification of Compliance with Washington State Wage Payment Statutes
- C.10 Vendor Set Up Form
- C.11 Section 3 Individual Certification Form and FAQ's
- C.12 Section 3 Labor Hours Benchmark Status Report – Sample Template

If selected, the documents that are numbered 2 through 9 will need to be submitted prior to the "Notice of Award" along with a copy of the completed Statement of Intent to Pay Prevailing Wages that you have filed with the Washington State Department of Labor and Industries.



CONSTRUCTION CONTRACT / GENERAL CONDITION SAMPLES

**PLEASE SEE ATTACHED
AIA DOCUMENTS**

DRAFT AIA® Document A101™ – 2017

Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum

AGREEMENT made as of the day of in the year
(In words, indicate day, month and year.)

CONTRACT NUMBER:

BETWEEN the Owner:
(Name, legal status, address and other information)

KING COUNTY HOUSING AUTHORITY
600 Andover Park West
Tukwila, Washington 98188

and the Contractor:
(Name, legal status, address and other information)

NAME OF CONTRACTOR
Street Address
City, State Zip

for the following Project:
(Name, location and detailed description)

NAME OF SITE
Street Address
City, State Zip

PROJECT NAME:

The Architect and/or The Engineer:
(Name, legal status, address and other information)

NAME OF ARCHITECT OR ENGINEER
Street Address
City, State Zip

The Owner and Contractor agree as follows.

In consideration of the mutual covenants and agreements herein contained, the Contractor agrees to furnish all labor, material, tools, equipment, and other items necessary to perform and complete all work described in the contract documents. This agreement includes Owner Directed Work Items. The Owner Directed Work Items may or may not be completed under this agreement. If the Owner elects to exclude any or all Owner Directed Work Items, an adjustment shall be made to this Agreement.

ADDITIONS AND DELETIONS:
The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

AIA Document A201™-2017, General Conditions of the Contract for Construction, is adopted in this document by reference. Do not use with other general conditions unless this document is modified.

{426/612.052/02533546-2}
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TABLE OF ARTICLES

1 THE CONTRACT DOCUMENTS
2 THE WORK OF THIS CONTRACT
3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION
4 CONTRACT SUM
5 PAYMENTS
6 DISPUTE RESOLUTION
7 TERMINATION OR SUSPENSION
8 MISCELLANEOUS PROVISIONS
9 ENUMERATION OF CONTRACT DOCUMENTS

ARTICLE 1 THE CONTRACT DOCUMENTS

The Contract Documents consist of this Agreement, Conditions of the Contract (General, Supplementary, and other Conditions), Drawings, Specifications, Addenda issued prior to execution of this Agreement, other documents listed in this Agreement, and Modifications issued after execution of this Agreement, all of which form the Contract, and are as fully a part of the Contract as if attached to this Agreement or repeated herein. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. An enumeration of the Contract Documents, other than a Modification, appears in Article 9.

ARTICLE 2 THE WORK OF THIS CONTRACT

The Contractor shall fully execute the Work described in the Contract Documents, except as specifically indicated in the Contract Documents to be the responsibility of others. The Contractor shall comply with the Detailed Summary of the Scope of Work per **Exhibit A**.

ARTICLE 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 3.1 The date of commencement of the Work shall be:
(Check one of the following boxes.)

- [« »] The date of this Agreement.
 - [X] A date set forth in a notice to proceed issued by the Owner.
 - [« »] Established as follows:
(Insert a date or a means to determine the date of commencement of the Work.)
- « »

§ 3.2 The Contract Time shall be measured from the date of commencement of the Work, as indicated in the **Notice to Proceed**.

§ 3.3 Substantial Completion

§ 3.3.1 Subject to adjustments of the Contract Time as provided in the Contract Documents, the Contractor shall achieve Substantial Completion of the entire Work no later than the date stipulated in the **Notice to Proceed**.

Portion of Work	Dates
Contract – Start Date	Month, Day, Year
Construction Period	Month, Day, Year to Month, Day, Year
Substantial Completion Date	Month, Day, Year
Physical Completion Date	Month, Day, Year (Liquidated Damages Start)
Contract – Final Completion Date	Month, Day, Year

§ 3.3.3 If the Contractor fails to achieve Substantial Completion as provided in this Section 3.3, liquidated damages, if any, shall be assessed as set forth in Section 4.5.

ARTICLE 4 CONTRACT SUM

§ 4.1 The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor’s performance of the Contract. The Contract Sum shall be (\$) , subject to additions and deductions as provided in the Contract Documents.

§ 4.2 Alternates

§ 4.2.1 Alternates, if any, included in the Contract Sum:

Alternate Number and Description	Price
<input type="text"/>	<input type="text"/>

§ 4.2.2 Subject to the conditions noted below, the following alternates may be accepted by the Owner following execution of this Agreement. Upon acceptance, the Owner shall issue a Modification to this Agreement. *(Insert below each alternate and the conditions that must be met for the Owner to accept the alternate.)*

Item	Price	Conditions for Acceptance
NA	<input type="text"/>	<input type="text"/>

§ 4.3 Allowances, if any, included in the Contract Sum: *(Identify each allowance.)*

Allowance Description	Price
Owner’s Contingency	<input type="text"/>

§ 4.4 Unit prices, if any:

(Identify the item and state the unit price and quantity limitations, if any, to which the unit price will be applicable.)

Unit prices will be used for unforeseen conditions where small quantities are needed. An unforeseen condition requiring large quantities resulting in a substantial change in the scope of work will not be considered applicable for unit pricing. Large deviations in the Scope of Work will be evaluated and addressed through a change order process as stipulated in the Contract Documents.

Unit Item Description	Price per Unit (\$0.00)
<input type="text"/>	<input type="text"/>

§ 4.5 Liquidated damages, if any:

(Insert terms and conditions for liquidated damages, if any.)

Timely performance and completion of the Work is essential to the Owner and Time limits stated in the Agreement are of the essence. Owner will incur serious and substantial damages if Substantial Completion of the Work or Contract Completion of the entire project does not occur in the time limits defined in the Agreement. Liquidated Damages will not be assessed as a penalty, but as Liquidated Damages for breach of contract. The amount is fixed and agreed upon by the Contractor and Owner due to the extreme difficulty and impracticability of fixing and ascertaining the actual damages the Owner would sustain. This amount is construed as an actual amount of damages to the Owner and may be retained by the Owner and deducted from any payment to the Contractor for obligations in the Agreement. If different and separate completion dates are stated in the Agreement for separate parts or stages of the Work, the amount of Liquidated Damages shall apply and may be assessed on those parts or those stages of the Work which are delayed. The Owner therefore may impose and assess Liquidated Damages in the following amount **per calendar day**:

§ 4.6 Other:

(Insert provisions for bonus or other incentives, if any, that might result in a change to the Contract Sum.)

NA

ARTICLE 5 PAYMENTS**§ 5.1 Progress Payments**

§ 5.1.1 Based upon Applications for Payment submitted to the Owner by the Contractor, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.

§ 5.1.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month, or as follows:

NA

§ 5.1.3 Provided that an Application for Payment is received by the Owner not later than the **25th** day of a month, the Owner shall make payment of the amount certified to the Contractor not later than the **25th** day of the **following** month.

(Federal, state or local laws may require payment within a certain period of time.)

§ 5.1.3.1 Applications for Payment may be delayed by Owner should any criteria listed in A201™-2017 General Conditions Section 9.5.1 be evident or if the As-Built Documents have not been updated per Division 01 10 10 Scope of Work Section 2.0.B.6.

§ 5.1.4 Each Application for Payment shall be based on the most recent schedule of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Contract Sum among the various portions of the Work. The schedule of values shall be prepared in such form, and supported by such data to substantiate its accuracy. This schedule, unless objected to by the Owner, shall be used as a basis for reviewing the Contractor's Applications for Payment.

§ 5.1.5 Applications for Payment shall show the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment.

§ 5.1.6 In accordance with AIA Document A201™-2017, General Conditions of the Contract for Construction, and subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

§ 5.1.6.1 The amount of each progress payment shall first include:

- .1 That portion of the Contract Sum properly allocable to completed Work;
- .2 That portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction, or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing.; and

§ 5.1.6.2 The amount of each progress payment shall then be reduced by:

- .1 The aggregate of any amounts previously paid by the Owner;
- .2 The amount, if any, for Work that remains uncorrected and for which the Owner has previously withheld an Application for Payment as provided in Article 9 of AIA Document A201-2017;
- .3 Any amount for which the Contractor does not intend to pay a Subcontractor or material supplier, unless the Work has been performed by others the Contractor intends to pay;
- .4 For Work performed or defects discovered since the last payment application, any amount for which the Owner may withhold payment, or nullify an Application of Payment in whole or in part, as provided in Article 9 of AIA Document A201-2017; and
- .5 Retainage withheld pursuant to Section 5.1.7.

§ 5.1.6.3 The General Contractor Certification upon the Application for Payment form, per **Exhibit B will accompany each Application for Payment**. By submitting an Application for Payment, the Contractor certifies, agrees and warrants to the Owner as follows:

.1 The Contractor has made full payment to all laborers, subcontractors and suppliers of material and equipment whose charges were included in any prior Application for Payment, subject only to (a) retainage at the contract rate, and (b) the matters set forth below or on an attachment hereto.

.2 The Contractor knows of no one making a claim for payment other than those included in the current Application for Payment, who will be paid when the current Application for Payment is paid by the Owner, except as noted below or on an attachment hereto.

.3 In consideration of payments made by the Owner, the Contractor hereby waives and releases any and all claims and demands against Owner and the Project for all periods up to and including the period covered by this Application for Payment, subject only to (a) receipt of payment of the current Application, (b) applicable retainage, and (c) the matters set forth below or on an attachment hereto.

§ 5.1.7 Retainage

§ 5.1.7.1 For each progress payment made prior to Substantial Completion of the Work, the Owner may withhold the following amount, as retainage, from the payment otherwise due:

(Insert a percentage or amount to be withheld as retainage from each Application for Payment. The amount of retainage may be limited by governing law.)

«Five Percent » « 5% »

§ 5.1.7.1.1 The following items are not subject to retainage:

(Insert any items not subject to the withholding of retainage, such as general conditions, insurance, etc.)

« NA »

§ 5.1.7.2 Reduction or limitation of retainage, if any, shall be as follows:

(If the retainage established in Section 5.1.7.1 is to be modified prior to Substantial Completion of the entire Work, including modifications for Substantial Completion of portions of the Work as provided in Section 3.3.2, insert provisions for such modifications.)

« NA »

§ 5.1.7.3 Retainage shall be held at the rate stated in § 5.1.7.1 for the duration of the project. There shall be no reduction or limitation of retainage. There shall also be no early release of retainage by the Owner to the Contractor. The Owner must obtain all releases in relation to Contractor Compliance from the Washington State Department of Revenue, the Washington State Department of Labor and Industries, and the Washington State Department of Employment Security prior to any release of retention by the Owner to the Contractor.

§ 5.1.8 If final completion of the Work is materially delayed through no fault of the Contractor, the Owner shall pay the Contractor any additional amounts in accordance with Article 9 of AIA Document A201–2017.

§ 5.1.9 Except with the Owner’s prior approval, the Contractor shall not make advance payments to suppliers for materials or equipment which have not been delivered and stored at the site.

§ 5.2 Final Payment

§ 5.2.1 Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when

- .1 the Contractor has fully performed the Contract except for the Contractor’s responsibility to correct Work as provided in Article 12 of AIA Document A201–2017, and to satisfy other requirements, if any, which extend beyond final payment; and
- .2 a final Application for Payment has been approved by the Owner;
- .3 verification of final Affidavits of Wages Paid (L&I) is provided by the Contractor to the Owner;
- .4 final Review and Approval of all Certified Payroll Documents for all Prevailing Wages.

§ 5.2.2 The Owner's final payment to the Contractor shall be made no later than 30 days after the Owner's approval of the Final Application for Payment,

ARTICLE 6 DISPUTE RESOLUTION

§ 6.1 Any claim between the Owner and Contractor shall be resolved in accordance with the provisions set forth in Article 15 of AIA Document A201-2017.

ARTICLE 7 TERMINATION OR SUSPENSION

§ 7.1 The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A201-2017.

§ 7.2 The Work may be suspended by the Owner as provided in Article 14 of AIA Document A201-2017.

ARTICLE 8 MISCELLANEOUS PROVISIONS

§ 8.1 Where reference is made in this Agreement to a provision of AIA Document A201-2017 or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

§ 8.2 The Owner's representative:
(Name, address, email address, and other information)

Nikki Parrott, Director of Capital Construction & Weatherization
«», Project Manager
«», Construction Coordinator
«», Project Engineer

§ 8.3 The Contractor's representative:
(Name, address, email address, and other information)

«», President

§ 8.4 Neither the Owner's nor the Contractor's representative shall be changed without ten days' prior notice to the other party.

§ 8.5 Insurance and Bonds

§ 8.5.1 The Contractor shall purchase and maintain insurance as set forth in AIA Document A101™-2017, Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum.

Type of insurance or bond

Limit of liability or bond amount (\$0.00)

Certificate of Liability Insurance Requirements:	Limit	(Exhibit - C)
Builders Risk Insurance:	Coverage	(Exhibit - C)
Performance and Payment Bond:	Completed Value of Project	(Exhibit - C)
	Gross Contract Amount	100%

§ 8.6 Other provisions:

§ 8.6.1 Section 3: Instruction, Requirements and Income Guidelines

§ 8.6.1.1 The Contractor shall comply with all requirements of the Section 3 Program for Economic Opportunities providing to the greatest extent possible, job training, employment and contract opportunities for low and very low income residents including persons who are recipients of HUD assistance for housing, with preference for both targeted workers living in the service area or neighborhood of the Development and Youthbuild participants, as defined at 24 CFR Part 75 per Exhibit D.1-D.3 and as designated in AIA A201-2017, Section 18 of the General Conditions.

§ 8.6.2 Davis-Bacon / HUD Non-Routine Maintenance / State Prevailing Wage Certified Payroll

§ 8.6.2.1 The Contractor shall comply with requirements and regulations of the Davis-Bacon Act per E.0 & E.1.

.1 Payment of Wages to Workers shall be weekly.

- .2 Certified Payroll Reports recording wages paid to each worker will be submitted to the Owner weekly.
- .3 Failure to submit weekly Certified Payroll Reports or errors in payroll reports for the Contractor and any and all Subcontractors, and any Lower Tier Subcontractors will be cause for the Owner to suspend or delay Contract Progress Payments.
- .4 The Owner shall withhold progress payments until all issues regarding full compliance with the submission of Certified Payroll Reports are resolved to the complete and full satisfaction of the Owner.
- .5 The Contractor is required and shall perform a complete review of all Certified Payroll Reports including those of the Contractor, and all Subcontractors and any and all Lower Tier Subcontractors prior to the submission of the reports by the Contractor to the Owner.

.6 The Wage Decision for this project is:

(Check one of the following boxes.)

Davis-Bacon

Construction Type **Decision No.** **Modification No.** **, Date**

HUD Non-Routine Maintenance

Date

WA State Prevailing

Effective Date **County**

§ 8.6.3 Prevailing Wage Exemption

§ 8.6.3.1 For all contracts with a Bid Date of **May 15, 2011** or later:

- .1 When a Contractor claims an exemption from State Prevailing Wage Requirements on HUD Projects, the Contractor and all Subcontractors and all tiers must file an Intent and Affidavit with the Washington State Department of Labor and Industries for that project.
- .2 The Statement of Intent must also include an Exemption Claim stating that the project is exempt from the payment of State Prevailing Wage Rates based on the Housing Act of 1937 and 24CFR 965.101 and further stating that all workers will be paid in accordance with the requirements of the Davis-Bacon Wage Requirements, per **Exhibit E.2**.
- .3 Pursuant to RCW 39.12.040, the Owner will not make any payments to a Contractor who has not submitted an Intent Form that has been approved by the Washington State Department of Labor and Industries Industrial Statistician, or release funds retained until the Contractor and all subcontractors have submitted Affidavit forms that have been certified by the Industrial Statistician.

ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS

§ 9.1 This Agreement is comprised of the following documents:

- .1 AIA Document A101™–2017, Standard Form of Agreement Between Owner and Contractor
- .2 AIA Document A201™–2017, General Conditions of the Contract for Construction
- .3 Drawings

Number	Title	Date
Refer to Exhibit F	Drawings Table of Contents	

- .4 Specifications

Section	Title	Date	Pages
Refer to Exhibit G	Specifications Table of Contents		

- .5 Addenda, if any:

Number	Date	Pages

Portions of Addenda relating to bidding or proposal requirements are not part of the Contract Documents unless the bidding or proposal requirements are also enumerated in this Article 9.

- .6 Other documents, if any, listed below:
(List here any additional documents that are intended to form part of the Contract Documents. AIA Document A201™-2017 provides that the advertisement or invitation to bid, Instructions to Bidders, sample forms, the Contractor's bid or proposal, portions of Addenda relating to bidding or proposal requirements, and other information furnished by the Owner in anticipation of receiving bids or proposals, are not part of the Contract Documents unless enumerated in this Agreement. Any such documents should be listed here only if intended to be part of the Contract Documents.)

Bid Documents

.1	Contractor's Bid Documents	Exhibit H
.2	Contractor's Company COVID – 19 Protection Protocols	Exhibit I
.3	Contractor's Site Specific COVID- 19 Safety Plan	Exhibit J



This Agreement entered into as of the day and year first written above.

KING COUNTY HOUSING AUTHORITY

XXX CONSTRUCTION COMPANY

OWNER (Signature)

 Name (Print)

 Title (Print)

CONTRACTOR (Signature)

 Name (Print)

 Title (Print)

Contractor's License No.: <<>

EXHIBIT OVERVIEW:

DESCRIPTION

CROSS REFERENCE

Exhibit – A	Detailed Summary of Scope of Work	Contractor Scope of Work	Article 2
Exhibit – B	Application for Payment	GC Certification	5.1.6.3
Exhibit – C	Insurance Requirements	Limits	8.5.1
		Coverage	8.5.1
		Builders Risk	8.5.1
Exhibit – D.1	Section 3 Documents	Business Certification	8.6.1
Exhibit – D.2	Section 3 Documents	Individual Certification & FAQ's	8.6.1
Exhibit – D.3	Section 3 Documents	Labor Hours Benchmark Status Report	8.6.1
Exhibit – E.0	Certified Payroll	Preliminary CPR Overview	8.6.2
Exhibit – E.1	Certified Payroll	Requirements for Certified Payroll	8.6.2
Exhibit – E.2	Prevailing Wage Exemption	Statement of Intent	8.6.3.1
Exhibit – F	Drawings	Table of Contents	9.1.3
Exhibit – G	Specifications	Table of Contents	9.1.4
Exhibit – H	Contractor's Bid Documents	Contractor's Bid Documents	9.1.6.1
Exhibit – I	Contractor's Company COVID-19 Protection Protocols		9.1.6.2
Exhibit – J	Contractor's Site Specific COVID-19 Safety Plan		9.1.6.3

DRAFT AIA® Document A201™ – 2017

General Conditions of the Contract for Construction

CONTRACT NUMBER:

for the following PROJECT:

(Name and location or address)

NAME OF SITE

Street Address

City, State Zip

PROJECT NAME:

THE OWNER:

(Name, legal status and address)

KING COUNTY HOUSING AUTHORITY

600 Andover Park West

Tukwila, Washington 98188

THE CONTRACTOR:

(Name, legal status and address)

CONTRACTOR'S NAME

Address

City, State Zip

THE ARCHITECT and/or THE ENGINEER:

(Name, legal status and address)

ARCHITECT/ENGINEER NAME

Address

City, State Zip

ADDITIONS AND DELETIONS:

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

For guidance in modifying this document to include supplementary conditions, see AIA Document A503™, Guide for Supplementary Conditions.

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TABLE OF ARTICLES

- 1 GENERAL PROVISIONS
- 2 OWNER
- 3 CONTRACTOR
- 4 ARCHITECT
- 5 SUBCONTRACTORS
- 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS
- 7 CHANGES IN THE WORK
- 8 TIME
- 9 PAYMENTS AND COMPLETION
- 10 PROTECTION OF PERSONS AND PROPERTY
- 11 INSURANCE AND BONDS
- 12 UNCOVERING AND CORRECTION OF WORK
- 13 MISCELLANEOUS PROVISIONS
- 14 TERMINATION OR SUSPENSION OF THE CONTRACT
- 15 CLAIMS AND DISPUTES
- 16 FEDERAL PROVISIONS
- 17 AUDITS AND INSPECTIONS
- 18 SECTION 3



INDEX

(Topics and numbers in bold are Section headings.)

Acceptance of Nonconforming Work

9.6.6, 9.9.3, **12.3**

Acceptance of Work

9.6.6, 9.8.2, 9.9.3, 9.10.1, 9.10.3, **12.3**

Access to Work

3.16, 6.2.1, 12.1

Accident Prevention

10

Acts and Omissions

3.2, 3.3.2, 3.12.8, 3.18, 4.2.3, 8.3.1, 9.5.1, 10.2.5,
10.2.8, 13.3.2, 14.1, 15.1.2, 15.2

Addenda

1.1.1

Additional Costs, Claims for

3.7.4, 3.7.5, 10.3.2, 15.1.5

Additional Inspections and Testing

9.4.2, 9.8.3, 12.2.1, **13.4**

Additional Time, Claims for

3.2.4, 3.7.4, 3.7.5, 3.10.2, 8.3.2, **15.1.6**

Administration of the Contract

3.1.3, **4.2**, 9.4, 9.5

Advertisement or Invitation to Bid

1.1.1

Aesthetic Effect

4.2.13

Allowances

3.8

Applications for Payment

4.2.5, 7.3.9, 9.2, **9.3**, 9.4, 9.5.1, 9.5.4, 9.6.3, 9.7, 9.10

Approvals

2.1.1, 2.3.1, 2.5, 3.1.3, 3.10.2, 3.12.8, 3.12.9,
3.12.10.1, 4.2.7, 9.3.2, 13.4.1

Arbitration

8.3.1, 15.3.2, **15.4**

ARCHITECT

4

Architect, Definition of

4.1.1

Architect, Extent of Authority

2.5, 3.12.7, 4.1.2, 4.2, 5.2, 6.3, 7.1.2, 7.3.4, 7.4, 9.2,
9.3.1, 9.4, 9.5, 9.6.3, 9.8, 9.10.1, 9.10.3, 12.1, 12.2.1,
13.4.1, 13.4.2, 14.2.2, 14.2.4, 15.1.4, 15.2.1

Architect, Limitations of Authority and
Responsibility

2.1.1, 3.12.4, 3.12.8, 3.12.10, 4.1.2, 4.2.1, 4.2.2,
4.2.3, 4.2.6, 4.2.7, 4.2.10, 4.2.12, 4.2.13, 5.2.1, 7.4,
9.4.2, 9.5.4, 9.6.4, 15.1.4, 15.2

Architect's Additional Services and Expenses

2.5, 12.2.1, 13.4.2, 13.4.3, 14.2.4

Architect's Administration of the Contract

3.1.3, 3.7.4, 15.2, 9.4.1, 9.5

Architect's Approvals

2.5, 3.1.3, 3.5, 3.10.2, 4.2.7

Architect's Authority to Reject Work

3.5, 4.2.6, 12.1.2, 12.2.1

Architect's Copyright

1.1.7, 1.5

Architect's Decisions

3.7.4, 4.2.6, 4.2.7, 4.2.11, 4.2.12, 4.2.13, 4.2.14, 6.3,
7.3.4, 7.3.9, 8.1.3, 8.3.1, 9.2, 9.4.1, 9.5, 9.8.4, 9.9.1,
13.4.2, 15.2

Architect's Inspections

3.7.4, 4.2.2, 4.2.9, 9.4.2, 9.8.3, 9.9.2, 9.10.1, 13.4

Architect's Instructions

3.2.4, 3.3.1, 4.2.6, 4.2.7, 13.4.2

Architect's Interpretations

4.2.11, 4.2.12

Architect's Project Representative

4.2.10

Architect's Relationship with Contractor

1.1.2, 1.5, 3.1.3, 3.2.2, 3.2.3, 3.2.4, 3.3.1, 3.4.2, 3.5,
3.7.4, 3.7.5, 3.9.2, 3.9.3, 3.10, 3.11, 3.12, 3.16, 3.18,
4.1.2, 4.2, 5.2, 6.2.2, 7, 8.3.1, 9.2, 9.3, 9.4, 9.5, 9.7,
9.8, 9.9, 10.2.6, 10.3, 11.3, 12, 13.3.2, 13.4, 15.2

Architect's Relationship with Subcontractors

1.1.2, 4.2.3, 4.2.4, 4.2.6, 9.6.3, 9.6.4, 11.3

Architect's Representations

9.4.2, 9.5.1, 9.10.1

Architect's Site Visits

3.7.4, 4.2.2, 4.2.9, 9.4.2, 9.5.1, 9.9.2, 9.10.1, 13.4

Asbestos

10.3.1

Attorneys' Fees

3.18.1, 9.6.8, 9.10.2, 10.3.3

Award of Separate Contracts

6.1.1, 6.1.2

Award of Subcontracts and Other Contracts for Portions of the Work

5.2

Basic Definitions

1.1

Bidding Requirements

1.1.1

Binding Dispute Resolution

8.3.1, 9.7, 11.5, 13.1, 15.1.2, 15.1.3, 15.2.1, 15.2.5,
15.2.6.1, 15.3.1, 15.3.2, 15.3.3, 15.4.1

Bonds, Lien

7.3.4.4, 9.6.8, 9.10.2, 9.10.3

Bonds, Performance, and Payment

7.3.4.4, 9.6.7, 9.10.3, **11.1.2**, 11.1.3, **11.5**

Building Permit

3.7.1

Capitalization

1.3

Certificate of Substantial Completion

9.8.3, 9.8.4, 9.8.5

Certificates for Payment

4.2.1, 4.2.5, 4.2.9, 9.3.3, **9.4**, 9.5, 9.6.1, 9.6.6, 9.7,
9.10.1, 9.10.3, 14.1.1.3, 14.2.4, 15.1.4

Certificates of Inspection, Testing or Approval

13.4.4

Certificates of Insurance
9.10.2
Change Orders
1.1.1, 3.4.2, 3.7.4, 3.8.2.3, 3.11, 3.12.8, 4.2.8, 5.2.3,
7.1.2, 7.1.3, **7.2**, 7.3.2, 7.3.7, 7.3.9, 7.3.10, 8.3.1,
9.3.1.1, 9.10.3, 10.3.2, 11.2, 11.5, 12.1.2
Change Orders, Definition of
7.2.1
CHANGES IN THE WORK
3.11, 4.2.8, **7**, 7.2.1, 7.3.1, 7.4, 8.3.1, 9.3.1.1, 11.5
Claims, Definition of
15.1.1
Claims, Notice of
1.6.2, 15.1.3
CLAIMS AND DISPUTES
3.2.4, 6.1.1, 6.3, 7.3.9, 9.3.3, 9.10.4, 10.3.3, **15**, 15.4
Claims and Timely Assertion of Claims
15.4.1
Claims for Additional Cost
3.2.4, 3.3.1, 3.7.4, 7.3.9, 9.5.2, 10.2.5, 10.3.2, **15.1.5**
Claims for Additional Time
3.2.4, 3.3.1, 3.7.4, 6.1.1, 8.3.2, 9.5.2, 10.3.2, **15.1.6**
Concealed or Unknown Conditions, Claims for
3.7.4
Claims for Damages
3.2.4, 3.18, 8.3.3, 9.5.1, 9.6.7, 10.2.5, 10.3.3, 11.3,
11.3.2, 14.2.4, 15.1.7
Claims Subject to Arbitration
15.4.1
Cleaning Up
3.15, 6.3
Commencement of the Work, Conditions Relating to
2.2.1, 3.2.2, 3.4.1, 3.7.1, 3.10.1, 3.12.6, 5.2.1, 5.2.3,
6.2.2, 8.1.2, 8.2.2, 8.3.1, 11.1, 11.2, **15.1.5**
Commencement of the Work, Definition of
8.1.2
Communications
3.9.1, **4.2.4**
Completion, Conditions Relating to
3.4.1, 3.11, 3.15, 4.2.2, 4.2.9, 8.2, 9.4.2, 9.8, 9.9.1,
9.10, 12.2, 14.1.2, 15.1.2
COMPLETION, PAYMENTS AND
9
Completion, Substantial
3.10.1, 4.2.9, 8.1.1, 8.1.3, 8.2.3, 9.4.2, 9.8, 9.9.1,
9.10.3, 12.2, 15.1.2
Compliance with Laws
2.3.2, 3.2.3, 3.6, 3.7, 3.12.10, 3.13, 9.6.4, 10.2.2,
13.1, 13.3, 13.4.1, 13.4.2, 13.5, 14.1.1, 14.2.1.3,
15.2.8, 15.4.2, 15.4.3
Concealed or Unknown Conditions
3.7.4, 4.2.8, 8.3.1, 10.3
Conditions of the Contract
1.1.1, 6.1.1, 6.1.4
Consent, Written 3.7.4, 3.12.8, 3.14.2, 9.3.2, 11.3.1,
13.3, 13.4.2
3.4.2, 3.14.2, 4.1.2, 9.8.5, 9.9.1, 9.10.2, 9.10.3, 13.2,
15.4.4.2

Consolidation or Joinder
15.4.4
CONSTRUCTION BY OWNER OR BY
SEPARATE CONTRACTORS
1.1.4, **6**
Construction Change Directive, Definition of
7.3.1
Construction Change Directives
1.1.1, 3.4.2, 3.11, 3.12.8, 4.2.8, 7.1.1, 7.1.2, 7.1.3,
7.3, 9.3.1.1
Construction Schedules, Contractor's
3.10, 3.11, 3.12.1, 3.12.2, 6.1.3, 15.1.6.2
Contingent Assignment of Subcontracts
5.4, 14.2.2.2
Continuing Contract Performance
15.1.4
Contract, Definition of
1.1.2
CONTRACT, TERMINATION OR
SUSPENSION OF THE
5.4.1.1, 5.4.2, 11.5, **14**
Contract Administration
3.1.3, 4, 9.4, 9.5
Contract Award and Execution, Conditions Relating
to
3.7.1, 3.10, 5.2, 6.1
Contract Documents, Copies Furnished and Use of
1.5.2, 2.3.6, 5.3
Contract Documents, Definition of
1.1.1
Contract Sum
3.7.4, 3.7.5, 3.8, 3.10.2, 5.2.3, 7.3, 7.4, **9.1**, 9.2, 9.4.2,
9.5.1.4, 9.6.7, 9.7, 10.3.2, 11.5, 12.1.2, 12.3, 14.2.4,
14.3.2, 15.1.4.2, **15.1.5**, **15.2.5**
Contract Sum, Definition of
9.1
Contract Time
1.1.4, 2.2.1, 3.7.4, 3.7.5, 3.10.2, 5.2.3, 6.1.5, 7.2.1.3,
7.3.1, 7.3.5, 7.3.6, 7, 7, 7.3.10, 7.4, 8.1.1, 8.2.1, 8.2.3,
8.3.1, 9.5.1, 9.7, 10.3.2, 12.1.1, 12.1.2, 14.3.2,
15.1.4.2, 15.1.6.1, 15.2.5
Contract Time, Definition of
8.1.1
CONTRACTOR
3
Contractor, Definition of
3.1, **6.1.2**
Contractor's Construction and Submittal
Schedules
3.10, 3.12.1, 3.12.2, 4.2.3, 6.1.3, 15.1.6.2
Contractor's Employees
3.3.2, 3.4.3, 3.8.1, 3.9, 3.18.2, 4.2.3, 4.2.6, 10.2, 10.3,
11.3, 14.1, 14.2.1.1
Contractor's Liability Insurance
11.1
Contractor's Relationship with Separate Contractors
and Owner's Forces
3.12.5, 3.14.2, 4.2.4, 6, 11.3, 12.2.4

Contractor's Relationship with Subcontractors
1.2.2, 3.3.2, 3.18.1, 3.18.2, 4.2.4, 5, 9.6.2, 9.6.7, 9.10.2, 11.2, 11.3, 11.4

Contractor's Relationship with the Architect
1.1.2, 1.5, 3.1.3, 3.2.2, 3.2.3, 3.2.4, 3.3.1, 3.4.2, 3.5.1, 3.7.4, 3.10, 3.11, 3.12, 3.16, 3.18, 4.2, 5.2, 6.2.2, 7, 8.3.1, 9.2, 9.3, 9.4, 9.5, 9.7, 9.8, 9.9, 10.2.6, 10.3, 11.3, 12, 13.4, 15.1.3, 15.2.1

Contractor's Representations
3.2.1, 3.2.2, 3.5, 3.12.6, 6.2.2, 8.2.1, 9.3.3, 9.8.2

Contractor's Responsibility for Those Performing the Work
3.3.2, 3.18, 5.3, 6.1.3, 6.2, 9.5.1, 10.2.8

Contractor's Review of Contract Documents
3.2

Contractor's Right to Stop the Work
9.7

Contractor's Right to Terminate the Contract
14.1

Contractor's Submittals
3.10, 3.11, 3.12, 4.2.7, 5.2.1, 5.2.3, 9.2, 9.3, 9.8.2, 9.8.3, 9.9.1, 9.10.2, 9.10.3

Contractor's Superintendent
3.9, 10.2.6

Contractor's Supervision and Construction Procedures
1.2.2, 3.3, 3.4, 3.12.10, 4.2.2, 4.2.7, 6.1.3, 6.2.4, 7.1.3, 7.3.4, 7.3.6, 8.2, 10, 12, 14, 15.1.4

Coordination and Correlation
1.2, 3.2.1, 3.3.1, 3.10, 3.12.6, 6.1.3, 6.2.1

Copies Furnished of Drawings and Specifications
1.5, 2.3.6, 3.11

Copyrights
1.5, **3.17**

Correction of Work
2.5, 3.7.3, 9.4.2, 9.8.2, 9.8.3, 9.9.1, 12.1.2, **12.2**, 12.3, 15.1.3.1, 15.1.3.2, 15.2.1

Correlation and Intent of the Contract Documents
1.2

Cost, Definition of
7.3.4

Costs
7

2.5, 3.2.4, 3.7.3, 3.8.2, 3.15.2, 5.4.2, 6.1.1, 6.2.3, 7.3.3.3, 7.3.4, 7.3.8, 7.3.9, 9.10.2, 10.3.2, 10.3.6, 11.2, 12.1.2, 12.2.1, 12.2.4, 13.4, 14

Cutting and Patching
3.14, 6.2.5

Damage to Construction of Owner or Separate Contractors
3.14.2, 6.2.4, 10.2.1.2, 10.2.5, 10.4, 12.2.4

Damage to the Work
3.14.2, 9.9.1, 10.2.1.2, 10.2.5, 10.4, 12.2.4

Damages, Claims for
3.2.4, 3.18, 6.1.1, 8.3.3, 9.5.1, 9.6.7, 10.3.3, 11.3.2, 11.3, 14.2.4, 15.1.7

Damages for Delay
6.2.3, 8.3.3, 9.5.1.6, 9.7, 10.3.2, 14.3.2

Date of Commencement of the Work, Definition of
8.1.2

Date of Substantial Completion, Definition of
8.1.3

Day, Definition of
8.1.4

Decisions of the Architect
3.7.4, 4.2.6, 4.2.7, 4.2.11, 4.2.12, 4.2.13, 6.3, 7.3.4, 7.3.9, 8.1.3, 8.3.1, 9.2, 9.4, 9.5.1, 9.8.4, 9.9.1, 13.4.2, 14.2.2, 14.2.4, 15.1, 15.2

Decisions to Withhold Certification
9.4.1, **9.5**, 9.7, 14.1.1.3

Defective or Nonconforming Work, Acceptance, Rejection and Correction of
2.5, 3.5, 4.2.6, 6.2.3, 9.5.1, 9.5.3, 9.6.6, 9.8.2, 9.9.3, 9.10.4, 12.2.1

Definitions
1.1, 2.1.1, 3.1.1, 3.5, 3.12.1, 3.12.2, 3.12.3, 4.1.1, 5.1, 6.1.2, 7.2.1, 7.3.1, 8.1, 9.1, 9.8.1, 15.1.1

Delays and Extensions of Time
3.2, **3.7.4**, 5.2.3, 7.2.1, 7.3.1, **7.4**, **8.3**, 9.5.1, **9.7**, 10.3.2, **10.4**, 14.3.2, **15.1.6**, 15.2.5

Disputes
6.3, 7.3.9, 15.1, 15.2

Documents and Samples at the Site
3.11

Drawings, Definition of
1.1.5

Drawings and Specifications, Use and Ownership of
3.11

Effective Date of Insurance
8.2.2

Emergencies
10.4, 14.1.1.2, **15.1.5**

Employees, Contractor's
3.3.2, 3.4.3, 3.8.1, 3.9, 3.18.2, 4.2.3, 4.2.6, 10.2, 10.3.3, 11.3, 14.1, 14.2.1.1

Equipment, Labor, or Materials
1.1.3, 1.1.6, 3.4, 3.5, 3.8.2, 3.12, 3.13, 3.15.1, 4.2.6, 4.2.7, 5.2.1, 6.2.1, 7.3.4, 9.3.2, 9.3.3, 9.5.1.3, 9.10.2, 10.2.1, 10.2.4, 14.2.1.1, 14.2.1.2

Execution and Progress of the Work
1.1.3, 1.2.1, 1.2.2, 2.3.4, 2.3.6, 3.1, 3.3.1, 3.4.1, 3.7.1, 3.10.1, 3.12, 3.14, 4.2, 6.2.2, 7.1.3, 7.3.6, 8.2, 9.5.1, 9.9.1, 10.2, 10.3, 12.1, 12.2, 14.2, 14.3.1, 15.1.4

Extensions of Time
3.2.4, 3.7.4, 5.2.3, 7.2.1, 7.3, 7.4, 9.5.1, 9.7, 10.3.2, 10.4, 14.3, 15.1.6, **15.2.5**

Failure of Payment
9.5.1.3, **9.7**, 9.10.2, 13.5, 14.1.1.3, 14.2.1.2

Faulty Work
(See Defective or Nonconforming Work)

Final Completion and Final Payment
4.2.1, 4.2.9, 9.8.2, **9.10**, 12.3, 14.2.4, 14.4.3

Financial Arrangements, Owner's
2.2.1, 13.2.2, 14.1.1.4

GENERAL PROVISIONS
1

Governing Law

13.1

Guarantees (See Warranty)

Hazardous Materials and Substances

10.2.4, 10.3

Identification of Subcontractors and Suppliers
5.2.1

Indemnification

3.17, **3.18**, 9.6.8, 9.10.2, 10.3.3, 11.3

Information and Services Required of the Owner

2.1.2, **2.2**, 2.3, 3.2.2, 3.12.10.1, 6.1.3, 6.1.4, 6.2.5,
9.6.1, 9.9.2, 9.10.3, 10.3.3, 11.2, 13.4.1, 13.4.2,
14.1.1.4, 14.1.4, 15.1.4

Initial Decision

15.2

Initial Decision Maker, Decisions

14.2.4, 15.1.4.2, 15.2.1, 15.2.2, 15.2.3, 15.2.4, 15.2.5

Initial Decision Maker, Extent of Authority

14.2.4, 15.1.4.2, 15.2.1, 15.2.2, 15.2.3, 15.2.4, 15.2.5

Injury or Damage to Person or Property

10.2.8, 10.4

Inspections

3.1.3, 3.3.3, 3.7.1, 4.2.2, 4.2.6, 4.2.9, 9.4.2, 9.8.3,
9.9.2, 9.10.1, 12.2.1, 13.4

Instructions to Bidders

1.1.1

Instructions to the Contractor

3.2.4, 3.3.1, 3.8.1, 5.2.1, 7, 8.2.2, 12, 13.4.2

Instruments of Service, Definition of

1.1.7

Insurance

6.1.1, 7.3.4, 8.2.2, 9.3.2, 9.8.4, 9.9.1, 9.10.2, 10.2.5,

11

Insurance, Notice of Cancellation or Expiration

11.1.4, 11.2.3

Insurance, Contractor's Liability

11.1

Insurance, Effective Date of

8.2.2, 14.4.2

Insurance, Owner's Liability

11.2

Insurance, Property

10.2.5, 11.2, 11.4, 11.5

Insurance, Stored Materials

9.3.2

INSURANCE AND BONDS

11

Insurance Companies, Consent to Partial Occupancy

9.9.1

Insured loss, Adjustment and Settlement of

11.5

Intent of the Contract Documents

1.2.1, 4.2.7, 4.2.12, 4.2.13

Interest

13.5

Interpretation

1.2.3, **1.4**, 4.1.1, 5.1, 6.1.2, 15.1.1

Interpretations, Written

4.2.11, 4.2.12

Judgment on Final Award

15.4.2

Labor and Materials, Equipment

1.1.3, 1.1.6, **3.4**, 3.5, 3.8.2, 3.12, 3.13, 3.15.1, 5.2.1,
6.2.1, 7.3.4, 9.3.2, 9.3.3, 9.5.1.3, 9.10.2, 10.2.1,
10.2.4, 14.2.1.1, 14.2.1.2 7.3.7

Labor Disputes

8.3.1

Laws and Regulations 4.1.1

1.5, 2.3.2, 3.2.3, 3.2.4, 3.6, 3.7, 3.12.10, 3.13, 9.6.4,
9.9.1, 10.2.2, 13.1, 13.3.1, 13.4.2, 13.5, 14, 15.2.8,
15.4

Liens

2.1.2, 9.3.1, 9.3.3, 9.6.8, 9.10.2, 9.10.4, 15.2.8

Limitations, Statutes of

12.2.5, 15.1.2, 15.4.1.1

Limitations of Liability

3.2.2, 3.5, 3.12.10, 3.12.10.1, 3.17, 3.18.1, 4.2.6,
4.2.7, 6.2.2, 9.4.2, 9.6.4, 9.6.7, 9.6.8, 10.2.5, 10.3.3,
11.3, 12.2.5, 13.3.1

Limitations of Time

2.1.2, 2.2, 2.5, 3.2.2, 3.10, 3.11, 3.12.5, 3.15.1, 4.2.7,
5.2, 5.3, 5.4.1, 6.2.4, 7.3, 7.4, 8.2, 9.2, 9.3.1, 9.3.3,
9.4.1, 9.5, 9.6, 9.7, 9.8, 9.9, 9.10, 12.2, 13.4, 14, 15,
15.1.2, 15.1.3, 15.1.5

Materials, Hazardous

10.2.4, 10.3

Materials, Labor, Equipment and

1.1.3, 1.1.6, 3.4.1, 3.5, 3.8.2, 3.12, 3.13, 3.15.1, 5.2.1,
6.2.1, 7.3.4, 9.3.2, 9.3.3, 9.5.1.3, 9.10.2, 10.2.1.2,
10.2.4, 14.2.1.1, 14.2.1.2

Means, Methods, Techniques, Sequences and

Procedures of Construction

3.3.1, 3.12.10, 4.2.2, 4.2.7, 9.4.2

Mechanic's Lien

2.1.2, 9.3.1, 9.3.3, 9.6.8, 9.10.2, 9.10.4, 15.2.8

Mediation

8.3.1, 15.1.3.2, 15.2.1, 15.2.5, 15.2.6, **15.3**, 15.4.1,
15.4.1.1

Minor Changes in the Work

1.1.1, 3.4.2, 3.12.8, 4.2.8, 7.1, **7.4**

MISCELLANEOUS PROVISIONS

13

Modifications, Definition of

1.1.1

Modifications to the Contract

1.1.1, 1.1.2, 2.5, 3.11, 4.1.2, 4.2.1, 5.2.3, 7, 8.3.1, 9.7,
10.3.2

Mutual Responsibility

6.2

Nonconforming Work, Acceptance of

9.6.6, 9.9.3, **12.3**

Nonconforming Work, Rejection and Correction of

2.4, 2.5, 3.5, 4.2.6, 6.2.4, 9.5.1, 9.8.2, 9.9.3, 9.10.4,
12.2

Notice

1.6, 1.6.1, 1.6.2, 2.1.2, 2.5, 3.2.4, 3.3.1, 3.7.4, 3.7.5, 3.9.2, 3.12.9, 3.12.10, 5.2.1, 7.4, 8.2.2, 9.6.8, 9.7, 9.10.1, 10.2.8, 10.3.2, 11.5, 12.2.2.1, 13.4.1, 13.4.2, 14.1, 14.2.2, 14.4.2, 15.1.3, 15.1.5, 15.1.6, 15.4.1
Notice of Cancellation or Expiration of Insurance
11.1.4, 11.2.3

Notice of Claims

1.6.2, 2.1.2, 3.7.4, 9.6.8, 10.2.8, 15.1.3, 15.1.5, 15.1.6, 15.2.8, 15.3.2, 15.4.1

Notice of Testing and Inspections

13.4.1, 13.4.2

Observations, Contractor's

3.2, 3.7.4

Occupancy

2.3.1, 9.6.6, 9.8

Orders, Written

1.1.1, 2.4, 3.9.2, 7, 8.2.2, 11.5, 12.1, 12.2.2.1, 13.4.2, 14.3.1 2

OWNER

2

Owner, Definition of

2.1.1

Owner, Evidence of Financial Arrangements

2.2, 13.2.2, 14.1.1.4

Owner, Information and Services Required of the

2.1.2, 2.2, 2.3, 3.2.2, 3.12.10, 6.1.3, 6.1.4, 6.2.5, 9.3.2, 9.6.1, 9.6.4, 9.9.2, 9.10.3, 10.3.3, 11.2, 13.4.1, 13.4.2, 14.1.1.4, 14.1.4, 15.1.4

Owner's Authority

1.5, 2.1.1, 2.4, 2.5, 3.4.2, 3.8.1, 3.12.10, 3.14.2, 4.1.2, 4.2.4, 4.2.9, 5.2.1, 5.2.4, 5.4.1, 6.1, 6.3, 7.2.1, 7.3.1, 8.2.2, 8.3.1, 9.3.2, 9.5.1, 9.6.4, 9.9.1, 9.10.2, 10.3.2, 11.4, 11.5, 12.2.2, 12.3, 13.2.2, 14.3, 14.4, 15.2.7,

Owner's Insurance

11.2

Owner's Relationship with Subcontractors

1.1.2, 5.2, 5.3, 5.4, 9.6.4, 9.10.2, 14.2.2

Owner's Right to Carry Out the Work

2.5, 14.2.2

Owner's Right to Clean Up

6.3

Owner's Right to Perform Construction and to Award Separate Contracts

6.1

Owner's Right to Stop the Work

2.4

Owner's Right to Suspend the Work

14.3

Owner's Right to Terminate the Contract

14.2, 14.4

Ownership and Use of Drawings, Specifications and Other Instruments of Service

1.1.1, 1.1.6, 1.1.7, 1.5, 2.3.6, 3.2.2, 3.11, 3.17, 4.2.12, 5.3

Partial Occupancy or Use

9.6.6, 9.9

Patching, Cutting and

3.14, 6.2.5

Patents

3.17

Payment, Applications for

4.2.5, 7.3.9, 9.2, 9.3, 9.4, 9.5, 9.6.3, 9.7, 9.8.5, 9.10.1, 14.2.3, 14.2.4, 14.4.3

Payment, Certificates for

4.2.5, 4.2.9, 9.3.3, 9.4, 9.5, 9.6.1, 9.6.6, 9.7, 9.10.1, 9.10.3, 14.1.1.3, 14.2.4

Payment, Failure of

9.5.1.3, 9.7, 9.10.2, 13.5, 14.1.1.3, 14.2.1.2

Payment, Final

4.2.1, 4.2.9, 9.10, 12.3, 14.2.4, 14.4.3

Payment Bond, Performance Bond and

7.3.4.4, 9.6.7, 9.10.3, 11.1.2

Payments, Progress

9.3, 9.6, 9.8.5, 9.10.3, 14.2.3, 15.1.4

PAYMENTS AND COMPLETION

9

Payments to Subcontractors

5.4.2, 9.5.1.3, 9.6.2, 9.6.3, 9.6.4, 9.6.7, 14.2.1.2

PCB

10.3.1

Performance Bond and Payment Bond

7.3.4.4, 9.6.7, 9.10.3, 11.1.2

Permits, Fees, Notices and Compliance with Laws

2.3.1, 3.7, 3.13, 7.3.4.4, 10.2.2, 7.3.7.4

PERSONS AND PROPERTY, PROTECTION

OF

10

Polychlorinated Biphenyl

10.3.1

Product Data, Definition of

3.12.2

Product Data and Samples, Shop Drawings

3.11, 3.12, 4.2.7

Progress and Completion

4.2.2, 8.2, 9.8, 9.9.1, 14.1.4, 15.1.4

Progress Payments

9.3, 9.6, 9.8.5, 9.10.3, 14.2.3, 15.1.4

Project, Definition of

1.1.4

Project Representatives

4.2.10

Property Insurance

10.2.5, 11.2

Proposal Requirements

1.1.1

PROTECTION OF PERSONS AND PROPERTY

10

Regulations and Laws

1.5, 2.3.2, 3.2.3, 3.6, 3.7, 3.12.10, 3.13, 9.6.4, 9.9.1, 10.2.2, 13.1, 13.3, 13.4.1, 13.4.2, 13.5, 14, 15.2.8, 15.4

Rejection of Work

4.2.6, 12.2.1

Releases and Waivers of Liens
9.3.1, 9.10.2
Representations
3.2.1, 3.5, 3.12.6, 8.2.1, 9.3.3, 9.4.2, 9.5.1, 9.10.1
Representatives
2.1.1, 3.1.1, 3.9, 4.1.1, 4.2.10, 13.2.1
Responsibility for Those Performing the Work
3.3.2, 3.18, 4.2.2, 4.2.3, 5.3, 6.1.3, 6.2, 6.3, 9.5.1, 10
Retainage
9.3.1, 9.6.2, 9.8.5, 9.9.1, 9.10.2, 9.10.3
Review of Contract Documents and Field Conditions by Contractor
3.2, 3.12.7, 6.1.3
Review of Contractor's Submittals by Owner and Architect
3.10.1, 3.10.2, 3.11, 3.12, 4.2, 5.2, 6.1.3, 9.2, 9.8.2
Review of Shop Drawings, Product Data and Samples by Contractor
3.12
Rights and Remedies
1.1.2, 2.4, 2.5, 3.5, 3.7.4, 3.15.2, 4.2.6, 5.3, 5.4, 6.1, 6.3, 7.3.1, 8.3, 9.5.1, 9.7, 10.2.5, 10.3, 12.2.1, 12.2.2, 12.2.4, **13.3**, 14, 15.4
Royalties, Patents and Copyrights
3.17
Rules and Notices for Arbitration
15.4.1
Safety of Persons and Property
10.2, 10.4
Safety Precautions and Programs
3.3.1, 4.2.2, 4.2.7, 5.3, **10.1**, 10.2, 10.4
Samples, Definition of
3.12.3
Samples, Shop Drawings, Product Data and Samples at the Site, Documents and
3.11, **3.12**, 4.2.7
Samples at the Site, Documents and
3.11
Schedule of Values
9.2, 9.3.1
Schedules, Construction
3.10, 3.12.1, 3.12.2, 6.1.3, 15.1.6.2
Separate Contracts and Contractors
1.1.4, 3.12.5, 3.14.2, 4.2.4, 4.2.7, 6, 8.3.1, 12.1.2
Separate Contractors, Definition of
6.1.1
Shop Drawings, Definition of
3.12.1
Shop Drawings, Product Data and Samples
3.11, **3.12**, 4.2.7
Site, Use of
3.13, 6.1.1, 6.2.1
Site Inspections
3.2.2, 3.3.3, 3.7.1, 3.7.4, 4.2, 9.9.2, 9.4.2, 9.10.1, 13.4
Site Visits, Architect's
3.7.4, 4.2.2, 4.2.9, 9.4.2, 9.5.1, 9.9.2, 9.10.1, 13.4
Special Inspections and Testing
4.2.6, 12.2.1, 13.4

Specifications, Definition of
1.1.6
Specifications
1.1.1, **1.1.6**, 1.2.2, 1.5, 3.12.10, 3.17, 4.2.14
Statute of Limitations
15.1.2, 15.4.1.1
Stopping the Work
2.4, 9.7, 10.3, 14.1
Stored Materials
6.2.1, 9.3.2, 10.2.1.2, 10.2.4
Subcontractor, Definition of
5.1.1
SUBCONTRACTORS
5
Subcontractors, Work by
1.2.2, 3.3.2, 3.12.1, 3.18, 4.2.3, 5.2.3, 5.3, 5.4, 9.3.1.2, 9.6.7
Subcontractual Relations
5.3, 5.4, 9.3.1.2, 9.6, 9.10, 10.2.1, 14.1, 14.2.1
Submittals
3.10, 3.11, 3.12, 4.2.7, 5.2.1, 5.2.3, 7.3.4, 9.2, 9.3, 9.8, 9.9.1, 9.10.2, 9.10.3
Submittal Schedule
3.10.2, 3.12.5, 4.2.7
Subrogation, Waivers of
6.1.1, **11.3**
Substances, Hazardous
10.3
Substantial Completion
4.2.9, 8.1.1, 8.1.3, 8.2.3, 9.4.2, **9.8**, 9.9.1, 9.10.3, 12.2, 15.1.2
Substantial Completion, Definition of
9.8.1
Substitution of Subcontractors
5.2.3, 5.2.4
Substitutions of Materials
3.4.2, 3.5, 7.3.8
Sub-subcontractor, Definition of
5.1.2
Subsurface Conditions
3.7.4
Successors and Assigns
13.2
Superintendent
3.9, 10.2.6
Supervision and Construction Procedures
1.2.2, **3.3**, 3.4, 3.12.10, 4.2.2, 4.2.7, 6.1.3, 6.2.4, 7.1.3, 7.3.4, 8.2, 8.3.1, 9.4.2, 10, 12, 14, 15.1.4
Suppliers
1.5, 3.12.1, 4.2.4, 4.2.6, 5.2.1, 9.3, 9.4.2, 9.5.4, 9.6, 9.10.5, 14.2.1
Surety
5.4.1.2, 9.6.8, 9.8.5, 9.10.2, 9.10.3, 11.1.2, 14.2.2, 15.2.7
Surety, Consent of
9.8.5, 9.10.2, 9.10.3
Surveys
1.1.7, 2.3.4

Suspension by the Owner for Convenience

14.3

Suspension of the Work

3.7.5, 5.4.2, 14.3

Suspension or Termination of the Contract

5.4.1.1, 14

Taxes

3.6, 3.8.2.1, 7.3.4.4

Termination by the Contractor

14.1, 15.1.7

Termination by the Owner for Cause

5.4.1.1, **14.2**, 15.1.7

Termination by the Owner for Convenience

14.4

Termination of the Contractor Employment

14.2.2

TERMINATION OR SUSPENSION OF THE CONTRACT

14

Tests and Inspections

3.1.3, 3.3.3, 3.7.1, 4.2.2, 4.2.6, 4.2.9, 9.4.2, 9.8.3, 9.9.2, 9.10.1, 10.3.2, 12.2.1, **13.4**

TIME

8

Time, Delays and Extensions of

3.2.4, 3.7.4, 5.2.3, 7.2.1, 7.3.1, 7.4, **8.3**, 9.5.1, 9.7, 10.3.2, 10.4, 14.3.2, 15.1.6, 15.2.5

Time Limits

2.1.2, 2.2, 2.5, 3.2.2, 3.10, 3.11, 3.12.5, 3.15.1, 4.2, 5.2, 5.3, 5.4, 6.2.4, 7.3, 7.4, 8.2, 9.2, 9.3.1, 9.3.3, 9.4.1, 9.5, 9.6, 9.7, 9.8, 9.9, 9.10, 12.2, 13.4, 14, 15.1.2, 15.1.3, 15.4

Time Limits on Claims

3.7.4, 10.2.8, 15.1.2, 15.1.3

Title to Work

9.3.2, 9.3.3

UNCOVERING AND CORRECTION OF WORK

12

Uncovering of Work

12.1

Unforeseen Conditions, Concealed or Unknown

3.7.4, 8.3.1, 10.3

Unit Prices

7.3.3.2, 9.1.2

Use of Documents

1.1.1, 1.5, 2.3.6, 3.12.6, 5.3

Use of Site

3.13, 6.1.1, 6.2.1

Values, Schedule of

9.2, 9.3.1

Waiver of Claims by the Architect

13.3.2

Waiver of Claims by the Contractor

9.10.5, 13.3.2, **15.1.7**

Waiver of Claims by the Owner

9.9.3, 9.10.3, 9.10.4, 12.2.2.1, 13.3.2, 14.2.4, **15.1.7**

Waiver of Consequential Damages

14.2.4, 15.1.7

Waiver of Liens

9.3, 9.10.2, 9.10.4

Waivers of Subrogation

6.1.1, **11.3**

Warranty

3.5, 4.2.9, 9.3.3, 9.8.4, 9.9.1, 9.10.2, 9.10.4, 12.2.2, 15.1.2

Weather Delays

8.3, 15.1.6.2

Work, Definition of

1.1.3

Written Consent

1.5.2, 3.4.2, 3.7.4, 3.12.8, 3.14.2, 4.1.2, 9.3.2, 9.10.3, 13.2, 13.3.2, 15.4.4.2

Written Interpretations

4.2.11, 4.2.12

Written Orders

1.1.1, 2.4, 3.9, 7, 8.2.2, 12.1, 12.2, 13.4.2, 14.3.1

ARTICLE 1 GENERAL PROVISIONS

§ 1.1 Basic Definitions

§ 1.1.1 The Contract Documents

The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement) and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement, and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive, or (4) a written order for a minor change in the Work issued by the Owner. Unless specifically enumerated in the Agreement, the Contract Documents do not include the advertisement or invitation to bid, Instructions to Bidders, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, the Contractor's bid or proposal, or portions of Addenda relating to bidding or proposal requirements.

§ 1.1.2 The Contract

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Contractor and the Architect or the Architect's consultants, (2) between the Owner and a Subcontractor or a Sub-subcontractor, (3) between the Owner and the Architect or the Architect's consultants, or (4) between any persons or entities other than the Owner and the Contractor. The Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Architect's duties.

§ 1.1.3 The Work

The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment, and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

§ 1.1.4 The Project

The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner and by Separate Contractors.

§ 1.1.5 The Drawings

The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules, and diagrams.

§ 1.1.6 The Specifications

The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services.

§ 1.1.7 Instruments of Service

Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect's consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

§ 1.2 Correlation and Intent of the Contract Documents

§ 1.2.1 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

§ 1.2.1.1 The invalidity of any provision of the Contract Documents shall not invalidate the Contract or its remaining provisions. If it is determined that any provision of the Contract Documents violates any law, or is otherwise invalid or unenforceable, then that provision shall be revised to the extent necessary to make that provision legal and enforceable. In such case the Contract Documents shall be construed, to the fullest extent permitted by law, to give effect to the parties' intentions and purposes in executing the Contract.

§ 1.2.2 Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

§ 1.2.3 Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

§ 1.3 Capitalization

Terms capitalized in these General Conditions include those that are (1) specifically defined, (2) the titles of numbered articles, or (3) the titles of other documents published by the American Institute of Architects.

§ 1.4 Interpretation

In the interest of brevity the Contract Documents frequently omit modifying words such as “all” and “any” and articles such as “the” and “an,” but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

§ 1.5 Ownership and Use of Drawings, Specifications, and Other Instruments of Service

§ 1.5.1 The Architect and the Architect’s consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and retain all common law, statutory, and other reserved rights in their Instruments of Service, including copyrights. The Contractor, Subcontractors, Sub-subcontractors, and suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with the Project is not to be construed as publication in derogation of the Architect’s or Architect’s consultants’ reserved rights.

§ 1.5.2 The Contractor, Subcontractors, Sub-subcontractors, and suppliers are authorized to use and reproduce the Instruments of Service provided to them, solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and suppliers may not use the Instruments of Service on other projects or for additions to the Project outside the scope of the Work without the specific written consent of the Owner.

§ 1.6 Notice

§ 1.6.1 Except as otherwise provided in Section 1.6.2, where the Contract Documents require one party to notify or give notice to the other party, such notice shall be provided in writing to the designated representative of the party to whom the notice is addressed and shall be deemed to have been duly served if delivered in person, by mail, by courier, or by electronic transmission.

§ 1.6.2 Notice of Claims as provided in Section 15.1.3 shall be provided in writing and shall be deemed to have been duly served only if delivered to the designated representative of the party to whom the notice is addressed by certified or registered mail, or by courier providing proof of delivery.

§ 1.7 Digital Data Use and Transmission

If the parties intend to transmit Instruments of Service or any other information or documentation in digital form, they shall endeavor to establish necessary protocols governing such transmissions, unless otherwise already provided in the Agreement or the Contract Documents.

ARTICLE 2 OWNER

§ 2.1 General

§ 2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner’s approval or authorization. Except as otherwise provided in Section 4.2.1, the Architect does not have such authority. The term “Owner” means the Owner or the Owner’s authorized representative.

§ 2.1.2 The Owner shall furnish to the Contractor, within fifteen days after receipt of a written request, information necessary and relevant for the Contractor to evaluate, give notice of, or enforce mechanic’s lien rights. Such information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the site, and the Owner’s interest therein.

§ 2.2 Evidence of the Owner's Financial Arrangements

§ 2.2.1 For the purposes of this Agreement the Owner has provided sufficient and adequate funding for this project. The Contractor may only request such evidence if (1) the Owner fails to make payments to the Contractor as the Contract Documents require; (2) a change in the Work materially changes the Contract Sum; or (3) the Contractor identifies in writing a reasonable concern regarding the Owner's ability to make payment when due. The Owner shall furnish such evidence as a condition precedent to commencement or continuation of the Work or the portion of the Work affected by a material change.

§ 2.3 Information and Services Required of the Owner

§ 2.3.1 Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 3.7.1, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

§ 2.3.2 The Owner may retain an architect lawfully licensed to practice architecture, or an entity lawfully practicing architecture, in the jurisdiction where the Project is located. That person or entity is identified as the Architect in the Agreement and is referred to throughout the Contract Documents as if singular in number.

§ 2.3.5 The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site. The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

§ 2.3.6 The Owner shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness. The Owner shall also furnish any other information or services under the Owner's control and relevant to the Contractor's performance of the Work with reasonable promptness after receiving the Contractor's written request for such information or services.

§ 2.3.6 Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor one copy of the Contract Documents for purposes of making reproductions pursuant to Section 1.5.2.

§ 2.4 Owner's Right to Stop the Work

If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents as required by Section 12.2 or repeatedly fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Section 6.1.3.

§ 2.5 Owner's Right to Carry Out the Work

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a ten-day period after receipt of notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such default or neglect. In such case an appropriate Change Order shall be issued deducting from payments then or thereafter due the Contractor for the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the additional professional design services made necessary by such default, neglect, or failure. If current and future payments are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner. If the Contractor disagrees with the actions of the Owner or the professional design services, or the amounts claimed as costs to the Owner, the Contractor may file a Claim pursuant to Article 15.

ARTICLE 3 CONTRACTOR

§ 3.1 General

§ 3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Contractor shall be lawfully licensed, if required in the jurisdiction where the Project is located. The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor with respect to all matters under this Contract. The term "Contractor" means the Contractor or the Contractor's authorized representative.

§ 3.1.2 The Contractor shall perform the Work in accordance with the Contract Documents.

§ 3.1.3 The Contractor shall not be relieved of its obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Architect in the Owners's administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor.

§ 3.1.4 Progress Meetings. The Contractor shall schedule and conduct meetings with the Owner and as determined by the Owner with the Architect also present, to discuss such matters as procedures, progress, coordination, and the Final Project Schedules. The Contractor shall prepare, record, and promptly distribute minutes of each progress meeting to each attendee and identified stakeholders. The Contractor shall also provide a short-term look-ahead schedule for presentation and review at each progress meeting. The short-term schedule shall be in sufficient detail to allow the Contractor and Owner to make any necessary schedule modifications to maintain the progress of the Work and for adherence to the time frames stipulated in the Agreement. The following shall also be included in the progress meeting agenda:

- .1 Coordination of architectural, structural, mechanical, electrical, civil work or any other item associated with the Work.
- .2 Measures to mitigate adverse effects of construction on the residents of the development during construction.
- .3 Resolving issues with governing agencies.
- .4 Status of submittals, RFI's, COR's and COR's.
- .5 Site safety and associated issues.
- .6 Segregated and comingled material recycling reports.
- .7 Section 3 compliance and status.

§ 3.2 Review of Contract Documents and Field Conditions by Contractor

§ 3.2.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed, and correlated personal observations with requirements of the Contract Documents.

§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.3.4, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Owner any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information in such form as the Owner may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

- .1 If there is a discrepancy between Scope of Work, Specifications and/or Drawings, the Scope of Work shall take precedence followed by the Specifications and lastly the drawings.

§ 3.2.3 The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Owner any nonconformity discovered by or made known to the Contractor as a request for information in such form as the Owner may require.

§ 3.2.4 If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Owner issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall submit Claims as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner, subject to Section 15.1.7, as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those obligations, the Contractor shall not be liable to the Owner for damages resulting from errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

§ 3.3 Supervision and Construction Procedures

§ 3.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences, and procedures, and for coordinating all portions of the Work under the Contract. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences, or procedures, the Contractor shall evaluate the jobsite safety thereof and shall be solely responsible for the jobsite safety of such means, methods, techniques, sequences, or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely notice to the Owner, and shall propose alternative means, methods, techniques, sequences, or procedures. The Owner shall evaluate the proposed alternative solely for conformance with the design intent for the completed construction. Unless the Owner objects to the Contractor's proposed alternative, the Contractor shall perform the Work using its alternative means, methods, techniques, sequences, or procedures and shall not proceed with that portion of the Work without further written instructions from the Owner. If the Contractor is then instructed to proceed with the required means, methods, techniques, sequences or procedures without acceptance of changes proposed by the Contractor, the Owner shall be solely responsible for any loss or damage arising solely from those Owner-required means, methods, techniques, sequences or procedures.

§ 3.3.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors.

§ 3.3.3 The Contractor shall be responsible for inspection of portions of Work already performed to determine that such portions are in proper condition to receive subsequent Work.

§ 3.4 Labor and Materials

§ 3.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

§ 3.4.2 Except in the case of minor changes in the Work authorized by the Owner in accordance with Section 3.12.8, the Contractor may make substitutions only with the consent of the Owner, and in accordance with a Change Order or Construction Change Directive.

§ 3.4.3 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them.

§ 3.5 Warranty

§ 3.5.1 The Contractor warrants to the Owner that materials and equipment furnished under the Contract will be of good quality, new and in conformance with the Contract Documents unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Owner, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

§ 3.5.2 All material, equipment, or other special warranties required by the Contract Documents shall be issued in the name of the Owner, or shall be transferable to the Owner, and shall commence in accordance with Section 9.8.4.

§ 3.6 Taxes

The Contractor shall pay sales, consumer, use and similar taxes for the Work provided by the Contractor that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

§ 3.7 Permits, Fees, Notices and Compliance with Laws

§ 3.7.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay permits other than those acquired and paid by the Owners.

§ 3.7.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work.

§ 3.7.3 If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction. The Contract shall provide the required tenant notices as directed by the Owner.

§ 3.7.4 Concealed or Unknown Conditions

If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner before conditions are disturbed and in no event later than 14 days after first observance of the conditions. The Owner will promptly investigate such conditions and, if the Owner determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend that an equitable adjustment be made in the Contract Sum or Contract Time, or both. If the Owner determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Owner shall promptly notify the Contractor in writing, stating the reasons.

§ 3.7.5 If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, the Contractor shall immediately suspend any operations that would affect them and shall notify the Owner. Upon receipt of such notice, the Owner shall promptly take any action necessary to obtain governmental authorization required to resume the operations. The Contractor shall continue to suspend such operations until otherwise instructed by the Owner but shall continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Article 15.

§ 3.8 Allowances

§ 3.8.1 The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct.

§ 3.8.2 Unless otherwise provided in the Contract Documents,

- .1 allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;
- .2 Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit, and other expenses contemplated for stated allowance amounts shall be included in the allowances; and
- .3 whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Section 3.8.2.1 and (2) changes in Contractor's costs under Section 3.8.2.2.

§ 3.9 Superintendent

§ 3.9.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor.

§ 3.9.2 The Contractor, as soon as practicable after award of the Contract, shall confirm for the Owner of the name and qualifications of the superintendent as identified in the Bid Documents. Within 14 days of receipt of the information, the Owner may notify the Contractor, stating whether the Owner (1) has reasonable objection to the proposed superintendent or (2) requires additional time for review. Failure of the Owner to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 3.9.3 The Contractor shall not employ a proposed superintendent to whom the Owner has made reasonable and timely objection. The Contractor shall not change the superintendent without the Owner's consent, which shall not unreasonably be withheld or delayed.

§ 3.9.4 The Contractor's Superintendent(s) shall be physically present at the jobsite from daily commencement of work to daily completion of work. The site shall be managed daily without interruption. Daily commencement and daily completion are defined as the actual hours of operation for the project.

§ 3.10 Contractor's Construction and Submittal Schedules

§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall submit for the Owner's information a Contractor's construction schedule for the Work. The schedule shall contain detail appropriate for the Project, including (1) the date of commencement of the Work, interim schedule milestone dates, and the date of Substantial Completion; (2) an apportionment of the Work by construction activity; and (3) the time required for completion of each portion of the Work. The schedule shall provide for the orderly progression of the Work to completion and shall not exceed time limits current under the Contract Documents. The schedule shall be revised at appropriate intervals as required by the conditions of the Work and Project.

§ 3.10.2 The Contractor, promptly after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, shall submit a submittal schedule for the Owner's approval. The Owner's approval shall not be unreasonably delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, and (2) allow the Owner reasonable time to review submittals. If the Contractor fails to submit a submittal schedule, or fails to provide submittals in accordance with the approved submittal schedule, the Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the time required for review of submittals.

§ 3.10.3 The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner.

§ 3.11 Documents and Samples at the Site

The Contractor shall make available, at the Project site, the Contract Documents, including Change Orders, Construction Change Directives, and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and the approved Shop Drawings, Product Data, Samples, and similar required submittals. These shall be in electronic form or paper copy, available to the Owner, and delivered to the Owner upon completion of the Work as a record of the Work as constructed.

§ 3.12 Shop Drawings, Product Data and Samples

§ 3.12.1 Shop Drawings are drawings, diagrams, schedules, and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier, or distributor to illustrate some portion of the Work.

§ 3.12.2 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

§ 3.12.3 Samples are physical examples that illustrate materials, equipment, or workmanship, and establish standards by which the Work will be judged.

§ 3.12.4 Shop Drawings, Product Data, Samples, and similar submittals are not Contract Documents. Their purpose is to demonstrate how the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review by the Architect is subject to the limitations of Section 4.2.7. Informational submittals upon which the Architect is not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Architect without action.

§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve, and submit to the Owner, Shop Drawings, Product Data, Samples, and similar submittals required by the Contract Documents, in accordance with the submittal schedule approved by the Owner or, in the absence of an approved submittal

schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of Separate Contractors.

§ 3.12.6 By submitting Shop Drawings, Product Data, Samples, and similar submittals, the Contractor represents to the Owner that the Contractor has (1) reviewed and approved them, (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

§ 3.12.7 The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples, or similar submittals, until the respective submittal has been approved by the Owner.

§ 3.12.8 The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from the requirements of the Contract Documents by the Owner's approval of Shop Drawings, Product Data, Samples, or similar submittals, unless the Contractor has specifically notified the Owner of such deviation at the time of submittal and (1) the Owner has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples, or similar submittals, by the Owner's approval thereof.

§ 3.12.9 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples, or similar submittals, to revisions other than those requested by the Owner on previous submittals. In the absence of such notice, the Owner's approval of a resubmission shall not apply to such revisions.

§ 3.12.10 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures. The Contractor shall not be required to provide professional services in violation of applicable law.

§ 3.12.10.1 If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of the Contractor by the Contract Documents, the Owner will specify all performance and design criteria that such services must satisfy. The Contractor shall be entitled to rely upon the adequacy and accuracy of the performance and design criteria provided in the Contract Documents. The Contractor shall cause such services or certifications to be provided by an appropriately licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings, and other submittals prepared by such professional. Shop Drawings, and other submittals related to the Work, designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Owner. The Owner shall be entitled to rely upon the adequacy and accuracy of the services, certifications, and approvals performed or provided by such design professionals, provided the Owner has specified to the Contractor the performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Owner will review and approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.

§ 3.12.10.2 If the Contract Documents require the Contractor's design professional to certify that the Work has been performed in accordance with the design criteria, the Contractor shall furnish such certifications to the Architect at the time and in the form specified by the Architect.

§ 3.13 Use of Site

The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, lawful orders of public authorities, and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

§ 3.14 Cutting and Patching

§ 3.14.1 The Contractor shall be responsible for cutting, fitting, or patching required to complete the Work or to make its parts fit together properly. All areas requiring cutting, fitting, or patching shall be restored to the condition existing prior to the cutting, fitting, or patching, unless otherwise required by the Contract Documents.

§ 3.14.2 The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or Separate Contractors by cutting, patching, or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter construction by the Owner or a Separate Contractor except with written consent of the Owner and of the Separate Contractor. Consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold, from the Owner or a Separate Contractor, its consent to cutting or otherwise altering the Work.

§ 3.15 Cleaning Up

§ 3.15.1 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials and rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery, and surplus materials from and about the Project. Contractor to be in compliance with Section 6002 of the Solid Waste Disposal Act as amended by Resource Conservation & Recovery Act.

§ 3.15.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and the Owner shall be entitled to reimbursement from the Contractor.

§ 3.16 Access to Work

The Contractor shall provide the Owner and Architect with access to the Work in preparation and progress wherever located.

§ 3.17 Royalties, Patents and Copyrights

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner harmless from loss on account thereof, but shall not be responsible for defense or loss when a particular design, process, or product of a particular manufacturer or manufacturers is required by the Contract Documents, or where the copyright violations are contained in Drawings, Specifications, or other documents prepared by the Owner. However, if an infringement of a copyright or patent is discovered by, or made known to, the Contractor, the Contractor shall be responsible for the loss unless the information is promptly furnished to the Owner. Contractor is to be in compliance with the Right of Inventions Act (37 CFR Part 401).

§ 3.18 Indemnification

§ 3.18.1 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss, or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Section 3.18.

§ 3.18.2 In claims against any person or entity indemnified under this Section 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, the indemnification obligation under Section 3.18.1 shall not be limited by a limitation on amount or type of damages, compensation, or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts, or other employee benefit acts.

ARTICLE 4 ARCHITECT

§ 4.1 General

§ 4.1.1 The Architect is the person or entity retained by the Owner pursuant to Section 2.3.2 and identified as such in the Agreement.

§ 4.1.2 Duties, responsibilities, and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified, or extended without written consent of the Owner, Contractor, and Architect. Consent shall not be unreasonably withheld.

§ 4.2 Administration of the Contract

§ 4.2.1 The Owner will provide administration of the Contract as described in the Contract Documents during construction until the date the Owner issues the final Certificate for Payment.

§ 4.2.2 The Owner will visit the site at intervals appropriate to the stage of construction to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Owner will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Owner will not have control over, charge of, or responsibility for the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents.

§ 4.2.3 On the basis of the site visits, the Owner will identify (1) known deviations from the Contract Documents, (2) known deviations from the most recent construction schedule submitted by the Contractor, and (3) defects and deficiencies observed in the Work. The Owner will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Owner will not have control over or charge of, and will not be responsible for acts or omissions of, the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

§ 4.2.4 The Owner will conduct a mandatory pre-construction meeting with the Contractor. The meeting will include but is not limited to a review of the scope of work, project schedules, general requirements for construction work, jobsite security, staging and storage areas, material recycling and salvage, jobsite cleanup, and tests, samples and construction observation. The meeting will also include a review of the submittal process for applications for payment, the change order process, the process for progress payments, the final application for payment, and release of retention. A review of the Certified Payroll process will also be conducted. A separate Certified Payroll training session will be conducted by the Owner with the Contractor and with each subcontractor.

§ 4.2.5 A separate meeting will be also be conducted to review the Section 3 plan submitted by the Contractor and to review of the Section 3 reporting procedures.

§ 4.2.6 The Contractor shall contact the local jurisdiction to conduct a pre-construction conference with building officials and other local agencies as applicable for the project.

§ 4.2.4 Communications

Except as otherwise provided in the Contract Documents or when direct communications have been specially authorized, the Owner and Contractor shall endeavor to communicate with each other directly about matters arising out of or relating to the Contract. Communications by and with the Architect's consultants shall be through the Owner. Communications by and with Subcontractors and suppliers shall be through the Contractor. Communications by and with Separate Contractors shall be through the Owner. The Contract Documents may specify other communication protocols.

§ 4.2.5 Based on the Owner's evaluations of the Contractor's Applications for Payment, the Owner will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

§ 4.2.6 The Owner has authority to reject Work that does not conform to the Contract Documents. Whenever the Owner considers it necessary or advisable, the Owner will have authority to require inspection or testing of the Work in accordance with Sections 13.4.2 and 13.4.3, whether or not the Work is fabricated, installed or completed. However, neither this authority of the Owner nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Owner to the Contractor, Subcontractors, suppliers, their agents or employees, or other persons or entities performing portions of the Work.

§ 4.2.7 The Owner and/or Architect will review and approve, or take other appropriate action upon, the Contractor's submittals such as Shop Drawings, Product Data, and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Owner and/or Architect's action will be taken in accordance with the submittal schedule approved by the Owner or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Owner's professional judgment to permit adequate review. Review of such submittals is not conducted for the

purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Owner's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Sections 3.3, 3.5, and 3.12. The Owner and/or Architect's review shall not constitute approval of safety precautions or of any construction means, methods, techniques, sequences, or procedures. The Owner's and/or Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

§ 4.2.8 The Owner will prepare Change Orders and Construction Change Directives, and may order minor changes in the Work as provided in Section 7.4. The Owner will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

§ 4.2.9 The Owner will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion pursuant to Section 9.8; written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Section 9.10; and issue a final Certificate for Payment pursuant to Section 9.10.

§ 4.2.11 The Owner will interpret and decide matters concerning performance under, and requirements of, the Contract Documents. The Owner's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness.

§ 4.2.12 Interpretations and decisions of the Owner will be consistent with the intent of, and reasonably inferable from, the Contract Documents and will be in writing or in the form of drawings..

§ 4.2.13 The Owner's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

§ 4.2.14 The Owner will review and respond to requests for information about the Contract Documents. The Owner's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Architect will assist the Owner and respond to Requests For Information (RFI's) as directed by the Owner and will prepare and issue supplemental Drawings and Specifications in response to the Requests For Information.

ARTICLE 5 SUBCONTRACTORS

§ 5.1 Definitions

§ 5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include a Separate Contractor or the subcontractors of a Separate Contractor.

§ 5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term "Sub-subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

§ 5.2 Award of Subcontracts and Other Contracts for Portions of the Work

§ 5.2.1 Unless otherwise stated in the Contract Documents, the Contractor, as soon as practicable after award of the Contract, shall confirm for the Owner of the persons or entities for each principal portion of the Work, including those who are to furnish materials or equipment fabricated to a special design as identified in the Bid Documents. Within 14 days of receipt of the information, the Owner may notify the Contractor whether the Owner (1) has reasonable objection to any such proposed person or entity or (2) requires additional time for review. Failure of the Owner to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection. The Contractor shall ensure that all and any Subcontractor(s) are not on any Debarment Lists and are Not Excluded from performing work on Federally Funded Projects. The Contractor shall provide written evidence of such to the Owner prior to the commencement of work.

§ 5.2.3 If the Owner has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner has no reasonable objection. If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. However, no increase in the Contract Sum or Contract Time shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.

§ 5.2.4 The Contractor shall not substitute a Subcontractor, person, or entity for one previously selected if the Owner makes reasonable objection to such substitution.

§ 5.3 Subcontractual Relations

By appropriate written agreement, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor's Work that the Contractor, by these Contract Documents, assumes toward the Owner and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies, and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement that may be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

§ 5.4 Contingent Assignment of Subcontracts

§ 5.4.1 Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner, provided that

- .1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor; and
- .2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

When the Owner accepts the assignment of a subcontract agreement, the Owner assumes the Contractor's rights and obligations under the subcontract.

§ 5.4.2 Upon such assignment, if the Work has been suspended for more than 30 days, the Subcontractor's compensation shall be equitably adjusted for increases in cost resulting from the suspension.

§ 5.4.3 Upon assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor contractor or other entity. If the Owner assigns the subcontract to a successor contractor or other entity, the Owner shall nevertheless remain legally responsible for all of the successor contractor's obligations under the subcontract.

ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

§ 6.1 Owner's Right to Perform Construction and to Award Separate Contracts

§ 6.1.1 The term "Separate Contractor(s)" shall mean other contractors retained by the Owner under separate agreements. The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and with Separate Contractors retained under Conditions of the Contract substantially similar to those of this Contract, including those provisions of the Conditions of the Contract related to insurance and waiver of subrogation.

§ 6.1.2 When separate contracts are awarded for different portions of the Project or other construction or operations on the site, the term “Contractor” in the Contract Documents in each case shall mean the Contractor who executes each separate Owner-Contractor Agreement.

§ 6.1.3 The Owner shall provide for coordination of the activities of the Owner’s own forces and of each Separate Contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with any Separate Contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to its construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, Separate Contractors, and the Owner until subsequently revised.

§ 6.1.4 Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner’s own forces or with Separate Contractors, the Owner or its Separate Contractors shall have the same obligations and rights that the Contractor has under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6, and Articles 10, 11, and 12.

§ 6.2 Mutual Responsibility

§ 6.2.1 The Contractor shall afford the Owner and Separate Contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor’s construction and operations with theirs as required by the Contract Documents.

§ 6.2.2 If part of the Contractor’s Work depends for proper execution or results upon construction or operations by the Owner or a Separate Contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly notify the Owner of apparent discrepancies or defects in the construction or operations by the Owner or Separate Contractor that would render it unsuitable for proper execution and results of the Contractor’s Work. Failure of the Contractor to notify the Owner of apparent discrepancies or defects prior to proceeding with the Work shall constitute an acknowledgment that the Owner’s or Separate Contractor’s completed or partially completed construction is fit and proper to receive the Contractor’s Work. The Contractor shall not be responsible for discrepancies or defects in the construction or operations by the Owner or Separate Contractor that are not apparent.

§ 6.2.3 The Contractor shall reimburse the Owner for costs the Owner incurs that are payable to a Separate Contractor because of the Contractor’s delays, improperly timed activities or defective construction. The Owner shall be responsible to the Contractor for costs the Contractor incurs because of a Separate Contractor’s delays, improperly timed activities, damage to the Work or defective construction.

§ 6.2.4 The Contractor shall promptly remedy damage that the Contractor wrongfully causes to completed or partially completed construction or to property of the Owner or Separate Contractor as provided in Section 10.2.5.

§ 6.2.5 The Owner and each Separate Contractor shall have the same responsibilities for cutting and patching as are described for the Contractor in Section 3.14.

§ 6.2.6 The Contractor is obligated to comply with all Davis-Bacon and/or State Prevailing regulations if applicable, and shall inform all Subcontractors of this mandatory requirement. Strict compliance of the provisions of certified payrolls and monitoring of that compliance is a direct responsibility of the Contractor for each Subcontractor. Failure of the Contractor to monitor Davis-Bacon requirements including certified payroll compliance by Subcontractors, as evidenced by the Owner’s review and written correction notices provided to the Contractor of non-compliance, will result in delay of progress payments to the Contractor by the Owner.

§ 6.3 Owner’s Right to Clean Up

If a dispute arises among the Contractor, Separate Contractors, and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and the Owner will allocate the cost among those responsible.

ARTICLE 7 CHANGES IN THE WORK

§ 7.1 General

§ 7.1.1

- .1 The Owner anticipates that it will desire the Contractor to accomplish Work that was not able to be reasonably defined in sufficient detail during the solicitation for Bids for this Project. The

- Contractor agrees to perform such Owner Directed Work in accordance with the Contract Documents.
- .2 A fixed sum has been determined by the Owner for each individual and separate Owner Directed Work Item. The total Contract Amount includes the lump sum total of all combined Owner Directed Work Items. It is at the Sole Discretion and Decision of the Owner to Authorize the Contractor to proceed with each individual Owner Directed Work Item. If any or all Owner Directed Work Items are determined to be excluded from the Work, the Owner will provide a Change Order to the Contractor to deduct those amounts from the Contract.
 - .3 If any or all Owner Directed Work Items are authorized by the Owner to be completed. The Owner will issue an Owner Directed Work Order to the Contractor for that Work Item.
 - .4 For each Owner Directed Work Order issued to the Owner, the Contractor shall provide a complete and detailed cost estimate for that item to the Owner. The Contractor's estimate shall be approved by the Owner, prior to the commencement of any Owner Directed Work. Adjustments to the Contract may be made as an additive or deductive Change Order as determined by the difference between the Owner Directed Work Item Allowance, the Final Approved Estimated Cost as submitted by the Contractor, and the final Analysis of the Cost as conducted by the Owner.
 - .5 The Contractor shall provide a complete and accurate time and material account and reconciliation report to the Owner for each issued work authorization for each Owner Directed Work Item.
 - .6 Owner Directed Work Items are defined in the Contract Documents.

§ 7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents.

All changes in the Work shall be completed for a Fixed Fee.

- .1 Overhead, Profit, and General Conditions
 - (a.) The allowed markup shall cover all indirect project costs, including but not limited to: project Overhead, Profit, and General Conditions
 - (b.) The Contractor shall be allowed a maximum of 14% Overhead, Profit, and General Conditions, on the cost of craft labor, equipment, small tools and materials for self-performed Change Order work.
 - (c.) The Contractor shall be allowed a maximum of 8% Overhead, Profit, and General Conditions on the cost of craft labor, equipment, small tools and materials for Subcontractor Change Order work. The Contractor is not allowed to take a profit on the profit of the Subcontractor, as stated in form HUD-5370, section 29.
 - (d.) A Subcontractor shall be allowed a maximum of 14% of the cost of craft labor, equipment, materials, and small tools for Overhead, Profit, and General Conditions, for performing self-performed Change Order work.
 - (e.) A Lower Tier Subcontractor shall be allowed a maximum of 14% of the cost of craft labor, equipment, materials, and small tools for Overhead, Profit, and General Conditions, for performing Change Order work.

§ 7.1.2 A Change Order shall be based upon agreement among the Owner and Contractor. A Construction Change Directive requires agreement by the Owner and may or may not be agreed to by the Contractor. An order for a minor change in the Work may be issued by the Owner.

§ 7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents. The Contractor shall proceed promptly with changes in the Work, unless otherwise provided in the Change Order, Construction Change Directive, or order for a minor change in the Work.

§ 7.2 Change Orders

§ 7.2.1 A Change Order is a written instrument prepared by the Owner and signed by the Owner and Contractor stating their agreement upon all of the following:

- .1 The change in the Work;
- .2 The amount of the adjustment, if any, in the Contract Sum; and
- .3 The extent of the adjustment, if any, in the Contract Time.

§ 7.3 Construction Change Directives

§ 7.3.1

A Construction Change Directive shall be provided as stipulated by the Owner and in accordance with the King County Housing Authority Change Order Request documents (COR) per Exhibit as designated in Document A101-2017, Article 9.1.7.2. The COR is a written order prepared by the Owner and signed by the Owner and upon Owner's request, by the Architect, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

§ 7.3.2 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order. The Owner's Change Order Request / Change Order Approval Form (COR/COA) per Exhibit as designated in Contract Document A101-2017, Article 9.1.7.2, including the General Contractor Breakdown Summary (GC-COR) Exhibit, and the Subcontractor Breakdown Summary (SC-COR) Exhibit, shall be used by the Contractor for all construction change directives.

§ 7.3.3 If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:

- .1 Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
- .2 Unit prices stated in the Contract Documents or subsequently agreed upon;
- .3 Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
- .4 As provided in Section 7.3.4.

§ 7.3.4 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Owner shall determine the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Owner may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.4 shall be limited to the following:

- .1 Costs of labor, including applicable payroll taxes, fringe benefits required by agreement or custom, workers' compensation insurance, and other employee costs approved by the Owner;
- .2 Costs of materials, supplies, and equipment, including cost of transportation, whether incorporated or consumed;
- .3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;
- .4 Costs of premiums for all bonds and insurance, permit fees, and sales, use, or similar taxes, directly related to the change; and
- .5 Costs of supervision and field office personnel directly attributable to the change.

§ 7.3.5 If the Contractor disagrees with the adjustment in the Contract Time, the Contractor may make a Claim in accordance with applicable provisions of Article 15.

§ 7.3.6 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Owner of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

§ 7.3.7 A Construction Change Directive signed by the Contractor indicates the Contractor's agreement therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

§ 7.3.8 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Owner. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

§ 7.3.9 Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The Owner will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Owner determines to be reasonably justified. The Owner's interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15.

§ 7.3.10 When the Owner and Contractor agree with a determination made concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and the Owner will prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

§ 7.4 Minor Changes in the Work

The Architect may order minor changes in the Work that are consistent with the intent of the Contract Documents and do not involve an adjustment in the Contract Sum or an extension of the Contract Time. The Architect's order for minor changes shall be in writing. If the Contractor believes that the proposed minor change in the Work will affect the Contract Sum or Contract Time, the Contractor shall notify the Architect and shall not proceed to implement the change in the Work. If the Contractor performs the Work set forth in the Architect's order for a minor change without prior notice to the Architect that such change will affect the Contract Sum or Contract Time, the Contractor waives any adjustment to the Contract Sum or extension of the Contract Time.

ARTICLE 8 TIME

§ 8.1 Definitions

§ 8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

§ 8.1.2 The date of commencement of the Work is the date established in the Agreement.

§ 8.1.3 The date of Substantial Completion is the date certified by the Owner in accordance with Section 9.8.

§ 8.1.4 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

§ 8.2 Progress and Completion

§ 8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement, the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

§ 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, commence the Work prior to the effective date of insurance required to be furnished by the Contractor and Owner.

§ 8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

§ 8.3 Delays and Extensions of Time

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by (1) an act or neglect of the Owner or Architect, of an employee of either, or of a Separate Contractor; (2) by changes ordered in the Work; (3) by labor disputes, fire, unusual delay in deliveries, unavoidable casualties, adverse weather conditions documented in accordance with Section 15.1.6.2, or other causes beyond the Contractor's control; (4) by delay authorized by the Owner pending mediation and binding dispute resolution; or (5) by other causes that the Contractor asserts, and the Owner determines, justify delay, then the Contract Time shall be extended for such reasonable time as the Owner may determine.

§ 8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Article 15.

§ 8.3.3 This Section 8.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents.

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 Contract Sum

§ 9.1.1 The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

§ 9.1.2 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed so that application of such unit prices to the actual quantities causes substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

§ 9.2 Schedule of Values

Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, the Contractor shall submit a schedule of values to the Owner before the first Application for Payment, allocating the entire Contract Sum to the various portions of the Work. The schedule of values shall be prepared in the form, and supported by the data to substantiate its accuracy, required by the Owner. This schedule shall be used as a basis for reviewing the Contractor's Applications for Payment. Any changes to the schedule of values shall be submitted to the Owner and supported by such data to substantiate its accuracy as the Owner may require, and unless objected to by the Owner, shall be used as a basis for reviewing the Contractor's subsequent Applications for Payment.

§ 9.3 Applications for Payment

§ 9.3.1 At least ten days before the date established for each progress payment, the Contractor shall submit to the Owner an itemized Application for Payment using AIA Form G701 and AIA Form G702 and in accordance with Article 5 of A101-2017 prepared in accordance with the schedule of values, if required under Section 9.2, for completed portions of the Work. The application shall be notarized, if required, and supported by all data substantiating the Contractor's right to payment that the Owner require, such as copies of requisitions, and releases and waivers of liens from Subcontractors and suppliers, and shall reflect retainage if provided for in the Contract Documents.

§ 9.3.1.1 As provided in Section 7.3.9, such applications may include requests for payment on account of changes in the Work that have been properly authorized by Construction Change Directives.

§ 9.3.1.2 Applications for Payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to pay a Subcontractor or supplier, unless such Work has been performed by others whom the Contractor intends to pay.

§ 9.3.2 Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage, and transportation to the site, for such materials and equipment stored off the site.

§ 9.3.3 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information, and belief, be free and clear of liens, claims, security interests, or encumbrances, in favor of the Contractor, Subcontractors, suppliers, or other persons or entities that provided labor, materials, and equipment relating to the Work.

§ 9.4 Certificates for Payment

§ 9.4.1 The Architect will, within seven days after receipt of the Contractor's Application for Payment, either (1) issue to the Owner a Certificate for Payment in the full amount of the Application for Payment, with a copy to the Contractor; or (2) issue to the Owner a Certificate for Payment for such amount as the Architect determines is properly due, and notify the Contractor and Owner of the Architect's reasons for withholding certification in part as provided in Section 9.5.1; or (3) withhold certification of the entire Application for Payment, and notify the Contractor and Owner of the Architect's reason for withholding certification in whole as provided in Section 9.5.1.

§ 9.4.2 The issuance of a Certificate for Payment will constitute a representation by the Owner, based on the Owner's evaluation of the Work and the data in the Application for Payment, that, to the best of the Owner's knowledge, information, and belief, the Work has progressed to the point indicated, the quality of the Work is in accordance with the Contract Documents, and that the Contractor is entitled to payment in the amount certified. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion, and to specific qualifications expressed by the Owner. However, the issuance of a Certificate for Payment will not be a representation that the Owner has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work; (2) reviewed construction means, methods, techniques, sequences, or procedures; (3) reviewed copies of requisitions received from Subcontractors and suppliers and other data requested by the Owner to substantiate the Contractor's right to payment; or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

§ 9.5 Decisions to Withhold Certification

§ 9.5.1 The Owner may withhold Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Owner's opinion the representations to the Owner required by Section 9.4.2 cannot be made. If the Owner is unable to certify payment in the amount of the Application, the Owner will notify the Contractor as provided in Section 9.4.1. If the Contractor and Owner cannot agree on a revised amount, the Owner will promptly release Payment for the amount for which the Owner is able to make such representations. The Owner may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Payment previously issued, to such extent as may be necessary in the Owner's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in Section 3.3.2, because of

- .1 defective Work not remedied;
- .2 third party claims filed or reasonable evidence indicating probable filing of such claims, unless security acceptable to the Owner is provided by the Contractor;
- .3 failure of the Contractor to make payments properly to Subcontractors or suppliers for labor, materials or equipment;
- .4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
- .5 damage to the Owner or a Separate Contractor;
- .6 reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
- .7 repeated failure to carry out the Work in accordance with the Contract Documents.

§ 9.5.2 When either party disputes the Architect's decision regarding a Certificate for Payment under Section 9.5.1, in whole or in part, that party may submit a Claim in accordance with Article 15.

§ 9.5.3 When the reasons for withholding certification are removed, approval will be made for amounts previously withheld.

§ 9.5.4 If the Owner withholds payment under Section 9.5.1.3, the Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or supplier to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the Owner makes payments by joint check, the Owner shall notify and the Contractor shall reflect such payment on its next Application for Payment.

§ 9.6 Progress Payments

§ 9.6.1 After the Owner has issued an Application for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents.

§ 9.6.2 The Contractor shall pay each Subcontractor, no later than seven days after receipt of payment from the Owner, the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

§ 9.6.3 The Owner will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Owner on account of portions of the Work done by such Subcontractor.

§ 9.6.4 The Owner has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven days, the Owner shall have the right to contact Subcontractors and suppliers to ascertain whether they have been properly paid. The Owner shall have an obligation to pay, or to see to the payment of money to, a Subcontractor or supplier, except as may otherwise be required by law.

§ 9.6.5 The Contractor's payments to suppliers shall be treated in a manner similar to that provided in Sections 9.6.2, 9.6.3 and 9.6.4.

§ 9.6.6 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

§ 9.6.7 Unless the Contractor provides the Owner with a payment bond in the full penal sum of the Contract Sum, payments received by the Contractor for Work properly performed by Subcontractors or provided by suppliers shall be held by the Contractor for those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the Contractor for which payment was made by the Owner. Nothing contained herein shall require money to be placed in a separate account and not commingled with money of the Contractor, create any fiduciary liability or tort liability on the part of the Contractor for breach of trust, or entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

§ 9.6.8 Provided the Owner has fulfilled its payment obligations under the Contract Documents, the Contractor shall defend and indemnify the Owner from all loss, liability, damage or expense, including reasonable attorney's fees and litigation expenses, arising out of any lien claim or other claim for payment by any Subcontractor or supplier of any tier. Upon receipt of notice of a lien claim or other claim for payment, the Owner shall notify the Contractor. If approved by the applicable court, when required, the Contractor may substitute a surety bond for the property against which the lien or other claim for payment has been asserted.

§ 9.7 Failure of Payment

If the Owner does not issue a Certificate for Payment, through no fault of the Contractor, within seven days after receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven days after the date established in the Contract Documents, the amount certified by the Owner or awarded by binding dispute resolution, then the Contractor may, upon seven additional days' notice to the Owner, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided for in the Contract Documents.

§ 9.8 Substantial Completion

§ 9.8.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use.

§ 9.8.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Owner a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

§ 9.8.3 Upon receipt of the Contractor's list, the Owner will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Owner's inspection discloses any item, whether or not included on the Contractor's list, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Owner. In such case, the Contractor shall then submit a request for another inspection by the Owner to determine Substantial Completion.

§ 9.8.4 When the Work or designated portion thereof is substantially complete, the Owner will prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion; establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance; and fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

§ 9.8.5 The Certificate of Substantial Completion shall be submitted to the Contractor for written acceptance of responsibilities assigned in the Certificate. Upon such acceptance, and consent of surety if any, the Owner shall make payment of retainage applying to the Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

§ 9.9 Partial Occupancy or Use

§ 9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor shall prepare and submit a list to the Owner as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor.

§ 9.9.2 Immediately prior to such partial occupancy or use, the Owner and Contractor shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

§ 9.9.3 Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

§ 9.10 Final Completion and Final Payment

§ 9.10.1 Upon receipt of the Contractor's notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Owner will promptly make such inspection. When the Owner finds the Work acceptable under the Contract Documents and the Contract fully performed, the Owner will promptly notify the Contractor that to the best of the Owner's knowledge, information and belief, and on the basis of the Owner's on-site visits and inspections, the Work has been completed in accordance with the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Application for Payment is due and payable. The Owner's acceptance will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

§ 9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Owner (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect, (3) a written statement that the Contractor knows of no reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment, (5) documentation of any special warranties, such as manufacturers' warranties or specific Subcontractor warranties, and (6) if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts and releases and waivers of liens, claims, security interests, or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien, claim, security interest, or encumbrance. If a lien, claim, security interest, or encumbrance remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging the lien, claim, security interest, or encumbrance, including all costs and reasonable attorneys' fees.

§ 9.10.3 If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, the Owner shall, upon application by

the Contractor and certification by the Owner, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed, corrected, and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of the surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Owner prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

§ 9.10.4 The making of final payment shall constitute a waiver of Claims by the Owner except those arising from

- .1 liens, Claims, security interests, or encumbrances arising out of the Contract and unsettled;
- .2 failure of the Work to comply with the requirements of the Contract Documents;
- .3 terms of special warranties required by the Contract Documents; or
- .4 audits performed by the Owner, if permitted by the Contract Documents, after final payment.

§ 9.10.5 Acceptance of final payment by the Contractor, a Subcontractor, or a supplier, shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

§ 10.1 Safety Precautions and Programs

The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the Contract.

§ 10.2 Safety of Persons and Property

§ 10.2.1 The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury, or loss to

- .1 employees on the Work and other persons who may be affected thereby;
- .2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody, or control of the Contractor, a Subcontractor, or a Sub-subcontractor; and
- .3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.

§ 10.2.2 The Contractor shall comply with, and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities, bearing on safety of persons or property or their protection from damage, injury, or loss.

§ 10.2.3 The Contractor shall implement, erect, and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards; promulgating safety regulations; and notifying the owners and users of adjacent sites and utilities of the safeguards.

§ 10.2.4 When use or storage of explosives or other hazardous materials or equipment, or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

§ 10.2.5 The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Sections 10.2.1.2 and 10.2.1.3 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 10.2.1.2 and 10.2.1.3. The Contractor may make a Claim for the cost to remedy the damage or loss to the extent such damage or loss is attributable to acts or omissions of the Owner or Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 3.18.

§ 10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner.

§ 10.2.7 The Contractor shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition.

§ 10.2.8 Injury or Damage to Person or Property

If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, notice of the injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

§ 10.3 Hazardous Materials and Substances

§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials or substances. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and notify the Owner of the condition.

§ 10.3.2 Upon receipt of the Contractor's notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of the material or substance or who are to perform the task of removal or safe containment of the material or substance. The Contractor will promptly reply to the Owner in writing stating whether or not there is reasonable objection to the persons or entities proposed by the Owner. If the Contractor has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor has no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable additional costs of shutdown, delay, and start-up.

§ 10.3.3 To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Section 10.3.1 and has not been rendered harmless, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), except to the extent that such damage, loss, or expense is due to the fault or negligence of the party seeking indemnity.

§ 10.3.4 The Owner shall not be responsible under this Section 10.3 for hazardous materials or substances the Contractor brings to the site unless such materials or substances are required by the Contract Documents. The Owner shall be responsible for hazardous materials or substances required by the Contract Documents, except to the extent of the Contractor's fault or negligence in the use and handling of such materials or substances.

§ 10.3.5 The Contractor shall reimburse the Owner for the cost and expense the Owner incurs (1) for remediation of hazardous materials or substances the Contractor brings to the site and negligently handles, or (2) where the Contractor fails to perform its obligations under Section 10.3.1, except to the extent that the cost and expense are due to the Owner's fault or negligence.

§ 10.3.6 If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall reimburse the Contractor for all cost and expense thereby incurred.

§ 10.4 Emergencies

In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury, or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 15 and Article 7.

ARTICLE 11 INSURANCE AND BONDS

§ 11.1 Contractor's Insurance and Bonds

§ 11.1.1 The Contractor shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Contractor shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Owner, Architect, and Architect's consultants shall be named as additional insureds under the Contractor's commercial general liability policy or as otherwise described in the Contract Documents.

§ 11.1.2 The Contractor shall provide surety bonds of the types, for such penal sums, and subject to such terms and conditions as required by the Contract Documents. The Contractor shall purchase and maintain the required bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

§ 11.1.3 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

§ 11.1.4 **Notice of Cancellation or Expiration of Contractor's Required Insurance.** Within three (3) business days of the date the Contractor becomes aware of an impending or actual cancellation or expiration of any insurance required by the Contract Documents, the Contractor shall provide notice to the Owner of such impending or actual cancellation or expiration. Upon receipt of notice from the Contractor, the Owner shall, unless the lapse in coverage arises from an act or omission of the Owner, have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by the Contractor. The furnishing of notice by the Contractor shall not relieve the Contractor of any contractual obligation to provide any required coverage.

§ 11.2 Owner's Insurance

§ 11.2.1 The Owner shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Owner shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located.

§ 11.2.2 **Failure to Purchase Required Property Insurance.** If the Owner fails to purchase and maintain the required property insurance, with all of the coverages and in the amounts described in the Agreement or elsewhere in the Contract Documents, the Owner shall inform the Contractor in writing prior to commencement of the Work. Upon receipt of notice from the Owner, the Contractor may delay commencement of the Work and may obtain insurance that will protect the interests of the Contractor, Subcontractors, and Sub-Subcontractors in the Work. When the failure to provide coverage has been cured or resolved, the Contract Sum and Contract Time shall be equitably adjusted. In the event the Owner fails to procure coverage, the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent the loss to the Owner would have been covered by the insurance to have been procured by the Owner. The cost of the insurance shall be charged to the Owner by a Change Order. If the Owner does not provide written notice, and the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain the required insurance, the Owner shall reimburse the Contractor for all reasonable costs and damages attributable thereto.

§ 11.2.3 **Notice of Cancellation or Expiration of Owner's Required Property Insurance.** Within three (3) business days of the date the Owner becomes aware of an impending or actual cancellation or expiration of any property insurance required by the Contract Documents, the Owner shall provide notice to the Contractor of such impending or actual cancellation or expiration. Unless the lapse in coverage arises from an act or omission of the Contractor: (1) the Contractor, upon receipt of notice from the Owner, shall have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by either the Owner or the Contractor; (2) the Contract Time and Contract Sum shall be equitably adjusted; and (3) the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent any loss to the Owner would have been covered by the insurance had it not expired or been cancelled. If the Contractor purchases replacement coverage, the cost of the

insurance shall be charged to the Owner by an appropriate Change Order. The furnishing of notice by the Owner shall not relieve the Owner of any contractual obligation to provide required insurance.

§ 11.3 Waivers of Subrogation

§ 11.3.1 The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents, and employees, each of the other; (2) the Architect and Architect's consultants; and (3) Separate Contractors, if any, and any of their subcontractors, sub-subcontractors, agents, and employees, for damages caused by fire, or other causes of loss, to the extent those losses are covered by property insurance required by the Agreement or other property insurance applicable to the Project, except such rights as they have to proceeds of such insurance. The Owner or Contractor, as appropriate, shall require similar written waivers in favor of the individuals and entities identified above from the Architect, Architect's consultants, Separate Contractors, subcontractors, and sub-subcontractors. The policies of insurance purchased and maintained by each person or entity agreeing to waive claims pursuant to this section 11.3.1 shall not prohibit this waiver of subrogation. This waiver of subrogation shall be effective as to a person or entity (1) even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, (2) even though that person or entity did not pay the insurance premium directly or indirectly, or (3) whether or not the person or entity had an insurable interest in the damaged property.

§ 11.3.2 If during the Project construction period the Owner insures properties, real or personal or both, at or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, to the extent permissible by such policies, the Owner waives all rights in accordance with the terms of Section 11.3.1 for damages caused by fire or other causes of loss covered by this separate property insurance.

§ 11.4 Loss of Use, Business Interruption, and Delay in Completion Insurance

The Owner, at the Owner's option, may purchase and maintain insurance that will protect the Owner against loss of use of the Owner's property, or the inability to conduct normal operations, due to fire or other causes of loss. The Owner waives all rights of action against the Contractor and Architect for loss of use of the Owner's property, due to fire or other hazards however caused.

§ 11.5 Adjustment and Settlement of Insured Loss

§ 11.5.1 A loss insured under the property insurance required by the Agreement shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.5.2. The Owner shall pay the Architect and Contractor their just shares of insurance proceeds received by the Owner, and by appropriate agreements the Architect and Contractor shall make payments to their consultants and Subcontractors in similar manner.

§ 11.5.2 Prior to settlement of an insured loss, the Owner shall notify the Contractor of the terms of the proposed settlement as well as the proposed allocation of the insurance proceeds. The Contractor shall have 14 days from receipt of notice to object to the proposed settlement or allocation of the proceeds. If the Contractor does not object, the Owner shall settle the loss and the Contractor shall be bound by the settlement and allocation. Upon receipt, the Owner shall deposit the insurance proceeds in a separate account and make the appropriate distributions. Thereafter, if no other agreement is made or the Owner does not terminate the Contract for convenience, the Owner and Contractor shall execute a Change Order for reconstruction of the damaged or destroyed Work in the amount allocated for that purpose. If the Contractor timely objects to either the terms of the proposed settlement or the allocation of the proceeds, the Owner may proceed to settle the insured loss, and any dispute between the Owner and Contractor arising out of the settlement or allocation of the proceeds shall be resolved pursuant to Article 15. Pending resolution of any dispute, the Owner may issue a Construction Change Directive for the reconstruction of the damaged or destroyed Work.

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

§ 12.1 Uncovering of Work

§ 12.1.1 If a portion of the Work is covered contrary to the Owner's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by the Owner, be uncovered for the Owner's examination and be replaced at the Contractor's expense without change in the Contract Time.

§ 12.1.2 If a portion of the Work has been covered that the Owner has not specifically requested to examine prior to its being covered, the Owner may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, the Contractor shall be entitled to an equitable adjustment to the Contract Sum and Contract Time as may be appropriate. If such Work is not in accordance with the Contract Documents, the costs of uncovering the Work, and the cost of correction, shall be at the Contractor's expense.

§ 12.2 Correction of Work

§ 12.2.1 Before Substantial Completion

The Contractor shall promptly correct Work rejected by the Owner or failing to conform to the requirements of the Contract Documents, discovered before Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Owner's services and expenses made necessary thereby, shall be at the Contractor's expense.

§ 12.2.2 After Substantial Completion

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 9.9.1, or by terms of any applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of notice from the Owner to do so, unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty. If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner, the Owner may correct it in accordance with Section 2.5.

§ 12.2.2.2 The one-year period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.

§ 12.2.2.3 The one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Section 12.2.

§ 12.2.3 The Contractor shall remove from the site portions of the Work that are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

§ 12.2.4 The Contractor shall bear the cost of correcting destroyed or damaged construction of the Owner or Separate Contractors, whether completed or partially completed, caused by the Contractor's correction or removal of Work that is not in accordance with the requirements of the Contract Documents.

§ 12.2.5 Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to other obligations the Contractor has under the Contract Documents. Establishment of the one-year period for correction of Work as described in Section 12.2.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

§ 12.3 Acceptance of Nonconforming Work

If the Owner prefers to accept Work that is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

ARTICLE 13 MISCELLANEOUS PROVISIONS

§ 13.1 Governing Law

The Contract shall be governed by the law of the place where the Project is located, excluding that jurisdiction's choice of law rules. If the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4.

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§ 13.2 Successors and Assigns

§ 13.2.1 The Owner and Contractor respectively bind themselves, their partners, successors, assigns, and legal representatives to covenants, agreements, and obligations contained in the Contract Documents. Except as provided in Section 13.2.2, neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

§ 13.2.2 The Owner may, without consent of the Contractor, assign the Contract to a lender providing construction financing for the Project, if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate the assignment.

§ 13.3 Rights and Remedies

§ 13.3.1 Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights, and remedies otherwise imposed or available by law.

§ 13.3.2 No action or failure to act by the Owner, or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed upon in writing.

§ 13.4 Tests and Inspections

§ 13.4.1 Tests, inspections, and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules, and regulations or lawful orders of public authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections, and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections, and approvals. The Contractor shall give the Owner timely notice of when and where tests and inspections are to be made so that the Owner may be present for such procedures. The Owner shall bear costs of tests, inspections, or approvals that do not become requirements until after bids are received or negotiations concluded. The Owner shall directly arrange and pay for tests, inspections, or approvals where building codes or applicable laws or regulations so require.

§ 13.4.2 If the Owner, or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection, or approval not included under Section 13.4.1, the Owner will instruct the Contractor to make arrangements for such additional testing, inspection, or approval, by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Owner of when and where tests and inspections are to be made so that the Owner may be present for such procedures. Such costs, except as provided in Section 13.4.3, shall be at the Owner's expense.

§ 13.4.3 If procedures for testing, inspection, or approval under Sections 13.4.1 and 13.4.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure, including those of repeated procedures and compensation for the Owner's services and expenses, shall be at the Contractor's expense.

§ 13.4.4 Required certificates of testing, inspection, or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Owner.

§ 13.4.5 If the Owner is to observe tests, inspections, or approvals required by the Contract Documents, the Owner will do so promptly and, where practicable, at the normal place of testing.

§ 13.4.6 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

§ 13.5 Interest

Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at the rate the parties agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 Termination by the Contractor

§ 14.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 30 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, for any of the following reasons:

- .1 Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;
- .2 An act of government, such as a declaration of national emergency, that requires all Work to be stopped;
- .3 Because the Owner has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents; or
- .4 The Owner has failed to furnish to the Contractor reasonable evidence as required by Section 2.2.

§ 14.1.2 The Contractor may terminate the Contract if, through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, repeated suspensions, delays, or interruptions of the entire Work by the Owner as described in Section 14.3, constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less.

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' notice to the Owner, terminate the Contract and recover from the Owner payment for Work executed, as well as reasonable overhead and profit on Work not executed, and costs incurred by reason of such termination.

§ 14.1.4 If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, or their agents or employees or any other persons or entities performing portions of the Work because the Owner has repeatedly failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven additional days' notice to the Owner, terminate the Contract and recover from the Owner as provided in Section 14.1.3.

§ 14.2 Termination by the Owner for Cause

§ 14.2.1 The Owner may terminate the Contract if the Contractor

- .1 repeatedly refuses or fails to supply enough properly skilled workers or proper materials;
- .2 fails to make payment to Subcontractors or suppliers in accordance with the respective agreements between the Contractor and the Subcontractors or suppliers;
- .3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or
- .4 otherwise is guilty of substantial breach of a provision of the Contract Documents.

§ 14.2.2 When any of the reasons described in Section 14.2.1 exist, the Owner may, without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

- .1 Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;
- .2 Accept assignment of subcontracts pursuant to Section 5.4; and
- .3 Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

§ 14.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

§ 14.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Architect's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, upon application, and this obligation for payment shall survive termination of the Contract.

§ 14.3 Suspension by the Owner for Convenience

§ 14.3.1 The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work, in whole or in part for such period of time as the Owner may determine.

§ 14.3.2 The Contract Sum and Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay, or interruption under Section 14.3.1. Adjustment of the Contract Sum shall include profit. No adjustment shall be made to the extent

- .1 that performance is, was, or would have been, so suspended, delayed, or interrupted, by another cause for which the Contractor is responsible; or
- .2 that an equitable adjustment is made or denied under another provision of the Contract.

§ 14.4 Termination by the Owner for Convenience

§ 14.4.1 The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

§ 14.4.2 Upon receipt of notice from the Owner of such termination for the Owner's convenience, the Contractor shall

- .1 cease operations as directed by the Owner in the notice;
- .2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and
- .3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

§ 14.4.3 In case of such termination for the Owner's convenience, the Owner shall pay the Contractor for Work properly executed; costs incurred by reason of the termination, including costs attributable to termination of Subcontracts; and the termination fee, if any, set forth in the Agreement.

ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 Claims

§ 15.1.1 Definition

A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, a change in the Contract Time, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. The responsibility to substantiate Claims shall rest with the party making the Claim.

§ 15.1.2 Time Limits on Claims

The Owner and Contractor shall commence all Claims and causes of action against the other and arising out of or related to the Contract, whether in contract, tort, breach of warranty or otherwise, in accordance with the requirements of the binding dispute resolution method selected in the Agreement and within the period specified by applicable law, but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all Claims and causes of action not commenced in accordance with this Section 15.1.2.

§ 15.1.3 Notice of Claims

§ 15.1.3.1 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered prior to expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party. Claims by either party under this Section 15.1.3.1 shall be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

§ 15.1.3.2 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party.

§ 15.1.4 Continuing Contract Performance

§ 15.1.4.1 Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents.

§ 15.1.4.2 The Contract Sum and Contract Time shall be adjusted in accordance with the Initial Decision Maker's decision, subject to the right of either party to proceed in accordance with this Article 15. The Architect will issue Certificates for Payment in accordance with the decision of the Initial Decision Maker.

§ 15.1.5 Claims for Additional Cost

If the Contractor wishes to make a Claim for an increase in the Contract Sum, notice as provided in Section 15.1.3 shall be given before proceeding to execute the portion of the Work that is the subject of the Claim. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4.

§ 15.1.6 Claims for Additional Time

§ 15.1.6.1 If the Contractor wishes to make a Claim for an increase in the Contract Time, notice as provided in Section 15.1.3 shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay, only one Claim is necessary.

§ 15.1.6.2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated, and had an adverse effect on the scheduled construction.

§ 15.1.7 Waiver of Claims for Consequential Damages

The Contractor and Owner waive Claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes

- .1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and
- .2 damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit, except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 14. Nothing contained in this Section 15.1.7 shall be deemed to preclude assessment of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

§ 15.2 Initial Decision

§ 15.2.1 Claims, excluding those where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2 or arising under Sections 10.3, 10.4, and 11.5, shall be referred to the Initial Decision Maker for initial decision. The Architect will serve as the Initial Decision Maker, unless otherwise indicated in the Agreement. Except for those Claims excluded by this Section 15.2.1, an initial decision shall be required as a condition precedent to mediation of any Claim. If an initial decision has not been rendered within 30 days after the Claim has been referred to the Initial Decision Maker, the party asserting the Claim may demand mediation and binding dispute resolution without a decision having been rendered. Unless the Initial Decision Maker and all affected parties agree, the Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner.

§ 15.2.2 The Initial Decision Maker will review Claims and within ten days of the receipt of a Claim take one or more of the following actions: (1) request additional supporting data from the claimant or a response with supporting data from the other party, (2) reject the Claim in whole or in part, (3) approve the Claim, (4) suggest a compromise, or (5) advise the parties that the Initial Decision Maker is unable to resolve the Claim if the Initial Decision Maker lacks sufficient information to evaluate the merits of the Claim or if the Initial Decision Maker concludes that, in the Initial Decision Maker's sole discretion, it would be inappropriate for the Initial Decision Maker to resolve the Claim.

§ 15.2.3 In evaluating Claims, the Initial Decision Maker may, but shall not be obligated to, consult with or seek information from either party or from persons with special knowledge or expertise who may assist the Initial Decision Maker in rendering a decision. The Initial Decision Maker may request the Owner to authorize retention of such persons at the Owner's expense.

§ 15.2.4 If the Initial Decision Maker requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of the request, and shall either (1) provide a

response on the requested supporting data, (2) advise the Initial Decision Maker when the response or supporting data will be furnished, or (3) advise the Initial Decision Maker that no supporting data will be furnished. Upon receipt of the response or supporting data, if any, the Initial Decision Maker will either reject or approve the Claim in whole or in part.

§ 15.2.5 The Initial Decision Maker will render an initial decision approving or rejecting the Claim, or indicating that the Initial Decision Maker is unable to resolve the Claim. This initial decision shall (1) be in writing; (2) state the reasons therefor; and (3) notify the parties and the Architect, if the Architect is not serving as the Initial Decision Maker, of any change in the Contract Sum or Contract Time or both. The initial decision shall be final and binding on the parties but subject to mediation and, if the parties fail to resolve their dispute through mediation, to binding dispute resolution.

§ 15.2.6 Either party may file for mediation of an initial decision at any time, subject to the terms of Section 15.2.6.1.

§ 15.2.6.1 Either party may, within 30 days from the date of receipt of an initial decision, demand in writing that the other party file for mediation. If such a demand is made and the party receiving the demand fails to file for mediation within 30 days after receipt thereof, then both parties waive their rights to mediate or pursue binding dispute resolution proceedings with respect to the initial decision.

§ 15.2.7 In the event of a Claim against the Contractor, the Owner may, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

§ 15.2.8 If a Claim relates to or is the subject of a mechanic's lien, the party asserting such Claim may proceed in accordance with applicable law to comply with the lien notice or filing deadlines.

§ 15.3 Mediation

§ 15.3.1 Claims, disputes, or other matters in controversy arising out of or related to the Contract, except those waived as provided for in Sections 9.10.4, 9.10.5, and 15.1.7, shall be subject to mediation as a condition precedent to binding dispute resolution.

§ 15.3.2 The parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect on the date of the Agreement. A request for mediation shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the mediation. The request may be made concurrently with the filing of binding dispute resolution proceedings but, in such event, mediation shall proceed in advance of binding dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order. If an arbitration is stayed pursuant to this Section 15.3.2, the parties may nonetheless proceed to the selection of the arbitrator(s) and agree upon a schedule for later proceedings.

§ 15.3.3 Either party may, within 30 days from the date that mediation has been concluded without resolution of the dispute or 60 days after mediation has been demanded without resolution of the dispute, demand in writing that the other party file for binding dispute resolution. If such a demand is made and the party receiving the demand fails to file for binding dispute resolution within 60 days after receipt thereof, then both parties waive their rights to binding dispute resolution proceedings with respect to the initial decision.

§ 15.3.4 The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

§ 15.4 Arbitration

§ 15.4.1 If the parties have selected arbitration as the method for binding dispute resolution in the Agreement, any Claim subject to, but not resolved by, mediation shall be subject to arbitration which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules in effect on the date of the Agreement. The Arbitration shall be conducted in the place where the Project is located, unless another location is mutually agreed upon. A demand for arbitration shall be

made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The party filing a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded.

§ 15.4.1.1 A demand for arbitration shall be made no earlier than concurrently with the filing of a request for mediation, but in no event shall it be made after the date when the institution of legal or equitable proceedings based on the Claim would be barred by the applicable statute of limitations. For statute of limitations purposes, receipt of a written demand for arbitration by the person or entity administering the arbitration shall constitute the institution of legal or equitable proceedings based on the Claim.

§ 15.4.2 The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

§ 15.4.3 The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by parties to the Agreement, shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

§ 15.4.4 Consolidation or Joinder

§ 15.4.4.1 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may consolidate an arbitration conducted under this Agreement with any other arbitration to which it is a party provided that (1) the arbitration agreement governing the other arbitration permits consolidation, (2) the arbitrations to be consolidated substantially involve common questions of law or fact, and (3) the arbitrations employ materially similar procedural rules and methods for selecting arbitrator(s).

§ 15.4.4.2 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may include by joinder persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration, provided that the party sought to be joined consents in writing to such joinder. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of any claim, dispute or other matter in question not described in the written consent.

§ 15.4.4.3 The Owner and Contractor grant to any person or entity made a party to an arbitration conducted under this Section 15.4, whether by joinder or consolidation, the same rights of joinder and consolidation as those of the Owner and Contractor under this Agreement.

ARTICLE 16 Federal Provisions

§ 16.1 Prohibition Against the Use of Lead Based Paint

The Contractor shall comply with the prohibition against the use of lead based paint contained in the Lead Based Paint Poisoning Act (42 USC 4821-4846) as implemented by 24 CFR Part 35.

§ 16.2 Federal Health, Safety, and Accident Prevention

The Contractor shall ensure that no laborer or mechanic shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his/her health and/or safety as determined under the construction safety and health standards promulgated by the Secretary of Labor by regulation. The Contractor shall comply with §5.07 and with the regulations and standards issued by the Secretary of Labor at 29 CFR Parts 1904 and 1926 Failure to comply may result in imposition of sanctions pursuant to the Contract Work Hours and Safety Standards Act (Public Law 9154, 83 Stat. 96), 40 USC 3701 to 3708 et seq.

§ 16.3 Clean Air and Water Applicable to Contracts in Excess Of \$150,000

The Contractor shall comply with all requirements of the United States Environmental Protection Agency (EPA) 40 CFR Part 15, 42 USC 7401, 33 USC 1251 et seq., the Federal Water Pollution Control Act 33 USC 1281 et seq., and Executive Order 11738.

§ 16.4 Energy Efficiency

The Contractor shall comply with all standards and policies relating to energy efficiency which are contained in the energy conservation plan issued in compliance with the Energy Policy and Conservation Act (Pub. L. 94-163) in Washington State and the Federal Energy Policy and Conservation Act (42 USC 6201).

§ 16.5 Labor Standards; Davis-Bacon and Related Acts, if Applicable

The Contractor shall comply with all provisions of the Davis-Bacon Act and Related Acts such as the Housing Act of 1937, the National Housing Act, the Housing and Community Development Act of 1974, the National Affordable Housing Act of 1990, Equal Employment Opportunity 41 CFR Part 60 or similar related Acts for Federal Labor Standards for this Contract. The Contractor is responsible for the full compliance of all employers, including the Contractor, Subcontractors, and all the Lower-Tier Subcontractors with the Labor Standards Provisions applicable to this Project.

§ 16.6 Interest of Member of Congress

No member of or delegate to the Congress of the United States of America shall be admitted to any share or part of this Contract or to any benefit to arise therefrom, but this provision shall not be construed to extend to this Contract if made with a corporation for its general benefit. Copeland Anti-Kickback Act 40 USC 3145.

§ 16.7 Interest of Members, Officers, Commissioners and Employees, or Former Members, Officers and Employees

No member, officer, or employee of King County Housing Authority, no member of the Governing body of the locality in which the project is situated, no member of the governing body in which the Owner was activated, and no other public official or such who exercises any functions or responsibilities with respect to the project, shall, during his or her tenure, or for one year thereafter, have any interest, direct or indirect, in this contract or the proceeds thereof.

§ 16.8 Organization Conflicts of Interest

- .1 The Contractor warrants that to the best of its knowledge and belief and except as otherwise disclosed, it does not have any organizational conflict of interest which is defined as a situation in which the nature of the work under this Contract and the Contractor's organizational, financial, contractual or other interests are such as:
 - .a Award of the Contract may result in an unfair competitive advantage; or
 - .b The Contractor's objectivity in performing the Contract Work may be impaired.
- .2 The Contractor agrees that if after award they discover an organizational conflict of interest with respect to this Contract, they shall make an immediate and full disclosure in writing to the Contracting Officer, which shall include a description of the action, which the Contractor has taken or intend to take to eliminate or neutralize the conflict. The Owner may, however, terminate the Contract if it deems the action to be in the best interest of the Owner.
- .3 In the event the Contractor was aware of an organizational conflict of interest before the award of this Contract and intentionally did not disclose the conflict to the Contracting Officer, the Owner may terminate the Contract for default.
- .4 In the event the Contractor was aware of an organizational conflict of interest before the award of this Contract and intentionally did not disclose the conflict to the Contracting Officer, the Owner may terminate the Contract for default.

§ 16.9 Lobbying

Contractor shall be in compliance with the Byrd Anti-Lobbying Amendment 31 USC 3145.

§ 17 Audits and Inspections

The records and documents with respect to all matters covered by this Contract shall be subject at all times to inspection, review or audit by the Owner or any other government agency so authorized by law during the performance of this Contract. The Owner shall have the right to an annual audit of the Contractor's financial statement and condition.

- .1 The Contractor shall maintain accounts and records in accordance with State Auditor's procedures, including personnel, property, financial and programmatic records which sufficiently and properly reflect all direct and indirect costs of any nature expended and services performed in the performance of this Contract and other such records as may be deemed necessary by the Owner to ensure proper accounting for all funds contributed by the Owner to the performance of this Contract and compliance with this Contract.
- .2 The Owner shall maintain these records for a period of six (6) years after termination hereof unless permission to destroy them is granted by the office of the archivist in accordance with RCW Chapter 40.14

§ 18 Section 3 – Instructions, Requirements and Income Guidelines, if Applicable

Contractor shall comply with all requirements of the Section 3 Program for economic opportunities providing to the greatest extent possible, job training employment and contract opportunities for low or very low income residents including persons who are recipients of HUD assistance for housing, with preference for both targeted workers living in the service area or neighborhood of the Development and YouthBuild participants, as defined at 24 CFR Part 75 (“Section 3 Regulations”) per the Exhibit, as designated in AIA Contract Document A101-2007, Section 8.6.1.

§ 18.1 The work to be performed under this contract is subject to the requirements of the Section 3 Regulations. The purpose of Section 3 is to ensure that employment and other economic opportunities generated by HUD assistance or HUD-assisted projects covered by Section 3, shall, to the greatest extent feasible, be directed to low- and very low-income persons, including persons who are recipients of HUD assistance for housing, with preference for both targeted workers living in the service area or neighborhood of the Development and YouthBuild participants.

§ 18.2 The parties to this contract agree to comply with HUD's Section 3 Regulations. As evidenced by their execution of this contract, the parties to this contract certify that they are under no contractual or other impediment that would prevent them from complying with the Section 3 Regulations.

§ 18.3 The Contractor agrees to send to each labor organization or representative of workers with which the Contractor has a collective bargaining agreement or other understanding, if any, a notice advising the labor organization or workers' representative of the Contractor's commitments under this Section 3 clause, and will post copies of the notice in conspicuous places at the work site where both employees and applicants for training and employment positions can see the notice. The notice shall describe the Section 3 preference, shall set forth minimum number and job titles subject to hire, availability of apprenticeship and training positions, the qualifications for each; and the name and location of the person(s) taking applications for each of the positions; and the anticipated date the work shall begin.

§ 18.4 The Contractor agrees to include this Section 3 clause in every subcontract subject to compliance with Section 3 Regulations, and agrees to take appropriate action, as provided in an applicable provision of the subcontract or in this Section 3 clause, upon a finding that the subcontractor is in violation of the Section 3 Regulations. The Contractor will not subcontract with any subcontractor where the Contractor has notice or knowledge that the subcontractor has been found in violation of the Section 3 Regulations.

§ 18.5 The Contractor will certify that any vacant employment positions, including training positions, that are filled (1) after the Contractor is selected but before the contract is executed, and (2) with persons other than those to whom Section 3 Regulations require employment opportunities to be directed, were not filled to circumvent the Contractor's obligations under Section 3 Regulations.

§ 18.6 Noncompliance with Section 3 Regulations may result in sanctions, termination of this contract for default, and debarment or suspension from future HUD assisted contracts.

§ 18.7 The Contractor shall submit to the Owner a Section 3 Work Plan, including hiring and subcontracting activities, and an Individual Certification Form for each person that is assigned to the project, prior to the contract execution. The Contractor will submit to the Owner with each Application for Payment the Section 3 Labor Hours Benchmark Status Report and any Individual Certification Form(s) for persons not initially assigned to the project prior to the contract execution. Noncompliance, incorrect, or missing documents will result in progress payments being withheld until all issues are resolved to the satisfaction of the Owner.

§ 18.8 Section 3 Employment and Training. Without limiting Contractor's obligation to comply with Section 3 Regulations, Contractor specifically agrees to use best efforts to provide employment and training opportunities to Section 3 workers in the following order of priority:

- .1 To residents of the KCHA development where the work is being performed;
- .2 To residents of other KCHA developments or for residents of Section 8–assisted housing managed by KCHA;
- .3 To participants in YouthBuild programs; and
- .4 To low- and very low-income persons residing within the Puget Sound Area.

§ 18.8 Section 3 Contracting. Without limiting Contractor's obligation to comply with Section 3 Regulations,

Contractor specifically agrees to use best efforts to award contracts and subcontracts to business concerns that provide economic opportunities to Section 3 workers in the following order of priority:

- .1 To Section 3 business concerns that provide economic opportunities for KCHA residents of the development where the work is being performed;
- .2 To Section 3 business concerns that provide economic opportunities for KCHA residents of other KCHA developments or Section-8 assisted housing managed by KCHA;
- .3 To YouthBuild programs; and
- .4 To Section 3 business concerns that provide economic opportunities to Section 3 workers residing within the Puget Sound Area.

§ 19 OTHER INFORMATIVE INFORMATION

§ 19.1 Certificate of Endorsement, Final Project Schedule, Subcontractor List, Performance and Payment Bond and Section 3 Plan must be received and approved by the Owner prior to the issuance of the Notice to Proceed.



PERFORMANCE AND PAYMENT BOND INSTRUCTIONS

DIRECTIONS FOR PREPARATION OF PERFORMANCE AND PAYMENT BOND

1. Individual sureties, partnerships, or corporations not in the surety business will not be acceptable.
2. The name of the Principal shall be shown exactly as it appears in the Contract.
3. The penal sum shall not be less than required by the Specifications.
4. If the Principals are partners or joint venturers, each member shall execute the bond as an individual and state its place of residence.
5. If the principal is a corporation, the bond shall be executed under its corporate seal. If the corporation has no corporate seal, it shall so state and affix a scroll or adhesive seal following the corporate name.
6. The official character and authority of the person(s) executing the bond for the Principal, if a corporation, shall be certified by the Secretary or Assistant Secretary thereof under the corporate seal, or copies attached to such records of the corporation as will evidence the official character and authority of the officer signing, duly certified by the Secretary or Assistant Secretary, under the corporate seal, to be true copies.
7. The current power-of-attorney of the person signing for the surety company must be attached to the bond.
8. The date of the bond must not be prior to the date of the Contract.
9. The following information must be placed on the bond by the surety company:
 - a. The Rate of premium in dollars per thousand; and
 - b. The total dollar amount of premium charged
10. The signature of a witness shall appear in the appropriate place attending to the signature of each party of the bond.
11. Type or print the name underneath each signature appearing on the bond
12. An executed copy of the bond must be attached to each copy of the Contract (original counterpart) intended for signing.



PERFORMANCE AND PAYMENT BOND

KNOW ALL MEN BY THESE PRESENT, That we the Undersigned, _____

as **PRINCIPAL**, and _____ as **SURETY** are held and bound unto the **KING COUNTY HOUSING AUTHORITY** of Seattle, Washington, hereinafter called the Public Housing Authority in the penal sum of:

\$ _____ and No/100 (\$ _____) **DOLLARS**, lawful money of the United States, for the payment of which Lawful money of the United States, for the payment of which sum will and truly be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS the Principal has entered into a certain Contract with the Public Housing Authority dated _____, 20____, a copy of which is hereto attached and made a part hereof.

NOW, THEREFORE, the condition of this obligation is such that if the Principal shall in all respects fully perform the Contract and all duly authorized modifications thereof, during its original term and any extensions thereof that may be granted and during any guaranty period for which the Contract provides, and if the Principal shall fully satisfy all claims arising out of the prosecution of the Work under the contract and shall fully indemnify the Public Housing Authority for all expenses which it may incur by reason of such claims, including its attorney’s fees and court costs, and if the Principal shall make full payment to all persons supplying labor, services, materials, or equipment in the prosecution of the Work under the contract, in default of which such persons shall have a direct right of action hereupon, and if the Principal shall pay or cause to be paid all sales and use taxes payable as a result of the performance of the Contract as well as payment of gasoline and special motor fuels taxes in the performance of the Contract and all motor vehicle fees required for commercial motor vehicles used in connection with the performance of the Contract, then this obligation shall be void; otherwise, it shall remain in full force and effect. No modification of the Contract or extension of the term thereof, nor any forbearance on the part of the Public Housing Authority, shall in any way release the Principal or the Surety from liability hereunder. Notice to the Surety of any such modification, extension, or forbearance is hereby waived.

IN WITNESS WHEREOF, the aforesaid Principal and Surety have executed this instrument and affixed their seals hereto, this _____ day of _____ 20____.

WITNESS:	_____	(Individual Principal)	
	_____	(Business Address)	(Seal)
	_____	(Individual Principal)	
	_____	(Business Address)	(Seal)
ATTEST:	_____	(Corporate Principal)	
	_____	(Business Address)	
	_____	(By)	(Corporate Seal)
	_____	(Title)	
ATTEST:	_____	(Surety)	
	_____	(Business Address)	
	_____	(By)	(Corporate Seal)
	_____	(Title)	

The Rate of Premium on this Bond is \$ _____ per thousand.
 The Total Amount of Premium Charges is \$ _____
(The above is to be filled in by Surety Company. * Power of Attorney of person signing for Surety Company must be attached.)



CERTIFICATE AS TO CORPORATE PRINCIPAL

CERTIFICATE AS TO CORPORATE PRINCIPAL

I, _____ certify that I am the
President / Vice President / Secretary / _____ of the Entity: Corporation
/LLC / _____, named as the Principal in the foregoing bond. The authorized
Official of the named bonding agent who signed the said bond on behalf of the Principal, hereby certifies
that said bond was fully signed, sealed and attested for and in behalf of said Entity by authority of its
Governing body.

Named Bonding Agent: _____

Affix Corporate Seal / Authorized Signature:

KING COUNTY HOUSING AUTHORITY INSURANCE REQUIREMENTS**INSTRUCTIONS / ENDORSEMENT INFORMATION FOR
COMPLETING, EXECUTING, AND SUBMITTING EVIDENCE OF INSURANCE****A. INSURED CONTRACTOR:**

1. In order to reduce problems and time delays in providing evidence of insurance to the King County Housing Authority you are requested to give your insurance agent or broker a copy of *the Insurance Requirements Sheet along with the Instructions/Endorsement Form(s) for Completing, Executing, and Submitting Evidence of Insurance*.
2. If the agreement requires Workers' Compensation coverage and you have been authorized by the State to self-insure Workers' Compensation, then a copy of the certificate from the State authorizing self-insurance for Workers' Compensation shall meet the requirements for Workers' Compensation insurance covering activities within the State.
3. All questions relating to insurance should be directed to the department or office responsible for your contract, lease, permit, or other agreement.

B. INSURANCE AGENT OR BROKER:

1. The appropriate Endorsement Form shall include:
 - a. King County Housing Authority as Additional Insured
 - b. State that the Contractor's Insurance Is Primary
 - c. State King County Housing Authority's Insurance Is Non-Contributory In Claims Settlement Funding

PLEASE NOTE: King County Housing Authority **WILL NOT ACCEPT** Certificates of Insurance Alone.

2. More than one insurance policy may be required to comply with the insurance requirements. Endorsement forms appropriate to your insured's agreement, contract, lease or permit are included. In each instance, King County Housing Authority shall be named as additionally insured on the appropriate endorsement forms.
3. You shall have an authorized representative of the insurance company forward the completed endorsement forms with his/her phone number noted at the bottom of the page, to King County Housing Authority.
4. The name of the Insurance Company underwriting the coverage and its address shall be noted on the endorsement form.
5. The "General description of agreement(s) and/or activity(s) insured" shall include reference to the activity and/or to either the specific King County Housing Authority's:
 - a. Project or Site Name
 - b. Contract Number
 - c. Lease Number
 - d. Permit Number
 - e. Construction Approval Number

6. The Coverage and limits for each type of insurance are specified on the insurance requirements sheet. When coverage is on a scheduled basis, then a separate sheet is to be attached to the endorsement listing such scheduled locations, vehicles, etc. so covered.
7. Endorsements to excess policies will be required when primary insurance is insufficient in complying with King County Housing Authority's requirements.
8. If there is insufficient space on the form to note pertinent information, such as inclusions, exclusions or specific provisions, etc., a separate sheet may be attached.
9. When additional sheets are attached, change the number of pages at the bottom of the form to so indicate.
10. Completed Endorsement(s) including cancellation notices and questions relating to the required insurance are to be directed to:

KING COUNTY HOUSING AUTHORITY
ATTN: CAPITAL CONSTRUCTION DEPARTMENT
700 ANDOVER PARK WEST, SUITE C
TUKWILA, WA 98188

11. Improperly Completed Endorsements will be returned to your insured for correction by an authorized representative of the insurance company.
12. For extensions or renewals on insurance policies which have King County Housing Authority Endorsement Form(s) attached, the Housing Authority will accept a copy of the endorsement to extend the period of coverage as evidence of continued coverage.

C. MINIMUM LIMITS:

1. REFER TO "Insurance Requirements" attached.

INSURANCE REQUIREMENTS FOR BUILDING TRADE CONTRACTORS *(with Construction Risks)***The Awarded Contractor shall comply as follows:**

Contractor shall procure and maintain, at their expense, for the duration of the contract insurance against claims for injuries to persons or damages to property, which may arise from or in connection with the performance of the work hereunder by the Contractor, his agents, representatives, employees or subcontractors.

THE KING COUNTY HOUSING AUTHORITY (AUTHORITY) SHALL BE NAMED AS ADDITIONALLY INSURED ON THE APPROPRIATE ENDORSEMENT FORMS.**MINIMUM SCOPE OF INSURANCE:**

Coverage shall be at least as broad as:

1. Insurance Services Office Commercial General Liability coverage including Products / Completed Operations.
2. Insurance Services Office covering any Owned, Leased, Hired and Non-owned, and Automobile Liability.
3. Workers' Compensation insurance as required by State law and Employers Liability coverage.
4. Builders Risk (Property / Course of Construction insurance covering for all risks of loss for all projects in excess of \$250,000.)
5. Professional Liability / Errors and Omission (when applicable).

MINIMUM LIMITS OF INSURANCE:

Contractor shall maintain limits no less than:

1. General Liability: \$1,000,000 per occurrence, \$2,000,000 general aggregate, including \$1,000,000 Products / Completed Operations for bodily injury, personal injury and property damage. If Commercial General Liability Insurance or other form with a general aggregate limit is used, either the general aggregate limit shall apply separately to this project / location or the general aggregate limit shall be twice the required occurrence limit.
2. Automobile Liability: \$1,000,000 per accident for bodily injury / property damage.
3. Employer's Liability / Washington Stop Gap: \$1,000,000 per accident for bodily injury, sickness or disease.
4. Builder Risk (Property) / Course of Construction: Completed value of the project.
5. Professional Liability / Errors and Omissions: \$1,000,000 per claim; \$2,000,000 aggregate (when applicable).

DEDUCTIBLES AND SELF-INSURED RETENTIONS:

Any deductibles or self-insured retentions must be declared to and approved by the Authority. At the option of the Authority, either: the insurer shall reduce or eliminate such deductibles or self-insured retentions as respects the Authority, its successors and assigns, director, officers, officials, employees, agents, partners and volunteers; or the Contractor shall provide a financial guarantee satisfactory to the Authority guaranteeing payment of losses and related investigations, claim administration and defense expenses.

NOTE: If this contract deals with hazardous materials or activities (i.e. lead based paint, asbestos, armed security guards) additional provisions covering those exposures must be included in order to protect the Authority's interests.

OTHER INSURANCE PROVISIONS:

General Liability and Automobile Liability Policies are to contain, or be endorsed to contain, the following provisions:

1. The Authority, its successors and assigns, director, officers, officials, employees, agents, partners, and volunteers are to be covered as additional insureds with respect to (i) general liability arising out of work done or operations performed by or on behalf of the contractor, including materials, parts or equipment furnished in respect to such work or operations. **The endorsement(s) effectuating the foregoing additional insured coverage shall be ISO form CG 20 10 11 85, or CG 20 10 10 01 issued concurrently with CG 20 37 10 01, or their equivalent¹** as long as it provides additional insured coverage, and **not** limited to the minimum acceptable as required herein, for completed operations; (ii) automobile liability arising out of vehicles owned, leased, hired, or borrowed by or on behalf of the Contractor; (iii) any insurance written on a claims made basis, shall have a retroactive date that coincides with, or precedes, the commencement of any work under this contract. Evidence of such coverage shall be maintained for a minimum of six (6) years beyond the expiration of the project and if a Claims Made policy is not renewed or replaced, then evidence of an extended reporting period of six (6) years shall be provided.
2. For any claims related to this project, the Contractor's insurance coverage shall be primary insurance as respects the Authority, its successors and assigns, director, officers, officials, employees, agents, partners and volunteers. Any insurance or self-insurance maintained or expired by the Authority, its officers, officials, employees, or volunteers shall be excess of the Contractor's insurance and shall not contribute with it.
3. The Contractor on behalf of itself and its liability insurance carriers release and waive any claims and subrogation rights against The Authority, its successors and assigns, director, officers, officials, employees, agents, partners, and volunteers. The Contractor agrees that they will cause its insurance carriers to include in its policies such a clause or endorsement. If extra cost shall be charged therefore, the Contractor shall pay the same.
4. Each insurance policy required by this clause shall be endorsed to state that coverage shall not be canceled or materially changed, except after thirty (30) days / (ten (10) days for non-payment of premium) without prior written notice given to the Authority through certified mail, with return receipt requested.
5. Maintenance of the proper insurance for the duration of the contract is a material element of the contract. Material changes in the required coverage or cancellation of the coverage shall constitute a material breach of the contract.

Builders Risk / Course of Construction Policies shall contain the following provisions:

1. The Authority and its insurers shall be named as loss payees.
2. The insurer shall waive all rights of subrogation against the Authority, its successors and assigns, director, officers, officials, employees, agents, partners and volunteers.

¹ "Equivalent" means that any endorsements provided must have the equivalent coverage of the listed endorsements. NOTE: This may cost the Contract extra money to get this coverage.

ACCEPTABILITY OF INSURERS:

Insurance is to be placed with insurers with a current A.M. Best's rating of no less than **A-:VII**. Contractors must provide written verification of their insurer's rating.

VERIFICATION OF COVERAGE:

Contractor shall furnish the Authority with **original certificates** and **amendatory endorsements** affecting coverage required by this clause. The endorsements should be on forms provided by the Authority or on other than the Authority's forms, provided those endorsements conform fully to the requirements. All certificates and endorsements are to be received and approved by the Authority before work commences in sufficient time to permit Contractor to remedy any deficiencies. The Authority reserves the right to require complete, certified copies of all required insurance policies, or pertinent parts thereof, including endorsements affecting the coverage required by these specifications at any time.

SUBCONTRACTORS:

1. Subcontractor shall include the Contractor as additional insured under their policies. All coverages for subcontractors shall be subject to all of the requirements stated herein.
2. Contractor shall be responsible for the adequacy of required coverages for subcontractors, and compile related certificates of insurance and endorsements evidencing subcontractors' compliance.

INDEMNIFICATION AND HOLD HARMLESS:

1. To the fullest extent permitted by law the Contractor hereby agrees to indemnify and hold harmless the KCHA, its successors and assigns, directors, officials, officers and employees, volunteers, partners and agents (all foregoing singly and collectively "Indemnitees"), from and against any and all claims losses, harm, costs, liabilities, damages and expenses including, but not limited to, reasonable attorneys' fees arising or resulting from the performance of the Work, or the acts or omissions of the Contractor its successors and assigns, employees, subcontractors or anyone acting on the Contractor's behalf in connection with this Contract or its performance; PROVIDED, however, that the Contractor shall not be required to so indemnify any such Indemnitees against liability for damages caused by or resulting from the sole negligence of Indemnitees; PROVIDED FURTHER that if such damages are caused by or result from the concurrent negligence of the Indemnitees and the Contractor or anyone acting on the Contractor's behalf, then the Contractor's indemnity hereunder shall be limited to the extent of the negligence of the Contractor, its successors and assigns, et al.
2. The foregoing indemnity is specifically and expressly intended to constitute waiver of the Contractor's immunity under Washington's Industrial Act, RCW Title 51, and that this waiver has been specifically negotiated and agreed upon by the parties.
3. The Contractor hereby agrees to require all its subcontractors or anyone acting under its direction or control or on its behalf in connection with or incidental to the performance of this Contract to execute an indemnity clause identical to the preceding clause, specifically naming KCHA as Indemnitee, and failure to do so shall constitute a material breach of this Contract by the Contractor.

SITE SPECIFIC SAFETY PLAN REQUIREMENTS

Following is a list of the elements that are typically addressed in a construction site specific safety plan. A site specific safety plan will be one of the required post-selection documents be submitted by the contractor selected through this bid solicitation.

NOTE: In addition to the typical elements of a construction safety plan that addresses the contractor, KCHA requires that if a/the employee(s) of the Contractor or any sub-contractor is asked to put on a mask by either a resident or property manager when they are in a building or resident’s unit, the employee(s) will do so; the Contractor should reflect this in their safety plan.

The selected contractor with responsible for obtaining similar plans from all subcontractors and for the supervision and enforcement of safety requirements on the site. The contractor’s Site-Specific Safety Plan will be submitted to KCHA before any work can begin. The Plan will need to address the following:

1. An initial job/job-site safety orientation and a schedule of weekly safety meetings that show employees and subcontractors what they need to know to perform their job assignments safely.
2. Details how and when to report on-the-job injuries.
3. Identifies on-site available 1st Aid / CPR trained personnel, readily accessible first-aid on the job site and/or access to the nearest clinic or hospital from the job site.
4. Identifies what to do in an emergency, including how to exit the workplace.
5. Lists the required personal protective equipment (PPE) and describes the proper use and care of the PPE.
6. Details the on-site Haz-Com Program that identifies hazardous materials (Asbestos, Lead) or chemicals including instruction about the safe use and storage.
7. Designates an on-site representative responsible for job-site Safety.
8. Designates who is responsible for performing and recording regular periodic site reviews, and inspections for your employees and subcontractors.
9. Describes programs related to housekeeping and jobsite safety.
10. Outlines the job-site specific fall protection plan.
11. Describes electrical and/or power generation controls on-site.
12. Has provisions for trenching /excavations and/or confined space entry.
13. Has provisions for “masking-up”



SUB-CONTRACTOR VERIFICATION FORM

It is the responsibility of the General Contractor to obtain and verify the Subcontractor’s Information described below. For compliance, the General Contractor must submit a copy of the Subcontractor Verification form prior to the sub starting work. A copy of the Affidavit of Intent form must accompany the applicable Certified Payroll. Without these forms, the Pay Application maybe withheld.

KCHA will review subcontractors’ qualifications, safety record, and the history of compliance (including subcontractor’s principals working under another company name) with labor and other state and federal laws. Based on this review, KCHA reserves the right at its sole discretion to reject subcontractors and require the selected General Contractor to replace or substitute a subcontractor with one acceptable to KCHA.

Name of Company: _____

Physical Address: _____

Contact Name and Title _____

Email Address: _____ Phone No.: _____

WA State Contractor’s License: _____ UBI Number: _____

Employment Security Number: _____ L&I’s Workers’ Comp. Acct. ID: _____

Federal Tax ID Number: _____ DUNS Number: _____

SUB-CONTRACTOR IS A(N): Individual Partnership* Corporation** – in state of _____

* If Partnership, provide Full Name(s) and Address(es) of all parties

** If your company is “also known as (AKA)” or “doing business as (DBA) list all names

SUB-CONTRACTOR’S EXPERIENCE MODIFICATION RATE (EMR): 2021____; 2022____; 2022____;
(If sub-contractor is self-insured, attached proof of EMR stated, showing complete worksheet calculations).

Sub-Contractor is not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any federal department or agency:

NOTE: The penalty for making false statement in offer is prescribed in 18 U.S.C. 1001.

SUBMITTED ON : _____ Day of _____, 20____

Signature of General Contractor

Name of General Contractor (Print)

Title of General Contractor (Print)

Date

Certification of Payments to Influence Federal Transactions

U.S. Department of Housing and Urban Development
Office of Public and Indian Housing

CONTRACT DOCUMENTS C.7

Public reporting burden for this information collection is estimated to average 30 minutes. This includes the time for collecting, reviewing, and reporting data. The information requested is required to obtain a benefit. This form is used to ensure federal funds are not used to influence members of Congress. There are no assurances of confidentiality. HUD may not conduct or sponsor, and an applicant is not required to respond to a collection of information unless it displays a currently valid OMB control number.

Applicant Name

Program/Activity Receiving Federal Grant Funding

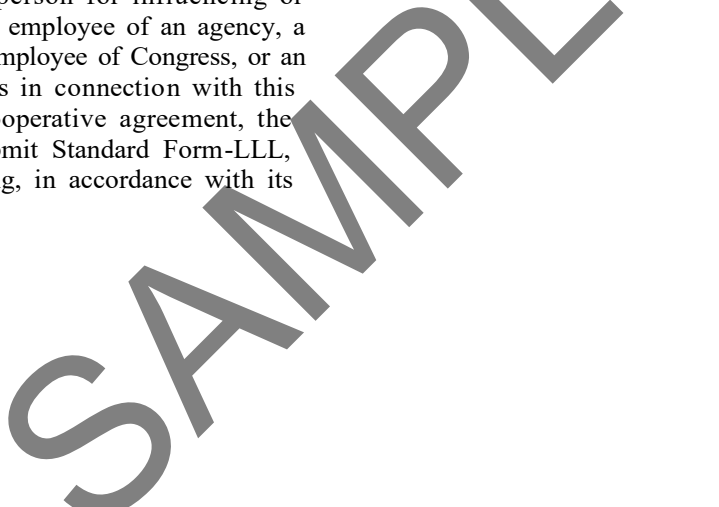
The undersigned certifies, to the best of his or her knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, Disclosure Form to Report Lobbying, in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all sub recipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.



I hereby certify that all the information stated herein, as well as any information provided in the accompaniment herewith, is true and accurate.

Warning: HUD will prosecute false claims and statements. Conviction may result in criminal and/or civil penalties. (18 U.S.C. 1001, 1010, 1012; 31 U.S.C. 3729, 3802)

Name of Authorized Official

Title

Signature

Date (mm/dd/yyyy)

DISCLOSURE OF LOBBYING ACTIVITIES

Complete this form to disclose lobbying activities pursuant to 31 U.S.C.1352

Approved by OMB
4040-0013

1. * Type of Federal Action: <input checked="" type="checkbox"/> a. contract <input type="checkbox"/> b. grant <input type="checkbox"/> c. cooperative agreement <input type="checkbox"/> d. loan <input type="checkbox"/> e. loan guarantee <input type="checkbox"/> f. loan insurance	2. * Status of Federal Action: <input checked="" type="checkbox"/> a. bid/offer/application <input type="checkbox"/> b. initial award <input type="checkbox"/> c. post-award	3. * Report Type: <input checked="" type="checkbox"/> a. initial filing <input type="checkbox"/> b. material change
--	--	--

4. Name and Address of Reporting Entity:

Prime SubAwardee

* Name:

* Street 1: Street 2:

* City: State: Zip:

Congressional District, if known:

5. If Reporting Entity in No.4 is Subawardee, Enter Name and Address of Prime:

SAMPLE

6. * Federal Department/Agency: <input style="background-color: yellow;" type="text"/>	7. * Federal Program Name/Description: <input type="text"/> CFDA Number, if applicable: <input type="text"/>
--	---

8. Federal Action Number, if known: <input type="text"/>	9. Award Amount, if known: \$ <input type="text"/>
--	--

10. a. Name and Address of Lobbying Registrant:

Prefix * First Name Middle Name

* Last Name Suffix

* Street 1: Street 2:

* City: State: Zip:

b. Individual Performing Services (including address if different from No. 10a)

Prefix * First Name Middle Name

* Last Name Suffix

* Street 1: Street 2:

* City: State: Zip:

11. Information requested through this form is authorized by title 31 U.S.C. section 1352. This disclosure of lobbying activities is a material representation of fact upon which reliance was placed by the tier above when the transaction was made or entered into. This disclosure is required pursuant to 31 U.S.C. 1352. This information will be reported to the Congress semi-annually and will be available for public inspection. Any person who fails to file the required disclosure shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

* Signature:

* Name: Prefix * First Name Middle Name

* Last Name Suffix

Title: Telephone No.: Date:



CERTIFICATION OF COMPLIANCE WITH WASHINGTON STATE WAGE PAYMENT STATUTES

The Bidder hereby certifies that, within the three year period immediately preceding the bid solicitation date of _____, that the Bidder is not a “willful” violator, as defined in RCW 49.48.082, of any provision of chapters 49.46, 49.48 or 49.52 RCW, as determined by a final and binding citation and notice of assessment issued by the WA State Department of Labor & Industries of through a civil judgement entered by a court of limited or general jurisdiction.

I certify under penalty of perjury under the laws of the State of Washington that the forgoing is true and correct.

Bidder

Signature of Authorized Official*

Printed name

Title

_____ _____ _____
Date City State

Check one:
Individual Partnership Joint Venture Corporation

State of Incorporation, or if not a corporation, State where business entity was formed:

If a co-partnership, give company name under which business is transacted:

*If a corporation, this Certification must be executed in the corporate name by the president or vice president (Or any other coporate officer accompanied by evidence of authority to sign). If a co-partnership, Certification must be executed by a partner.



Vendor Set-up Form (Alternative W-9)

FOR KCHA USE ONLY	Submitted by: _____	Vendor Number: _____	Date: _____
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Name (as shown on your income tax return):

Business name/disregard entity name, **if different from above**:

Check appropriate box for Federal tax classification (required):

- Individual S Corporation Trust/Estate Other (see instructions)
 C Corporation Partnership Exempt Payee
 Limited Liability Company (LLC). Enter the tax classification (C=C corporation, S=S Corporation, P=Partnerships) >> _____

1099 Address (number, street, and apt. or suite no.):	City, State, and Zip Code:	Telephone:
---	----------------------------	------------

Remit to address (if different from above):	City, State, and Zip Code:	Email:
---	----------------------------	--------

Taxpayer Identification Number (TIN)	PROVIDE ONE ONLY				
Enter your TIN in the appropriate box. The TIN provided must match the name given on the "Name" line to avoid backup withholding. For individuals, this is your social security number (SSN). For other entities, it is your employer identification number (EIN).	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:10%; padding: 2px;">SSN:</td> <td style="width:90%;"></td> </tr> <tr> <td style="padding: 2px;">EIN:</td> <td></td> </tr> </table>	SSN:		EIN:	
SSN:					
EIN:					

Terms of Payment	<input type="checkbox"/> Net 30	<input type="checkbox"/> Net 10th of Month	<input type="checkbox"/> Other _____
	<input type="checkbox"/> Net 10	<input type="checkbox"/> Due upon receipt	

***Section-3:** Yes No *Questions can be directed to KCHA Section 3 Coordinator 206-826-5335

WMBE: MINORITY OWNED (MBE OR MWBE)

1. White American 2. Black American 3. Native American
 4. Hispanic American 5. Asian Pacific American 6. Hasidic Jew
 7. Not Applicable NONE OF THE ABOVE (NEC) Other _____

Certification

Under the penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me), and
2. I am not subject to backup withholding because: a) I am exempt from backup withholding, or b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or c) the IRS has notified me that I am no longer subject to backup withholding, and
3. I am a U.S. citizen or other U.S. person. See instructions

Certification Instructions: You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition of abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments to other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN.

The IRS does not require your consent to any provision of this document other than the certification required to avoid backup withholding.

SIGN HERE	Signature of U.S. Person: _____	Date: _____
------------------	---------------------------------	-------------

Return completed form to King County Housing Authority, 600 Andover Park West, Tukwila, WA 98188

See instructions below or refer to the IRS instructions at www.irs.gov for details on completing this form.

General Instructions:

Purpose of the Form: Establish or update a vendor account with the King County Housing Authority. This form meets the Federal requirements to request a taxpayer identification number (TIN), request certain certifications and claims for exemption, as well as the King County Housing Authority (KCHA) requirements for vendor establishment.

- Complete form if:
1. You are a U.S. person (including a resident alien);
 2. You are a vendor that provides goods or services to KCHA; AND
 3. You will receive payment from KCHA



SECTION 3 – INDIVIDUAL CERTIFICATION FORM

Section 3 of the Housing and Urban Development (HUD) Act of 1968, as amended, requires that Housing Authorities and agencies receiving HUD funding, to the greatest extent feasible, provide economic opportunities to low-income persons. **Information provided on this form shall remain confidential and be used for reporting purposes only. Print all information**

NAME: _____

ADDRESS: _____

EMAIL ADDRESS: _____ PHONE NUMBER: _____

HIRE DATE: _____ POSITION TITLE: _____

EMPLOYER / COMPANY NAME: _____

PROJECT NAME: _____

1. I am a resident in a KCHA Property. _____ Yes _____ No

Property Name: _____

2. I am currently in KCHA’s Section 8 Program. _____ Yes _____ No

3. I am currently a participant in a HUD YouthBuild Program. _____ Yes _____ No

4. County and Income Details (*check appropriated boxes*):

a. I live in **KITSAP COUNTY** and
My **TOTAL** income for the past 12 months was: (*check appropriate box*)
____ Below or Equal to \$61,000 _____ Greater than \$61,000

b. I live in **KING or SNOHOMISH COUNTY** and
My **TOTAL** income for the past 12 months was: (*check appropriate box*)
____ Below or Equal to \$70,650 _____ Greater than \$70,650

c. I live in **PIERCE COUNTY** and
My **TOTAL** income for the past 12 months was: (*check appropriate box*)
____ Below or Equal to \$60,200 _____ Greater than \$60,200

d. I live in **SKAGIT COUNTY** and
My **TOTAL** income for the past 12 months was: (*check appropriate box*)
____ Below or Equal to \$51,050 _____ Greater than \$51,050

e. I live in **THURSTON COUNTY** and
My **TOTAL** income for the past 12 months was: (*check appropriate box*)
____ Below or Equal to \$57,400 _____ Greater than \$57,400



____ f. I live in _____ COUNTY and
My **TOTAL** income for the past 12 months was: \$ _____

5. In the past five years, I have been a resident of public housing or Section 8 assisted housing managed by KCHA; a resident of other public housing projects or Section 8 assisted housing, or a _____ Yes _____ No YouthBuild participant.

I hereby certify under the **penalty of perjury** that the information above is true and correct.

Signature

Date

If submitting for a new hire, attach completed forms to Labor Hours Benchmark Status Report and submit to project manager. If submitting for Section 3 business qualification, attach to Section 3 Business Certification Form. For questions, please contact KCHA by email at section3@kcha.org.

SECTION 3 – INDIVIDUAL CERTIFICATION FORM FAQ'S

Question: What is this form?

Answer: This form is a Section 3 Certification Form that will be used to determine if an individual is a Section 3 worker as defined by HUD 24 CFR 75 and the KCHA.

Question: Who fills out this form?

Answer: Any individual who is paid in full or part with HUD funds. (If unsure if position is HUD funded, please contact Contract administrator.)

Question: What will this form be used for?

Answer: This form will be used for the purpose of determining Section 3 eligibility and for statistical purposes.

Question: Who collects this form and where does it go?

Answer: Any employer or contractor that has a contract with the KCHA that is HUD funded will collect this data from any employee who was employed within the last five years. Once the data is collected the original copy will come to KCHA.

Question: Who is a KCHA Resident?

Answer: Someone who lives in a KCHA Housing Development whose name is listed on a current lease.

Question: How long should I go back to calculate my income?

Answer: Individuals should calculate back 12 months from their date of hire.

Question: What if I don't live in King County?

Answer: Individuals who do not reside in King County may still be eligible to be certified by KCHA as a Section 3 resident.

If you have more specific questions, please contact KCHA at section3@kcha.org.



SECTION 3 – LABOR HOURS BENCHMARK REPORT - INSTRUCTIONS

Complete the Labor Hours Benchmark Status Report as indicated below and return the completed form along with the pay application(s) for the same period.

Return the Labor Hours Benchmark Status Report and pay application to:

King County Housing Authority
700 Andover Park West
Tukwila, WA 98188

Attn: _____

Email: _____

REPORT LINES:

- 1) Name of the project as it appears on the Contract
- 2) Company Name
- 3) Name of the person filling out the Labor Hours Benchmark Status Report
- 4) Phone number of the person filling out the Labor Hours Benchmark Status Report
- 5) Email address of the person filling out the Labor Hours Benchmark Status Report
- 6) Contract number as it appears on the Contract
- 7) Contract Award date (date of Letter of Award)
- 8) Reporting Period – should be the same as the pay application period
- 9) Total hours worked by all workers on the project – this will be everyone that is listed on the certified payrolls during Reporting Period.
- 10) Total hours worked on the project by Section 3 workers during the Reporting Period.

A Section 3 worker is identified as:

- a. The worker's income for the previous or annualized calendar year is below the income limit established by HUD; or
- b. Is employed by a Section 3 business concern; or
- c. Is a YouthBuild participant.

These will be the workers identified as Section 3 employees upon the submittal of their Section 3 Individual Certification Form at the beginning of the project OR when they were brought onto the project. A copy of these forms should be available from your company's payroll office. Copies can also be obtained by submitting a request to section3@kcha.org. Please include your company's name, project name and contact information.

- 11) Total hours worked on the project by Targeted Section 3 workers during the Reporting Period.

A Targeted Section 3 worker is identified as:

- a. Employed by a Section 3 business concern; or
- b. Is a resident of public housing or Section 8 assisted housing; or
- c. Resides within one mile of the project site.

These workers will be identified as Targeted Section 3 employees upon the submittal of their Section 3 Individual Certification Form at the beginning of the project OR when they were brought onto the project. A copy of these forms should be available from your company's payroll office. Copies can also be obtained by submitting a request to section3@kcha.org. Please include your company's name, project name and contact information.

See sample scenarios on pgs. 3 & 4



SECTION 3 – LABOR HOURS BENCHMARK REPORT

GENERAL INFORMATION

- 1) PROJECT NAME: _____
- 2) COMPANY NAME: _____
- 3) CONTACT PERSON: _____
- 4) CONTACT PHONE NO.: _____
- 5) CONTACT EMAIL ADDRESS: _____
- 6) CONTRACT NO.: _____ 7) CONTRACT AWARD DATE: _____

SECTION 3 LABOR HOUR BENCHMARKS

- 8) REPORTING PERIOD: FROM: _____ TO: _____

The totals below are for YOUR COMPANY ONLY and JUST THOSE WORKERS WORKING ON THE PROJECT SITE.

- 9) **TOTAL LABOR HOURS FOR ALL WORKERS ON THE PROJECT DURING THE REPORTING PERIOD** *(onsite work crew)*: _____
- 10) **TOTAL LABOR HOURS FOR ALL SECTION 3 WORKERS ON THE PROJECT DURING THE REPORTING PERIOD** *(onsite work crew who self-certified as Section 3 Workers)*: _____
- 11) **TOTAL LABOR HOURS FOR ALL TARGETED SECTION 3 WORKERS ON THE PROJECT DURING THE REPORTING PERIOD** *(onsite work crew who self-certified as Targeted Section 3 Workers)*: _____

I certify that the information in this report is true and correct to the best of my knowledge:

SIGNATURE	TITLE
PRINT NAME	DATE

To be completed by KCHA Staff
RECEIVED BY:

SIGNATURE	TITLE
PRINT NAME	DATE



SCENARIO 1:

A crew of 5 none of whom self-certified as a Section 3 worker.

Reporting period is from June 1 to June 30, 2022.

The total hours that the crew worked on the project site during the reporting period totaled 1,000.

SECTION 3 LABOR HOUR BENCHMARKS

8) REPORTING PERIOD: FROM: 6-1-22 TO: 6-30-22

The totals below are for YOUR COMPANY ONLY and JUST THOSE WORKERS WORKING ON THE PROJECT SITE.

9) **TOTAL LABOR HOURS FOR ALL WORKERS ON THE PROJECT DURING THE REPORTING PERIOD** (*onsite work crew*): 1000

10) **TOTAL LABOR HOURS FOR ALL SECTION 3 WORKERS ON THE PROJECT DURING THE REPORTING PERIOD** (*onsite work crew who self-certified as Section 3 Workers*): 0

11) **TOTAL LABOR HOURS FOR ALL TARGETED SECTION 3 WORKERS ON THE PROJECT DURING THE REPORTING PERIOD** (*onsite work crew who self-certified as Targeted Section 3 Workers*): 0

SCENARIO 2:

A crew of 5, two of whom self-certified as Section 3 workers.

Reporting period is from June 1 to June 30, 2022.

The total hours that the crew worked on the project site during the reporting period totaled 1,000.

The total hours of the two that self-certified as Section 3 workers during the reporting period totaled 80.

SECTION 3 LABOR HOUR BENCHMARKS

8) REPORTING PERIOD: FROM: 6-1-22 TO: 6-30-22

The totals below are for YOUR COMPANY ONLY and JUST THOSE WORKERS WORKING ON THE PROJECT SITE.

9) **TOTAL LABOR HOURS FOR ALL WORKERS ON THE PROJECT DURING THE REPORTING PERIOD** (*onsite work crew*): 1000

10) **TOTAL LABOR HOURS FOR ALL SECTION 3 WORKERS ON THE PROJECT DURING THE REPORTING PERIOD** (*onsite work crew who self-certified as Section 3 Workers*): 80

11) **TOTAL LABOR HOURS FOR ALL TARGETED SECTION 3 WORKERS ON THE PROJECT DURING THE REPORTING PERIOD** (*onsite work crew who self-certified as Targeted Section 3 Workers*): 0



SCENARIO 3:

A crew of 5, one of whom self-certified as a Section 3 worker and the other as a Targeted Section 3 worker.

Reporting period is from June 1 to June 30.

The total hours that the crew worked on the project site during the reporting period totaled 1,000.

The total hours of the one that self-certified as a Section 3 worker during the reporting period totaled 40.

The total hours of the one that self-certified as a Targeted Section 3 worker during the reporting period totaled 40.

SECTION 3 LABOR HOUR BENCHMARKS

8) REPORTING PERIOD: FROM: 6-1-22 TO: 6-30-22

The totals below are for YOUR COMPANY ONLY and JUST THOSE WORKERS WORKING ON THE PROJECT SITE.

9) **TOTAL LABOR HOURS FOR ALL WORKERS ON THE PROJECT DURING THE REPORTING PERIOD** (*onsite work crew*): 1000

10) **TOTAL LABOR HOURS FOR ALL SECTION 3 WORKERS ON THE PROJECT DURING THE REPORTING PERIOD** (*onsite work crew who self-certified as Section 3 Workers*): 40

11) **TOTAL LABOR HOURS FOR ALL TARGETED SECTION 3 WORKERS ON THE PROJECT DURING THE REPORTING PERIOD** (*onsite work crew who self-certified as Targeted Section 3 Workers*): 40

SCENARIO 4:

A crew of 5, (in this scenario, it does not matter if there are Section 3 workers or not)

Reporting period is from June 1 to June 30, 2022.

The total hours that the crew worked on the project during the reporting period totaled ZERO.

SECTION 3 LABOR HOUR BENCHMARKS

8) REPORTING PERIOD: FROM: 6-1-22 TO: 6-30-22

The totals below are for YOUR COMPANY ONLY and JUST THOSE WORKERS WORKING ON THE PROJECT SITE.

9) **TOTAL LABOR HOURS FOR ALL WORKERS ON THE PROJECT DURING THE REPORTING PERIOD** (*onsite work crew*): 0

10) **TOTAL LABOR HOURS FOR ALL SECTION 3 WORKERS ON THE PROJECT DURING THE REPORTING PERIOD** (*onsite work crew who self-certified as Section 3 Workers*): 0

11) **TOTAL LABOR HOURS FOR ALL TARGETED SECTION 3 WORKERS ON THE PROJECT DURING THE REPORTING PERIOD** (*onsite work crew who self-certified as Targeted Section 3 Workers*): 0

YES, A LABOR HOUR BENCH MARK FORM HAS TO BE SUBMITTED EVEN IF NO WORK IS PERFORMED BUT THE GC/SUB (ALL TIERS) HAVE NOT FINISHED THE PROJECT.



D - SECTION

THIRD PARTY REPORTS

D.1 Hazardous Material Summary Report

Limited Hazardous Materials Survey Report

Burndale Homes Office Tenant Improvement Project
930 18th Northeast
Auburn, Washington 98002

Prepared for:
King County Housing Authority (KCHA)
700 Andover Park West
Seattle, Washington 98188

November 2022
PBS Project 40573.243



214 EAST GALER STREET, SUITE 300
SEATTLE, WA 98102
206.233.9639 MAIN
866.727.0140 FAX
PBSUSA.COM

Table of Contents

TABLE OF CONTENTS	1
1 INTRODUCTION	1
1.1 Project Background.....	1
1.2 Building Descriptions	1
1.3 Survey Process	1
2 FINDINGS	1
2.1 Asbestos-Containing Materials (ACMs).....	1
2.2 Lead-Containing Components.....	2
3 RECOMMENDATIONS	2
3.1 Asbestos-Containing Materials (ACMs).....	2
3.2 Lead-Containing Components.....	3

Supporting Data

APPENDICES

Appendix A: PLM Bulk Sampling Information

PLM Bulk Sample Inventory
PLM Bulk Sample Laboratory Data Sheets
PLM Bulk Sample Chain of Custody Documentation

Appendix B: AA Lead Paint Chip Sampling Information

AA Lead Paint Chip Sample Inventory
AA Lead Paint Chip Laboratory Data Sheets
AA Lead Paint Chip Chain of Custody Documentation

Appendix C: PBS Inspector Certifications

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1 INTRODUCTION

1.1 Project Background

PBS Engineering and Environmental Inc. (PBS) performed a limited hazardous materials survey of the Burndale Homes Office and Food Bank building at 930 18th NE, Auburn, Washington in conjunction with the planned renovation of the structure. The intent of this investigation is to ensure compliance with applicable regulatory requirements that a "good faith inspection" for asbestos-containing materials (ACMs) be performed prior to renovation and restoration activities.

1.2 Building Descriptions

Burndale Home Office Building (KCHA) and Auburn Food Bank share the same structure building. The building is a single-story, wood-framed structure built in 1971. The building totals approximately 3,000 square feet space with exterior ramps for ADA access. Interior flooring finishes consist of the following: concrete, hardwood floors, vinyl floor tile, sheet vinyl flooring, carpet, and ceramic floor tiles. Interior walls are gypsum wallboard with texture on walls and tacked-on plastic protective panels. Exterior finishes include vinyl siding with red composition shingle roof system.

1.3 Survey Process

Accessible areas included in the project scope were inspected by Asbestos Hazard Emergency Response Act (AHERA) Certified Building Inspector Toan Nguyen (Cert. No. IR-22-9206B Exp. 3/23/2022) on October 26, 2022. PBS endeavored to inspect all accessible areas of the scope of work. Inaccessible areas consist of those requiring selective demolition, fall protection, or confined space entry protocols to gain access.

When observed, suspect materials were sampled. Thirty-three (31) samples were assigned a unique identification number and transmitted for analysis to Seattle Asbestos Test (NVLAP #200768-0) in Lynwood, Washington under chain-of-custody protocols. Samples were analyzed according to EPA Method 600R-93/116 using Polarized Light Microscopy (PLM), which has a reliable limit of quantification of 1% asbestos by volume.

PBS endeavored to determine the presence and estimate the condition of suspect materials in all inaccessible areas included in the scope of work. While PBS has endeavored to identify the ACMs that may be found in concealed locations, additional unidentified ACMs may exist.

2 FINDINGS

2.1 Asbestos-Containing Materials (ACMs)

No materials were found to contain asbestos as part of this investigation.

The following materials were sampled and found not to contain detectable concentrations of asbestos as part of this investigation:

- Gray and brown vinyl flooring tile (VFT): Office 3 – Under metal drawers & Office 10
- Yellow VFT and associated black mastic: Pick-up 11, West, near doorway
- White VFT and associated black mastic: Storage 12
- Brown VFT and associated yellow & black mastic: Waiting area (Auburn Food Bank), North wall
- Gray roll-out VFT: Garage (Maintenance)
- Yellow VFT and leveling compound: Unisex restroom 19
- Yellow ceramic floor tile and associated grout: Women's restroom 18

- Carpet mastic: Office 5, Southeast corner
- Cream cove base mastic: Garage (Maintenance)
- Beige cove base mastic: Office 8, East doorway
- Cream and black cove base mastic: Office 10, East doorway
- Cove base mastic: Pick-up 11, East doorway
- Wall texture on Gypsum Wallboard (GWB): Office 3, Garage-east wall, Office 8-east doorway, Pick-up 11-north wall, Women's restroom 18, Office 10-east doorway
- Ceiling texture on GWB: Office 5 & Storage 12
- GWB and associated joint compound (JC): Office 3-west doorway, Mechanical 7-doorway, Dry storage 9-north doorway
- Ceramic wall tile and associated grout: Restroom 19, south wall
- White attic insulation: Attic, hatch from garage
- Brown attic insulation: Attic, hatch from garage
- Red roof shingle: Auburn Food Bank main entrance and Burndale Homes Office-northeast elevation
- Black roof shingle: Auburn Food Bank main entrance Burndale Homes Office-northeast elevation

Refer to Appendix A for specific samples locations and associated laboratory analysis.

2.2 Lead-Containing Components

Nine (7) representative painted coatings were sampled for lead content. The samples were assigned unique identification numbers and transmitted to NVL Laboratories, Inc. (AIHA IH #101861) in Seattle, Washington under chain-of-custody protocols for analysis using Flame Atomic Absorption.

Lead **was detected** in the following painted coatings.

- Yellow paint on gypsum wallboard: Storage 12, East wall – **0.0083%**
- Brown/Green paint on exterior plywood wall: Maintenance (Garage), Northeast elevation, under existing vinyl siding and insulation – **0.34%**

The following painted coatings were sampled and determined **not** to contain detectable lead.

- Beige paint on gypsum wallboard: Office 3, West wall
- White paint on gypsum wallboard: Office 4 (reception), partition wall
- Blue paint on gypsum wallboard: Office 8, South wall
- White paint on gypsum wallboard: Pick-up 11, North wall
- Purple paint on gypsum wallboard: Restroom 19

Refer to Appendix B for specific sample locations and associated laboratory analysis.

3 RECOMMENDATIONS

3.1 Asbestos-Containing Materials (ACMs)

No asbestos-containing materials were found in the work scope area during this survey.

The possibility exist that suspect ACMs may be present/concealed in equipment, floor, wall and ceiling cavities, included in the scope of renovations. These may include but are not limited to ACM pipe insulation

and hard-mudded fittings in wall cavities, chase areas and ceiling plenums, construction mastics and adhesives within wall/ceiling assemblies, mechanical insulation/components on ductwork and equipment, and/or weatherproofing/moisture barriers.

PBS recommends that any previously unidentified materials revealed during renovation activities be sampled for asbestos content prior to impact. If suspect ACMs is uncovered during construction, contractor should stop work immediately and inform the owner promptly for confirmation testing. All untested materials should be presumed asbestos-containing or tested for asbestos content prior to impact.

3.2 Lead-Containing Components

Representative interior and exterior painted coatings were found to contain lead. All construction activities performed in pre-1978 residential buildings require compliance with the Environmental Protection Agency (EPA) and State of Washington lead paint regulations including but not limited to 40 CFR 745 Renovation, Repair and Painting (RRP) program regulations and 24 CFR 35 Lead-Based Paint Poisoning in Certain Residential Structures, Washington Administrative Code (WAC) 296-155-176 Lead in Construction, and WAC 173-303 State of Washington Department of Ecology Dangerous Waste Regulations.

The paint sampling performed as part of this survey was intended to provide information regarding lead-content of representative painted surfaces for compliance with the State of Washington Department of Labor and Industries (L&I) Lead in Construction regulations (WAC 296-155-176). The paint sampling was not intended to meet the requirements of the RRP regulations or the Housing and Urban Development (HUD) Guidelines for the Evaluation and Control of Lead-Based Paint in Housing.

Painted coatings may exist in inaccessible areas of the work area or in secondary coatings. Any previously unidentified painted coatings not sampled should be considered lead containing until sampled and proven otherwise. Dust control and housekeeping is crucial in preventing worker and occupant exposures.

Please do not hesitate to contact us if you have any questions regarding this report or require additional information.

Report prepared by:

Report reviewed by:

Toan Nguyen
AHERA Building Inspector
Cert. # IR-22-9206B Exp. 3/23/2023

Mark Hiley
Senior Project Manager

APPENDIX A

PLM Bulk Sampling Information

PLM Bulk Sample Inventory

PLM Bulk Sample Laboratory Data Sheets

PLM Bulk Sample Chain of Custody Documentation

**Burndale Homes Office Tenant Improvement
King County Housing Authority**

PLM ASBESTOS SAMPLE INVENTORY

<u>PBS Sample #</u>	<u>Material Type</u>	<u>Sample Location</u>	<u>Lab Description</u>	<u>Lab Result</u>	<u>Lab</u>
40573.243 -PLM01	Gray/brown vinyl flooring tile	Office 3 - Under metal drawers	Layer 1: Gray/brown tile Layer 2: Trace black mastic	NAD NAD	SAT
40573.243 -PLM02	Gray/brown vinyl floor tile Yellow and black mastic	Office 10	Layer 1: Yellow mastic Layer 2: Gray/brown tile Layer 3: Trace black mastic	NAD NAD NAD	SAT
40573.243 -PLM03	Yellow vinyl floor tile Black mastic	Pick-up 11, West, near doorway	Layer 1: Yellow tile Layer 2: Trace black mastic	NAD NAD	SAT
40573.243 -PLM04	White vinyl floor tile Black mastic	Storage 12	Layer 1: White tile Layer 2: Black mastic Layer 3: Brown wood block	NAD NAD NAD	SAT
40573.243 -PLM05	Brown vinyl floor tile Yellow and black mastic	Waiting area, North wall	Layer 1: Brown/yellow tile Layer 2: Black mastic	NAD NAD	SAT
40573.243 -PLM06	Gray roll-out vinyl floor tile	Garage (Maintenance)	Layer 1: Gray tile Layer 2: Yellow mastic	NAD NAD	SAT
40573.243 -PLM07	Yellow vinyl floor tile Leveling compound	Unisex restroom 19	Layer 1: Yellow tile Layer 2: Yellow mastic Layer 3: Gray brittle material	NAD NAD NAD	SAT
40573.243 -PLM08	Yellow ceramic floor tile Grout	Women's restroom 18	Layer 1: Yellow ceramic Layer 2: Gray brittle/sandy material Layer 3: Clear mastic	NAD NAD NAD	SAT
40573.243 -PLM09	Carpet mastic	Office 5, SE corner	Layer 1: Yellow mastic	NAD	SAT
40573.243 -PLM10	Cream covebase mastic	Garage (Maintenance)	Layer 1: Beige rubbery material Layer 2: Cream mastic	NAD NAD	SAT
40573.243 -PLM11	Beige covebase mastic	Office 8, East doorway	Layer 1: Beige mastic	NAD	SAT

**Burndale Homes Office Tenant Improvement
King County Housing Authority**

PLM ASBESTOS SAMPLE INVENTORY

<u>PBS Sample #</u>	<u>Material Type</u>	<u>Sample Location</u>	<u>Lab Description</u>	<u>Lab Result</u>	<u>Lab</u>
40573.243 -PLM12	Cream and black covebase mastic	Office 10, East doorway	Layer 1: Cream/black mastic	NAD	SAT
40573.243 -PLM13	Covebase mastic	Pick-up 11, East doorway	Layer 1: Cream mastic	NAD	SAT
40573.243 -PLM14	Wall texture on gypsum wallboard	Office 3	Layer 1: Trace white powdery material with paint	NAD	SAT
40573.243 -PLM15	Ceiling texture on gypsum wallboard	Office 5	Layer 1: Trace white powdery material with paint	NAD	SAT
40573.243 -PLM16	Wall texture on gypsum wallboard	Garage, East wall	Layer 1: White powdery material with paint and paper	NAD	SAT
40573.243 -PLM17	Wall texture on gypsum wallboard	Office 8, East doorway	Layer 1: White powdery material with paint	NAD	SAT
40573.243 -PLM18	Wall texture on gypsum wallboard	Pick-up 11, North wall	Layer 1: White powdery material with paint and paper	NAD	SAT
40573.243 -PLM19	Ceiling texture on gypsum wallboard	Storage 12	Layer 1: White powdery material with paint	NAD	SAT
40573.243 -PLM20	Wall texture on gypsum wallboard	Women's restroom at 18	Layer 1: White powdery material with paint and paper	NAD	SAT
40573.243 -PLM21	Wall texture on gypsum wallboard	Office 10, East doorway	Layer 1: White powdery material with paint	NAD	SAT
40573.243 -PLM22	Gypsum wallboard Joint compound	Office 3, West doorway	Layer 1: White powdery material with paint and paper Layer 2: White chalky material with paper	NAD NAD	SAT
40573.243 -PLM23	Gypsum wallboard Joint compound	Mechanical 7, doorway	Layer 1: White powdery material with paint and paper	NAD	SAT

**Burndale Homes Office Tenant Improvement
King County Housing Authority
PLM ASBESTOS SAMPLE INVENTORY**

**PBS Engineering + Environmental
PBS Project #40573.243**

<u>PBS Sample #</u>	<u>Material Type</u>	<u>Sample Location</u>	<u>Lab Description</u>	<u>Lab Result</u>	<u>Lab</u>
			Layer 2: White chalky material with paper	NAD	
40573.243 -PLM24	Gypsum wallboard Joint compound	Dry storage 9, North doorway	Layer 1: White powdery material with paint and paper Layer 2: White chalky material with paper	NAD	SAT
40573.243 -PLM25	Ceramic wall tile Grout	Restroom 19, South wall	Layer 1: Tan ceramic Layer 2: Tan mastic	NAD	SAT
40573.243 -PLM26	White attic insulation	Attic, hatch from garage	Layer 1: White fibrous material	NAD	SAT
40573.243 -PLM27	Brown attic insulation	Attic, hatch from garage	Layer 1: Brown fibrous material	NAD	SAT
40573.243 -PLM28	Red roof shingle	Auburn Food Bank main entrance	Layer 1: Black asphaltic material with sand	NAD	SAT
40573.243 -PLM29	Red roof shingle	KCHA, northeast elevation	Layer 1: Black asphaltic material with sand	NAD	SAT
40573.243 -PLM30	Black roof shingle	Auburn Food Bank main entrance	Layer 1: Black asphaltic material with sand	NAD	SAT
40573.243 -PLM31	Black roof shingle	KCHA, northeast elevation	Layer 1: Black asphaltic material with sand	NAD	SAT

SEATTLE ASBESTOS TEST, LLC

Lynnwood Laboratory: 19701 Scriber Lake Road, Suite 103, Lynnwood, WA 98036, Tel: 425.673.9850, Fax: 425.673.9810, NVLAP Lab Code: 200768-0

www.seattleasbestostest.com, admin@seattleasbestostest.com

Project Manager: Mark Hiley	Date Analyzed: 10/28/2022
Client: PBS Engineering and Environmental, Seattle	Client Job#: 40573.243
Address: 214 E Galer Street, Suite 300, Seattle, WA 98102	Project Location: KCHA-Auburn Food Bank
Tel: 206.233.9639	Laboratory batch#: 202211354
Date Report Issued: 10/28/2022	Samples Received: 31

Enclosed please find the test results for the bulk samples submitted to our laboratory for asbestos analysis. Analysis was performed using polarized light microscopy (PLM) in accordance with Test Method US EPA - 40 CFR Appendix E of Part 763, Interim Method of Determination of Asbestos in Bulk Insulation Samples and Test Method US EPA/600/R-93/116.

Percentages for this report are done by visual estimate and relate to the suggested acceptable error ranges by the method. Since variation in data increases as the quantity of asbestos decreases toward the limit of detection, the EPA recommends point counting for samples containing between <1% and 10% asbestos (NESHAP, 40 CFR Part 61). Statistically, point counting is a more accurate method. If you feel a point count might be beneficial, please feel free to call and request one.

The test results refer only to the samples or items submitted and tested. The accuracy with which these samples represent the actual materials is totally dependent on the acuity of the person who took the samples. This report must not be used by the client to claim product certification, approval, or endorsement by Seattle Asbestos Test, LLC, NVLAP, NIST, or any agency of the Federal government. The test report or calibration certificate shall not be reproduced except in full, without written approval of the laboratory. If the sample is inhomogeneous the sub-samples of the components are analyzed separately as layers. This report in its entirety consists of this cover letter, the customer sampling COC or data sheet, and the analytical report which is page numbered.

This report is highly confidential and will not be released without your consent. Samples are archived for 30 days after the analysis, and disposed of as hazardous waste thereafter.

Thank you for using our service and let us know if we can further assist you.

Sincerely



Steve (Fanyao) Zhang
Approved Signatory



202211354

LABORATORY CHAIN OF CUSTODY

Project: KCHA - Auburn Food Bank

Project #: 40573.243 Page 1 of 2

Analysis requested: PLM

Date: 10/26/22

Relinq'd by/Signature: [Signature]

Date/Time: 10/26/22

Received by/Signature: [Signature]

Date/Time: 10/27/22 16:30

Email ALL INVOICES to: seattleap@pbsusa.com

E-mail results to:

- Willem Mager
- Gregg Middaugh
- Mark Hiley
- Tim Ogden
- Ryan Hunter
- Prudy Stoudt-McRae
- Janet Murphy
- Allison Welch
- Toan Nguyen
- Peter Stensland
- Claire Tsai
- Holly Tuttle
- Mike Smith
- Ferman Fletcher
- Cameron Budnick
- Mae Reilly
- Nick San
- Kameron DeMonnin

TURN AROUND TIME:

- 1 Hour
- 2 Hours
- 4 Hours
- 24 Hours
- 48 Hours
- 3-5 Days
- Other _____

SAMPLE DATA FORM

Sample #	Material	Location	Lab
40573.243-PLM01	Gray/brown vinyl flooring tile (VFT)	Office 3 - Under metal drawers	<i>SAT</i> <i>Lynne</i>
PLM02	Gray/brown VFT + yellow & black mastic	Office 10	
PLM03	Yellow VFT + black mastic	Pick-up 11, West, near doorway	
PLM04	White VFT + black mastic	Storage 12	
PLM05	Brown VFT + yellow & black mastic	Waiting area, North wall	
PLM06	Gray roll-out VFT	Garage (Maintenance)	
PLM07	Yellow VFT + leveling compound	Unisex restroom 19	
PLM08	Yellow ceramic floor tile + grout	Women's restroom 18	
PLM09	Carpet mastic	Office 5, SE corner	
PLM10	Cream cove base mastic	Garage (Maintenance)	
PLM11	Beige cove base mastic	Office 8, East doorway	
PLM12	Cream + black cove base mastic	Office 10, East doorway	
PLM13	Cove base mastic	Pick-up 11, East doorway	
PLM14	Wall texture on Gypsum Wallboard (GWB)	Office 3	
PLM15	Ceiling texture on GWB	Office 5	
PLM16	Wall texture on GWB	Garage, east wall	
PLM17	Wall texture on GWB	Office 8, east doorway	



2022 11354
LABORATORY CHAIN OF CUSTODY

Project: KCHA - Auburn Food Bank

Project #: 40573.243 Page 2 of 2

Analysis requested: PLM

Date: 10/26/22

Relinqu'd by/Signature: [Signature]

Date/Time: 10/26/22

Received by/Signature: [Signature]

Date/Time: 10/27/22 16:27

SAMPLE DATA FORM

Sample #	Material	Location	Lab	
40573.243- PLM18	Wall texture on GWB	Pick-up 11, north wall	SAT Cymond ↓	
PLM19	Ceiling texture on GWB	Storage 12		
PLM20	Wall texture on GWB	Women's restroom 18		
PLM21	Wall texture on GWB	Office 10, east doorway		
PLM22	GWB + Joint compound (JC)	Office 3, west doorway		
PLM23	GWB +JC	Mechanical 7, doorway		
PLM24	GWB + JC	Dry storage 9, north doorway		
PLM25	Ceramic wall tile + grout	Restroom 19, south wall		
PLM26	White attic insulation	Attic, hatch from garage		
PLM27	Brown attic insulation	Attic, hatch from garage		
PLM28	Red roof shingle	Auburn Food Bank main entrance		
PLM29	Red roof shingle	KCHA, northeast elevation		
PLM30	Black roof shingle	Auburn Food Bank main entrance		
PLM31	Black rood shingle	KCHA, northeast elevation		

SEATTLE ASBESTOS TEST

Lynnwood Laboratory: 19701 Scriber Lake Road, Suite 103, Lynnwood, WA 98036, Tel: 425.673.9850, Fax: 425.673.9810, NVLAP Lab Code: 200768-0

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ANALYTICAL LABORATORY REPORT

[PLM] EPA – 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples;
 [PLM] EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

Attn.: Mark Hiley

Client: PBS Engineering and Environmental, Seattle

Address: 214 E Galer Street, Suite 300, Seattle, WA 98102

Job#: 40573.243

Batch#: 202211354


Date Received: 10/27/2022


Samples Rec'd: 31

Date Analyzed: 10/28/2022

Samples Analyzed: 31

Project Loc.: KCHA-Auburn Food Bank

Analyzed by:  Cici Xu

Approved Signatory:  Steve (Fanyao) Zhang, President

Lab ID	Client Sample ID	Layer	Description	%	Asbestos Fibers	Non-fibrous Components	%	Non-asbestos Fibers
1	40573.243-PLM01	1	Gray/brown tile		None detected	Vinyl/binder, Mineral grains	2	Cellulose
		2	Trace black mastic		None detected	Mastic/binder	4	Cellulose
2	40573.243-PLM02	1	Yellow mastic		None detected	Mastic/binder	5	Synthetic fibers, Cellulose
		2	Gray/brown tile		None detected	Vinyl/binder, Mineral grains	2	Cellulose
		3	Trace black mastic		None detected	Mastic/binder	3	Cellulose
3	40573.243-PLM03	2	Yellow tile		None detected	Vinyl/binder, Mineral grains	3	Cellulose
		3	Trace black mastic		None detected	Mastic/binder	4	Cellulose
4	40573.243-PLM04	1	White tile		None detected	Vinyl/binder, Mineral grains	3	Cellulose
		2	Black mastic		None detected	Mastic/binder	3	Cellulose
		3	Brown wood block		None detected	Wood aggregates	4	Cellulose
5	40573.243-PLM05	1	Brown/yellow tile		None detected	Vinyl/binder, Mineral grains	2	Cellulose
		2	Black mastic		None detected	Mastic/binder	3	Cellulose
6	40573.243-PLM06	1	Gray tile		None detected	Vinyl/binder, Mineral grains	2	Cellulose
		2	Yellow mastic		None detected	Mastic/binder	4	Cellulose
7	40573.243-PLM07	1	Yellow tile		None detected	Vinyl/binder, Mineral grains	2	Cellulose
		2	Yellow mastic		None detected	Mastic/binder	4	Cellulose
		3	Gray brittle material		None detected	Filler, Binder	2	Cellulose
8	40573.243-PLM08	1	Yellow ceramic		None detected	Ceramic/binder		None detected
		2	Gray brittle/sandy material		None detected	Binder, Sand	2	Cellulose
		3	Clear mastic		None detected	Mastic/binder	2	Cellulose
9	40573.243-PLM09	1	Yellow mastic		None detected	Mastic/binder	5	Synthetic fibers, Cellulose
10	40573.243-PLM10	1	Beige rubbery material		None detected	Rubber/binder	2	Cellulose

SEATTLE ASBESTOS TEST

Lynnwood Laboratory: 19701 Scriber Lake Road, Suite 103, Lynnwood, WA 98036, Tel: 425.673.9850, Fax: 425.673.9810, NVLAP Lab Code: 200768-0

Disclaimer: This report must not be used by the client to claim product certification, approval, or endorsement by Seattle Asbestos Test, LLC, NVLAP, NIST, or any agency of the Federal government.

ANALYTICAL LABORATORY REPORT

[PLM] EPA – 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples;
 [PLM] EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

Attn.: Mark Hiley

Client: PBS Engineering and Environmental, Seattle

Address: 214 E Galer Street, Suite 300, Seattle, WA 98102

Job#: 40573.243

Batch#: 202211354


Date Received: 10/27/2022


Samples Rec'd: 31

Date Analyzed: 10/28/2022

Samples Analyzed: 31

Project Loc.: KCHA-Auburn Food Bank

Analyzed by:  Steve Xu

Approved Signatory:  Steve (Fanyao) Zhang, President

Lab ID	Client Sample ID	Layer	Description	%	Asbestos Fibers	Non-fibrous Components	%	Non-asbestos Fibers
10	40573.243-PLM10	2	Cream mastic		None detected	Mastic/binder	2	Cellulose
11	40573.243-PLM11	1	Beige mastic		None detected	Mastic/binder	3	Cellulose
12	40573.243-PLM12	1	Cream/black mastic		None detected	Mastic/binder	4	Cellulose
13	40573.243-PLM13	1	Cream mastic		None detected	Mastic/binder	2	Cellulose
14	40573.243-PLM14	1	Trace white powdery material with paint		None detected	Binder/filler, Paint	5	Cellulose
15	40573.243-PLM15	1	Trace white powdery material with paint		None detected	Binder/filler, Paint	4	Cellulose
16	40573.243-PLM16	1	White powdery material with paint and paper		None detected	Binder/filler, Paint	35	Cellulose
17	40573.243-PLM17	1	White powdery material with paint		None detected	Binder/filler, Paint	5	Cellulose
18	40573.243-PLM18	1	White powdery material with paint and paper		None detected	Binder/filler, Paint	34	Cellulose
19	40573.243-PLM19	1	White powdery material with paint		None detected	Binder/filler, Paint	5	Cellulose
20	40573.243-PLM20	1	White powdery material with paint and paper		None detected	Binder/filler, Paint	36	Cellulose
21	40573.243-PLM21	1	White powdery material with paint		None detected	Binder/filler, Paint	6	Cellulose
22	40573.243-PLM22	1	White powdery material with paint and paper		None detected	Binder/filler, Paint	35	Cellulose
		2	White chalky material with paper		None detected	Binder/filler, Gypsum/binder	25	Cellulose
23	40573.243-PLM23	1	White powdery material with paint and paper		None detected	Binder/filler, Paint	35	Cellulose
		2	White chalky material with paper		None detected	Binder/filler, Gypsum/binder	26	Cellulose
24	40573.243-PLM24	1	White powdery material with paint and paper		None detected	Binder/filler, Paint	34	Cellulose
		2	White chalky material with paper		None detected	Binder/filler, Gypsum/binder	24	Cellulose

SEATTLE ASBESTOS TEST

Lynnwood Laboratory: 19701 Scriber Lake Road, Suite 103, Lynnwood, WA 98036, Tel: 425.673.9850, Fax: 425.673.9810, NVLAP Lab Code: 200768-0

Disclaimer: This report must not be used by the client to claim product certification, approval, or endorsement by Seattle Asbestos Test, LLC, NVLAP, NIST, or any agency of the Federal government.

ANALYTICAL LABORATORY REPORT

[PLM] EPA – 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples;
 [PLM] EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

Attn.: Mark Hiley

Client: PBS Engineering and Environmental, Seattle

Address: 214 E Galer Street, Suite 300, Seattle, WA 98102

Job#: 40573.243

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Date Received: 10/27/2022

Samples Rec'd: 31

Date Analyzed: 10/28/2022

Samples Analyzed: 31

Project Loc.: KCHA-Auburn Food Bank

Analyzed by: Cici Xu

Approved Signatory: Steve (Fanyao) Zhang, President



Lab ID	Client Sample ID	Layer	Description	%	Asbestos Fibers	Non-fibrous Components	%	Non-asbestos Fibers
25	40573.243-PLM25	1	Tan ceramic		None detected	Ceramic/binder		None detected
		2	Tan mastic		None detected	Mastic/binder	2	Cellulose
26	40573.243-PLM26	1	White fibrous material		None detected	Filler	90	Glass fibers
27	40573.243-PLM27	1	Brown fibrous material		None detected	Filler, Fine particles	85	Cellulose
28	40573.243-PLM28	1	Black asphaltic material with sand		None detected	Asphalt/binder, Sand	25	Glass fibers
29	40573.243-PLM29	1	Black asphaltic material with sand		None detected	Asphalt/binder, Sand	26	Glass fibers
30	40573.243-PLM30	1	Black asphaltic material with sand		None detected	Asphalt/binder, Sand	24	Glass fibers
31	40573.243-PLM31	1	Black asphaltic material with sand		None detected	Asphalt/binder, Sand	25	Glass fibers

APPENDIX B

AA Lead Paint Chip Sampling Information

AA Lead Paint Chip Sample Inventory

AA Lead Paint Chip Laboratory Data Sheets

AA Lead Paint Chip Chain of Custody Documentation

**Burndale Homes Office Tenant Improvement
King County Housing Authority**

**PBS Engineering + Environmental
PBS Project #40573.243**

AA LEAD PAINT CHIP SAMPLE INVENTORY

<u>PBS Sample #</u>	<u>Paint Color / Component or Substrate</u>	<u>Sample Location</u>	<u>Results (mg/kg)</u>	<u>Results (%)</u>	<u>Lab</u>
40573.243 -Pb01	Beige / Gypsum wallboard / Wall	Office 3, West wall	<58	<0.0058	NVL
40573.243 -Pb02	White / Gypsum wallboard / Wall	Office 4 (reception), partition wall	<51	<0.0051	NVL
40573.243 -Pb03	Blue / Gypsum Wallboard / Wall	Office 8, South wall	<56	<0.0056	NVL
40573.243 -Pb04	White / Gypsum wallboard / Wall	Pick-up 11, North wall	<51	<0.0051	NVL
40573.243 -Pb05	Yellow / Gypsum wallboard / Wall	Storage 12, East wall	83	0.0083	NVL
40573.243 -Pb06	Purple / Gypsum wallboard / Wall	Restroom 19	<53	<0.0053	NVL
40573.243 -Pb07	Brown/Green / Wood Siding / Exterior Wall	Garage, Northeast elevation, under vinyl siding	3400	0.34	NVL

October 28, 2022

Mark Hiley

PBS Environmental - Seattle

214 E Galer St. Suite. 300

Seattle, WA 98102



NVL Batch # 2219213.00

RE: Total Metal Analysis
Method: EPA 7000B Lead by FAA <paint>
Item Code: FAA-02

Client Project: 40573.243

Location: KCHA - Auburn Food Bank

Dear Mr. Hiley,

NVL Labs received 7 sample(s) for the said project on 10/27/2022. Preparation of these samples was conducted following protocol outlined in EPA 3051/7000B , unless stated otherwise. Analysis of these samples was performed using analytical instruments in accordance with EPA 7000B Lead by FAA <paint>. The results are usually expressed in mg/Kg and percentage (%). Test results are not blank corrected.

For recent regulation updates pertaining to current regulatory levels or permissible exposure levels, please call your local regulatory agencies for more detail.

At NVL Labs all analyses are performed under strict guidelines of the Quality Assurance Program. This report is considered highly confidential and will not be released without your approval. Samples are archived after two weeks from the analysis date. Please feel free to contact us at 206-547-0100, in case you have any questions or concerns.

Sincerely,

A handwritten signature in black ink, appearing to read 'Shalini Patel'.

Shalini Patel, Manager Metals Lab

Enc.: Sample results



Phone: 206 547.0100 | Fax: 206 634.1936 | Toll Free: 1.888.NVL.LABS (685.5227)
4708 Aurora Avenue North | Seattle, WA 98103-6516

Analysis Report

Total Lead (Pb)



Client: PBS Environmental - Seattle
Address: 214 E Galer St. Suite. 300
Seattle, WA 98102

Batch #: 2219213.00

Matrix: Paint
Method: EPA 3051/7000B
Client Project #: 40573.243
Date Received: 10/27/2022
Samples Received: 7
Samples Analyzed: 7

Attention: Mr. Mark Hiley
Project Location: KCHA - Auburn Food Bank

Lab ID	Client Sample #	Sample Weight (g)	RL in mg/Kg	Results in mg/Kg	Results in percent
22420464	40573.243-Pb01	0.1710	58	< 58	<0.0058
22420465	40573.243-Pb02	0.1967	51	< 51	<0.0051
22420466	40573.243-Pb03	0.1796	56	< 56	<0.0056
22420467	40573.243-Pb04	0.1961	51	< 51	<0.0051
22420468	40573.243-Pb05	0.1388	72	83	0.0083
22420469	40573.243-Pb06	0.1883	53	< 53	<0.0053
22420470	40573.243-Pb07	0.0478	100	3400	0.34

Comments: Small sample size (<0.05g) for 40573.243-Pb07.


Sampled by: Client

Analyzed by: Yasuyuki Hida

Reviewed by: Shalini Patel

Date Analyzed: 10/27/2022

Date Issued: 10/28/2022


Shalini Patel, Manager Metals Lab

mg/ Kg =Milligrams per kilogram

Percent = Milligrams per kilogram / 10000

Note : Method QC results are acceptable unless stated otherwise.

Unless otherwise indicated, the condition of all samples was acceptable at time of receipt.

RL = Reporting Limit

'<' = Below the reporting Limit

Bench Run No: 2022-1027-05

FAA-02

LEAD LABORATORY SERVICES



Company PBS Environmental - Seattle	NVL Batch Number 2219213.00
Address 214 E Galer St. Suite. 300 Seattle, WA 98102	TAT 1 Day AH No
Project Manager Mr. Mark Hiley	Rush TAT
Phone (206) 233-9639	Due Date 10/28/2022 Time 1:20 PM
Office: (800) 628-9639	Email mark.hiley@pbsusa.com
	Fax (866) 727-0140

Project Name/Number: 40573.243 **Project Location:** KCHA - Auburn Food Bank

Subcategory Flame AA (FAA)
Item Code FAA-02 EPA 7000B Lead by FAA <paint>

Total Number of Samples 7 **Rush Samples**

Lab ID	Sample ID	Description	A/R
1	22420464	40573.243-Pb01	A
2	22420465	40573.243-Pb02	A
3	22420466	40573.243-Pb03	A
4	22420467	40573.243-Pb04	A
5	22420468	40573.243-Pb05	A
6	22420469	40573.243-Pb06	A
7	22420470	40573.243-Pb07	A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Courier				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Fatima Khan		NVL	10/27/22	1320
Analyzed by	Yasuyuki Hida		NVL	10/27/22	
Results Called by					
<input type="checkbox"/> Faxed <input type="checkbox"/> Emailed					

Special Instructions:

Date: 10/27/2022
 Time: 1:25 PM
 Entered By: Kelly AuVu



Project: KCHA – Auburn Food Bank

Project #: 40573.243 Page 1 of 1

Analysis requested: FAA - Lead

Date: 10/26/22

Relinq'd by/Signature: [Signature]

Date/Time: 10/26/22 courier

Received by/Signature: [Signature]

Date/Time: 10/27/22 12pm

Email ALL INVOICES to: seattleap@pbsusa.com

E-mail results to:

- Willem Mager
- Gregg Middaugh
- Mark Hiley
- Tim Ogden
- Ryan Hunter
- Prudy Stoudt-McRae
- Janet Murphy

- Allison Welch
- Toan Nguyen
- Peter Stensland
- Claire Tsai
- Holly Tuttle
- Mike Smith
- Ferman Fletcher

- Cameron Budnick
- Mae Reilly
- Nick San
- Kameron DeMonnin
- _____

TURN AROUND TIME:

- 1 Hour
- 2 Hours
- 4 Hours

- 24 Hours
- 48 Hours

- 3-5 Days
- Other _____

SAMPLE DATA FORM

Sample #	Material	Location	Lab
40573.243-Pb01	Beige/Gypsum wallboard (GWB)/wall	Office 3, West wall	NUL
Pb02	White/GWB/wall	Office 4 (reception), partition wall	
Pb03	Blue/GWB/wall	Office 8, south wall	
Pb04	White/GWB/wall	Pick-up 11, north wall	
Pb05	Yellow/GWB/wall	Storage 12, east wall	
Pb06	Purple/GWB/wall	Restroom 19	
Pb07	Brown/plywood/wall	Garage, northeast elevastion	

APPENDIX C

PBS Inspector Certifications

THIS IS TO CERTIFY THAT

TOAN NGUYEN

HAS SUCCESSFULLY COMPLETED THE TRAINING COURSE

for

ASBESTOS INSPECTOR REFRESHER

In accordance with TSCA Title II, Part 763, Subpart E, Appendix C of 40 CFR

Course Date: 03/23/2022

Course Location: Online,

Certificate: IR-22-9206B



CCB #SRA0615 4-Hr Training

4-Hour AHERA Inspector Refresher Training; AHERA is the Asbestos Hazard Emergency Response Act enacting Title II of Toxic Substance Control Act (TSCA)

Expiration Date: 03/23/2023

For verification of the authenticity of this certificate contact:

PBS Engineering and Environmental Inc.

4412 S Corbett Avenue

Portland, OR 97239

A handwritten signature in black ink that reads "Andy Fridley".

Andy Fridley, Instructor

E - SECTION

DRAWINGS & SPECIFICATIONS

- E.1 Scope of Work and Technical Specifications**
- E.2 Drawings (if not included – see attached)**

SCOPE OF WORK & TECHNICAL SPECIFICATIONS

SCOPE OF WORK

DIVISION 1 – GENERAL REQUIREMENTS

01 10 00	Summary
01 26 00	Contract Modification Procedures
01 29 00	Payment Procedures
01 31 00	Project Management & Coordination
01 32 00	Construction Progress Documentation
01 33 00	Submittal Procedures
01 40 00	Quality Requirements
01 50 00	Temporary Facilities & Controls
01 60 00	Product Requirements
01 73 00	Execution
01 73 29	Cutting and Patching
01 74 19	Construction Waste Management
01 77 00	Closeout
01 78 23	Operation and Maintenance Data
01 78 39	Project Record Documents
*****	KCHA Pay Application Form (sample)
*****	KCHA Substitute Request Form (sample)

DIVISION 02 - EXISTING CONDITIONS

02 41 00	Demolition
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DIVISION 03 - CONCRETE

03 30 00	Cast-in-Place Concrete
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DIVISION 05 - METALS

05 52 13	Pipe and Tube Railings
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DIVISION 06 - WOOD, PLASTICS, AND COMPOSITES

06 10 00	Rough Carpentry
06 20 00	Finish Carpentry
06 41 00	Architectural Wood Casework
06 83 16	Fiberglass Reinforced Paneling

DIVISION 07 - THERMAL AND MOISTURE PROTECTION

072100	Thermal Insulation
072500	Weather Barriers
073113	Asphalt Shingles
074646	Fiber-Cement Siding



076200	Sheet Metal Flashing and Trim
077200	Roof Accessories
078400	Firestopping
079200	Joint Sealants

DIVISION 08 - OPENINGS

081113	Hollow Metal Frames
081416	Flush Wood Doors
081613	Fiberglass Doors
083100	Access Doors and Panels
085413	Fiberglass Windows
087100	Door Hardware
088000	Glazing
088723	Safety and Security Films
089100	Louvers

DIVISION 09 - FINISHES

092116	Gypsum Board Assemblies
096500	Resilient Flooring
096813	Tile Carpeting
099113	Exterior Painting
099123	Interior Painting

DIVISION 10 - SPECIALTIES

101419	Dimensional Letter Signage
102600	Wall and Door Protection
102800	Toilet, Bath, and Laundry Accessories
104400	Fire Protection Specialties

DIVISION 11 - EQUIPMENT

113013	Residential Appliances
118129	Facility Fall Protection

DIVISION 12 - FURNISHINGS

122400	Window Shades
123600	Countertops

DIVISION 22 - PLUMBING

220100	Operation and Maintenance of Plumbing
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220500	Common Work Results for Plumbing
220501	Demolition of Plumbing
220700	Plumbing Insulation
221005	Domestic Water Piping
221316	Sanitary Waste and Vent Piping
223000	Plumbing Equipment
224000	Plumbing Fixtures

DIVISION 23 - MECHANICAL

230100	Operation and Maintenance of HVAC Systems
230500	Common Work Results for HVAC
230501	Demolition of HVAC
230593	Testing Adjusting and Balancing for HVAC
230700	HVAC Insulation
233100	HVAC Ducts and Casings
233300	Air Duct Accessories
233400	HVAC Equipment
233713	Diffusers Registers and Grilles

DIVISION 26 - ELECTRICAL

260500	General Electrical Provisions
260511	Electrical Connections For Equipment
260512	Electrical Demolition
260519	Low Voltage Electrical Power Conductors
260521	Metal Clad Cables
260526	Grounding And Bonding For Electrical Systems
260529	Hangers And Supports For Electrical Systems
260532	Outlet Boxes For Electrical Systems
260533	Raceway Systems
260548	Vibration Isolation And Seismic Control For Electrical Systems
260553	Identification For Electrical Systems
262416	Panelboards
262726	Wiring Devices
262813	Overcurrent Protective Devices
262816	Disconnect Switches And Enclosed Circuit Breakers
265100	Lighting
269300	Lighting Controls



DIVISION 28 – ELECTRONIC SAFETY AND SECURITY

283111

Fire Alarm Systems

LIST OF DRAWINGS

A0.0	COVER SHEET
A0.1	CODE ANALYSIS
A0.2	CODE ANALYSIS
A1.0	SITE PLAN
AD2.1	DEMO PLANS
A2.1.1	FIRST FLOOR PLAN & ROOF PLAN
A2.1.2	FIRST FLOOR FINISH PLAN & RCP
A2.1.3	FIRST FLOOR FF&E PLAN
A3.0	EXTERIOR ELEVATIONS
A3.1	BUILDING SECTIONS
A5.0	SCHEDULES & ASSEMBLIES
A5.1	DOOR & WINDOW ASSEMBLIES
A6.0	ENLARGED PLANS
A6.1	ENLARGED PLAN
A7.0	INTERIOR ELEVATIONS
A8.0	EXTERIOR DETAILS
A8.1	EXTERIOR DETAILS
A8.2	EXTERIOR DETAILS
A9.0	INTERIOR DETAILS
ASK01	EXTERIOR WALL TO BASE DETAIL
S0.1	GENERAL NOTES
S0.2	GENERAL NOTES
S0.3	GENERAL NOTES
S1.1	FRAMING PLANS
S2.0	DETAILS
S2.1	DETAILS
S2.2	DETAILS
M0.1	MECHANICAL LEGEND AND INDEX
M0.2	MECHANICAL NOTES
M0.3	MECHANICAL SCHEDULES AND CALCULATIONS
M0.4	MECHANICAL SCHEDULES AND CALCULATIONS
MD1.1	FIRST FLOOR HVAC DEMOLITION PLAN
M2.1	FIRST FLOOR HVAC PLAN
M2.2	HVAC ROOF PLAN
M3.0	MECHANICAL DETAILS
M3.1	MECHANICAL DETAILS
M3.2	MECHANICAL DETAILS
P0.1	PLUMBING LEGEND AND SHEET INDEX
P0.2	PLUMBING NOTES
P0.3	PLUMBING SCHEDULES AND CALCULATIONS
PD1.1	PLUMBING DEMOLITION PLANS
P2.0	PLUMBING PLANS
P2.2	PLUMBING ROOF PLAN



KCHA – BURNDALÉ HOMES OFFICE TI & ENVELOPE
CAPITAL CONSTRUCTION DEPARTMENT

P3.0	PLUMBING RISER DIAGRAMS
P4.0	PLUMBING DETAILS
P4.1	PLUMBING DETAILS
E0.1	SYMBOL LEGEND AND FIXTURE SCHEDULE
E0.2	LIGHTING FIXTURE SCHEDULE AND ENERGY FORMS
ED2.1	POWER, COMMUNICATIONS AND LIGHTING DEMO PLANS
E2.1	POWER, COMMUNICATIONS AND LIGHTING PLANS
E4.1	MECHANICAL CONNECTION PLAN
E7.1	FIRE ALARM SYSTEM PLAN
E9.1	EXISTING RISER DIAGRAM AND PANEL SCHEDULES

TABLE OF CONTENTS – SCOPE OF WORK

- 1.0 Project Summary**
- 2.0 Project Administration Requirements**
 - A. Pre-construction**
 - B. Construction Administration**
 - C. Closeout**
- 3.0 General Requirements**
 - A. Acknowledgement**
 - B. Staffing and Experience**
 - C. Quality Assurance and Quality Control**
 - D. Inspection of Work**
 - E. Site Requirements**
 - 1. Work Hours
 - 2. Restrictions
 - 3. Contractor Responsibilities
 - F. Project Phasing**
- 4.0 Safety, Protection and Restoration**
 - A. Safety**
 - B. Protection**
 - C. Restoration**
 - D. Hazardous Material**
- 5.0 Divisions (See Specification Sections for complete details)**
 - Division 1 General Conditions**
 - A. Site Staging and Deliveries
 - B. Temporary Facilities
 - Division 2 Site Construction**
 - A. Selective Demolition (Section 024100)
 - B. Existing Utilities
 - Division 3 Concrete**
 - A. Cast-in-Place Concrete (Section 033000)
 - Division 5 Metals**
 - A. Pipe and Tube Railings (Section 055213)
 - Division 6 Wood and Plastics**
 - A. Rough Carpentry (Section 061000)
 - B. Finish Carpentry (Section 062000)
 - C. Architectural Wood Casework (Section 064100)

D. Fiberglass Reinforced Paneling (Section 068316)

Division 7 Thermal and Moisture Protection

- A. Thermal Insulation (Section 072100)
- B. Weather Barriers (Section 072500)
- C. Asphalt Shingles (Section 073113)
- D. Fiber Cement Siding (Section 074646)
- E. Sheet Metal Flashing & Trim (Section 076200)
- F. Roof Accessories (Section 077200)
- G. Fire Stopping (Section 078400)
- H. Joint Sealants (Section 079200)

Division 8 Openings

- A. Flush Wood Doors (Section 081416)
- B. Fiberglass Doors (Section 081613)
- C. Access doors and Panels (Section 083100)
- D. Fiberglass Windows (Section 085413)
- E. Door Hardware (Section 087100)
- F. Glazing (Section 088000)
- G. Safety and Security Films (Section 088723)
- H. Louvers (Section 089100)

Division 9 Finishes

- A. Gypsum Board Assemblies (Section 081416)
- B. Resilient Flooring (Section 096500)
- C. Tile Carpeting (Section 096813)
- D. Exterior Painting (Section 099113)
- E. Interior Painting (Section 099123)

Division 10 Specialties

- A. Dimensional Letter Signage (Section 101419)
- B. Wall and Door Protection (Section 102600)
- C. Toilet, Laundry Accessories (Section 102800)
- D. Fire Protection Specialties (Section 104400)

Division 11 Equipment

- A. Residential Appliances (Section 113013)
- B. Facility Fall Protection (Section 118129)

Division 12 Furnishings

- A. Window Shades (Section 122400)
- B. Countertops (Section 123600)

Division 22 Plumbing

- A. Operation & Maintenance of Plumbing (Section 220100)
- B. Common Work Results for Plumbing (Section 220500)
- C. Demolition of Plumbing (Section 220501)
- D. Plumbing Insulation (Section 220700)
- E. Domestic Water Piping (Section 221005)
- F. Sanitary Waste and Vent Piping (Section 221316)
- G. Plumbing Equipment (Section 223000)
- H. Plumbing Fixtures (Section 224000)

Division 23 Heating, Ventilating, and Air-Conditioning (HVAC)

- A. Operation & Maintenance of HVAC (Section 230100)
- B. Common Work Results for HVAC (Section 230500)
- C. Demolition of HVAC (Section 230501)
- D. Testing, Adjustment & Balancing (Section 230593)
- E. HVAC Insulation (Section 230700)
- F. HVAC Ducts and Casings (Section 233100)
- G. Air Duct Accessories (Section 233300)
- H. HVAC Equipment (Section 233400)
- I. Diffusers Registers and Grills (Section 233713)

Division 26 Electrical

- A. General Electrical Provisions (Section 260500)
- B. Electrical Connections for Equipment (Section 260511)
- C. Electrical Demolition (Section 260512)
- D. Low Voltage Electrical Power Conductors (Section 260519)
- E. Metal Clad Cables (Section 260521)
- F. Grounding and Bonding for Electrical Systems (Section 260529)
- G. Hangers and Supports for Electrical Systems (Section 260532)
- H. Outlet Boxes for Electrical Systems (Section 260532)
- I. Raceway Systems (Section 260533)
- J. Vibration isolation & Seismic Control (Section 260548)
- K. Identification for Electrical Systems (Section 260553)
- L. Panel Boards (Section 262416)
- M. Wiring Devices (Section 262726)
- N. Overcurrent Protective Devices (Section 262813)
- O. Disconnect Switches & Enclosed Circuit Breakers (Section 262816)
- P. Lighting (Section 265100)
- Q. Lighting Controls (Section 269300)

Division 28 Electronic Safety and Security

- A. Fire Alarm Systems (Section 283111)

SECTION 001010 SCOPE OF WORK

1.0 PROJECT SUMMARY

The Burndale management office building is a single-story wood-framed building built in 1971. The building currently houses the Burndale management offices, maintenance office and equipment storage, and the Auburn food bank. The remodeling of the existing office building will expand the office space to house the KCHA regional office and Maintenance with the food bank moving to a new location. The building renovation will include selective demolition of building elements for alteration purposes as indicated on drawings.

Interior

- Removal of existing interior wall and ceiling assemblies, including mechanical, electrical, plumbing as noted on AD2.1.
- Removal of interior flooring, case work, doors, frames hardware and trim.
- Removal of selective concrete flooring and framed flooring.
- Restructuring of interior walls, installation of posts and beams, reframing selective floor and floor supports, and new footings.
- The new floor plan will have office spaces, meeting and conference rooms, restrooms, break rooms, and expanded spaces for maintenance operations. All new electrical, data, security, plumbing, and mechanical systems will be installed to accommodate the new floor plan.
- The security camera system and some mechanical equipment are to be reused. The contractor will be responsible for installing all finishes, including new flooring, wall treatments, millwork, paint, fixtures, and built-in cabinetry.

Exterior

- Removal of existing roofing assembly, gutters, downspouts, barge and fascia board.
- Removal of siding, insulation, windows, doors, trim and hardware.
- Modifications to the existing roof overhangs, infill of existing gable vents.
- Work will include installation of seismic hardware as noted per structural plans.
- The new floor plan will have office spaces, meeting and conference rooms, restrooms, break rooms, and expanded spaces for maintenance operations. All new electrical, data, security, plumbing, and mechanical systems will be installed to accommodate the new floor plan.

2.0 PROJECT ADMINISTRATION REQUIREMENTS

A. Pre-Construction Administration

BEFORE commencement of work begins on-site the Contractor will provide the Owner the following items:

1. Project Master Schedule

- a. Completed in Microsoft Project, Primavera or similar.
- b. Must be cost loaded to reflect Schedule of Values items.
- c. Project phasing shall be integrated into master schedule.
- d. Shall include the following project milestones:

- | | |
|--|-----------|
| 1) Contract start date (CS) | TBD |
| 2) Notice to Proceed (NTP) | TBD |
| 3) Construction Duration (CD) Start Date/Stop Date | TBD - TBD |

- | | |
|---|-----|
| 4) Substantial Completion (SC) | TBD |
| 5) Physical Completion (PC) and Warranty Start Date of Entire Project | TBD |
| 6) Contract Completion (CC) of Entire Project | TBD |

**The dates listed above are estimated milestone dates, provided to the Contractor for incorporation and inclusion in the negotiated final project Critical Path Method (CPM) schedule. These estimated dates may change. Such changes, if any, shall not result in an automatic extension of the Final Completion date. The Contractor shall make reasonable flexibility in the schedule to accommodate any such date changes in order to accomplish the interim milestone dates (NTP, CD Start/Stop, SC, PC and CC).*

2. Schedule of Values (SOV)

- a. Each item must correlate to the project schedule.
- b. Schedule of Values to contain a five (5%) percent line item for the closeout documents.
- c. Schedule of Values to reflect detailed tasks by labor and material.
- d. Contractor to include a separate line item for each item listed below:
 - 1) Overhead and Profit.
 - 2) General Conditions.
 - 3) Material and Labor for each task or based on subcontracted work. This will allow KCHA to pay for materials purchased at the beginning of the project or during the course of construction (once KCHA has established that the Contractor has ordered, has been invoiced, and has a suitable location to store materials. See Contract documents for requirements.)
 - 4) Mobilization.

3. Submittal Schedule

- All submittals to King County Housing Authority (KCHA) prior to start of related work.
- a. The Contractor shall provide and manage a schedule of all submittals required on the project as listed in each specification section.
 - b. Submittals will be processed with enough time for the Owner to reasonably provide feedback fourteen (14) calendar days prior to materials being delivered to the site.
 - c. Any material submitted that is not listed in the project specifications will need to be submitted with a Substitution Request Form for review.

4. Site Specific Safety Plan: The Site Specific Plan should be submitted for review then kept on site during construction. Verify regular safety meetings are being held per proposed plan.

5. Phasing and Coordination Plan including the following (*See section 3 item I, regarding Phasing*):

- a. Resident access plan for entry and exiting of apartment units.
- b. Resident parking plan for proposed parking lot closings and openings.

6. Subcontractor List with the names all subcontractors including contact information.

*NOTE: All items stated above must be submitted and approved BEFORE Contractor commences work.

B. Construction Administration

Master Schedule: The Contractor shall maintain (update and track) the provided project master schedule using CPM for the project. This work will progress and be reflected with the project SOV. Project phasing shall be reflected in the master schedule. The Contractor is responsible for all Scheduling and coordination between all trades and any other subcontractors working for the General contractor.

1. Two (2) Week Look-Ahead: The Contractor will provide weekly a two (2) week “look-ahead” schedule updating the relationship of this report with master project schedule. This shall be provided for review and be a topic of discussion during weekly site meetings. This schedule will be specific to the individual tasks as well as to identify work requiring site notifications

and coordination.

2. **Daily Reports:** Contractor to provide copies of daily site reports on a weekly basis. The daily report will describe daily man power, weather conditions, work in progress, delays and issues. Daily report format shall be submitted (during pre-construction phase) to Owner for review.
3. **Meeting Minutes:** Contractor to manage and provide copies of meeting minutes/notes for all pre-construction, coordination, safety and weekly Owner/Architect/Contractor (OAC) meetings. Meeting minutes format to be submitted (during pre-construction phase) to Owner for review.
4. **Notices:** It is the Contractor's responsibility to plan, coordinate and inform KCHA of work which shall require notice. Failure to provide adequate notice that results in a delay will be fully on the Contractor.
 - a. **Shut Downs:** Contractor will provide proper notification (minimum of seventy-two (72) business hours to the Owner and (minimum of forty-eight (48) business hours to the tenants.
 - b. **General Notices:** The Contractor shall provide notice to Owner related to project start, potential impacts on tenants' accessibility and moving if items which could interfere with construction progress.
5. **As-Builts:** The Contractor will be responsible to assess and record the existing conditions of any damaged or non-working items, such as existing electrical and mechanical equipment, pipe, utilities, concrete, asphalt etc., and prior to removal of work. Contractor is responsible to restore or replace all finishes that become damaged as a result of work being performed. Contractor is not responsible for repairs of existing damage. As-Built drawings shall be current-to-date and will be reviewed on-site prior to each pay application.
6. **Certified Payrolls:** All Contractor employees and all sub-contractor employees will need to know their trade classification and pay rate.
 - a. Owner will be conducting on-site wage interviews verifying job classification and wage rate.
 - b. Davis Bacon Residential / HUD Non-Routine Maintenance Wage Rates apply to this project and must be posted on-site at all times.
7. **Punch List:** When the Contractor has deemed the project as substantially complete, meaning all base bid work is complete and conforms to requirements of the specifications and quality standards established through the mockups and as stated in the contract documents, the Contractor and a KCHA representative shall thoroughly inspect and list work that is non-conforming that the Contractor must complete prior to final payment. The work may include incomplete or incorrect installations or incidental damage to existing finishes, material, and structures. The list shall be provided to the Owner for their review and approval. All punch list items are expected to be finished and accepted by the physical completion date.

C. Closeout Administration

1. **O&M Manuals:** One (1) hard copy and one (1) electronic copy of the Operation and Maintenance (O&M) manual for all major materials and equipment shall be supplied by the Contractor to the Owner upon Project completion and prior to request for final payment.
 - a. Electronic copy to be submitted for approval prior to submitting hard copy.
 - b. O&M manual will include all warranties associated with the Work.
 - c. O&M manual will include relevant data associated with warranties and works such as
 - 1) Name of installer with all contact information.
 - 2) Name of manufacturer and location material was purchased with all contact information.
 - d. All O&M manuals are subject to Owner approval.

2. **Final As-Built Drawings:** Upon substantial completion of the Project, the marked-up set of site documents shall be converted into as-built drawings and submitted to the Owner for review and approval.
3. **Permits Finals:** Upon physical completion of the Project, all completed permits and permit drawings to be submitted to Owner and City of Auburn with final sign offs.
4. **Master Keys and Access Cards:** Upon physical completion of the Project, Contractor shall return all master keys and access cards, signing off a Key Return Form.
5. **Punch List(s):** Upon physical completion of the Project, all lists shall be completed and signed off by the Owner.

3.0 GENERAL REQUIREMENTS

A. Acknowledgements

1. By signing the contract, the Contractor acknowledges that they have reviewed and can fully implement all administrative and physical aspects of the work as described in the project scope of work, specifications and drawings. The Contractor also acknowledges that they have completed an extensive site walk of the site and accepts the site conditions.
2. The Contractor will be responsible to assess and record the existing conditions of any damaged items and utilities, prior to removal of work. KCHA's assumption is that all items are in good working order. Contractor is responsible to restore or replace all finishes that become damaged as a result of work being performed. Contractor is not responsible for repairs of existing damage.
3. The Contractor will provide all materials, fasteners, shoring, staging, labor, equipment, and expertise necessary to provide a quality "Turnkey" project, complete with all elements of the work, safely, on time, and within budget.
4. The Owner does not foresee any change orders for work resulting in site conditions that were clearly visible and present during the Mandatory Pre-bid Site Visit. By submitting a bid the Contractor acknowledges any labor, material and equipment required for a "Turnkey" project not specifically covered in the plans and specifications has been included in their base bid.
5. The Contractor's Superintendent or Foreman will be assigned a construction master key and will be held responsible for all costs related to the re-keying should the key be lost or stolen. If the master key is lost or stolen the Contractor will be responsible for re-keying all related locksets to a new keying system by the **end of the day** the issue is reported.
6. The Contractor has and will continue to field verify all visible existing site conditions, adjacent conditions/components and quantities. If there is a discrepancy between Scope of Work, Specifications and/or Drawings, the Scope of Work shall take precedence followed by the Specifications and lastly the Drawings.
7. Any questions occurring during bidding or construction shall be resolved by direction in writing from Owner. Any issues not so resolved or any conflicts between the scope of work, specifications and plans, shall result with the Contractor bidding, furnishing and installing the most stringent condition. No exceptions. Contractor must submit an RFI if a conflict exists between the scope of work, specifications and plans.
8. It is incumbent on the Contractor to inform the Owner of any conflicts between manufacturers' requirements and the provided plans and specifications through the RFI process and prior to submitting a bid.
9. Contractor must demonstrate a comprehensive understanding that all work described in the project documents is all-inclusive and results in a complete system. Contractor to provide all materials, unless stated otherwise. All tasks must be complete with uniform fit, function, form, style and type.

10. Permits: The Owner will obtain the building permit; all other permits (including city of jurisdiction permits or agency of jurisdiction permits) are the Contractor's responsibility. Contractor shall keep permits posted and onsite at all times
11. Plans & Specifications: The Contractor shall keep all associated permits and the approved permit plan set on site at all times. The Contractor will keep and maintain, on-site, a separate but complete set of construction drawings and specifications for markups and daily use.
12. Any damage caused by construction related activities (i.e. demolition, laydown areas) to existing physical assets to remain will be the Contractor's responsibility to correct at no cost to the Owner.

B. Staffing and Experience Requirements

1. The Contractor is expected to be on-site working each consecutive weekday unless directed otherwise by Owner.
2. A qualified and experienced full time site Superintendent or Foreman will be on site at all times.
3. The Contractor shall employ a sufficient number of workers and equipment to perform the Work in a diligent and expeditious manner. KCHA expects the Contractor to adequately staff the project to maintain the schedule, including reallocating and increasing staffing as needed to correct any slippage in the schedule.
4. Contractor and sub-contractor employees shall perform all work in a professional manner. All tasks must be complete with uniform fit, function, form, style and type.
5. All trades are to have a minimum of three (3) years of experience in their given trade.
6. Tradesmen must have the proper certification to perform work or to operate specific equipment that requires certifications and/or licenses.
7. The Contractor shall immediately remove from the site any of its employees or its subcontractors' employees, as the Owner shall deem incompetent, careless, insubordinate or otherwise disruptive to the progression of the project.

C. Quality Assurance / Quality Control

1. All Work shall be performed using new materials, installed plumb, level, true to the line, free of defects, and completed in a professional workmanlike manner to provide a complete, safe, and operable "Turnkey" installation.
2. The Contractor will follow all manufacturers' requirements and recommendations for the installation of all products to maintain the integrity of all manufacturer's warranties.
3. Mockups: The Contractor will provide all mockups, within the base scope, required for the project as listed in each specification section. Mockups and color samples will be produced with enough time for the Owner to reasonably provide feedback one (1) week prior to these components being staged and implemented on site. Mockups will set expectations of quality expected for the project.
4. Quality Assurance/ Quality Control: The Contractor will provide ongoing QA/QC at each step of work and take corrective measures prior to the next element of work being performed. This will include, but is not limited to, sequencing partial punches and substantial completions throughout the project.
5. Contractor responsible for subcontractor's quality of workmanship and materials, completion of scope, and scheduling on site.
6. It is incumbent on the Contractor to inform the Owner of any conflicts between manufacturers' requirements and the provided plans and specifications through the RFI process and prior to submitting a bid.

D. Inspection of Work

1. Code Compliance: All work will be code compliant and without defect for all materials and applications at time of KCHA punch inspection.
2. Owner Progress Inspections: All work is subject to Owner inspection and approval and is the responsibility of the Contractor until it is turned over to Owner.
3. Jurisdiction Inspections (as required per permit): The Contractor is required to attend all inspections, and inform KCHA representative within 48 hours prior to such scheduled inspections. Contractor is responsible for any costs associated with re-inspections for work not approved by the Authority Having Jurisdiction.

E. Site Requirements

1. All communication and coordination will be with Owner representatives only.
2. On-site tenant support services (i.e. laundry, common space, maintenance facilities and storage) must be fully accessible and operational at all times.
3. Work shall be coordinated not to interrupt services (i.e. garbage, mail, EMS, etc.).
4. Emergency and tenant access must be maintained at all times.
5. The Contractor is required to maintain the cleanliness of the work-site; there will be daily inspections by the Owner to verify cleanliness, safety and tenant access. The Contractor will be responsible for cleanup and housekeeping of work limits, staging areas, and Contractor's parking areas by the end of each business day. Contractor to secure all equipment, materials, and tools, ensure that unfinished work areas are protected and secure prior to leaving for the weekend.
6. No noise prior to 8:00am but layout and work setup can begin at 7:30am unless permission is granted by the Owner's Representative.
7. All interior work in each unit to be completed within 5 consecutive days. See Section 2 Project Administration Requirements; subsection B Construction Administration – Notices.
8. The Contractor is responsible for providing sanitary services, potable water and field office spaces for their agents. No public bathroom, drinkable water or office space is available onsite, for the Contractor or its agents.
9. The Contractor must read and comply with all safety requirements as stated in Section 4 A.
10. The Contractor is responsible for all necessary locates (both private and public), grading, and staking as required.
11. See Division 1 related to staging and deliveries.

F. General Restrictions

1. No parking in fire lanes. Fire lanes will be uninhibited at all times for first responder and tenant service access, unless otherwise approved by Fire Marshal.
2. No smoking on site by any Contractor or any of the Contractor's representatives (i.e. subcontractors, suppliers, consultants, etc.).
3. No washing out of any materials on site will be allowed. All contaminated or silt laden water must be contained and responsibly disposed of offsite.
4. No loud or offensive music is permitted.
5. No dumping on site. Contractor will not be allowed to use Owner's waste facilities.

G. Work Hours

1. Work to be performed during normal hours of operation from **8:00am to 4:30 pm**. There will be no work on weekends (unless prior approval has been granted by Owner). Owner does not pay overtime.

2. There will be no work on Owner holidays. Contractor to verify with Owner's Representative if there are any Owner holidays occurring during the duration of the project.

H. Contractor's Responsibilities

1. Contractor will be responsible to provide power for all work described. Contractor will not be allowed to use any on-site power unless prior approval has been granted by the Owner.
2. Water use available with previous approval from Owner. Contractor must obtain approval of Owner for water usage forty-eight (48) hours prior to use.
3. The Contractor is responsible for City of Auburn hauling route, plans, and street use permits.

I. Project Phasing

1. The Owner's expectation is to have the building protected from the elements at the end of each work day. Each window and door replacement to be swapped out on the same day.
2. The Owner's expectation is not to open up "Vast" areas of the project for prolong periods of time or shutting down public areas to accommodate staging, stock piling, mobilization or for convenience of construction. Contractor must realize and accept that this project is being conducted in a fully occupied housing development and all that it encompasses (families, elderly, children out of school, daily traffic from families coming and going at all times during the day). The Owner is not only concerned about scope, schedule and budget, but the impact on its residents. The Contractor must take these considerations in to their phasing and sequencing accordingly. The Contractor must review their risk factors to accommodate these considerations in their bid.

4.0 SAFETY, PROTECTION & RESTORATION

A. Safety

1. Contractor shall provide and have on site at all times a site specific safety plan.
2. Comply with all safety and health codes within Local, State and Federal jurisdictions.
3. All work must operate within OSHA and State-equivalent (WISHA) standards and requirements.
4. The Contractor shall conduct weekly safety meetings; the minutes from these meeting are to be available to the Owner upon request. A schedule for safety meetings will be provided with the Contractor's submittal of the Safety Plan. Confirmation that the weekly safety meeting did take place and the topic of the safety meeting will be stated in the weekly site meeting minutes.
5. All workers on-site will wear high visibility vests or apparel with company logo or name that clearly identifies the workers.
6. All workers must be equipped with proper personal protective equipment (PPE) and be wearing it when appropriate or required while they are on-site (i.e. hardhat, safety glasses, ear plugs and fall arrest etc.).
7. Contractor to keep walkways free of debris, materials, tools and equipment at all times. Access must be maintained for residents at all times. If access is blocked or limited, the Contractor must ensure that a safe, alternative route can be maintained and accessed by residents.
8. The Contractor will be diligent in ensuring that all safety measures are performed at all times for all aspects of work being performed.
9. Work Areas shall be cordoned off with safety fencing and/or caution tape while work is in progress.
10. Contractor is responsible for safety and security of work areas affected by work and will provide temporary guardrails, temporary cover and/or locks for openings. Contractor's main focus is the safety of his work force and the safety of KCHA's residents and staff.

11. The Contractor is responsible to secure all materials and equipment to prevent damage and to also take precautions to prevent theft of their personal items.

B. Protection

1. Protect existing concrete walkways, paved areas, landscaping and all other finished surfaces which are to remain.
2. Contractor will provide protection at landscape areas where material laydown, storage, construction trailers or equipment are stored.
3. Contractor is responsible to protect and maintain all areas within the project work limits including, but not limited to, landscaping, hardscapes, exterior amenities, existing improvements, and adjacent/abutting buildings.
4. See individual scope item related to protection Dust and debris control Best Management Practices (BMPs) will be applied daily in all work areas (i.e. use of tarps, water truck, street sweeper etc.).
5. All construction activities, including staging and traffic area, shall be prohibited within five (5') feet of drip lines of protected trees.

C. Restoration

1. Contractor responsible for restoration of any damage due to construction related activities. Contractor is advised to do a pre-construction walk and do an assessment with KCHA site personal prior to construction to note and document existing conditions.
2. Contractor will restore all landscape impacted by construction to existing pre-construction conditions.
3. Contractor to restore all lawn areas with Sod.
 - a. Grass areas that are identified for replacement or are damaged from construction activities are to be conditioned with new 3-way topsoil mix to a depth of (4") inches and tilled in to existing soils.
 - b. The Contractor shall roll to consolidate topsoil for areas to be sodded leaving surface smooth, uniform, firm against deep foot printing, and with a fine loose texture.
 - c. Contractor must ensure that sod is adequately watered until it becomes established and will survive through the 1 year warranty period.
 - d. Existing sod that has been removed shall be disposed of legally.
4. Planted areas that are damaged are to be conditioned with new wood chip mulch:
 - a. Will be free from deleterious materials and suitable as a top dressing.
 - b. Loosen subgrade of planting beds to a minimum of 4 inches. Remove stones larger than 1" and sticks, roots, rubbish and other extraneous matter and legally dispose. Mulch shall contain minimal nutrient content.
 - c. Areas shall be conditioned with new top soil, tilled in to a depth of two (2") inches, and then two (2") inches of mulch placed throughout the affected area. Mulch should be a minimal nutrient, non-growth promoting mulch (non-die/stain/colored, wood chip/mulch, mulch that does not promote growth) spread around the affected area and section of planting bed/box/defined area. Contractor should work with KCHA to determine limits of mulch required for the project.

D. Hazardous Materials

1. If lead based paint is known to be present, the Contractor is responsible for removal using the HUD Lead-Safe-Work protocol. HUD Lead Safe Work protocol is more restrictive than RRP protocols. Contractors should refresh all workers on the HUD portion of Lead Safe work Practices before the project starts. The contractor will be responsible to retain copies of all workers RRP training certificates on the work site at all times, and be able to produce them when asked.

2. Owner will make any hazardous material reports available to the Contractor. Contractor will be responsible to determine at what level of abatement and protection is required when disturbing hazardous materials.
3. The Contractor agrees to indemnify, defend and hold the Owner harmless from any claims arising out of or relating to the improper handling of hazardous materials that may be present on site.
4. Contractors are responsible for reviewing all Hazmat surveys provided by KCHA and must identify all areas of work that have lead base paint, or asbestos containing materials. Contractor is responsible for sharing hazmat surveys with their sub-contractors prior to any work completed on site.
5. Traces of asbestos containing materials (ACM) may be present. These should be removed by properly trained and protected personnel using appropriate work practices and engineering controls. Workers potentially working with (ACM) are advised to confirm training requirements of WISHA and to ensure that proper worker protection and work practices are implemented.
6. The Contractor agrees to indemnify, defend and hold the Owner harmless from any claims arising out of or relating to the presence of asbestos/hazardous material in the Owner's building that the Contractor has sub-contracted the removal and legal disposal of the asbestos/hazardous material.

DIVISION 1 GENERAL CONDITIONS

A. Site Staging and Deliveries

1. Contractor will coordinate bulk material deliveries with Owner forty-eight (48) hours prior to deliveries where potential for parking access will be temporarily blocked – no more than fifteen (15) minutes.
2. Contractor and subcontractors will only be allowed to off load and load up tools – no more than fifteen (15) minutes. Heavy equipment used specifically for construction will not block emergency access. Construction activities will not block parking areas not scheduled for work.
3. Contractor to use existing parking on site to stage materials in areas approved by the property manager. Property manager to designate parking spaces that will be fenced off around the perimeter and locked, to store materials for current phases of work. KCHA will work with property manager to designate areas around the building for additional material storage. No trash and debris will be stored, and must be removed from the site on a daily basis. Contractor must perform daily cleanup around staging site to ensure dust and debris does not build up in the parking lot.

B. Temporary Facilities

1. Use of onsite restroom facilities will not be permitted. Contractor is responsible for portable toilets; Contractor to consult with Owner for placement.
2. Contractor is not permitted to use tenant or building power without KCHA approval. For bidding purposes, Contractor is to provide power for this project.
3. Contractor to provide all dumpsters, job shacks, con-x boxes, fencing etc. Locations to be negotiated and approved by Owner.

DIVISION 2 SITE CONSTRUCTION

A. Demolition

Refer to Specification Section 024100 Selective Demolition.

1. The Contractor shall remove and legally dispose of all materials as required by the contract documents to allow for the installation of all new specified materials. Refer to plan sections AD2.1, MD1.1, PD1.1.
2. The Contractor shall remove and legally dispose of all materials as required by the contract documents to allow for the installation of all new specified materials. Materials included to be removed and disposed of are as follow (but non-inclusive): roofing, gutters, downspouts, siding, foam board, (interior and exterior) trim, windows, doors, door hardware, window coverings, hose bibs, exterior lighting fixtures, HVAC components, electrical components, gas components, concrete, rails, interior furnishings, fixtures, finishes.
3. Install temporary barriers as necessary to protect tenants and staff during demolition.
4. Recycling efforts will be performed to the fullest extents possible as specified in the contract documents. Contractor to comply with recycling measures and reporting per Specification section 01 74 19 Construction Waste Management and Disposal.

B. Existing Utilities

1. Contractor to verify any existing equipment, devices, camera fixtures, cabling, wires and conduit is in operational order prior to moving, relocating, replacing or rerouting. KCHA makes the assumption that equipment was working prior to Contractor's arrival on site and should continue to work at the end of the project.
2. Contractor to include in bid all necessary modifications, labor and parts necessary to run/re-route all existing cabling and exposed conduit. All costs associated with work noted will be Contractor's responsibility.
3. The Contractor will coordinate the decommissioning of electrical, plumbing, fire and HVAC elements with the Owner and respective service providers. Contractor is responsible for providing temporary power and service as needed for construction.
4. Contractor responsible for repairing all wires, cables, communication boxes etc. damaged by construction activities on same day incident occurs.
5. Contractor responsible to pull utility boxes (cable, phone and electrical meters) away from building surface to allow installation of WRB and new siding per manufacturer's instructions. It is the Owner's expectation that the Contractor will not be required to shut power off to the building or unit to install siding. These conditions must be approved by both Contractor and Owner prior to demolition.
6. Contractor is responsible to air seal and /or fire seal all penetrations, vents and appurtenances.
7. Contractor is responsible to carefully remove and protect all utility and communication services on structure to be reinstalled. Services shall be maintained and operational for duration of project unless otherwise scheduled disruption is required to perform work.
8. Terminations and caps will be clearly marked on site and recorded in the project record drawings (i.e. red line drawings or as-builts) with clear and accurate dimensions.

C. Water

1. Contractor to coordinate all water/utility shut down with provider.

D. Sewer

1. Contractor to coordinate all sewer/utility shut down with utility company and Owner if necessary. Contractor is responsible for maintaining existing sewer line in good working condition for the duration of the project.

E. Gas

1. Contractor to coordinate all sewer/utility shut down with utility company and Owner if necessary. Gas meter will be capped and abandoned in place as noted on PD1.1.

F. Landscaping

1. Prior to start of work, the Contractor and Owner shall walk the site identifying the condition of all trees, plants, sod and landscaping. Any trees, plants, sod etc. damaged due to construction activities must be replaced by the Contractor with like vegetation at Contractor's expense.
2. Restore all landscape impacted by construction to existing pre-construction conditions. Grass areas to be restored with sod. See requirements above in Section 4, Subsection C.

G. Locating And Utilities

1. Contractor responsible to locate all public and private utilities that may be impacted by construction work. This includes existing gas lines noted to be capped.
2. Contractor to be responsible to repair and or replace all utilities and building components damaged by construction work.

DIVISION 3 CONCRETE

A. Cast in Place Concrete

Refer to Specification Section 033000

Plan Pages AD2.1, A2.1.1, A8.2 S1.1 PD1.1, P2.0, and M3.1.

1. Contractor to remove and reinstall concrete sections as noted on plans. Sections include areas to be removed for plumbing, concrete footing in crawl spaces, concrete footing for fencing and concrete pads for mechanical units.
2. All footings shall bear on firm, undisturbed earth or structural backfill. Native earth bearing to be surface compacted to 95%.
3. Soils compaction and rebar placement will be inspected by KRAZEN and independent inspector hired by KCHA
4. Contractor responsible for any drainage and dewatering prior to concrete placement.

DIVISION 5 METALS

A. Pipe and Tube Railings

Refer to Specification Section 055213

Plan Page A2.1 and A8.2, A9.0

1. Steel pipe, grade B schedule 80, 1-1/2" O.D. Galvanized steel pipe, powder coated-black.
2. Field measure and coordinate all layout work prior to fabricating and installation.
3. Provide anchors and components as required to attach and secure, made of same materials as railing components.
4. Provide slip-on non weld mechanical fittings to join lengths, seal open ends and conceal exposed mounting bolts and nuts, including but not limited to elbows, T-shapes, splice connectors, flanges, escutcheons, and wall brackets.

DIVISION 6 WOOD & PLASTICS

A. Rough Carpentry

Refer to Specification Section 061000

Plan pages A0.2 AD2.1, A2.1.2, A5.0, A7.0, A8.0, A8.2, S0.1, S0.2, S0.3, S1.1, S2.0, S2.1, and S2.2.

1. Contractor is responsible for all additional blocking, framing, and specified hardware to incorporate seismic upgrades as noted on structural pages S.01, S.02, S0.3, S1.1, S2.0, S2.1, and S2.2.
2. Contractor to remove concrete and framed flooring as noted on *AD2.1*, infill floor and selected areas of building as noted on *A2.1.2.*, *A5.0*
3. Contractor will provide all necessary blocking associated with roof fall arrest anchoring system, blocking between ends of rafter tails, infill of gable ends, interior wall and floor infill, handrails, grab bars, towel and bath accessories, fire extinguisher cabinets, casing.
4. Field coordinate and layout work prior to beginning installation. Cut, fit and install rough carpentry construction at locations indicated in drawings and required to complete work of contract.
5. Use preservative treated wood products for materials for permanent construction at all exposed framing and where resting on concrete, masonry or roofing as otherwise indicated, or required.
6. All framing elements must be secured with the specified fasteners and sufficient number of fasteners, anchorages, and accessories to insure framing elements are secured in place, per plan, fastening schedules, specifications and applicable codes and regulations.
7. Contractor responsible to coordinate design, and all installation requirements with manufacturer and all code requirements.
8. Contractor is responsible to shim, modify and repair minor irregularities in the assemblies in order to produce a finished product that is consistent in plane prior to cover.
9. The Contractor will be responsible to ensure that all new components provide the necessary structural support for new elements to be installed as well as plane out with existing surfaces.
10. The Owner anticipates that there will be some compromised structural members and these will be addressed on a case by case basis. Contractor must receive KCHA approval prior to any additional work being performed outside the contract scope of work. KCHA must also document damage prior to the Contractor removing compromised components. Failure to do this may result in the contractor responsible for the cost of replacement.

B. Finish Carpentry

Refer to Specification Section 062000

Plan Pages A2.1.2, A5.0, A5.1, A6.0, A6.1, A7.0, A8.2, A9.0

1. Use lengths of material that when installed provide minimal amount of splicing. All splices are to be weather cut in the correct direction.
2. Contractor to provide labor and materials to complete interior finish carpentry inclusive of interior trim items such as door and window casings, interior blinds and drywall repair.
3. Apply finish methodology listed in Section 079200 Joint Sealants for putty, caulking, and finishes of interior trim surfaces.
4. Install finish hardware in coordination with interior and exterior painting sequence to limit any damage to finished products and applications.
5. All window and door trim joints to be tight and plane out smooth. Shim window trim at window fins as necessary for uniform fit and finish.
6. A mock-up of the window and door packages and associated trim is required. Once approved by Owner, this will set the quality standard for the entire project.
7. Contractor to install all necessary blocking for bathroom fixtures, accessories and counter. Refer to plan page A7.0.

C. Architectural Wood Casework.

Refer to Section 064100

Plan Pages A7.0, A9.0

1. General Contractor to provide labor and materials to complete all interior finish carpentry per plans and specifications. Trim materials to be MDF except as noted otherwise. See Section 6 and plans for trim location and specifications.
2. Base: MDF base throughout except in wet areas. Wet areas (kitchen, laundry and baths) to receive rubber base. See Resilient Base, Section 9 in specifications.
3. Contractor to install the following cabinets, solid surface counter top and back splash in all units UNO.
4. Kitchen - Upper and lower cabinets and solid surface countertops with matching 4" backsplash per plans and specifications.
5. Install cabinets plumb, square and flush to wall.
6. Install filler scribe to wall to cover gaps between cabinets and wall.
7. Install finish hardware in coordination with interior and exterior painting sequence to limit any damage to finished products and applications.

D. Fiberglass Reinforced Paneling

Refer to Section 068316

1. General Contractor to provide labor and materials for installation for FRP and trim per plans and specifications. Trim materials to be aluminum with color coordinating with panel. Refer to plan page A7.0.
2. Install panels in accordance with manufacturer's instructions.
3. Place trim on panel before fastening edges, as required.

DIVISION 7 THERMAL AND MOISTURE PROTECTION

A. Thermal Insulation

Refer to Specification Section 072100

Refer to Page A5.0 for insulation assemblies.

1. Contractor to install 1-1/4" exterior Mineral Wool Block and Board insulation at locations noted per plan. Refer to detail 15/A5.0 for wall assembly.
2. Contractor to install batt insulation R4.3 per inch minimum at all interior walls per 15/A8.0.
3. Contractor to install batt insulation R-30 at floor assembly per 14/A8.0.
4. Contractor to install batt insulation R-49 at ceiling assembly per 10/A5.0.
5. Contractor to install rigid insulation at vaulted ceiling to fill the cavity as required by City of Auburn code requirements per 8/A8.0. Provide an air gap of 1" for proper circulation.
6. Trim insulation to fit in spaces neatly.
7. Install insulating foam sealant for filling perimeter window and door shim spaces and crevices in exterior wall and roof.

B. Weather Barriers

Refer to Specification Section 072500

1. Prior to mass production, the Contractor will provide a mockup of the WRB and associate flashing at openings and penetrations to demonstrate the method of installation incorporating interior and exterior corners, windows, and exterior doors that demonstrates quality and performance. The Contractor shall coordinate inspection and approval of mockup with manufacturer's and Owner's representatives prior to commencing with siding installation.
2. Weather resistant barrier to be DuPont Drain Wrap or approved equal. Contractor to use same source for all WRB accessories, (Seam Tape, Wrap Caps, etc.).

3. Upon completion of any corrective work to structure or plane, and by sequence, install all uniform weather resistant barrier, flashing, wrap and sealants prior to installation of new vinyl windows, pre-hung fiberglass door units to meet new finish dimensions. All corners and penetrations will be sealed per manufacturer's requirements for installation.

C. Asphalt Shingles

Refer to Specification Section 073113

1. Contractor to remove existing roofing membrane down to current roof decking. Per S.02 all new roof sheathing to be plywood only. Contractor to assume 25% of roof sheathing to be replaced as part of base bid. This will include material, disposal and labor to remove and install new sheathing.
2. Contractor will include in base bid any additional nailing to secure existing roof sheathing around both roof perimeter and in field.
3. Complete roofing installation including fiberglass reinforced asphalt shingles, felt underlayment, self-adhered ice/water shield underlayment, fasteners, flashings, sealant and accessories. All roof decking shall remain watertight at all times. When removing and replacing with new sheathing, the Contractor shall ensure adequate precautions are taken in the event of rain or weather changes during the process.
4. Contractor to only remove areas of replacement that can be covered with new material in the same day of work. Removing vast areas of work, exposing the building to the elements for more than a day will not be acceptable.
5. Refer to 1/A8.1 for valley flashing transition and 5/A8.1 for flashing at raised roof peak.
6. Contractor to keep plastic, tarps, sand bags and any other necessary items to cover any exposed roofing areas throughout the entire project from inclement weather.

D. Fiber-Cement Siding

Refer to Specification Section 074646

1. The Contractor to provide all labor and materials for the installation of a complete siding system, inclusive of all siding, trim (i.e. inside and outside corners, window and door casings, mounting blocks for lighting, fixtures, hose bibs), all necessary flashings, caulking and fasteners. Refer to specifications for dimensions of various sizes and depth of siding materials.
2. Contractor is responsible to correct any substandard structural, level and plumb framing components prior to cover. The Contractor will be responsible to ensure that all existing components provide the necessary structural support for new elements to be installed, as well as flush out with existing adjacent surfaces. All exterior trim shall be shimmed, planed and back cut as necessary to provide a smooth and even surface at joints.
3. Contractor is to provide qualified and experienced caulker for all sealant work. Caulk all nail holes and gaps less than 1/4" with high quality paintable latex caulk. Gaps greater than 1/4" will not be accepted. No over application, smears or ruts will be accepted. Contractor to provide a caulking mock-up. Once approved by the Owner, the Contractor will be required to apply caulking for the entire project per quality of excepted mock-up. Prior to paint application, the owner will inspect siding, trim and caulking for uniform fit and finish. Only after Owner approval may Contractor proceed to exterior painting.
4. Provide weather cuts at all vertical trim and corner boards, and prime all cuts. All end cuts will be sealed and painted prior to installation.

E. Sheet Metal Flashing and Trim

Refer to Specification Section 076200

1. The Contractor shall provide labor and materials to install metal flashings and counter-flashings, at perimeter edge, window and door heads, fixture blocking, as required for weather-tight installation.
2. All windows head flashings shall not have any penetrations and shall have appropriate end dams formed to prevent water penetration (i.e. hemmed edges, soldered corners, plastic cement, etc.). All related finishes shall be pre-painted however, where necessary, these surfaces must be rust-proof, primed and/or can accept exterior paint without blemish.
3. Contractor will be responsible to extend all existing duct work to beyond newly installed wall assembly and reconnect all roof venting.
4. Flashing Material: Fabricate from pre-finished G90 galvanized sheet steel, 24 gauge, Kynar 500 (PVDF) finish. Color as selected by Owner from standard color chart.
5. Contractor to provide and install site-rolled (5") inch aluminum 20 gauge K-Style gutters and (2x3) downspouts. The gutter and downspout metals shall be Kynar 500 (PVDF) finish, color selected by Owner from standard color chart.
6. Contractor shall provide new PVC down spout adapter cap and where applicable, reducer and vertical run of pipe to new downspout connection.
 - a. All gutters will be installed with Gutter Debris Protection per specification.
 - b. All gutters and downspouts to be installed plumb and parallel to adjacent building lines.

F. Roof Accessories

Refer to Specification Section 077200

7. The Contractor shall provide all labor and materials to remove existing ridge vents, roof vents, roof anchors, flashing and all associated materials in preparation for new roof assembly. Refer to plan page AD2.1, A2.1.1
8. Contractor to take in to account (for bidding purposes) all roof vents will be Contractor's responsibility to hard pipe all duct work. Contractor will perform this work from inside the attic space if necessary.
9. Comply with accessory manufactures' instructions and recommendations. Coordinate installation with roofing system to ensure weather tight performance. Anchor securely to structure to withstand inward and outward loads.
10. Contractor to only remove areas of replacement that can be covered with new material in the same day of work. Removing vast areas of work, exposing the building to the elements for more than a day will not be acceptable.

G. Fire Stopping

Refer to Specification Section 077200

1. Contractor is responsible for fire stopping at all joints and penetrations in fire resistance rated and smoke resistant assemblies. Contactor to comply with manufacturer requirements and all applicable codes and regulations.

H. Joint Sealants

Refer to Specification Section 079200.

1. Provide joint sealants, joint fillers and accessory joint material from a single manufacturer for each different product required to ensure compatibility.
2. Coordinate as required with other trades to assure proper and adequate provision in the work of those trades for interface with the work.
3. Clean and remove loose materials and foreign matter which might impair adhesion.
4. Sealant to be high quality and paintable. See specifications for acceptable products.
5. If sealant flashes once painted, contractor will be responsible to sand and repaint until corrected.

6. Contractor is responsible for fire caulking all joints and penetrations at fire-resistance-rated and smoke-resistant assemblies. Contractor to comply with manufacturer requirements and all applicable codes per jurisdiction.

DIVISION 8 OPENINGS

A. Hollow Metal Frames

Refer to Specification Section 081113

Refer to A5.0 for Door Schedule and Architectural drawings for locations.

1. Install doors and frames in accordance with manufacturer's instructions and related requirements of specified door and frame standards or custom guidelines indicated.
2. Set frames accurately in place; square, plumb, aligned, and securely braced until permanent anchors are set.
3. Coordinate frame anchor placement with wall construction.
4. Install door hardware as specified in Section 087100.
5. Comply with recommended practice for hardware placement of doors and frames in accordance with ANSI/SDI A250.6 or NAAMM HMMA 861.
6. Joint Sealant: Install sealant between door frames and wall.
7. Touch up damaged factory finishes.
8. Adjust for smooth and balanced door movement.
9. Test doors for force to close, latch, and unlatch; adjust as necessary in compliance with accessibility requirements.

B. Flush Wood Doors

Refer to Specification Section 081416

Refer to A5.0 for Door Schedule and Architectural drawings for locations.

1. The Contractor shall verify existing rough openings and conditions prior to ordering. It is recommended that door modifications be made prior to application of finish. The Contractor shall plane, shim and infill as necessary to provide a maximum of a 1/2" clearance for door installation to allow for backer rod and/or insulation installation.
2. Coordinate installation of anchorages for frames. Furnish setting drawings, templates and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts and items with integral anchors. Deliver such items to Project site in time for installation.

C. Fiberglass Doors

Refer to Specification Section 081613

Refer to A5.0 for Door Schedule and Architectural drawings for locations.

1. The Contractor shall verify existing rough openings and conditions prior to ordering. It is recommended that door modifications be made prior to application of finish. The Contractor shall plane, shim and infill as necessary to provide a maximum of a 1/2" clearance for door installation to allow for backer rod and/or insulation installation.
2. All doors will be installed true, level and plumb with square and consistent reveals and close (and latch) firmly with the single push of a hand (i.e. closers, bomber hinges, etc.) and provide a proper seal and not allow daylight to be seen on from either side of door.
3. Thresholds shall be installed on a firm foundation and supported to prevent bow or bend when pressure is applied to threshold. Where applicable thresholds shall be grouted with non-shrink grout between threshold and concrete slab. In locations where grout may degrade existing substrate, Contractor shall use shims, adhesive, or other approved materials that will prevent threshold from bow or bending when pressure is applied.

4. Contractor to protect all doors prior and during installation. KCHA will not accept doors damaged during transport or installation.
5. All doors to be pre-painted prior to installation. Do not touch-up door paint. If door paint is damaged, entire door to be repainted to original specifications. Do not paint fire rated door labels.

D. Access Doors and Panels

Refer to Specification Section 083100

1. Contractor to obtain each type of access door and frame from single source from single manufacturer.
2. Contractor to provide and install attic access hatches at all locations per plan page A2.1.2.
3. Confirm exact locations with owner. Provide all necessary modifications to ceiling framing for installation.
4. Ceiling mounted units will be 36" x 48".
5. Wall Mounted units 12"x12".

E. Vinyl Windows

Refer to Specification Section 085313

NOTE: ******All removal and installation of windows will be performed by a Glazier**

Refer to the Wage Rates decision included in bid book.

1. **Contractor will cut back exterior sheathing and/or interior window liner to assure proper fit of new window.** Refer to window schedule noted on A5.0.
2. Contractor to provide and install new Tuscan vinyl windows per window schedule noted on A5.0. Remove all windows, window blind treatments, and associated hardware. Contractor is responsible to dispose and/recycle all windows. Window screens to be protected and stored by Contractor and installed at Substantial Completion.
3. Windows shall be ENERGY STAR qualified products and meet or exceed the ENERGY STAR performance rating or better. See specifications for minimum rating. Max U-Factor .30.
4. The Contractor is responsible to field verify all window and door openings prior to pricing and ordering materials.
5. Contractor responsible to verify all rough openings, plane, and infill as required providing a maximum 1/2" gap around the perimeter.
6. **Note:** Mock-ups will be required for KCHA approval demonstrating flashing and weather resistant barrier (WRB) applications are consistent with manufacturer's recommendations. The Contractor shall coordinate inspections and approval of mock-up with manufacturer's representative and KCHA prior to window installation.
7. Windows are to be installed per window and WRB manufacturers' recommendations. All windows are to be shimmed, securely fastened and installed plumb, and level after installation. Operable vents and latches shall operate freely and without obstruction.

E. Door Hardware

Refer to Specification Section 087100

1. The Contractor is responsible for installing all door hardware per specifications including but not limited to, hinges, locksets, stops, thresholds, kick plates.
2. All door hardware to be the same finish unless otherwise indicated.

3. Contractor to provide and install heavy-duty surface mounted lock box per specification. Coordinate with fire department for exact location.
4. The Contractor is responsible to provide a key biting schedule to the owner. Contractor will use key tags to label all keys prior to turn over.
5. The Contractor to salvage all existing door cores and return
6. All hardware will be defect and blemish free and adjusted, cleaned, and protected prior to final acceptance.

F. Glazing

Refer to Specification Section 088000

Refer to A5.0 Door Schedule and Window Schedule.

1. All glazing shall be labeled and NFRC certified per MFR. All glazing within 18” of interior floor/exterior walking surface or within 24” of a door in any position to be tempered.
2. All glazing shall have a U-value of 0.30 or better per MFR. Typical.

G. Safety and Security Films

Refer to Specification Section 088723

Refer to A3.0, A3.1, A5.0

1. All glazing shall be labeled and NFRC certified per MFR. All glazing within 18” of interior floor/exterior walking surface or within 24” of a door in any position to be tempered.
2. All glazing shall have a U-value of 0.30 or better per MFR. Typical.

H. Louvers

Refer to Specification Section 089100

Refer to A3.0, M2.1,

1. Install louver assembly in accordance with manufacturer’s instructions.
2. Coordinate installation of flashing by others. Refer to specification section 076200.
3. Install louvers level and plumb.
4. Secure louver frames and openings with concealed fasteners.
5. Coordinate with installation of mechanical duct work.

DIVISION 9 FINISHES

A. Gypsum Board Assemblies

Refer to Specification Section 092100

Refer to A2.2.2 and Detail 12/A5.0 for wall assemblies

1. Install additional blocking as needed for framed openings. Wall mounted cabinets, plumbing fixtures, toilet partitions and toilet accessories.
2. Contractor will apply all new GWB, tape, and mud and texture at all interior walls.
3. Finish: Light orange peel confirm texture with KCHA before applying on walls and ceilings.
4. Install all square type corner metal on all outside corners
5. Regular Type:
 - a. Application: Use for interior walls.
 - b. Thickness: 1/2 inch.
 - c. Edges: Tapered.
6. Fire Resistant Type: Complying with Type X requirements; UL or WH rated
 - a. Application: Use for ceilings.
 - b. Thickness: 5/8 inch
 - c. Edges: Tapered.

B. Resilient Flooring

Refer to Specification Section 096500

Refer to plan page A2.1.2

1. Install resilient floor tiles per plans and specifications. Substrate to be clean and flat with fasters driven below the surface and dimple filled and sanded. Variations in substrate seams to be sanded and leveled with leveling compound approved for use by tile manufacturer.
2. Refer to detail 4/A9.0 for transition of tile carpet to resilient tile.
3. Where type of floor finish, pattern or color are different on opposite sides of door, terminate flooring under centerline of door.
4. Scribe flooring to walls, columns, cabinets, and other appurtenances to produce tight joints.

C. Tile Carpeting

Refer to Specification Section 096813

1. Contractor will prep subflooring to assure proper adhesion and smooth finish,
2. Blend carpet from different cartons to ensure minimal variation in color match.
3. Lay carpet tile in square pattern, with pile direction parallel to next unit, set parallel to building lines.
4. Fully adhere carpet tile to substrate.
5. Trim carpet tile neatly at walls and around interruptions.
6. Complete installation of edge strips, concealing exposed edges.

D. Exterior Painting

Refer to Specification Section 099113

Refer to A3.0 for exterior color schedule

1. Raw wood to have one (1) coat of primer and two (2) coats of paint applied. Pre-primed materials to have one (1) additional coat of primer and two (2) coats paint applied.
2. Contractor to submit all paint drawdowns for Owner approval prior to paint applications.
3. Contractor will provide labor and materials to paint exterior fascia boards, barge boards, soffits, lap siding, siding panels, trim, fiber cement blocks, doors, jambs and all other surfaces to be painted per scope of work, drawings and specifications.
4. Contractor will protect all resident possessions and finished surfaces from dust, mud, texture or overspray. Contractor will clean and/or replace any damaged items not receiving paints and coatings.
5. Contractor will provide all necessary prep work including caulking, sanding and priming to prepare all finishes for a complete uniform paint application.
6. Caulking shall be neat and consistent applied by an experience applicator. Contractor to include caulking as part of the siding and trim mock-up to establish quality expectations.
7. All caulking and putty will be allowed to cure per manufacturer's instruction prior to paint touch up. (Refer to Section 079200 Joint Sealants). Caulk to be high quality paintable latex caulk. Caulk and/or putty all joints, seams and nail holes using approved materials and methods as specified and per manufacturer's instructions. All caulking and putty to be applied in a smooth and uniform fashion without defect, gaps, seams, or smears to plane and seamlessly integrate with abutting surfaces.
8. Any metal work should be coated with metal self-etching primer prior to painting.
9. All doors and jambs to be pre-painted (all six [6] sides) prior to installation.
10. Exterior doors and jambs to be pre-primed and painted off site in a controlled environment. Doors to be subjected to two (2) paint colors; one (1) color for the exterior and a separate color for the interior. Contractor to coordinate with Owner's representative in regards to color and placement.
11. Primer is NOT considered a pre-painted finish for the top and bottom of door.
12. Contractor will be responsible for full protection of door finish (up to substantial completion) and will be responsible for repair and repaint of all doors top to bottom.
****Touch up paint will not be accepted by KCHA. Full door will be painted****
13. Contractor will supply all exterior paint and leave 1 unopened gallon of each color and type of paint on site in location designated by building staff.

E. Interior Painting

Refer to Specification Section 099123

1. Contractor will provide labor and materials to paint a one (1) color interior paint scheme. Paint finish will vary with surface painted. Walls and Ceiling eggshell finish. Trim semi-gloss
2. finish. Paint color per paint schedule provided by Owner. This work shall be inclusive of all labor and materials to perform surface preparation, fill, sanding and prime and paint interior walls and trim.
3. Interior trim: (i.e. window liners, door and window casings, hand rails and wall caps)
 - a. All interior trim shall be pre-painted prior to install unless otherwise specified or necessary.
 - b. Two (2) coats of specified interior trim paint shall be applied upon completion of all prep and priming.
 - c. Nail holes, seams and joints shall be filled with approved color match putty and wiped clean where prefinished trim is used; trim to be finished in place shall be filled, prepped and painted.
 - d. Inside corners and gaps in trim shall be caulked with high quality color matched and /or paintable latex caulk (i.e. where door and window trim abuts sheetrock and the door jamb, inside corners of liners where the liner meets the vinyl window).
4. Contractor will clean and/or replace any damaged items not receiving paints and coatings.

DIVISION 10 SPECIALTIES

A. Dimensional Letter Signage

Refer to Specification Section 101419

Refer to page A0.2

1. Locate dimensional letter signs and mount at heights as indicated on drawings and in accordance with ADA Standards. Refer to A2.2.1 for room identification.
2. Contractor to provide 12"x12" Acrylic emergency existing plans- Install per City of Auburn Requirements.
3. Exterior signage on building to be installed per City of Auburn building signage requirements including meeting fire department regulations.

B. Wall and Door Protection

Refer to Specification Section 102600

Refer to A2.1.1

1. Locate and install corner guards at GWB corners throughout.
2. Install components in accordance with manufacturer's instructions, level and plumb, secured rigidly in position to supporting construction.
3. Position corner guards 4 inches above finished floor to 54 inches high.

C. Toilet, Bath and Laundry Accessories

Refer to Specification Section 102800

Refer to page A0.2, A6.1, A7.0, and A9.0

1. Contractor will provide all necessary blocking associated with bathroom accessories, grab bars, cabinetry, partitions, and mirror.
2. Contractor to frame out all recessed components to assure proper installation.
3. Install plumb and level, securely and rigidly anchored to substrate.
4. Mounting heights: As required by accessibility regulations, unless otherwise indicated.

D. Fire Protection Specialties

Refer to Specification Section 104400

Refer to page A2.1.1, A6.1

1. Contractor to provide and install recessed fire extinguisher cabinets, including new fire extinguishers.
2. Contractor to frame out locations of recessed fire extinguisher cabinets.

3. Contractor to install appropriate number of FEC and extinguishers per jurisdiction requirements.

DIVISION 11 EQUIPMENT

A. Residential Appliances

Refer to Specification Section 113013

Refer to A2.1.2, A7.0

1. Contractor is responsible for the supply and installations of new appliances per plans and specifications. Contractor to verify opening sizes, method of attachment and clearances required for appliances prior to fabrication of appliance installation locations.

B. Facility Fall Protection

Refer to Specification Section 118129

Refer to A2.1.1

1. It is up to Contractor to verify count, location, OSHA, and State requirements of all fall protection installation. **Plans show potential quantities and locations only.**
2. Contractor to supply and install all new fall protection meeting OSHA and state administrative code safety standard requirements.

DIVISION 12 FURNISHINGS

A. Window Shades

Refer to Specification Section 101419

1. Manual roller shades to be provided at all windows.
2. Field measure finished openings prior to ordering or fabrication.
3. Contractor to provide shade system components that are easy to remove or adjust without removal of mounted shade brackets.
4. Provide shade system that operates smoothly when shades are raised or lowered.
5. At openings requiring continuous multiple shade units with separate rollers, locate roller joints at window mullion centers: butt rollers end-to-end.

B. Countertops

Refer to Specification Section 101419 and Specification Section 064100 Architectural Wood Casework.

Refer to A7.0, A9.0

1. Coordinate sizes and locations of framing, blocking, furring, reinforcements to support loads installed and fully loaded cabinets.
2. Solid surfacing countertops to be installed over continuous substrate.
3. Back and end splashes to be same sheet material, square top, and minimum 4 inches high.

DIVISION 22 PLUMBING

Refer to Specification Sections 220100,220500,220501,220700,210005,221316,223000,224000.

Refer to P0.1, P0.2, P0.3, PD1.1, P2.0, P2.2, P3.0, P4.0, P4.1

1. General Contractor to provide labor and materials for the complete removal and replacement of all building plumbing systems, including all domestic water and drain lines and all associated plumbing. New plumbing includes but is not limited to fixtures and equipment for 2 rest rooms, 1 break room and a utility room per plans, specifications and Plumbing Schedules.
2. Contractor to provide all materials, equipment, labor, supervision, tools and items necessary for the construction, installation, connection, restoration, start up, testing and operation of all plumbing work for this project as defined by Division 22 and the contract documents.
3. All domestic water lines and sewer line sized to meet all applicable codes and municipal requirements.

4. The drawings are diagrammatic and do not show exact or complete piping configurations or the necessary number and types of fittings. Provide all labor and materials required to complete the work indicated in the plans and specifications.
5. If there is a discrepancy between Scope of Work, Specifications and/or Drawings, the Scope of Work shall take precedence followed by the Specifications and lastly the Drawings. RFI's are required to clarify any discrepancy.
6. Any questions occurring during bidding or construction shall be resolved by direction in writing from the Owner. Any issues not so resolved or any conflicts shall result with the Contractor bidding, furnishing and installing the most stringent condition. No exceptions.
7. Testing & Inspection: Verify installation conditions as satisfactory to receive work of this Division. Do not install until any unsatisfactory conditions are corrected. Beginning work constitutes acceptance of conditions as satisfactory.
 - a. Contractor to have tests and rough in inspections performed and approved by AHJ prior to cover as required.
 - b. Contractor is responsible to conduct testing of system prior to system being put into service at the end of each working day.
 - c. After each water shutdown, open aerators and let water flow long enough to allow rust scale to cycle through.
 - d. Flush new copper pipe and fittings after soldering copper pipe and plumbing fixtures.
 - e. Requirements:
 1. Test system water.
 2. Test pressure shall be at least equal to the expected working pressure (main pressure), but not less than 40 psi and not greater than 225 psi at 73 degrees.
8. Accessibility: Provide access panels as indicated or required for piping, valve or equipment access. Refer to Architectural Documents to determine fire-rating requirements. The access panel size shall be in proportion to the equipment, piping or valve requiring access. Minimum access panel size shall be twelve by twelve (12" x 12") inches. Due to the diagrammatic nature of the drawings, not all access panels are shown. Access panels are to be included as part of the base bid work.

DIVISION 23 HEATING, VENTILATING, AND AIR-CONDITIONING (HVAC)

*Refer to Specification Sections 230100,230500,230501,230501,
230593,230700,233100,233300,233400,233713.*

Refer to M0.1, M0.2, M0.3, M.04, MD1.1, M2.1 M2.2, M3.0, M3.1, M3.2

1. Contractor to supply all materials, hardware and equipment to install new heating and ventilation system per Plans, Specifications and Mechanical Schedules. New system will comply with the 2018 Washington State Energy code.
2. Contractor to coordinate work with electrical contractor for removal of heaters, exhaust fans, etc. which must be disconnected.
3. Contractor to remove and discard existing ductwork, equipment and associated parts and materials, except for equipment to be saved and reused as noted in the mechanical plans set. Contractor to verify equipment noted to be saved is in good working order before reinstallation.
4. All gas lines to be removed and pipe capped at the meter.

DIVISION 26 ELECTRICAL

*Refer to Specification Sections 260500,260511,260512,260519,260521,260526
260529,260532,260533,260548,260553,262416,262726,262813, 262816,265100,269300*

Refer to E0.1, E0.2, ED2.1, E4.1, E7.1, and E9.1.

1. Contractor to supply and install Electrical Fixtures per lighting fixture, plans and specifications and all associated materials required for the complete installation of all fixtures requiring electrical connection.

2. New fixture to include but not limited to lighting, lighting zone controls, occupancy detectors, exit signs, outlets, switches, heating units, exhaust fans, appliances. Lighting and office receptacles to be controlled per Plans and the WSEC.
3. Contractor to supply and install fixtures and devices for new Tele /Commination System per plans.
4. Contractor to remove and safely store existing security camera system for later reinstallation. Contractor to reinstall camera system per plans and specifications.
5. Contractor to provide demolition, removal and legal disposal of lighting fixtures, equipment and devices as noted on plan page ED2.1.
6. Contractor to coordinate work with Mechanical for removal of heaters, exhaust fans, etc. which must be disconnected.

DIVISION 28 FIRE ALARM

Refer to Specification Section 283111

Refer to E7.1.

1. Contractor is responsible for the supply and installation of new monitored Bidder Designed Alarm System that meets all applicable codes and regulations.
2. Contractor responsible for all permitting and documentation required including supplying as build plans to KCHA.
3. Contractor to submit approved drawings, shop drawings and calculations to authority having jurisdiction for approval.
4. Submit Approved drawings and calculations to Engineer for review.
5. Provide circuits for all new devices locations and maintain circuits to existing devices.

END OF SECTION

**SECTION 01 1000
SUMMARY**

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
1. Work covered by the Contract Documents.
 2. Phased construction.
 3. Work under other contracts.
 4. Owner-furnished products.
 5. Owner's occupancy requirements.
 6. Applicable Codes.
 7. Reference standards.
 8. Use of premises and work restrictions.
 9. Specification formats and conventions.
 10. Execution, correlation and intent – Contract Documents.

1.3 WORK COVERED BY CONTRACT DOCUMENTS

- A. Project Identification:
1. Project Name: Burndale Homes Office TI & Envelope
 2. Project Location: 930 18th Place NE, Auburn, WA 98002
- B. Owner/Developer: King County Housing Authority
1. Owner's Representative: Carl Frankel
 2. Contact Phone: 206-574-1249
- C. Architects / Engineer:
1. Representative: SHKS Architects
 2. Contact Phone: 206-675-9151
- D. Reference Section A of the Bid Documents for scope of work.

1.4 PHASED CONSTRUCTION

- A. Construction shall be phased to accommodate Owner's desired schedule as noted in the bid documents and/or drawings, if applicable. Final Project Schedule shall include

phasing schedule to be prepared by the Contractor, and reviewed and approved by the Owner.

- B. Contractor shall prepare a phasing plan to maintain access to residential units during construction. Plan to be reviewed and approved by Owner prior to Work commencing.
- C. Before commencing Work of each phase of construction, submit an updated copy of Contractor's Final Project Schedule showing the sequence, commencement and completion dates, and move-out and -in dates of residents for all phases of the Work.

1.5 WORK UNDER OTHER CONTRACTS

- A. General: Cooperate fully with separate contractors so work on those contracts may be carried out smoothly, without interfering with or delaying work under this Contract. Coordinate the Work of this Contract with work performed under separate contracts.

1.6 OWNER-FURNISHED PRODUCTS

- A. Owner will furnish products as indicated. This section includes receiving, unloading, handling, storing, protecting, and installing Owner-furnished products.
- B. Owner-Furnished Products:
 - 1. Products and materials as noted on drawings or otherwise indicated for re-use.
 - 2. Products and materials as noted on drawings or otherwise indicated to be supplied by Owner.

1.7 OWNER'S OCCUPANCY REQUIREMENTS

- A. Owner Occupancy of Completed Areas of Construction: Owner reserves the right to occupy and to place and install equipment in completed areas of the building before Substantial Completion. Such placement of equipment and partial occupancy shall not constitute acceptance of the total Work. PRIOR to partial Owner Occupancy:
 - 1. Owner will prepare a Certificate of Substantial Completion for each specific portion of the Work to be occupied.
 - 2. Contractor is responsible for obtaining a Certificate of Occupancy from authorities having jurisdiction before Owner occupancy.
 - 3. The mechanical and electrical systems shall be fully operational; all required tests and inspections shall be successfully completed for areas to be occupied. On occupancy, Owner will operate and maintain mechanical and electrical systems serving the occupied portions of building.
 - 4. On occupancy, Owner will assume responsibility for maintenance and custodial service for the occupied portions of building.
 - 5. Coordinate insurance requirements with Owner prior to Owner occupancy of completed areas of the building.

1.8 CUTTING & PATCHING – Refer to Section 01 7329 – Cutting and Patching.

1.9 APPLICABLE CODES

- A. Perform all Work in accordance with the current code requirements of the city holding jurisdiction over the site where Work is to be completed.

- B. Certification of Code Compliance: All materials, methods and equipment shall comply with requirements of applicable codes and the Contract Documents, including requirements of all incorporated standards. The Contractor shall furnish, as a part of the Contract, certification of such compliance if requested by the Architect or the Code Enforcing Agency. Such certification shall be submitted in the form of test results or other data from a recognized independent testing laboratory. Contractor shall coordinate and provide all required submittals to the Code Enforcing Agency in a timely manner so as to not delay progress of the Project.

1.10 USE OF PREMISES AND WORK RESTRICTIONS

- A. General: Contractor shall have full use of premises for construction operations subject to phased construction requirements as specified in this Section and as indicated on Drawings by the Contract limits.
 - 1. Security Procedures: Refer to the Scope of Work Division 1, Section 4 Safety, Protection & Restoration and 01 5000 Temporary Facilities and Controls, for required security procedures to be followed while working at this building.
 - 2. Contractor Identification: All Contractors on site shall be easily identifiable and must wear clothing, name badges, hardhats, safety vests, or other visible identification or identifying article (approved by Owner) with employee's, laborer or staff member's company logo or company name.
- B. Use of Site: Limit use of premises to areas within the Contract limits indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.
 - 1. Limits: Confine construction operations to areas as indicated on drawings.
- C. Use of Parking Lot: Limited.
- D. Work Restrictions, General: Comply with restrictions on construction operations.
 - 1. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.
- E. On-Site Work Hours: Work in the existing occupied buildings will start no earlier than 8:00am, and will be completed by 4:30pm. Hours for work performed outside of the building will be at the discretion of Owner's Representative.
 - 1. Early Morning Hours: As approved by Owner's representative.
 - 2. Hours for Utility Shutdowns: Notify Owner and all affected utility companies seventy-two (72) hours in advance of proposed shutdown.
 - 3. Contractor to notify residents of Work a minimum of forty-eight (48) hours prior to start of Work.
 - a. If Work progress or new work affects additional or a new set of residents, the Contractor must give a new notice of work to all affected residences a minimum of forty-eight (48) hours prior to start of Work.
 - 4. Hours for Core Drilling and other loud activities must comply with city of jurisdiction's noise codes.
- F. Nonsmoking Properties. All of King County Housing Authority properties are nonsmoking.

- G. Controlled Substances: Use of tobacco products and other controlled substances on Project site is not permitted.
- H. Employee Screening: Comply with Owner's requirements for drug and background screening of Contractor personnel working on Project site.
 - 1. Maintain list of approved screened personnel with Owner's representative.

1.11 SPECIFICATION FORMATS AND CONVENTIONS

- A. Specification Format: The Specifications are organized into Divisions and Sections using the 33-division format and CSI/CSC's "2010 Master Format" numbering system.
 - 1. Division 01: Sections in Division 01 govern the execution of the Work of all Sections in the Specifications.
- B. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words and phrases when used in particular situations. These conventions are as follows:
 - 1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural and plural words shall be interpreted as singular, where applicable, as the context of the Contract Documents indicates.
 - 2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.
 - a. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

1.12 EXECUTION, CORRELATION AND INTENT – CONTRACT DOCUMENTS

- A. General: If there is a discrepancy between Scope of Work, Specifications and/or Drawings, the Scope of Work shall take precedence followed by the Specifications and lastly the drawings. Contact Owner immediately for clarification of conflicts, corrections and clarifications.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

END OF SECTION 01 1000

SECTION 01 2600 CONTRACT MODIFICATION PROCEDURES

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for handling and processing Contract Modifications.
- B. Related Sections:
 - 1. Division 01 Section "Product Requirements" for administrative procedures for handling requests for substitutions made after Contract award.

1.3 MINOR CHANGES IN THE WORK

- A. Reference Article 7 in the General Conditions.

1.4 PROPOSAL REQUESTS

- A. The Contractor will have ten (10) calendar days from first notification to supply Owner with the information outlined in this section.
- B. Owner-Initiated Change Order Requests (COR): Contractor will issue a detailed description of:
 - 1. Proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
 - 2. Change Order Requests (COR) and Construction Change Directives (CCD) shall be initiated by the Owner, dated and sequentially numbered on Owner provided forms.
 - 3. CORs are not instructions either to stop Work in progress or to execute the proposed change.
 - 4. After receipt of COR, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
 - a. Provide a cost breakdown, including overhead and profit as a separate line item, and time extension request as provided for in Article 7 of The General Conditions.
 - b. Provide all necessary product information, specifications, etc. required to justify any Contractor requested changes.
 - 5. The allowed markup shall cover all indirect project costs, including but not limited to, the project Overhead, Profit and General Conditions
 - a. The Contractor shall be allowed a maximum of fourteen (14%) percent Overhead, Profit, and General Conditions, on the cost of craft labor,

- equipment, small tools and materials for self-performed Change Order work.
- b. The Contractor shall be allowed a maximum of eight (8%) percent Overhead, Profit and General Conditions on the cost of craft labor, equipment, small tools and materials for Subcontractor Change Order work. The Contractor is not allowed to take profit on the profit of the Subcontractor as stated in form HUD-5370, section 29.
 - c. A Subcontractor shall be allowed a maximum of fourteen (14%) percent of the cost of craft labor, equipment, materials and small tools for Overhead, Profit and General Conditions, for self-performed Change Order work.
 - d. A Lower-Tier Subcontractor shall be allowed a maximum of fourteen (14%) percent of the cost of craft labor, equipment, materials and small tools for Overhead, Profit and General Conditions, for self-performed Change Order work.
6. Include a list of quantities of products required (or eliminated) their unit costs and a total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 7. Indicate applicable taxes, delivery charges, equipment rental and amounts of trade discounts.
 8. Include costs of labor and supervision directly attributable to the change.
 9. Include an updated Contractor's Final Project Schedule that indicates the effect of the change, including but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
 - a. Time extension requests must demonstrate the impact on the project Critical Path Schedule. See the General Conditions Article 15 and Section 01 3200 - Construction Progress Documentation.
 10. Review all pricing provided by subcontractors and suppliers for accuracy and completeness. Verify that their scope of work is consistent with the requested change. Verify math is correct and that markup rates complies with the General Conditions.
 11. After signing the Change Order Request or CCD, the Contractor shall return it to the Owner.
 12. Quotation Form: Use forms acceptable to Owner.
 13. After review of the Contractor's price, cost breakdown and requested time extension, if any, the Owner will submit for estimation and do one of the following:
 - a. Sign and route for approval.
 - b. Reject and resubmit to the Contractor for pricing correction.
 - c. Revise the Change Order Request or CCD and submit to the Contractor for repricing.
 14. Prior to the Owner's acceptance of Change Order Requests, appropriate personnel shall also review the change requests.
- C. Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Owner.
1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.

2. Provide a cost breakdown, including overhead and profit as a separate line item, and time extension request as provided for in Article 7 of the General Conditions.
3. Provide all necessary product information, specifications, etc. required to justify any Contractor requested changes.
4. Allowances for direct supervision, safety, small tools, overhead and profit are limited by the General Conditions, Article 7.1.1.
5. Include a list of quantities of products required (or eliminated), their unit costs and total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
6. Indicate applicable taxes, delivery charges, equipment rental and amounts of trade discounts.
7. Include costs of labor and supervision directly attributable to the change.
8. Include an updated Contractor's Final Project Schedule that indicates the effect of the change, including but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
 - a. Time extension requests must demonstrate the impact on the project Critical Path Schedule. See the General Conditions, and Section 01 3200-Construction Progress Documentation.
9. Comply with requirements in Division 01 Section "Product Requirements" if the proposed change requires substitution of one product or system for product or system specified.
10. Proposal Request Form: Use form acceptable to Owner.
11. After review of the Contractor's price, cost breakdown and requested time extension, if any, the Owner will submit for estimation and do one of the following:
 - a. Sign and send on for approval.
 - b. Reject and resubmit to the Contractor for pricing correction.
 - c. Revise the Change Order Request or CCD and submit to the Contractor for repricing.
12. Prior to the Owner's acceptance of Change Order Requests, appropriate personnel shall also review the change requests.

1.5 CONSTRUCTION CHANGE DIRECTIVE (CCD)

- A. The Contractor will have ten (10) calendar days from first notification to supply Owner with the information outlined in this section.
- B. Construction Change Directive: The Owner may issue a Field Authorization in accordance with provisions in Article 7, General Conditions. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
- C. Documentation: Maintain detailed records on a time and material basis of Work required by the CCD, with supporting documentation as required by CORs.
 1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract, consistent with Article 7 of the General Conditions of the Contract.

1.6 CHANGE ORDER PROCEDURES

- A. The Contractor will have ten (10) calendar days from first notification to supply Owner with the information outlined in this section.
- B. When approved and signed by the Owner, the Construction Change Directive will either be included in a Change Order Request (COR) to be charged against the Contract Allowance, or will be included in a formal Change Order, which will modify the Contract amount.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

END OF SECTION 01 2600

**SECTION 01 2900
PAYMENT PROCEDURES**

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.

1.3 DEFINITIONS

- A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

1.4 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's Master Project Schedule.
 - 1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including the following:
 - a. Application for Payment forms with Continuation Sheets.
 - b. Submittal Schedule.
 - 2. Submit the Schedule of Values to Owner at earliest possible date but no later than fourteen (14) calendar days after the date of bid opening.
 - 3. Sub-schedules: Where the Work is separated into phases requiring separately phased payments, provide sub-schedules showing values correlated with each phase of payment.
- B. Format and Content: Use the Project Documents as a guide to establish line items for the Schedule of Values. Lines items are based on Scope of Work and sequencing.
 - 1. Identification: Include the following Project identification on the Schedule of Values:
 - a. Project name and location.
 - b. Name of Owner.
 - c. Owner's contract number.
 - d. Contractor's name and address.
 - e. Date of submittal.
 - 2. Arrange the Schedule of Values in tabular form with separate columns to indicate the following for each item listed:

- a. Item #, including separate line for an Allowance (if applicable).
- b. Description of the Work.
- c. Total Dollar Value.
- d. Previous Application Amount.
- e. Dollar Amount Charged on Current Pay Application.
- f. Stored Materials.
- g. Total Complete and Stored.
 - 1) Percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total one hundred (100%) percent.
- h. Balance to Finish
- i. Retainage
3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Documents. Provide several line items for principal subcontract amounts, where appropriate.
4. Round amounts to nearest one (1) cent; total shall equal the Contract Sum.
5. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
 - a. Differentiate between items stored on-site and items stored off-site. Include evidence of insurance or bonded warehousing per Article 9.3.2 AIA A201-2017 General Conditions.
6. Provide separate line items in the Schedule of Values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
7. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
 - a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the Schedule of Values or distributed as general overhead expense, at Contractor's option.
8. Schedule Updating: Update and resubmit the Schedule of Values before the next Applications for Payment when Change Orders result in a change in the Contract Sum.

1.5 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment shall be consistent with previous applications and payments as certified by Owner and paid for by Owner.
- B. Payment Application Times:
 1. The date for each progress payment is indicated in the Contract between Owner and Contractor.
 2. The period of construction Work covered by each Application for Payment is the period indicated in the Contract.
- C. Payment Application Forms:

1. Use Payment Application forms as provided by Owner for Applications for Payment.
- D. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Owner will return incomplete applications without action.
1. Entries shall match data on the Schedule of Values and Contractor's Final Project Schedule. Use updated schedules if revisions were made.
 2. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
 3. Provide current Subcontractor List with each Application for Payment.
- E. Transmittal: Submit one (1) signed and notarized original Application for Payment to Owner by a method ensuring receipt within forty-eight (48) hours. The Application for Payment shall include intent to pay prevailing wages and a running spreadsheet that itemizes both the intent and affidavit of wages paid to date for each subcontractor.
1. Transmit Application for Payment with a transmittal form listing attachments and recording appropriate information about the application.
- F. General Contractor Certification Upon Application For Payment: Refer to attached Exhibits in Contract.
- G. Initial Application for Payment: Administrative actions and submittals that must precede the first Application for Payment include the following:
1. List of subcontractors. (Required at pre-construction conference.)
 2. Schedule of Values.
 3. Contractor's Final Project Schedule to be created in MS Project or equivalent format. (Required at pre-construction conference.)
 4. Certificates of insurance and insurance policies. (Required prior to contract award.)
 5. Performance and payment bonds. (Required prior to contract award.)
 6. Section 3 Work Plan, for projects whose contract value is five hundred thousand dollars (\$500,000) or higher.
 7. Intent to Pay Prevailing Wages must be filed with L&I.
 8. Contractor to provide Owner with initial Cash Flow Projections. Cash Flow Projection needs to reflect Work as detailed in Final Project Schedule.
- H. **All** Application for Payments will be reviewed for completion and correctness, including reasons outlined in A201-2017 General Conditions.
- I. Application for Payment at Substantial Completion: After Owner issues the Certificate of Substantial Completion, submit an Application for Payment showing one hundred (100%) percent completion for portion of the Work claimed as substantially complete.
1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.

2. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.

J. Final Payment Application: Administrative actions and submittals that must precede or coincide with submittal of the final Application for Payment include the following (refer to Article 9.10 in AIA A201-2017 General Conditions:

1. Completion of Project closeout requirements.
2. Completion of Items specified.
3. Ensure that unsettled claims will be settled.
4. Ensure that incomplete Work is not accepted and will be completed without undue delay.
5. Transmittal of required Project construction records to the Owner.
6. Proof that fees and similar obligations were paid.
7. Removal of temporary facilities and services.
8. Removal of surplus materials, rubbish and similar elements.
9. Operations and Maintenance Manuals
10. Record Drawings (i.e. As-built drawings, redline drawings)
11. Final Affidavits of Wages Paid filed with L&I.

1.6 SPECIAL PAYMENT REQUIREMENTS (Not Used)

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

END OF SECTION 01 2900

SECTION 01 3100
PROJECT MANAGEMENT AND COORDINATION

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
 - 1. General project coordination procedures.
 - 2. Coordination Drawings.
 - 3. Project meetings.
 - 4. Requests for Information (RFIs).
- B. See Division 01 Section "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.

1.3 DEFINITIONS

- A. RFI: Request from Contractor seeking interpretation or clarification of the Contract Document.

1.4 COORDINATION

- A. Coordination: Contractor's Responsibility to coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections that depend on each other for proper installation, connection and operation.
 - 1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
 - 2. Coordinate installation of different components with other contractors to ensure maximum accessibility for required maintenance, service and repair.
 - 3. Make adequate provisions to accommodate items scheduled for later installation.
- B. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
 - 1. Preparation of Contractor's Final Project Schedule.
 - 2. Preparation of the Schedule of Values.
 - 3. Installation and removal of temporary facilities and controls.
 - 4. Delivery and processing of submittals.
 - 5. Progress meetings.

6. Pre-installation conferences.
7. Project closeout activities.

1.5 PROJECT MEETINGS

- A. General: Contractor is responsible for scheduling and conducting meetings and conferences at Project site, unless otherwise indicated.
 1. Attendees: Inform participants, others who are involved and individuals whose presence is required, of date and time of each meeting. Notify Owner of scheduled meeting dates and times.
 2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
 3. Minutes: Record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned; send the electronic version of the meeting minutes to the Project Manager and the Project Engineer, within three (3) business days of the meeting.

- B. Pre-construction Conference: A pre-construction conference shall be scheduled before starting construction. Owner to hold the conference at Project site or another convenient location. Conduct the meeting to review responsibilities and personnel assignments.
 1. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference.
 2. Agenda: Owner to discuss items of significance that could affect progress, including the following:
 - a. Scope of Work.
 - b. Contract Start and End Dates.
 - c. Authority of Owner's Personnel.
 - d. Davis Bacon/Prevailing Wage Certified Payroll Reports/Labor Relations and Section 3.
 - e. Insurance Certificate, Endorsement and Performance and Payment Bonds.
 - f. General Requirements/Special Conditions.
 - g. Final Project Schedule, including Phasing.
 - h. Easements, Permits, Lines & Grades.
 - i. Contractor's Superintendent.
 - j. Subcontractor List.
 - k. Safety Plan (see attachment at end of this section).
 - l. Tests, Samples and Observations.
 - m. Progress Meetings and Reports.
 - n. Applications and Certificates of Payment, and Retention.
 - o. Progress Payments.
 - p. Change Orders.
 - q. Warranty Requirements.
 - r. Submittals.
 - s. Temporary and Storage Facilities, Staging Areas and Jobsite Security.
 - t. Clean-up and Trash Removal.
 - u. Salvage of Materials and Spare Materials.
 - v. Record Drawings.
 - w. Substantial Completion, Final Payment and Retainage.
 - x. Recycling and Energy Conservation.

- y. Minutes: The Owner will record and distribute Pre-construction meeting minutes via email.
- C. Progress Meetings: The Contractor will conduct progress meetings at weekly intervals. (refer to Article 3.1.4 of General Conditions).
- 1. Attendees: In addition to representatives of Owner and the Contractor, each subcontractor, supplier and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
 - 2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
 - a. Contractor's Final Project Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's Final Project Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
 - 1) Contractor shall provide a short term look-ahead schedule for presentation and review at each progress meeting.
 - b. Review present and future needs of each entity present, including the following:
 - 1) Interface requirements.
 - 2) Sequence of operations.
 - 3) Status of submittals.
 - 4) Deliveries.
 - 5) Off-site fabrication.
 - 6) Access.
 - 7) Site utilization.
 - 8) Temporary facilities and controls.
 - 9) Work hours.
 - 10) Hazards and risks.
 - 11) Progress cleaning.
 - 12) Quality and work standards.
 - 13) Status of correction of deficient items.
 - 14) Field observations.
 - 15) RFIs.
 - 16) Status of proposal requests.
 - 17) Pending changes.
 - 18) Status of Change Orders.
 - 19) Pending claims and disputes.
 - 20) Documentation of information for payment requests.
 - 21) Safety
 - 22) Section 3 compliance and status
 - 3. Minutes: Contractor will record the meeting minutes.
 - 4. Reporting: Contractor will email the minutes to all concerned prior to the meeting and will distribute written copies of the minutes of the meeting to each party present and to parties who should have been present.
 - a. Schedule Updating: Revise Contractor's Two (2)-Week Look Ahead Schedule after each progress meeting. This schedule will be discussed in

each progress meeting. Issue revised schedule concurrently with the report of each meeting.

- b. Contractor's weekly reports will consist of five (5) daily reports, each reflecting the preceding five (5) days. These reports will be sent electronically to the Owner on a schedule that will be determined at the Pre-Construction Meeting or at each progress meeting.

1.6 REQUESTS FOR INFORMATION (RFIs)

- A. Procedure: Immediately on discovery of the need for interpretation of the Contract Documents, and if not possible to request interpretation at Project meeting, prepare and submit an RFI in the form specified.
 1. RFIs generated from subcontractor or supplier of the Contractor must be routed through the General Contractor.
 2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.
 3. If a suggestion can be determined or derived at by the initiator of the RFI, it is required the suggestion be supplied with the submitted RFI. If no suggestion is given where one is possible, the RFI will be returned as incomplete.
- B. Content of the RFI: Include a detailed, legible description of item needing interpretation and the following:
 1. Project name and number.
 2. RFI Subject.
 3. Date.
 4. Name of Contractor.
 5. Name of Architect.
 6. RFI number, numbered sequentially.
 7. Specification Section number and title and related paragraphs, as appropriate.
 8. Drawing number and detail references, as appropriate.
 9. Field dimensions and conditions, as appropriate.
 10. Contractor's suggested solution(s). If Contractor's solution(s) impact the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
 11. Contractor's signature.
 12. Attachments: Include drawings, descriptions, measurements, photos, product data, shop drawings and other information necessary to fully describe items needing interpretation.
- C. Hard-Copy RFIs: Form established by Contractor's Project Management system.
 1. Identify each page of attachments with the RFI number and sequential page number.
- D. Owner's Action: Owner will review each RFI, determine action required and return it. Allow five (5) working days for Owner's acknowledgement of each RFI.
 1. The following RFIs will be returned without action:
 - a. Requests for approval of submittals.
 - b. Requests for approval of substitutions.
 - c. Requests for coordination information already indicated in the Contract Documents.
 - d. Requests for adjustments in the Contract Time or the Contract Sum.
 - e. Requests for interpretation of Owner's actions on submittals.
 - f. Incomplete RFIs or RFIs with numerous errors.

2. Owner's action may include a request for additional information, in which case Owner's time for response will start again.
 3. Owner's action may include architect and/or engineer recommendation or approval of proposed solution.
 4. Owner's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Order Request according to General Conditions.
 - a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Owner in writing within five (5) days of receipt of the RFI response.
- E. On receipt of Owner's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Owner within three (3) days if Contractor disagrees with response.
- F. Contractor RFI Log: Prepare, maintain and submit a tabular log of RFIs organized by the RFI number. Submit log weekly. Include the following:
1. Project name.
 2. Name and address of Contractor.
 3. Name and address of Architect.
 4. RFI number including RFIs that were dropped and not submitted.
 5. RFI description.
 6. Date the RFI was submitted.
 7. Date Architect's response was received.
 8. Identification of related Minor Change in the Work, Construction Change Directive and Change Order Request, as appropriate.
- PART 2 PRODUCTS (Not Used)
- PART 3 EXECUTION (Not Used)

GENERAL CONTRACTOR SITE SAFETY PLAN CHECKLIST

Instructions: Please indicate whether or not your Site Safety Plan contains the following provisions.

Contractors: Site Safety Plan Evaluation

Yes	No	N/A	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1. Will your company have a written, established, supervised and enforced site safety plan for the project? <i>(The site safety plan must be presented before starting work)</i>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2. Does the site safety plan include an orientation and weekly safety meetings that show your employees and other subcontractors what they need to know to perform their job assignments safely?
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3. Does the site safety plan describe how and when to report on-the-job injuries?
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4. Does the site safety plan identify on-site available 1st Aid / CPR trained personnel, readily accessible first-aid and and/or access to the nearest clinic or hospital on job site?
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5. Does the site safety plan identify what to do in an emergency, including how to exit the workplace?
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6. Does the site safety plan explain how employees and other subcontractors report unsafe conditions and practices?
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7. Does the site safety plan describe the required personal protective equipment (PPE) and the proper use and care of the PPE?
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8. Is there an on-site Haz-com Program that identifies hazardous materials (Asbestos, Lead) or chemicals including instruction about the safe use and storage?
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9. Does the site safety plan identify the designated representative responsible for job-site Safety?
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10. Does the site safety plan describe who is responsible for performing and recording regular periodic site reviews, and inspections for your employees and subcontractors?
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11. Does the site safety plan describe programs related to housekeeping and jobsite safety?
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	12. Does the site safety plan include a job-site specific written fall protection plan covering potential falls hazards and protections?
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	13. Does the site safety plan describe electrical and or power generation controls?
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	14. Does the site safety plan have provisions for trenching /excavations and/or confined space?

Notes:

END OF SECTION 01 3100

SECTION 01 3200
CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
1. Contractor's Final Project Schedule.
 2. Submittals Schedule (refer to Article 3.10.2 in General Conditions AIA A201-2017).
 3. Daily construction reports.

1.3 DEFINITIONS

- A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring and controlling the construction project. Activities included in a Final Project Schedule consume time and resources.
1. Critical activities are activities on the critical path. They must start and finish on the planned early start and finish times.
 2. Predecessor Activity: An activity that precedes another activity in the network.
 3. Successor Activity: An activity that follows another activity in the network.
- B. CPM: Critical Path Method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of Project.
- C. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.
- D. Float: The measure of leeway in starting and completing an activity.
1. Float time is not for the exclusive use or benefit of either Owner or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date.
- E. Fragnet: A partial or fragmentary network that breaks down activities into smaller activities for greater detail.
- F. Major Area: A story of construction, a separate building or a similar significant construction element.

1.4 SUBMITTALS

- A. Submittals Schedule: Submit one (1) electronic copy of schedule to the Owner. Arrange the following information in a tabular format
 1. Scheduled date for first submittal.
 2. Specification Section number and title.
 3. Submittal category (action or informational).
 4. Name of subcontractor (if applicable).
 5. Description of the Work covered.
 6. Scheduled date for Architect's final release or approval.
- B. Contractor's Final Project Schedule: Submit one (1) electronic copy and one (1) hard copy of initial schedule to the Owner. The hard copy should be large enough to show entire schedule for entire construction period.

1.5 COORDINATION

- A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.
- B. Coordinate Contractor's Final Project Schedule with the Schedule of Values, list of subcontracts, Submittals Schedule, progress reports, payment requests, and other required schedules and reports.
 1. Secure time commitments for performing critical elements of the Work from parties involved.
 2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

PART 2 PRODUCTS

2.1 SUBMITTALS SCHEDULE

- A. Preparation: Submit a schedule of submittals to the Owner, arranged in chronological order by dates required by Final Project Schedule. Include time required for review, resubmittal, ordering, manufacturing, fabrication and delivery when establishing dates.
 1. Coordinate Submittals Schedule with list of subcontracts, the Schedule of Values, and Contractor's Final Project Schedule.
 2. Submit concurrently with the first complete submittal of Contractor's Final Project Schedule.

2.2 CONTRACTOR'S FINAL PROJECT SCHEDULE, GENERAL (refer to Article 3.10.1 in the General Conditions AIA A201)

- A. Contractor to provide a baseline, cost-loaded schedule in MS Project or Primavera to the Owner's Representative one (1) day **prior** to the weekly project meeting. Contractor is to update the schedule weekly.
- B. Time Frame: Extend schedule from date established for commencement of the Work to date of Substantial Completion as set by the date of Notice to Proceed.

1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.
- C. Activities: Treat each story or separate area as a separate numbered activity for each principal element of the Work. Comply with the following:
1. Activity Duration.
 2. Procurement Activities: Include procurement process activities for long lead items and major items as separate activities in schedule.
 - a. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication and delivery.
 3. Submittal Review Time: Include review and resubmittal times indicated in Division 01 Section "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's Final Project Schedule with Submittals Schedule.
 4. Startup and Testing Time: Include not less than ten (10) days for startup and testing.
 5. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Architect's administrative procedures necessary for certification of Substantial Completion.
- D. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in Final Project Schedule, and show how the sequence of the Work is affected.
1. Phasing: Arrange list of activities on schedule by phase.
 2. Work by Owner: Include a separate activity for each portion of the Work performed by Owner.
 3. Work Restrictions: Show the effect of the following items on the Final Project Schedule:
 - a. Coordination with existing construction.
 - b. Limitations of continued occupancies.
 - c. Uninterruptible services.
 - d. Partial occupancy before Substantial Completion.
 - e. Use of premises restrictions.
 - f. Provisions for future construction.
 - g. Seasonal variations.
 - h. Environmental control.
 4. Work Stages: Indicate important stages of construction for each major portion of the Work.
- E. Milestones: Include milestones indicated in the Contract Documents in Final Project Schedule, including, but not limited to, the Notice to Proceed, Substantial Completion and Final Completion.
- F. Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis using fragnets to demonstrate the effect of the proposed change on the overall project schedule.

2.3 CONTRACTOR'S FINAL PROJECT SCHEDULE (GANTT CHART)

- A. Gantt-Chart Schedule: Submit to the Owner a comprehensive, fully developed, horizontal Gantt-chart-type, Contractor's Final Project Schedule within fourteen (14) calendar days of date after Letter of Award. Base schedule on the Preliminary Construction Schedule and whatever updating and feedback was received since the start of Project. The Gantt-Chart Final Project Schedule can be either in MS Project or equivalent format.
- B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.
 - 1. For construction activities that require three (3) months or longer to complete, indicate an estimated completion percentage in ten (10%) percent increments within time bar.

PART 3 EXECUTION

3.1 CONTRACTOR'S FINAL PROJECT SCHEDULE

- A. Contractor's Final Project Schedule Updating: At two (2) week intervals, update schedule to reflect actual construction progress and activities. Issue schedule three (3) days before each regularly scheduled progress meeting.
 - 1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
 - 2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
 - 3. As the Work progresses, indicate Actual Completion percentage for each activity.
- B. Distribution: Distribute electronic copies of approved schedule to Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.
 - 1. Post copies in Project meeting rooms and temporary field offices.
 - 2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

END OF SECTION 01 3200

SECTION 01 3300 SUBMITTAL PROCEDURES

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples and other submittals.
- B. Related Sections:
 - 1. See Division 01 40 00 Section "Quality Requirements" for submitting test and inspection reports and for mockup requirements.
 - 2. See Division 01 77 00 Section "Closeout Procedures" for submitting warranties.
 - 3. See Division 01 78 39 Section "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.
 - 4. See Division 01 78 23 Section "Operation and Maintenance Data" for submitting operation and maintenance manuals.

1.3 DEFINITIONS

- A. Action Submittals: Written and graphic information that requires Owner's responsive action.
- B. Informational Submittals: Written information that does not require Owner's responsive action. Submittals may be rejected for not complying with requirements.

PART 2 PRODUCTS

2.1 SUBMITTAL PROCEDURES

- A. General Submittal Procedure Requirements:
 - 1. Submit electronic submittals to Owner via email as PDF electronic files.
 - a. Owner will return annotated file. Annotate and retain one (1) copy of file as an electronic Project record document file.
- B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
 - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals and related activities that require sequential activity.
 - 2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
 - a. Owner reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

- C. Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows:
1. Time for review shall commence on Owner's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
 2. Initial Review: Allow five (5) working days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Owner will advise Contractor when a submittal being processed must be delayed for coordination.
 3. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
 4. Resubmittal Review: Allow seven (7) working days for review of each resubmittal.
- D. Identification: Place a permanent label or title block on each submittal for identification.
1. Indicate name of firm or entity that prepared each submittal on label or title block.
 2. Provide a space approximately **4 by 5 inches** on label or beside title block to record Contractor's review and approval markings and action taken by Owner.
 3. Include the following information on label for processing and recording action taken:
 - a. Project name.
 - b. Date.
 - c. Name and address of Architect (if applicable).
 - d. Name and address of Contractor.
 - e. Name and address of subcontractor.
 - f. Name and address of supplier.
 - g. Name of manufacturer.
 - h. Submittal number or other unique identifier, including revision identifier.
 - 1) Submittal number shall use consecutively numbered submittals (001, 002, etc), followed by the Specification Section number, followed by a sequential number indicating version (e.g., 001-13 3300-0).
 - 2) Example: 001 – 01 1300 – 0
 - a) 001: Consecutively numbered submittals
 - b) 01 1300: Specification Section
 - c) 0: Version of submittal (0 = original submittal; 1 = first resubmittal; 2 = 2nd resubmittal; etc.)
 - i. Number and title of appropriate Specification Section.
 - j. Drawing number and detail references, as appropriate.
 - k. Location(s) where product is to be installed, as appropriate.
 - l. Other necessary identification.
- E. Deviations: Highlight, encircle or otherwise specifically identify deviations from the Contract Documents on submittals.
1. Substitution Requests.

- F. Additional Copies: Unless additional copies are required for final submittal, and unless Owner observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.
 - 1. Additional copies submitted for maintenance manuals will not be marked with action taken and will be returned.
- G. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Owner will return submittals, without review, received from sources other than Contractor.
 - 1. Include Contractor's certification stating that information submitted complies with requirements of the Contract Documents.
- H. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
 - 1. Note date and content of previous submittal.
 - 2. Note date and content of revision in label or title block and clearly indicate extent of revision.
 - 3. Resubmit submittals until they are marked "Make Corrections Noted" or "No Exceptions Taken".
- I. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers and others as necessary for performance of construction activities. Show distribution on transmittal forms.
 - 1. Use for Construction: Use only final submittals with mark indicating "Make Corrections Noted" or "No Exceptions Taken".

2.2 CONTRACTOR'S USE OF ARCHITECT'S CAD FILES

- A. General: At Contractor's written request, copies of Architect's CAD files will be provided to Contractor for Contractor's use in connection with Project, subject to the following conditions:
 - 1. Release of CADD information will be restricted to the following categories:
 - a. Architectural floor plans.
 - b. Site plan.
 - c. Reflected ceiling plans.
 - d. Exterior elevations.
 - e. Stair sections.
 - 2. The CADD database will contain only the background information; the sheet numbers, sheet titles, room names and numbers, reference symbols, and other similar data will not be included.
 - 3. The CADD database will be generated on PC hardware with Autodesk AutoCAD software. Architect has the capability to develop CADD output to meet capabilities of all major platforms and major media types.
 - 4. When requesting CADD databases, specify the output form required.

PART 3 PRODUCTS

3.1 ACTION SUBMITTALS

- A. General: Prepare and submit to Owner, Action Submittals required by individual Specification Sections.

- B. Electronic Submittals: Identify and incorporate information in each electronic submittal file as follows:
1. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
 2. Name file with submittal number or other unique identifier, including revision identifier.
 - a. File name shall use project identifier and Specification Section number followed by a decimal point and then a sequential number (e.g., LNHS-061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., LNHS-061000.01.A).
 3. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Owner.
 4. Transmittal Form for Electronic Submittals: Use electronic form acceptable to Owner, containing the following information:
 - a. Project name.
 - b. Date.
 - c. Name and address of Architect.
 - d. Name of Construction Manager.
 - e. Name of Contractor.
 - f. Name of firm or entity that prepared submittal.
 - g. Names of subcontractor, manufacturer, and supplier.
 - h. Category and type of submittal.
 - i. Submittal purpose and description.
 - j. Specification Section number and title.
 - k. Specification paragraph number or drawing designation and generic name for each of multiple items.
 - l. Drawing number and detail references, as appropriate.
 - m. Location(s) where product is to be installed, as appropriate.
 - n. Related physical samples submitted directly.
 - o. Indication of full or partial submittal.
 - p. Transmittal number, numbered consecutively.
 - q. Submittal and transmittal distribution record.
 - r. Other necessary identification.
 - s. Remarks.
 5. Metadata: Include the following information as keywords in the electronic submittal file metadata:
 - a. Project name.
 - b. Number and title of appropriate Specification Section.
 - c. Manufacturer name.
 - d. Product name.
- C. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
 2. Mark each copy of each submittal to show which products and options are applicable.
 3. Include the following information, as applicable:
 - a. Manufacturer's written recommendations.
 - b. Manufacturer's product specifications.

- c. Manufacturer's installation instructions.
 - d. Manufacturer's catalog cuts.
 - e. Wiring diagrams showing factory-installed wiring.
 - f. Printed performance curves.
 - g. Operational range diagrams.
 - h. Compliance with specified referenced standards.
 - i. Testing by recognized testing agency.
4. Number of Copies: Submit to Owner, four (4) copies of Product Data, unless otherwise indicated. Owner will return two (2) copies. Mark up and retain one (1) returned copy as a Project Record Document.
- D. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data, unless submittal of Architect's CAD Drawings is otherwise permitted.
1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
 - a. Dimensions.
 - b. Identification of products.
 - c. Fabrication and installation drawings.
 - d. Roughing-in and setting diagrams.
 - e. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
 - f. Shop-work manufacturing instructions.
 - g. Templates and patterns.
 - h. Schedules.
 - i. Notation of coordination requirements.
 - j. Notation of dimensions established by field measurement.
 - k. Relationship to adjoining construction clearly indicated.
 - l. Seal and signature of professional engineer if specified.
 - m. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring.
 2. Sheet Size: Except for templates, patterns and similar full-size drawings, submit to Owner, Shop Drawings on sheets at least 8-1/2 by 11 inches but no larger than 36 by 48 inches.
 3. Number of Copies: Submit to Owner, a minimum of three (3) opaque (bond) copies of each submittal. Submit additional copies as required for each consultant. Owner will return two (2) copies. At the sole discretion of the Owner electronic copies may be acceptable.
- E. Samples: Submit to Owner, Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
 2. Identification: Attach label on unexposed side of Samples that includes the following:
 - a. Generic description of Sample.
 - b. Product name and name of manufacturer.
 - c. Sample source.
 - d. Number and title of appropriate Specification Section.

3. Disposition: Maintain sets of approved Samples at Project site, available for quality control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
4. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures and patterns available.
 - a. Number of Samples: Submit one (1) full set of available choices where color, pattern, texture or similar characteristics are required to be selected from manufacturer's product line. Owner will return submittal with options selected.
5. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture and pattern; color range sets; and components used for independent testing and inspection.
 - a. Number of Samples: Submit three (3) sets of Samples. Owner will retain two (2) Sample sets; remainder will be returned.
- F. Product Schedule or List: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location.
 1. Number of Copies: Submit a minimum of three (3) copies of product schedule or list, unless otherwise indicated. Submit additional copies for each consultant required to review the submittal. Owner will return two (2) copies.
- G. Submittals Schedule: Comply with requirements specified in the General Conditions of the Contract and Owner-Contractor Contract.
- H. Application for Payment: Comply with requirements specified in the Owner-Contractor Contract.
- I. Schedule of Values: Comply with requirements specified in the Owner-Contractor Contract. If needed, combine subcontract list in paragraph below with product list above. Subcontract list is required by General Conditions to be submitted as soon as practical after award of the Contract.
- J. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design.
 1. Number of Copies: Submit electronically to Owner, one (1) copy of subcontractor list, unless otherwise indicated.

3.2 INFORMATIONAL SUBMITTALS

- A. General: Prepare and submit Informational Submittals required by other Specification Sections.

1. Number of Copies: Submit to Owner, two (2) copies of each submittal, unless otherwise indicated. Owner will not return copies.
 2. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
 3. Test and Inspection Reports: Comply with requirements specified in Division 01 40 Section "Quality Requirements."
- B. Coordination Drawings: Comply with requirements specified in Division 01 31 00 Section "Project Management and Coordination."
- C. Contractor's Final Project Schedule: Comply with requirements specified in the General Conditions of the Contract, and Owner-Contractor Contract.
- D. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of architects and Owners, and other information specified.
- E. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include names of firms and personnel certified.
- F. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
- G. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
- H. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
- I. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
- J. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
- K. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- L. Research/Evaluation Reports: Prepare written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project.

- M. Pre-construction Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
- N. Compatibility Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
- O. Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
- P. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements specified in Division 01 78 23 Section "Operation and Maintenance Data."
- Q. Design Data: Prepare written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.
- R. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address and telephone number of manufacturer.
- S. Manufacturer's Field Reports: Prepare written information documenting factory-authorized service representative's tests and inspections. Include the following, as applicable:
 - 1. Statement on condition of substrates and their acceptability for installation of product.
 - 2. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
 - 3. Results of operational and other tests and a statement of whether observed performance complies with requirements.
- T. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.
- U. Material Safety Data Sheets (MSDSs): Submit information directly to Owner.
 - 1. Architect will not review submittals that include MSDSs and will return them for resubmittal.

3.3 DELEGATED DESIGN

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
 - 1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Owner.
- B. Delegated-Design Submittal: In addition to Shop Drawings, Product Data, and other required submittals, electronically submit three (3) copies of a statement, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.
 - 1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.
 - 2. If submittal has a wet stamp, then send three (3) hard copies, with the wet stamp to Owner for approval. Owner will return one (1) copy to Contractor.

PART 4 EXECUTION

4.1 CONTRACTOR'S REVIEW

- A. Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions.

4.2 OWNER'S ACTION

- A. Action Submittals: Owner will review each submittal, make marks to indicate corrections or modifications required, and return it. Owner will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken.
- B. Informational Submittals: Owner will review each submittal and will not return it, or will return it if it does not comply with requirements. Owner will forward each submittal to appropriate party.
- C. Partial submittals are not acceptable, will be considered nonresponsive, and will be returned without review.
- D. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

END OF SECTION 01 3300

SECTION 01 4000 QUALITY REQUIREMENTS

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
 - 1. Specified tests, inspections and related actions do not limit Contractor's other quality assurance and quality-control procedures that facilitate compliance with the Contract Document requirements.
 - 2. Requirements for Contractor to provide quality-assurance and quality-control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.
- C. See Divisions 02 through 33 Sections for specific test and inspection requirements, if applicable. Not all Divisions will be used.

1.3 DEFINITIONS

- A. Quality-Assurance Services: Activities, actions and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
- B. Quality-Control Services: Tests, inspections, procedures and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Owner.
- C. Mockups: Full-size, physical assemblies that are constructed on-site. Mockups are used to verify selections made under sample submittals, to demonstrate aesthetic effects and, where indicated, qualities of materials and execution, and to review construction, coordination, testing or operation; they are not Samples. Approved mockups establish the standard by which the Work will be judged.
- D. Pre-construction Testing: Tests and inspections that are performed specifically for the Project before products and materials are incorporated into the Work to verify performance or compliance with specified criteria.

- E. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with industry standards.
- F. Source Quality-Control Testing: Tests and inspections that are performed at the source, i.e., plant, mill, factory or shop.
- G. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
- H. Testing Agency: An entity engaged to perform specific tests, inspections or both. Testing laboratory shall mean the same as testing agency.
- I. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Lower Tier Subcontractor, to perform a particular construction operation, including installation, erection, application and similar operations.
 - 1. Using a term such as "carpentry" does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to tradespeople of the corresponding generic name.
- J. Experienced: When used with an entity, "experienced" means having successfully completed a minimum of two (2) previous projects similar in size and scope to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

1.4 CONFLICTING REQUIREMENTS

- A. General: If compliance with two (2) or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to Owner for a decision before proceeding.
- B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Owner for a decision before proceeding.

1.5 TESTING SUBMITTALS

- A. Qualification Data: For testing agencies, as prescribed by Contract, but not provided by Owner shall demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.
- B. Reports: Prepare and electronically submit to the Owner certified written reports that include the following:
 - 1. Date of issue.

2. Project title and number.
 3. Name, address and telephone number of testing agency.
 4. Dates and locations of samples and tests or inspections.
 5. Names of individuals making tests and inspections.
 6. Description of the Work and test and inspection method.
 7. Identification of product and Specification Section.
 8. Complete test or inspection data.
 9. Test and inspection results and an interpretation of test results.
 10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
 11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
 12. Name and signature of laboratory inspector.
 13. Recommendations on re-testing and re-inspecting.
- C. Permits, Licenses and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.6 QUALITY ASSURANCE

- A. General: Qualifications paragraphs in this Article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.
- B. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
- C. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- D. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly or product that is similar to those indicated for this Project in material, design and extent.
- F. Specialists: Certain sections of the Specifications require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.
1. Requirement for specialists shall not supersede building codes and regulations governing the Work.

- G. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 548; and with additional qualifications specified in individual Sections; and where required by authorities having jurisdiction, that is acceptable to authorities.
1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
 2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.
- H. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design and extent to those indicated for this Project.
- I. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:
1. Build mockups in location and of size indicated or, if not indicated, as directed by Owner.
 2. Notify Owner seven (7) calendar days in advance of dates and times when mockups will be constructed.
 3. Demonstrate the proposed range of aesthetic effects and workmanship.
 4. Obtain Owner's approval of mockups before starting work, fabrication or construction.
 5. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
 6. Demolish and remove mockups when directed, unless otherwise indicated.
- J. Laboratory Mockups: Comply with requirements of pre-construction testing and those specified in individual Sections in Divisions 02 through 33.

1.7 QUALITY CONTROL

- A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.
1. Owner will furnish Contractor with names, addresses and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
 2. Costs for retesting and re-inspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor.
- B. Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
1. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
 - a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.

2. Notify testing agencies at least twenty-four 24 hours in advance of time when Work that requires testing or inspecting will be performed.
 3. Where quality-control services are indicated as Contractor's responsibility, electronically submit a certified written report, in duplicate, of each quality-control service to the Owner.
 4. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
 5. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- C. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Division 01 33 00 Section "Submittal Procedures."
- D. Re-testing/Re-inspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including re-testing and re-inspecting, for construction that replaced Work that failed to comply with the Contract Documents.
- E. Testing Agency Responsibilities: Cooperate with Owner and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
1. Notify Owner and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
 2. Determine the location from which test samples will be taken and in which on-site tests will be conducted.
 3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
 4. Electronically submit to the Owner a certified written report, in duplicate, of each test, inspection and similar quality-control service through Contractor.
 5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
 6. Do not perform any duties of Contractor.
- F. Associated Services: Cooperate with agencies performing required tests, inspections and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
1. Access to the Work.
 2. Incidental labor and facilities necessary to facilitate tests and inspections.
 3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
 4. Facilities for storage and field curing of test samples.
 5. Delivery of samples to testing agencies.
 6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
 7. Security and protection for samples and for testing and inspecting equipment at Project site.

- G. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and quality-control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
 - 1. Schedule times for tests, inspections, obtaining samples and similar activities.

1.8 SPECIAL TESTS AND INSPECTIONS

- A. Special Tests and Inspections: Owner will engage a qualified special inspector to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner, and as follows:
 - 1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviewing the completeness and adequacy of those procedures to perform the Work.
 - 2. Notifying Owner and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
 - 3. Submitting a certified written report of each test, inspection, and similar quality-control service to Owner with copy to Contractor and to authorities having jurisdiction.
 - 4. Electronically submitting to the Owner a final report of special tests and inspections, which includes a list of unresolved deficiencies, at Substantial Completion.
 - 5. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
 - 6. Re-testing and re-inspecting corrected work.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION

3.1 REPAIR AND PROTECTION

- A. General: On completion of testing, inspecting, sample taking and similar services, repair damaged construction and restore substrates and finishes.
 - 1. Provide materials and comply with installation requirements specified in other Specification Sections. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible.
 - 2. Comply with the Contract Document requirements for Division 01 73 29 Section "Cutting and Patching."
- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 01 4000

**SECTION 01 5000
TEMPORARY FACILITIES AND CONTROLS**

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 73 00 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes requirements for temporary utilities, support facilities, and security and protection facilities.
- B. See Division 01 Section "Execution" for progress cleaning requirements.
- C. See Divisions 02 through 33 Sections for temporary heat, ventilation, and humidity requirements for products in those Sections. Not all Sections will be used

1.3 DEFINITIONS

- A. Permanent Enclosure: As determined by Architect, permanent or temporary roofing is complete, insulated and weathertight; exterior walls are insulated and weathertight; and all openings are closed with permanent construction or substantial temporary closures.

1.4 USE CHARGES

- A. General: Cost or use charges for temporary facilities shall be included in the Contract Sum. Allow other entities to use temporary services and facilities without cost, including, but not limited to, Owner's construction forces, Architect, testing agencies and authorities having jurisdiction.
- B. Water Service from Existing System: Water from Owner's existing water system is available for use with approval of Owner's Representative. Provide connections and extensions of services as required for construction operations. Contractor must notify Owner forty-eight (48) hours before use of water service.
- C. Electric Power Service from Existing System: Contractor is responsible for supplying power service and distribution as required for construction operations, unless other arrangements are made with approval of Owner's Representative.

1.5 QUALITY ASSURANCE

- A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.

1.6 PROJECT CONDITIONS

- A. Temporary Use of Existing Permanent Facilities: Contractor shall assume responsibility for operation, maintenance and protection of each existing permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.
- B. Conditions of Use: The following conditions apply to use of temporary services and existing facilities by all parties engaged in the Work:
 - 1. Keep temporary services and existing facilities clean and neat.
 - 2. Relocate temporary services as required by progress of the Work.
 - 3. Provide temporary keys and lock cores throughout duration of Contractor's occupancy of Owner's space. Contractor to provide Owner's Representative with temporary construction keys matching construction cores installed for access.
 - a. When Contractor is given keys to KCHA property, Contractor will claim responsibility for the keys by signing for keys acquired. If Contractor loses keys, Contractor is responsible for rekeying all locks associated with lost key. Contractor is responsible for returning keys back to Owner's Representative when Work is completed.

PART 2 PRODUCTS

2.1 TEMPORARY FACILITIES

- A. Field Offices, General: Prefabricated or mobile units with serviceable finishes, temperature controls and foundations adequate for normal loading.
- B. Storage and Fabrication Sheds: Provide sheds sized, furnished and equipped to accommodate materials and equipment for construction operations.
- C. Contractor is responsible for security of Temporary Facilities.

2.2 EQUIPMENT

- A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.
- B. HVAC Equipment: Unless Owner authorizes use of permanent HVAC system, provide vented, self-contained, liquid-propane-gas or fuel-oil heaters with individual space thermostatic control.
 - 1. Use of gasoline-burning space heaters, open-flame heaters or salamander-type heating units is prohibited.
 - 2. Heating Units: Listed and labeled for type of fuel being consumed, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
 - 3. Permanent HVAC System: If Owner authorizes use of permanent HVAC system for temporary use during construction, provide filter with MERV of 13 at each return air grille in system and remove and replace at end of construction.
- C. Self-Contained Toilet Units: Single-occupant units of chemical, aerated re-circulation, or combustion type; vented; fully-enclosed with a glass-fiber-reinforced polyester shell or similar nonabsorbent material.

- D. Drinking-Water Fixtures: Containerized, tap-dispenser, bottled-water, drinking-water units, including paper cup supply.
 - 1. Where power is accessible, provide electric water coolers to maintain dispensed water temperature at 45 to 55 degrees F.
- E. Electrical Outlets: Properly configured, NEMA-polarized outlets to prevent insertion of 110-to-120-V plugs into higher-voltage outlets; equipped with ground-fault circuit interrupters, reset button and pilot light.
- F. Power Distribution System Circuits: Where permitted, and overhead and exposed for surveillance, wiring circuits, not exceeding 125-V AC, 20-A rating, and lighting circuits may be nonmetallic sheathed cable.

PART 3 EXECUTION

3.1 INSTALLATION, GENERAL

- A. With Owner's approval, locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.
- B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY UTILITY INSTALLATION

- A. General: Install temporary service or connect to existing service.
 - 1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services. Provide Owner with seventy-two (72) hour notice if disturbance is to occur to site staff or residents.
- B. Water Service: Connect to Owner's existing water service facilities. Clean and maintain water service facilities in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.
- C. Sanitary Facilities: Provide temporary toilets, wash facilities and drinking water for use by construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation and maintenance of fixtures and facilities.
 - 1. Toilets: Use of Owner's existing toilet facilities will be permitted with Owner's approval, as long as facilities are cleaned and maintained daily. At Substantial Completion, restore these facilities to condition existing before initial use.
- D. Heating and Cooling: Provide temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.

1. Maintain a minimum temperature of 50 degrees F in permanently enclosed portions of building for normal construction activities, and 65 degrees F for finishing activities and areas where finished Work has been installed.
 2. Isolation of Work Areas in Occupied Facilities: Prevent dust, fumes and odors from entering occupied areas.
- E. Ventilation and Humidity Control: Provide temporary ventilation required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce ambient condition required and minimize energy consumption.
- F. Electric Power Service: Provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations.
1. Connect temporary service to Owner's existing power source, as directed by Owner after receiving approval by Owner's Representative.
- G. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections and traffic conditions.
1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.

3.3 SUPPORT FACILITIES INSTALLATION

- A. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with Division 01 73 00 Section "Execution" for progress cleaning requirements. Contractor shall not use Owner's waste receptacles for any disposal.
- B. Parking: Use designated areas of Owner's existing parking areas for construction personnel upon Owner's approval.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.
- B. Environmental Protection: Provide protection, operate temporary facilities and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway and subsoil contamination or pollution or other undesirable effects.
- C. Security Enclosure and Lockup: Install substantial temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft and similar violations of security.
- D. Barricades, Warning Signs, and Lights: Comply with Owner's instructions for erecting structurally adequate barricades, including warning signs and lighting.

- E. Temporary Egress: Maintain temporary egress from existing occupied facilities as indicated and as required by Owner.
- F. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations and similar activities. Provide temporary weathertight enclosure for building exterior.
 - 1. Where heating or cooling is needed and permanent enclosure is not complete, insulate temporary enclosures.
- G. Temporary Partitions: Provide floor-to-ceiling dustproof partitions to limit dust and dirt migration and to separate areas occupied by tenants from fumes and noise.
 - 1. Construct dustproof partitions with two (2) layers of 6-mil polyethylene sheet on each side. Overlap and tape full length of joints.
 - 2. Where fire-resistance-rated temporary partitions are indicated or are required by authorities having jurisdiction, construct partitions according to the rated assemblies.
 - 3. Seal joints and perimeter.
 - 4. Protect air-handling equipment.
 - 5. Provide walk-off mats at each entrance through temporary partition.
 - 6. Dust Control/Air handlers
- H. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241.
 - 1. Prohibit smoking on Owner's property.
 - 2. Supervise welding operations, combustion-type temporary heating units and similar sources of fire ignition according to requirements of authorities having jurisdiction.

3.5 OPERATION, TERMINATION AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Maintenance: Maintain facilities in good operating condition until removal.
 - 1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation and similar facilities on a twenty-four (24) hour basis where required to achieve indicated results and to avoid possibility of damage.
- C. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.
- D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces and replace construction that cannot be satisfactorily repaired.
 - 1. Materials and facilities that constitute temporary facilities are property of Contractor. Owner reserves right to take possession of Project identification signs.

2. At Substantial Completion, clean and renovate permanent facilities used during construction period. Comply with final cleaning requirements specified in Division 01 77 00 Section "Closeout Procedures."

END OF SECTION 01 5000

SECTION 01 6000 PRODUCT REQUIREMENTS

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage and handling; manufacturers' standard warranties on products; special warranties; product substitutions; and comparable products.
- B. See Division 01 77 00 Section "Closeout Procedures" for submitting warranties for Contract closeout.
- C. See Divisions 02 through 33 Sections for specific requirements for warranties on products and installations specified to be warranted. Not all Sections will be used.

1.3 DEFINITIONS

- A. Products: Items purchased for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
 - 1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature that is current as of date of the Contract Documents.
 - 2. New Products: Items that have not previously been incorporated into another project or facility, except that products consisting of recycled-content materials are allowed, unless explicitly stated otherwise. Products salvaged or recycled from other projects are not considered new products.
 - 3. Comparable Product: Product that is demonstrated and approved through submittal process, or where indicated as a product substitution, to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance and other characteristics that equal or exceed those of specified product.
- B. Substitutions: Changes in products, materials, equipment and methods of construction from those required by the Contract Documents and proposed by Contractor.
- C. Basis-of-Design Product Specification: Where a specific manufacturer's product is named and accompanied by the words "basis of design," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance and other characteristics for purposes of evaluating comparable products of other named manufacturers.

1.4 SUBMITTALS

- A. Substitution Requests: Electronically submit three (3) copies of each request for consideration to the Owner. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
1. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
 - a. Statement indicating why specified material or product cannot be provided.
 - b. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors, which will be necessary to accommodate proposed substitution.
 - c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Significant qualities may include attributes such as performance, weight, size, durability, visual effect and specific features and requirements indicated.
 - d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
 - e. Samples, where applicable or requested.
 - f. List of similar installations for completed projects with project names and addresses and the names and addresses of Architects and Owners.
 - g. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
 - h. Research/evaluation reports evidencing compliance with building code in effect for Project, from a model code organization acceptable to authorities having jurisdiction.
 - i. Detailed comparison of Contractor's Final Project Schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating lack of availability or delays in delivery.
 - j. Cost information, including a proposal of change, if any, in the Contract Sum.
 - k. Contractor's certification that proposed substitution complies with requirements in the Contract Documents and is appropriate for applications indicated.
 - l. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
 2. Owner's Action: If necessary, the Owner will request additional information or documentation for evaluation within five (5) calendar days of receipt of a request for substitution. Owner will notify Contractor of acceptance or rejection of proposed substitution within ten (10) calendar days of receipt of request, or five (5) calendar days of receipt of additional information or documentation, whichever is later.
 - a. Form of Acceptance: Signed and Approved Substitution Request Form.

- B. Basis-of-Design Product Specification Submittal: Comply with requirements in Division 01 Section "Submittal Procedures." Show compliance with requirements.

1.5 QUALITY ASSURANCE

- A. Compatibility of Options: If Contractor is given option of selecting between two (2) or more products for use on Project, product selected shall be compatible with products previously selected, even if previously selected products were also options.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store and handle products using means and methods that will prevent damage, deterioration and loss, including theft. Comply with manufacturer's written instructions.

- B. Delivery and Handling:

1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged or sensitive to deterioration, theft and other losses.
3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting and installing.
4. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.

- C. Storage:

1. Store products to allow for inspection and measurement of quantity or counting of units.
2. Store materials in a manner that will not endanger Project structure.
3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
4. Store cementitious products and materials on elevated platforms.
5. Store foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
6. Comply with product manufacturer's written instructions for temperature, humidity, ventilation and weather-protection requirements for storage.
7. Protect stored products from damage and liquids from freezing.

1.7 PRODUCT WARRANTIES

- A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

1. Manufacturer's Warranty: Pre-printed written warranty published by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.

2. Special Warranty: Written warranty required by or incorporated into the Contract Documents, either to extend time limit provided by manufacturer's warranty or to provide more rights for Owner.
- B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution. Electronically submit a draft for approval before final execution to the Owner.
1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
 2. Specified Form: When specified forms are included with the Specifications, prepare a written document using appropriate form properly executed.
 3. Refer to Divisions 2 through 33 Sections for specific content requirements and particular requirements for submitting special warranties. Not all Sections will be used.
- C. Submittal Time: Comply with requirements in Division 01 Section "Closeout Procedures."

PART 2 PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

- A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, that are new at time of installation.
1. Provide products complete with accessories, trim, finish, fasteners and other items needed for a complete installation and indicated use and effect.
 2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
 3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
 4. Where products are accompanied by the term "as selected," Owner will make selection.
 5. Where products are accompanied by the term "match sample," sample to be matched is Owner's.
 6. Descriptive, performance and reference standard requirements in the Specifications establish "salient characteristics" of products.
- B. Product Selection Procedures:
1. Products: Where Specifications include a list of names of both products and manufacturers, provide one (1) of the products listed or equal product that complies with requirements.
 2. Manufacturers: Where Specifications include a list of manufacturers' names, provide a product by one (1) of the manufacturers listed or equal manufacturer that complies with requirements.
 3. Available Products: Where Specifications include a list of names of both products and manufacturers, provide one (1) of the products listed, or a equal product. Comply with provisions in Part 2 "Product Substitutions" Article for consideration of an unnamed "or Equal" product.

4. Available Manufacturers: Where Specifications include a list of manufacturers, provide a product by one (1) of the manufacturers listed, or an unnamed manufacturer, that complies with requirements. Comply with provisions in Part 2 "Product Substitutions" Article for consideration of an unnamed manufacturer.
5. Product Options: Where Specifications indicate that sizes, profiles and dimensional requirements on Drawings are based on a specific product or system, provide the specified product or system. Comply with provisions in Part 2 "Product Substitutions" Article for consideration of an unnamed product or system.
6. Basis-of-Design Product: Where Specifications name a product and include a list of manufacturers, provide the specified product or a comparable product by one (1) of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions and other characteristics that are based on the product named. Comply with provisions in Part 2 "Product Substitutions" Article for consideration of an unnamed product by the other named manufacturers.
7. Visual Matching Specification: Where Specifications require matching an established Sample, select a product that complies with requirements and matches Owner's sample. Owner's decision will be final on whether a proposed product matches.
 - a. If no product available within specified category matches and complies with other specified requirements, comply with provisions in Part 2 "Product Substitutions" Article for proposal of product.
8. Visual Selection Specification: Where Specifications include the phrase "as selected from manufacturer's colors, patterns and textures" or a similar phrase, select a product that complies with other specified requirements.
 - a. Standard Range: Where Specifications include the phrase "standard range of colors, patterns, textures" or similar phrase, Owner will select color, pattern, density or texture from manufacturer's product line that does not include premium items.
 - b. Full Range: Where Specifications include the phrase "full range of colors, patterns, textures" or similar phrase, Owner will select color, pattern, density or texture from manufacturer's product line that includes both standard and premium items.

2.2 PRODUCT SUBSTITUTIONS

- A. Timing: Owner will consider requests for substitutions if received within sixty (60) days after the Notice to Proceed. Requests received after that time may be considered or rejected at discretion of Owner. .
- B. Conditions: Owner will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Owner will return requests without action, except to record noncompliance with these requirements:
 1. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner and similar considerations.
 2. Requested substitution does not require extensive revisions to the Contract Documents.

3. Requested substitution is consistent with the Contract Documents and will produce indicated results.
4. Substitution request is fully documented and properly submitted.
5. Requested substitution will not adversely affect Contractor's Final Project Schedule.
6. Requested substitution has received necessary approvals of authorities having jurisdiction.
7. Requested substitution is compatible with other portions of the Work.
8. Requested substitution has been coordinated with other portions of the Work.
9. Requested substitution provides specified warranty.

PART 3 EXECUTION (Not Used)

END OF SECTION 01 6000

**SECTION 01 7300
EXECUTION**

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes general procedural requirements governing execution of the Work including, but not limited to, the following:
 - 1. Construction layout.
 - 2. General installation of products.
 - 3. Progress cleaning.
 - 4. Starting and adjusting.
 - 5. Protection of installed construction.
 - 6. Correction of the Work.
- B. See Division 01 Section "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, and final cleaning.

1.3 SUBMITTALS

- A. Not Applicable

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION

3.1 EXAMINATION

- A. Existing Conditions: The existence and location of site improvements, utilities and other construction indicated as existing are not guaranteed. Before beginning work, investigate and verify the existence and location of mechanical and electrical systems and other construction affecting the Work. Notify Owner of any discrepancies between plans and actual conditions on site.
 - 1. Before construction, verify the location and points of connection of utility services.
- B. Acceptance of Conditions: Examine substrates, areas and conditions, with Installer or Applicator and Owner present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
 - 1. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.

2. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
3. Examine walls, floors and roofs for suitable conditions where products and systems are to be installed.
4. Proceed with installation only after unsatisfactory conditions have been corrected and approved by Owner. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- B. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- C. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to Owner, per Section 01 3100.
 1. It is the Contractor's responsibility to coordinate between the various Contract Documents, including the Drawings and Specifications, with neither superseding the other. In the event of conflicts or discrepancies among the Contract Documents, it is the Contractor's responsibility to seek clarification.
 2. Where conflicts and/or omissions have not been brought to the attention of the Owner, it is understood that the Contractor has made provisions in the bid for the most costly material or methods.

3.3 CONSTRUCTION LAYOUT

- A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Owner promptly.
- B. General: Engage experienced layout engineers to lay out the Work using accepted surveying practices.
 1. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
 2. Inform installers of lines and levels to which they must comply.
 3. Check the location, level and plumb, of every major element as the Work progresses.
 4. Notify Owner when deviations from required lines and levels exceed allowable tolerances.

3.4 FIELD ENGINEERING

- A. Reference Points: Locate existing permanent benchmarks, control points and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.

3.5 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
 - 1. Make vertical work plumb and make horizontal work level.
 - 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
 - 3. Conceal pipes, ducts and wiring in finished areas unless otherwise indicated.
 - 4. Install materials in lengths that produce the minimum amount of joints.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Tools and Equipment: Do not use tools or equipment that produces harmful noise and dust levels. Refer to Dust Control in the Scope of Work.
- F. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
- G. Attachments: Provide blocking and attachment plates, anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.
 - 1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Owner.
 - 2. Allow for building movement, including thermal expansion and contraction.
 - 3. Coordinate installation of anchorages. Furnish setting drawings, templates and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
- H. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, submit proposed joint layout, for Owner's approval. Fit exposed connections together to form hairline joints.
 - 1. Use weather cuts, miters, back caulk as needed. Use lengths that minimize joints.
- I. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.
 - 1. If required, Contractor must submit MSDS for all products to be used onsite to Owner for approval. Owner shall have seven (7) calendar days to review and approve/disapprove of the product.

2. If required, Contractor must submit a weekly schedule detailing when and where approved products will be used on an hour-by-hour basis. This schedule must be submitted by 9:00 AM on Wednesday of the week prior to the scheduled work week.

3.6 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully in compliance with Section 01 7419 "Construction Waste Management and Disposal."
 1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
 2. Do not hold materials more than seven (7) calendar days during normal weather or three (3) calendar days if the temperature is expected to rise above 80 degrees F.
 3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
 4. Do not use Owner receptacles.
 5. Recycle as outlined in Waste Management Plan in Section 01 7419.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
 1. Remove liquid spills promptly.
 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- G. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.
- H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

- J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging or otherwise deleterious exposure during the construction period.

3.7 STARTING AND ADJUSTING

- A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units and re-test.
- B. Adjust operating components for proper operation without binding. Adjust equipment for proper operation.
- C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- D. Manufacturer's Field Service: If a factory-authorized service representative is required to inspect field-assembled components and equipment installation, comply with qualification requirements in Division 01 04 00 Section "Quality Requirements."

3.8 PROTECTION OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
- B. Comply with manufacturer's written instructions for temperature and relative humidity.

3.9 CORRECTION OF THE WORK

- A. Repair or remove and replace defective construction. Restore damaged substrates and finishes. Comply with requirements in Division 01 73 29 Section "Cutting and Patching."
 - 1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials and properly adjusting operating equipment.
- B. Restore permanent facilities used during construction as well as landscapes and hardscapes to their original condition.
- C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.
- D. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.
- E. Remove and replace chipped, scratched and broken glass or reflective surfaces.

END OF SECTION 01 7300

SECTION 01 7329 CUTTING AND PATCHING

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes procedural requirements for cutting and patching.
- B. See Divisions 02 through 33 Sections for specific requirements and limitations applicable to cutting and patching individual parts of the Work. Not all Sections will be used.

1.3 QUALITY ASSURANCE

- A. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio.
- B. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety.
- C. Miscellaneous Elements: Do not cut and patch miscellaneous elements or related components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety.
- D. Visual Requirements:
 - 1. Unless indicated otherwise, patching, extending or matching shall be performed as necessary to make the Work complete, with all components matching and consistent.
 - 2. Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in Owner's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.
 - 3. Patching materials shall meet the requirements of the jurisdictional code authorities.
 - 4. All patching procedures shall be reviewed with the Owner prior to proceeding.

1.4 WARRANTY

- A. Existing Warranties: Remove, replace, patch and repair materials and surfaces cut or damaged during cutting and patching operations, by methods and with materials so as not to void existing warranties.

PART 2 PRODUCTS

2.1 MATERIALS

- A. General: Comply with requirements specified in other Sections.
- B. In-Place Materials: Use materials identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
 - 1. If identical materials are unavailable or cannot be used, use materials that, when installed, will match the visual and functional performance of in-place materials.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed.
 - 1. Compatibility: Before patching, verify compatibility with and suitability of substrates, including compatibility with in-place finishes or primers.
 - 2. Proceed with installation only after unsafe or unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Temporary Support: Provide temporary support of Work to be cut.
- B. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- C. Adjoining Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
- D. Cut, move or remove items as necessary for access to alterations and renovations work; replace and restore at completion.
- E. Contact the Owner when unsuitable materials not marked for removal - such as rotted wood, rusted metals and deteriorated concrete and masonry are discovered.
- F. Remove debris and abandoned items from area and from concealed spaces.
- G. Prepare surfaces and remove surface finishes to provide for proper installation of new work and new finishes.

3.3 PERFORMANCE

- A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time and complete without delay.

- B. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. Provide appropriate dust control while cutting through surfaces. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
 2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
 3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
 4. Excavating and Backfilling: Comply with requirements in applicable Division 31 and 33 Sections (Sections may not be used) where required by cutting and patching operations.
 5. Proceed with patching after construction operations requiring cutting are complete.
- C. Patching: Patch construction by filling, repairing, refinishing, closing up and similar operations following performance of other Work. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections.
1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.
 2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
 3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
 4. Ceilings: Patch, repair or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
 5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition.
- D. Trim existing doors as necessary to clear new floor finishes; refinish trimmed areas.
- E. Where existing items are indicated as cut or reconfigured, cap and finish all exposed edges to match the existing construction to remain. Provide new or relocated supports spaced to be consistent with the installation.
- F. Cleaning: Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty and similar materials.

END OF SECTION 01 7329

**SECTION 01 7419
CONSTRUCTION WASTE MANAGEMENT
AND DISPOSAL**

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions, Project Documents, and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for the following:
 - 1. Salvaging of non-hazardous demolition and construction waste.
 - 2. Recycling of non-hazardous demolition and construction waste.
 - 3. Disposing of non-hazardous demolition and construction waste.

1.3 DEFINITIONS

- A. Construction Waste: All non-hazardous building and site materials or other non-hazardous solid waste resulting from construction, remodeling, renovation, repair or land-clearing operations. Construction waste includes packaging and material that is recycled, reused, salvaged or disposed as garbage.
- B. Demolition Waste: All non-hazardous building and site materials or other non-hazardous solid waste resulting from demolition or selective demolition operations.
- C. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse or deposit in landfill or incinerator acceptable to authorities having jurisdiction.
- D. Recycle: Recovery of demolition or construction waste for subsequent processing for the purpose of using the material in the manufacture of a new product.
 - 1. Source-Separated Recycling: The process of separating recyclable materials in separate containers as they are generated on the job-site. The separated materials are hauled directly to a recycling facility or transfer station.
 - 2. Co-mingled Recycling: The process of collecting mixed recyclable materials in one container on-site. The container is taken to a material recovery facility where materials are separated for recycling.
- E. Re-Use: Making use of a material without altering its form. Materials can be reused on-site or reused on other project off-site. Examples include, but are not limited to the following:
 - 1. Grinding of concrete for use as sub-base material.
 - 2. Chipping of land-clearing debris for use as mulch.

- F. Salvage: Recovery of demolition or construction waste and subsequent sale or re-use in another facility.
- G. Salvage and Re-use: Recovery of demolition or construction waste and subsequent incorporation into the Work.

1.4 PERFORMANCE GOALS

- A. General: Material from demolition projects shall be recycled or reused whenever practicable (RCW 39.04.135). Contractor to develop a waste management plan that results in end-of-Project rates for salvage/recycling of fifty (50%) percent by weight of total waste generated by the Work by one or a combination of the following:
 - 1. Salvage.
 - 2. Reuse.
 - 3. Source-separated Recycling.
 - 4. Co-mingled Recycling.
- B. Salvage/Recycle Goals: Owner's goal is to salvage and recycle as much non-hazardous demolition and construction waste as possible including the following materials:
 - 1. Cardboard.
 - 2. Clean dimensional wood.
 - 3. Metals: Material banding, stud trim, ductwork, piping, rebar, roofing, other trim, steel, iron, galvanized sheet steel, stainless steel, aluminum, copper, zinc, lead, brass, and bronze.
 - 4. Gypsum board.

1.5 SUBMITTALS

- A. Waste Management Plan: Submit three (3) copies of plan within seven (7) calendar days of date established for the Notice of Proceed.
- B. Waste Reduction Progress Reports: Electronically submit, concurrent with Final Application for Payment, the report to the Owner. Include separate reports for demolition and construction waste. Include the following information:
 - 1. Material category.
 - 2. Generation point of waste.
 - 3. Destination of waste.
 - 4. Total quantity of waste in tons.
 - 5. Quantity of waste salvaged, both estimated and actual in tons.
 - 6. Quantity of waste recycled, both estimated and actual in tons.
 - 7. Total quantity of waste recovered (salvaged plus recycled) in tons.
 - 8. Total quantity of waste recovered (salvaged plus recycled) as a percentage of total waste.
- C. Waste Reduction Calculations: Before request for Substantial Completion, electronically submit a copy of calculated end-of-Project rates for salvage, recycling, and disposal as a percentage of total waste generated by the Work to the Owner.
- D. Records of Donations: Indicate receipt and acceptance of salvageable waste donated to individuals and organizations. Indicate whether organization is tax exempt.

- E. Records of Sales: Indicate receipt and acceptance of salvageable waste sold to individuals and organizations. Indicate whether organization is tax exempt.
- F. Recycling and Processing Facility Records: Indicate receipt and acceptance of recyclable waste by recycling and processing facilities licensed to accept them. Include manifests, weight tickets, receipts and invoices. If waste is taken to a facility that landfills and recycles, include facility record of recycling rate for the period of construction.
- G. Landfill and Incinerator Disposal Records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, receipts and invoices.

1.6 QUALITY ASSURANCE

- A. Regulatory Requirements: Conduct construction waste management activities in accordance with State of Washington RCW 70.95.240, Seattle Municipal Code Chapter 21.36 and all other applicable laws and ordinances.
- B. Review of the following publications and programs (request copies by calling King County Solid Waste Division at 206-477-4466)
 - 1. Construction Recycling Directory for Seattle/ King County.
 - 2. Contractors Guide: Save money and resources through job-site recycling and waste prevention.
 - 3. King County Solid Waste Division Report of Co-mingled Recycling Facilities (available at www.metrokc.gov/dnrp/swd/construction-recycling/comingled.asp)

1.7 WASTE MANAGEMENT PLAN

- A. General: Develop a plan consisting of waste identification, waste reduction work plan and cost/revenue analysis. Include separate sections in plan for demolition and construction waste. Indicate quantities by weight or volume, but use same units of measure throughout waste management plan.
- B. Waste Identification: Indicate anticipated types and quantities of demolition and construction waste generated by the Work. Include estimated quantities and assumptions for estimates.
- C. Waste Reduction Work Plan: List each type of waste and whether it will be salvaged, recycled or disposed of in landfill or incinerator. Include points of waste generation, total quantity of each type of waste, quantity for each means of recovery and handling and transportation procedures.
 - 1. Salvaged Materials for Reuse: For materials that will be salvaged and reused in this Project, describe methods for preparing salvaged materials before incorporation into the Work.
 - 2. Salvaged Materials for Sale: For materials that will be sold to individuals and organizations, include list of their names, addresses and telephone numbers.
 - 3. Salvaged Materials for Donation: For materials that will be donated to individuals and organizations, include list of their names, addresses and telephone numbers.

4. Recycled Materials: Include list of local receivers and processors and type of recycled materials each will accept. Include names, addresses and telephone numbers.
 5. Disposed Materials: Indicate how and where materials will be disposed of. Include name, address and telephone number of each landfill and incinerator facility.
 6. Handling and Transportation Procedures: Include method that will be used for separating recyclable waste including sizes of containers, container labeling and designated location on Project site where materials separation will be located.
- D. Cost/Revenue Analysis: Indicate total cost of waste disposal as if there was no waste management plan and net additional cost or net savings resulting from implementing waste management plan. Include the following:
1. Total quantity of waste.
 2. Estimated cost of disposal (cost per unit). Include hauling and tipping fees and cost of collection containers for each type of waste.
 3. Total cost of disposal (with no waste management).
 4. Savings in hauling and tipping fees that are avoided.
 5. Handling and transportation costs. Include cost of collection containers for each type of waste.
 6. Net additional cost or net savings from waste management plan.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION

3.1 PLAN IMPLEMENTATION

- A. General: Implement waste management plan as approved by Owner. Provide handling, containers, storage, signage, transportation and other items as required to implement waste management plan during the entire duration of the Contract.
- B. Waste Management Coordinator: Contractor shall be responsible for implementing, monitoring, and reporting status of waste management work plan.
- C. Training: Train workers, subcontractors and suppliers on proper waste management procedures, as appropriate for the Work occurring at Project site.
 1. Distribute waste management plan to everyone concerned within one (1) day of submittal return. A hard copy should remain on site. Send the plan electronically to the Owner.
 2. Distribute waste management plan to entities when they first begin work on-site. Review plan procedures and locations established for salvage, recycling and disposal.
 3. The General Contractor will ensure that the waste plan is communicated to the crews and subcontractors on site. They will be informed of:
 - a. How materials should be separated, and why.
 - b. Where materials should go.
 - c. How often the materials will be collected and delivered to the appropriate facilities.
 - d. The importance of recycling, and KCHA's recycling goals for the project.

- D. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways and other adjacent occupied and used facilities.
 - 1. Designate and label specific areas on Project site necessary for separating materials that are to be salvaged, recycled, reused, donated and sold.
 - 2. Comply with Division 01 50 00 Section "Temporary Facilities and Controls" for controlling dust and dirt, environmental protection and noise control.
 - 3. Clearly label the recycling bins and waste containers on site.
 - 4. Post lists of recyclable and non-recyclable materials in many locations, in different languages.
 - 5. The General Contractor will provide feedback to the crew and subcontractors on the results of their efforts

- E. To the greatest extent possible, include in material purchasing agreements a waste reduction provision requesting that materials and equipment be delivered in packaging made of recyclable material, that they reduce the amount of packaging, that packaging be taken back for reuse or recycling, and to take back all unused product. Ensure that subcontractors require the same provisions in their purchase agreements.

3.2 SALVAGING DEMOLITION WASTE

- A. Salvaged Items for Reuse in the Work:
 - 1. Clean salvaged items.
 - 2. Pack or crate items after cleaning. Identify contents of containers.
 - 3. Store items in a secure area until installation.
 - 4. Protect items from damage during transport and storage.
 - 5. Install salvaged items to comply with installation requirements for new materials and equipment. Provide connections, supports and miscellaneous materials necessary to make items functional for use indicated.

- B. Salvaged Items for Sale and Donation: Not permitted on Project site.

- C. Salvaged Items for Owner's Use:
 - 1. Clean salvaged items.
 - 2. Pack or crate items after cleaning. Identify contents of containers.
 - 3. Store items in a secure area until delivery to Owner.
 - 4. Transport items to Owner's designated off-site storage area.
 - 5. Protect items from damage during transport and storage.

3.3 RECYCLING DEMOLITION AND CONSTRUCTION WASTE, GENERAL

- A. General: Recycle paper and beverage containers used by on-site workers.

- B. Recycling Receivers and Processors: The list below is provided for information only; available recycling receivers and processors include, but are not limited to, the following:
 - 1. Washington State Department of Ecology, Recycling, Northwest Region 425-649-7000.
 - 2. Industrial Materials Exchange (IMEX), Hazardous Waste Management Program, King County, Washington.

3. The “Recycling Plus Program Manual” published by the Washington State Clean Washington Center can be used to develop a job site reduction program. The manual includes a job-site recycling worksheet and form, tips on waste reduction, and other technical assistance. The manual also includes sample language for waste reduction requirements for subcontractors’ agreements, as well as sample provision for a full-service recycling agreement.
 4. LEED Reference Guide, Construction Waste Management section.
 5. Recovery 1 is a resource recovery, recycling and research facility dedicated to developing sustainable waste management systems. www.recovery1.com or by phone at 800-949-5852.
 6. Total Reclaim offers a wide variety of innovative environmental services for management of electronics and other hard to handle materials, including fluorescent lamps, refrigerant gases and appliances. www.totalreclaim.com or by phone 206-343-7443.
 7. “Contractors’ Guide for Preventing Waste and Recycling”
<https://kingcounty.gov/~media/depts/dnrp/solid-waste/construction-recycling/documents/ConGuide.ashx?la=en>
 8. “Seattle/King County Construction Recycling Directory.”
<https://kingcounty.gov/depts/dnrp/solid-waste/programs/green-building/county-green-building.aspx>
- C. Recycling Incentives: Revenues, savings, rebates, tax credits and other incentives received for recycling waste materials shall accrue to Owner.
- D. Procedures: Separate recyclable waste from other waste materials, trash and debris. Separate recyclable waste by type at Project site to the maximum extent practical.
1. Provide appropriately marked containers or bins for controlling recyclable waste until they are removed from Project site. Include list of acceptable and unacceptable materials at each container and bin.
 - a. Inspect containers and bins for contamination and remove contaminated materials if found.
 2. Stockpile processed materials on-site without intermixing with other materials. Place, grade and shape stockpiles to drain surface water. Cover to prevent windblown dust.
 3. Stockpile materials away from construction area. Do not store within drip line of remaining trees.
 4. Store components off the ground and protect from the weather.
 5. Remove recyclable waste off Owner's property and transport to recycling receiver or processor.

3.4 RECYCLING DEMOLITION WASTE

- A. Wood Materials: Sort and stack members according to size, type and length. Separate lumber, engineered wood products, panel products and treated wood materials.
- B. Metals: Separate metals by type.
1. Structural Steel: Stack members according to size, type of member and length.
 2. Remove and dispose of bolts, nuts, washers and other rough hardware.
- C. Gypsum Board: Stack large clean pieces on wood pallets and store in a dry location. Remove edge trim and sort with other metals. Remove and dispose of fasteners.

- D. Equipment: Drain tanks, piping, and fixtures. Seal openings with caps or plugs. Protect equipment from exposure to weather.
- E. Plumbing Fixtures: Separate by type and size.
- F. Piping: Reduce piping to straight lengths and store by type and size. Separate supports, hangers, valves, sprinklers and other components by type and size.
- G. Lighting Fixtures: Separate lamps by type and protect from breakage.
- H. Electrical Devices: Separate switches, receptacles, switchgear, transformers, meters, panelboards, circuit breakers and other devices by type.
- I. Conduit: Reduce conduit to straight lengths and store by type and size.

3.5 RECYCLING CONSTRUCTION WASTE

- A. Packaging:
 - 1. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.
 - 2. Polystyrene Packaging: Separate and bag materials.
 - 3. Pallets: As much as possible, require deliveries using pallets to remove pallets from Project site. For pallets that remain on-site, break down pallets into component wood pieces and comply with requirements for recycling wood.
 - 4. Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.
- B. Wood Materials:
 - 1. Clean Cut-Offs of Lumber: Grind or chip into small pieces.
 - 2. Clean Sawdust: Bag sawdust that does not contain painted or treated wood.
- C. Gypsum Board: Stack large clean pieces on wood pallets and store in a dry location.
 - 1. Clean Gypsum Board: Grind scraps of clean gypsum board using small mobile chipper or hammer mill. Screen out paper after grinding.

3.6 DISPOSAL OF WASTE

- A. General: Except for items or materials to be salvaged, recycled or otherwise reused, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.
 - 1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
 - 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- B. Burning: Do not burn waste materials.
- C. Disposal: Transport waste materials off Owner's property and legally dispose of them.

END OF SECTION 01 7419

KING COUNTY HOUSING AUTHORITY
BURNDALE HOMES OFFICE TI & ENVELOPE
Waste Disposal and Recycling Data Form



The resource conservation program at KCHA tracks the disposal and recycling data for all KCHA activities. These includes all of the waste and recycling generated by residents, food composting, yard waste composting, unit-improvement waste, illegal dumping waste, and all waste created during the construction and demolition process. Our goals for all of these areas are:

1. Track the diversion of our waste and improve when possible
2. Meet KCHA recycling goals.

Please provide estimates, to the best of your ability, about the projected waste being generated on this project as well as how much of that waste is being recycled vs disposed. If estimates aren't possible, then we will need this information at project close-out.

Project Name: Burndale Homes Office TI & Envelope

Project Address: 930 18th Place NE, Auburn, WA 98002

Work Order No.: 1338 **Job No.:** 504.11

DESCRIPTION	WEIGHT	QUANTITY (Circle One)		
		Lbs.	CY	Tons
Total Waste Generated**				
Waste Disposed				
Waste Recycled				
**Waste Disposed plus Waste Recycled should equal Total Waste Generated				
What % of the total waste do you estimate you will recycle?				

The following tables identify materials expected on this project, the quantities generated, whether they will be disposed or recycled, and what facility they will be disposed or recycled at.

DEMOLITION PHASE				
MATERIAL	QUANTITY Lbs./CY/Tons	DISPOSAL / RECYCLE? (CIRCLE ONE)		DISPOSAL OR RECYCLING FACILITY
		Disposal	Recycle	
		Disposal	Recycle	
		Disposal	Recycle	
		Disposal	Recycle	
		Disposal	Recycle	
		Disposal	Recycle	

Example: Roofing, 3 tons, Recycle, DTG Recycle

CONSTRUCTION PHASE				
MATERIAL	QUANTITY Lbs./CY/Tons	DISPOSAL / RECYCLE? (CIRCLE ONE)		DISPOSAL OR RECYCLING FACILITY
		Disposal	Recycle	
		Disposal	Recycle	
		Disposal	Recycle	
		Disposal	Recycle	
		Disposal	Recycle	
		Disposal	Recycle	

Example: Misc. Con. Mat., 30 cy, Recycle, Waste Management

**SECTION 01 7700
CLOSEOUT PROCEDURES**

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
1. Inspection procedures.
 2. Warranties.
 3. Final cleaning.
- B. See the Owner-Contractor Contract for requirements for Applications for Payment for Substantial and Final Completion.
- C. See Division 01 7839 Section "Project Record Documents" for submitting Record Drawings, Record Specifications and Record Product Data.
- D. See Division 01 7823 Section "Operation and Maintenance Data" for operation and maintenance manual requirements.
- E. See Divisions 02 through 33 Sections for specific closeout and special cleaning requirements for the Work in those Sections. Not all Sections will be used.

1.3 SUBSTANTIAL COMPLETION (Refer to Article 9.8 AIA A201-2017)

- A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.
1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
 2. Advise Owner of pending insurance changeover requirements.
 3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications and similar documents (to be included in O&M Manuals).
 4. Obtain and submit to Owner, the releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
 5. Prepare and submit Project Record Documents, operation and maintenance manuals, damage or settlement surveys, property surveys and similar final record information to the Owner.
 6. Deliver tools, spare parts, extra materials and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
 7. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.

8. Complete startup testing of systems.
 9. Submit test/adjust/balance records to the Owner.
 10. Terminate and remove temporary facilities from Project site, along with mockups, construction tools and similar elements.
 11. Advise Owner of changeover in heat and other utilities.
 12. Submit changeover information related to Owner's occupancy, use, operation and maintenance.
 13. Complete final cleaning requirements, including touchup painting.
 14. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
 15. Provide training on all newly installed systems by qualified personnel. Training will be presented to those that use the equipment, i.e. tenants site staff, facility users.
- B. Inspection: Submit a written request for inspection for Substantial Completion to the Owner. On receipt of request, Owner will either proceed with inspection or notify Contractor of unfulfilled requirements. Owner will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Owner, that must be completed or corrected before certificate will be issued.
1. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.
 2. Results of completed inspection will form the basis of requirements for Final Completion.

1.4 CONTRACT COMPLETION (Refer to Article 9.10 in AIA A201-2017)

- A. Preliminary Procedures: Before requesting final inspection for determining date of Contract Completion, complete the following:
1. Submit a final Application for Payment according to the Owner-Contractor Contract provisions to the Owner.
 2. Submit to the Owner, a certified copy of Owner's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Owner. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
 3. Submit evidence of final, continuing insurance coverage complying with insurance requirements to the Owner.
 4. Instruct Owner's personnel in operation, adjustment and maintenance of products, equipment and systems.
- B. Inspection: Submit a written request for final inspection for acceptance to the Owner. On receipt of request, Owner will either proceed with inspection or notify Contractor of unfulfilled requirements. Owner will notify Contractor of construction that must be completed or corrected before certificate will be issued.
1. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.5 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

- A. Preparation: After Contractor has performed own Quality Control of the Work, Contractor will notify and schedule punch list inspection with Owner and other team

members. Owner will document items needing correction on Owner provided form listing area inspected and deficient item needing correction. Owner will provide Contractor with copy of punch list after inspection is completed. Owner has right to stop inspection due to quantity of repetitious items identified by Owner, or if Contractor has not performed own Quality Control of the Work

1. Organize list of spaces in sequential order.
2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment and building systems.

1.6 WARRANTIES (Refer to Article 3.5 in AIA A201-2017)

- A. Submittal Time: Submit written warranties on request of Owner for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.
- B. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.
 1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
 2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address and telephone number of Installer.
 3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name and name of Contractor.
- C. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 EXECUTION

3.1 FINAL CLEANING

- A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and anti-pollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.

1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:
 - a. Clean Project site, yard and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter and other foreign substances.
 - b. Sweep paved areas broom clean. Remove petrochemical spills, stains and other foreign deposits.
 - c. Remove tools, construction equipment, machinery and surplus material from Project site.
 - d. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
 - e. Sweep concrete floors broom clean in unoccupied spaces.
 - f. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.
 - g. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
 - h. Remove labels that are not permanent.
 - i. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
 - 1) Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.
 - j. Wipe surfaces of mechanical and electrical equipment and similar equipment. Remove excess lubrication, paint and mortar droppings and other foreign substances.
 - k. Replace parts subject to unusual operating conditions.
 - l. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
 - m. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers and grills.
 - n. Clean light fixtures, lamps, globes and reflectors to function with full efficiency. Replace burned-out bulbs and those noticeably dimmed by hours of use, and defective or noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.
 - o. Leave Project clean and ready for occupancy.
- C. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

END OF SECTION 01 7700

SECTION 01 7823
OPERATION AND MAINTENANCE DATA

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:
1. Operation manuals for systems, subsystems, and equipment Maintenance manuals for the care and maintenance of products, materials, finishes, systems, and equipment.
- B. See Divisions 02 through 33 Sections for specific operation and maintenance manual requirements for the Work in those Sections. Every Division may not be used.

1.3 SUBMITTALS

- A. Manual: Submit one (1) electronic copy of each manual in final form at least fifteen (15) calendar days before final inspection. Owner will return copy with comments within fifteen (15) calendar days after final inspection.
1. Correct or modify each manual to comply with Owner's comments. Submit two (2) hard copies and one (1) electronic copy on Compact Disk of each corrected manual within fifteen (15) calendar days of receipt of Owner's comments.

PART 2 - PRODUCTS

2.1 MANUALS- GENERAL

- A. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain a title page, table of contents and manual contents.
- B. Title Page: Enclose title page in transparent plastic sleeve. Include the following information:
1. Subject matter included in manual.
 2. Name and address of Project.
 3. Name and address of Owner.
 4. Date of submittal.
 5. Name, address and telephone number of Contractor.
 6. Name and address of Architect.
 7. Cross-reference to related systems in other operation and maintenance manuals.

- C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.
- D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem and equipment. If possible, assemble instructions for subsystems, equipment and components of one (1) system into a single binder.
 - 1. Binders: Heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.
 - a. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents. Indicate volume number for multiple-volume sets.
 - 2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
 - 3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software diskettes for computerized electronic equipment.
 - 4. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.
 - a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
 - b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents and drawing locations.

2.2 OPERATION MANUALS

- A. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and equipment descriptions, operating standards, operating procedures, operating logs, wiring and control diagrams, and license requirements.
- B. Descriptions: Include the following:
 - 1. Product name and model number.
 - 2. Manufacturer's name.
 - 3. Equipment identification with serial number of each component.
 - 4. Equipment function.
 - 5. Operating characteristics.
 - 6. Limiting conditions.
 - 7. Performance curves.
 - 8. Engineering data and tests.
 - 9. Complete nomenclature and number of replacement parts.
- C. Operating Procedures: Include start-up, break-in and control procedures; stopping and normal shutdown instructions; routine, normal, seasonal and weekend operating instructions; and required sequences for electric or electronic systems.

- D. Systems and Equipment Controls: Describe the sequence of operation and diagram controls as installed.
- E. Piped Systems: Diagram piping as installed and identify color-coding where required for identification.

2.3 PRODUCT MAINTENANCE MANUAL

- A. Content: Organize manual into a separate section for each product, material and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.
- B. Source Information: List each product included in manual; identify by product name and arrange to match manual's table of contents. For each product, list name, address and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.
- C. Product Information: Include the following, as applicable:
 - 1. Product name and model number.
 - 2. Manufacturer's name.
 - 3. Color, pattern and texture.
 - 4. Material and chemical composition.
 - 5. Re-ordering information for specially manufactured products.
- D. Maintenance Procedures: Include manufacturer's written recommendations and inspection procedures, types of cleaning agents, methods of cleaning, schedule for cleaning and maintenance, and repair instructions.
- E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.
- F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

2.4 SYSTEMS AND EQUIPMENT MAINTENANCE MANUAL

- A. Content: For each system, subsystem and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.
- B. Source Information: List each system, subsystem, and piece of equipment included in manual; identify by product name and arrange to match manual's table of contents. For each product, list name, address and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.
- C. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including maintenance instructions, drawings and diagrams for maintenance, nomenclature of parts and components, and recommended spare parts for each component part or piece of equipment.

- D. Maintenance Procedures: Include test and inspection instructions, troubleshooting guide, disassembly instructions, and adjusting instructions that detail essential maintenance procedures.
- E. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.
- F. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.
- G. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.
- H. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

PART 3 EXECUTION

3.1 MANUAL PREPARATION

- A. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material and finish incorporated into the Work.
- B. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem and piece of equipment not part of a system.
- C. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data includes more than one (1) item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.
- D. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in Record Drawings to ensure correct illustration of completed installation.
 - 1. Do not use original Project Record Documents as part of operation and maintenance manuals.
- E. Comply with Division 01 7700 Section "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

END OF SECTION 01 7823

SECTION 01 7839
PROJECT RECORD DOCUMENTS

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for Project Record Documents, including the following:
 - 1. Record Drawings.
 - 2. Record Specifications.
 - 3. Record Product Data.
- B. See Division 01 7823 Section "Operation and Maintenance Data" for operation and maintenance manual requirements.
- C. See Divisions 02 through 33 Sections for specific requirements for Project Record Documents of the Work in those Sections. Every Division may not be used.

1.3 CLOSEOUT SUBMITTALS

- A. Record Drawings: Submit to Owner PDF **and CAD** files of scanned record prints and three (3) sets of prints.
- B. Record Specifications: Submit annotated PDF electronic files of Project's Specifications, including addenda and contract modifications to the Owner.
- C. Record Product Data: Submit to the Owner, annotated PDF electronic files and directories of each submittal.
 - 1. Where record Product Data are required as part of operation and maintenance manuals, submit duplicate marked-up Product Data as a component of manual.
- D. Miscellaneous Record Submittals: See other Specification Sections for miscellaneous recordkeeping requirements and submittals in connection with various construction activities.
- E. Submit annotated PDF electronic files and directories of each submittal.

PART 2 PRODUCTS

2.1 RECORD DRAWINGS

- A. Record Prints: Maintain one (1) set of black-line white prints of the Contract Drawings and Shop Drawings.

1. Preparation: Mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor or similar entity, to prepare the marked-up Record Prints.
 - a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
 - b. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
 2. Mark the Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. If Shop Drawings are marked, show cross-reference on the Contract Drawings.
 3. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
 4. Note Field Authorization numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.
- B. Format: Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
1. Record Prints: Organize Record Prints and newly prepared Record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
 2. Identification: As follows:
 - a. Project name.
 - b. Date.
 - c. Designation "PROJECT RECORD DRAWINGS."
 - d. Name of Architect.
 - e. Name of Contractor.

2.2 RECORD SPECIFICATIONS

- A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda and contract modifications.
1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
 3. Record the name of manufacturer, supplier, Installer and other information necessary to provide a record of selections made.
 4. Note related Change Orders, Record Product Data and Record Drawings where applicable.

2.3 RECORD PRODUCT DATA

- A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.
1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.

3. Note related Change Orders, Record Specifications and Record Drawings where applicable.

2.4 MISCELLANEOUS RECORD SUBMITTALS

- A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

PART 3 EXECUTION

3.1 RECORDING AND MAINTENANCE

- A. Recording: Maintain one (1) copy of each submittal during the construction period for Project Record Document purposes. Post changes and modifications to Project Record Documents as they occur; do not wait until the end of Project.
- B. Maintenance of Record Documents and Samples: Store Record Documents and Samples in the field office apart from the Contract Documents used for construction. Do not use Project Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to Project Record Documents for Owner's reference during normal working hours.

END OF SECTION 01 7839

G703 - Continuation Sheet

APPLICATION NO:

06 FINAL

APPLICATION DATE:

04.19.21

PERIOD FROM:

04.01.21

PERIOD TO:

04.19.21

SITE NAME - PROJECT NAME; Contract No. CCxxxxx65

A ITEM NO.	B DESCRIPTION OF WORK	C SCHEDULED VALUE	D WORK COMPLETED		F MATERIALS PRESENTLY STORED (NOT IN D OR E)	G TOTAL COMPLETED & STORED TO DATE (D + E + F)		H BALANCE TO FINISH (C - G)	I RETAINAGE (AGGREGATE TO DATE)
			FROM PREVIOUS APPLICATION(S) (G)	THIS PERIOD		% (G ÷ C)			
	Allowance & Contingencies	29,000.00	18,851.74	10,148.26	0.00	29,000.00	100.00%	0.00	1,450.00
	Close out	13,523.33	6,761.00	6,762.33	0.00	13,523.33	100.00%	0.00	676.17
	Bond & Insurance	24,050.00	24,050.00	0.00	0.00	24,050.00	100.00%	0.00	1,202.50
	Mobilization	17,500.00	17,500.00	0.00	0.00	17,500.00	100.00%	0.00	875.00
	Demo Siding and Windows	30,000.00	30,000.00	0.00	0.00	30,000.00	100.00%	0.00	1,500.00
	Frame & GWB F/P, Door, Storage	19,000.00	19,000.00	0.00	0.00	19,000.00	100.00%	0.00	950.00
	Deck Coatings	15,500.00	15,500.00	0.00	0.00	15,500.00	100.00%	0.00	775.00
	Deck Railings	23,500.00	21,150.00	2,350.00	0.00	23,500.00	100.00%	0.00	1,175.00
	Roofing incl Ladders and Hatches	57,300.00	28,650.00	28,650.00	0.00	57,300.00	100.00%	0.00	2,865.00
	Roof Framing/Backing/Blocking	11,600.00	10,600.00	1,000.00	0.00	11,600.00	100.00%	0.00	580.00
	Siding and Flashing Materials	43,000.00	43,000.00	0.00	0.00	43,000.00	100.00%	0.00	2,150.00
	Siding Labor	47,000.00	45,000.00	2,000.00	0.00	47,000.00	100.00%	0.00	2,350.00
	Window Materials	16,000.00	16,000.00	0.00	0.00	16,000.00	100.00%	0.00	800.00
	Window Labor	15,000.00	15,000.00	0.00	0.00	15,000.00	100.00%	0.00	750.00
	Patio Door Materials	9,600.00	9,600.00	0.00	0.00	9,600.00	100.00%	0.00	480.00
	Patio Door Labor	9,800.00	9,800.00	0.00	0.00	9,800.00	100.00%	0.00	490.00
	Exterior Doors & Hardware Materials	13,500.00	13,500.00	0.00	0.00	13,500.00	100.00%	0.00	675.00
	Exterior Door Labor	10,625.00	10,625.00	0.00	0.00	10,625.00	100.00%	0.00	531.25
	Door Hardware Materials	2,200.00	2,200.00	0.00	0.00	2,200.00	100.00%	0.00	110.00
	Gutters	4,200.00	0.00	4,200.00	0.00	4,200.00	100.00%	0.00	210.00
	Flameblock Labor	15,000.00	15,000.00	0.00	0.00	15,000.00	100.00%	0.00	750.00
	Flameblock Materials	14,000.00	14,000.00	0.00	0.00	14,000.00	100.00%	0.00	700.00
	Blinds	8,500.00	8,500.00	0.00	0.00	8,500.00	100.00%	0.00	425.00
	Electrical & Lighting Fixtures	12,800.00	12,800.00	0.00	0.00	12,800.00	100.00%	0.00	640.00
	Exterior Painting	18,000.00	17,000.00	1,000.00	0.00	18,000.00	100.00%	0.00	900.00
	Indirect Costs/Overhead/Profit	103,569.63	90,210.00	13,359.63	0.00	103,569.63	100.00%	0.00	5,178.48
	CO 1 - Contingency	(8,218.97)	0.00	(8,218.97)	0.00	(8,218.97)	100.00%	0.00	(410.95)
	TOTALS	575,548.99	514,297.74	61,251.25	0.00	575,548.99	100.00%	0.00	28,777.45
	5% RETAINAGE	28,777.45	25,714.89	3,062.56	0.00	28,777.45			
	TOTALS LESS RETAINAGE	546,771.54	488,582.85	58,188.69	0.00	546,771.54		0.00	28,777.45
	TOTAL BALANCE TO FINISH (H + I)								28,777.45
	NET CHANGE ORDERS THIS PERIOD:	(8,218.97)	CHANGE ORDERS APPROVED THIS PERIOD (LIST C/O #s)			1			
	NET C/O ADDITIONS (THIS PERIOD):	0.00	NET C/O DEDUCTIONS (THIS PERIOD):			(8,218.97)			
	TOTAL CHANGE ORDERS TO DATE:	(8,218.97)							

Form G702

V - 105694

Application and Certificate for Payment

TO OWNER:	King County Housing Authority Attn: Capital Construction Dept. 700 Andover Park W. Suite C Tukwila, WA 98188	PROJECT NAME / SCOPE OF WORK:	SITE NAME PROJECT NAME	APPLICATION NO: 06 FINAL	Distribution to:
FROM CONTRACTOR:	CONTRACTOR NAME CONTRACTOR ADDRESS CITY, STATE, ZIP	VIA ARCHITECT:	ARC 119 S. MAIN ST. SUITE 200 SEATTLE, WA 98104-2579	PERIOD TO: 04.19.21 CONTRACT NO: CCxxxxx65 CONTRACT DATE: 11/16/2020 NTP DATE: 11/16/2020 PROJECT NO: 215.1B WORK ORDER NO: 1243	OWNER: <input checked="" type="checkbox"/> ARCHITECT: <input type="checkbox"/> CONTRACTOR: <input type="checkbox"/> FIELD: <input type="checkbox"/>

CONTRACTOR'S APPLICATION FOR PAYMENT

Application is made for payment, as shown below, in connection with the Contract. Continuation Sheet, Form G703, is attached.

1. ORIGINAL CONTRACT SUM.....	\$583,767.96
2. NET CHANGE BY CHANGE ORDERS.....	(\$8,218.97)
3. CONTRACT SUM TO DATE (Line 1 +/- 2).....	\$575,548.99
4. TOTAL COMPLETED & STORED TO DATE (Column G on G703).....	\$575,548.99
5. RETAINAGE:	
a. <u>5</u> % of Completed Work (Column D + E on G703: \$575,548.99)=	\$28,777.45
b. <u>5</u> % of Stored Material (Column F on G703: \$0.00)=	\$0.00
Total Retainage (Lines 5a + 5b or Total in Column I of G703).....	\$28,777.45
6. TOTAL EARNED LESS RETAINAGE..... (Line 4 Less Line 5 Total)	\$546,771.54
7. LESS PREVIOUS CERTIFICATES FOR PAYMENT..... (Line 6 from prior Certificate)	\$488,582.85
8. CURRENT PAYMENT DUE.....	\$58,188.69
9. BALANCE TO FINISH, INCLUDING RETAINAGE (Line 3 Less Line 6)	\$28,777.45

The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner, and that current payment shown herein is now due.

CONTRACTOR:
By: _____ Date: _____
State of: _____
County of: _____
Subscribed and sworn to before
me this _____ day of _____
Notary Public: _____
My Commission expires: _____

OWNER'S REPRESENTATIVE CERTIFICATE FOR PAYMENT

In accordance with the Contract Documents, based on on-site observations and the data comprising this application, the Owner's Representative certifies to the Owner that to the best of the Representative's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contract is entitled to payment of the AMOUNT CERTIFIED.

AMOUNT CERTIFIED..... \$58,188.69

(Attach explanation if amount certified differs from the amount applied. Initial all figures on this Application and on the Continuation Sheet that are changed to conform with the amount certified.)

OWNER'S REPRESENTATIVE:
By: _____ Date: _____

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herein. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner or Contractor under this Contract.

CHANGE ORDER SUMMARY	ADDITIONS	DEDUCTIONS
Total changes approved in previous months by Owner	\$0.00	\$0.00
Total approved this month. (CO numbers listed below)	\$0.00	(\$8,218.97)
#s: 1 TOTALS	\$0.00	(\$8,218.97)
NET CHANGES by Change Order		(\$8,218.97)



GENERAL CONTRACTOR CERTIFICATION UPON APPLICATION FOR PAYMENT

Table with 4 columns: Field Name, Value, Unit, Amount. Includes fields for Owner (King County Housing Authority), Pay Request Number (06), Contract Name, Site Name, Project Name, Project Name, Date, Period From, Through, Contract Number, and a list of 5 contract amount items totaling 58,188.69.

By submitting the accompanying Application for Payment, the Contractor certifies, agrees and warrants to the Owner as follows:

- 1. The Contractor has made full payment to all laborers, subcontractors and suppliers of material and equipment whose charges were included in any prior Application for Payment, subject only to (a) retainage at the contract rate, and (b) the matters set forth below or on an attachment hereto.
2. The Contractor knows of no one making a claim for payment other than those included in the current Application for Payment, who will be paid when the current Application for Payment is paid by Owner, except as noted below or on an attachment hereto.
3. In consideration of payments made by Owner, the Contractor hereby waives and releases any and all claims and demands against Owner and the Project for all periods up to and including the period covered by this Application for Payment, subject only to (a) receipt of payment of the current Application, (b) applicable retainage, and (c) the matters set forth below or on an attachment hereto.

EXCEPTION(S) - DESCRIPTION: AMOUNT:

GENERAL CONTRACTOR NAME: CONTRACTOR NAME

BY AUTHORIZED SIGNER: PRINT NAME TITLE DATE

State of Washington
County of King

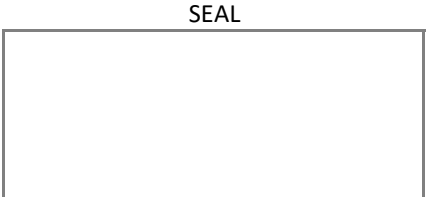
I certify that I know or have satisfactory evidence that _____ is the person who appeared before me, and said person acknowledged that (he/she) signed this instrument and acknowledged it to be (his/her) free and voluntary act for the uses and purposes mentioned in the instrument.

Signed before me on this _____ Day of _____

Notary Public in and for the State of Washington

Residing at: _____

My Commission Expires: _____



SUBSTITUTION REQUEST

Project: _____ Sub. Request #: _____
From: _____
To: _____ Date: _____
A/E Project #: _____
Re: _____ Contract For: _____

Specification Title: _____ Description: _____
Section: _____ Page: _____ Article / Paragraph: _____

Proposed
Substitution: _____
Manufacturer: _____
Address: _____ Phone: _____
Trade Name: _____ Model No.: _____
Installer: _____
Address: _____ Phone: _____
History: New Product 2 - 5 years old 5 - 10 years old More than 10 years old

Differences between proposed substitution and specified product: _____

 Point-by-point comparative data attached - REQUIRED BY A/E

Reason for not providing specified item: _____

Similar Installation:
Project: _____ Architect: _____
Address: _____ Owner: _____
Data Installed: _____

Proposed substitution affects other parts of Work: No Yes; Explain: _____

Savings to Owner for accepting substitution: _____ (\$ _____).

Proposed substitution changes Contract Time: No Yes (If Yes): Add Deduct _____ days.

*If Contract time is to be extended, a Change Order must be prepared.

Supporting Data Attached: Drawings Product Data Samples Tests Reports _____

SUBSTITUTION REQUEST

The Undersigned certifies:

- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Cost data as stated above is complete. Claims for additional costs related to accepted substitution which may subsequently become apparent are to be waived.
- Proposed substitution does not affect dimensions and functional clearances.
- Payment will be made for changes to building design, included A/E design, and construction costs caused by the substitution.
- Coordination, installation, and changes in the Work as necessary for accepted substitution will be complete in all respects.

Submitted by: _____

Signed by: _____

Firm: _____

Address: _____

Telephone: _____

Attachments: _____

A/E's Review and Action:

- Substitution approved - Make submittals in accordance with Specification Section
- Substitution approved as noted - Make submittals in accordance with Specification Section
- Substitution rejected - Use specified materials.
- Substitution Request received too late - Use specified materials.

Signed by: _____ Date: _____

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Selective demolition of building elements for alteration purposes as indicated on drawings including:
 - 1. Remove existing interior wall and ceiling assemblies, including mechanical, electrical, and AV installed within walls and above ceilings as indicated,
 - 2. Remove existing interior doors, frames, hardware, and trim,
 - 3. Remove existing flooring
 - 4. Remove existing casework,
 - 5. Remove existing exterior siding and trim,
 - 6. Remove existing soffits,
 - 7. Remove existing through wall vent hoods and crawlspace vent covers,
 - 8. Remove existing exterior doors, door frames, door hardware, exterior trim and interior trim,
 - 9. Remove existing windows, exterior trim, and window coverings,
 - 10. Remove existing building and unit numbers,
 - 11. Remove existing hose bibb fixtures,
 - 12. Remove existing composite roofing and felt underlayment,
 - 13. Remove existing damaged roof sheathing,
 - 14. Remove existing fascia and barge boards,
 - 15. Remove existing gutters and downspouts,
 - 16. Remove existing roof ridge vents and ridge vent structures,
 - 17. Remove existing roof vent caps,
 - 18. Remove existing roof plumbing vent flashings and boots,
 - 19. Remove existing roof fall protection system,
 - 20. Remove existing walk-in cooler and associated mechanical equipment
 - 21. Remove existing mechanical system,
 - 22. Remove existing plumbing fixtures,
 - 23. Remove existing light fixtures,
 - 24. Salvage existing fire extinguishers and cabinets for reinstallation,
 - 25. Salvage existing pipe fittings for reinstallation,
 - 26. Salvage existing exterior electrical junction boxes, outlets, and conduit for reinstallation,
 - 27. Salvage existing exterior signage for reinstallation,
- B. Abandonment and removal of existing utilities and utility structures.
- C. Protect existing building and site elements to remain during demolition activities and while new work is being installed

1.02 DEFINITIONS

- A. Demolition: Dismantle, raze, destroy or wreck any building or structure or any part thereof.
- B. Remove: Detach or dismantle items from existing construction and dispose of them off site, unless items are indicated to be salvaged or reinstalled.
- C. Remove and Salvage: Detach or dismantle items from existing construction in a manner to prevent damage. Clean, package, label and deliver salvaged items to Owner in ready-for-reuse condition.
- D. Remove and Reinstall: Detach or dismantle items from existing construction in a manner to prevent damage. Clean and prepare for reuse and reinstall where indicated.
- E. Existing to Remain: Designation for existing items that are not to be removed and that are not otherwise indicated to be salvaged or reinstalled.

1.03 REFERENCE STANDARDS

- A. 29 CFR 1926 - Safety and Health Regulations for Construction Current Edition.
- B. NFPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations 2022, with Errata (2021).

1.04 SUBMITTALS

- A. Site Plan: Indicate:
 - 1. Vegetation to be protected.
 - 2. Areas for temporary construction and field offices.
- B. Demolition Plan: Submit demolition plan as required by OSHA and local AHJs.
 - 1. Indicate extent of demolition, removal sequencing, bracing and shoring, and location and construction of barricades and fences.
 - 2. Summary of safety procedures.
- C. Project Record Documents: Accurately record actual locations of capped and active utilities and subsurface construction.

PART 2 PRODUCTS -- NOT USED

PART 3 EXECUTION

3.01 DEMOLITION

- A. Remove other items indicated, for salvage, relocation, and recycling.
- B. Fill excavations, open pits, and holes in ground areas generated as result of removals, using specified fill; compact fill as required so that required rough grade elevations do not subside within one year after completion.

3.02 GENERAL PROCEDURES AND PROJECT CONDITIONS

- A. Owner assumes no responsibility for condition of structures or portion of structures to be demolished.
- B. Comply with applicable codes and regulations for demolition operations and safety of adjacent structures and the public.
 - 1. Obtain required permits.
 - 2. Comply with applicable requirements of NFPA 241.
 - 3. Take precautions to prevent catastrophic or uncontrolled collapse of structures to be removed; do not allow worker or public access within range of potential collapse of unstable structures.
 - 4. Provide, erect, and maintain temporary barriers and security devices.
 - 5. Use physical barriers to prevent access to areas that could be hazardous to workers or the public.
 - 6. Conduct operations to minimize effects on and interference with adjacent structures and occupants.
 - 7. Do not close or obstruct roadways or sidewalks without permits from authority having jurisdiction.
 - 8. Conduct operations to minimize obstruction of public and private entrances and exits. Do not obstruct required exits at any time. Protect persons using entrances and exits from removal operations.
 - 9. Obtain written permission from owners of adjacent properties when demolition equipment will traverse, infringe upon, or limit access to their property.
- C. Do not begin removal until receipt of notification to proceed from Owner.
- D. Protect existing structures and other elements to remain in place and not removed.
 - 1. Provide bracing and shoring.
 - 2. Prevent movement or settlement of adjacent structures.
 - 3. Stop work immediately if adjacent structures appear to be in danger.
- E. Minimize production of dust due to demolition operations. Do not use water if that will result in ice, flooding, sedimentation of public waterways or storm sewers, or other pollution.
- F. Hazardous Materials:
 - 1. If hazardous materials are discovered during removal operations, stop work and notify the Owner; hazardous materials include regulated asbestos containing materials, lead, PCBs, and mercury.
- G. Perform demolition in a manner that maximizes salvage and recycling of materials.
 - 1. Dismantle existing construction and separate materials.

2. Set aside reusable, recyclable, and salvageable materials; store and deliver to collection point or point of reuse.

3.03 EXISTING UTILITIES

- A. Coordinate work with utility companies. Notify utilities before starting work, comply with their requirements, and obtain required permits.
- B. Protect existing utilities to remain from damage.
- C. Do not disrupt public utilities without permit from authority having jurisdiction.
- D. Do not close, shut off, or disrupt existing life safety systems that are in use without at least 7 days prior written notification to Owner.
- E. Do not close, shut off, or disrupt existing utility branches or take-offs that are in use without at least 7 days prior written notification to Owner.
- F. Locate and mark utilities to remain; mark using highly visible tags or flags, with identification of utility type; protect from damage due to subsequent construction, using substantial barricades if necessary.
- G. Remove exposed piping, valves, meters, equipment, supports, and foundations of disconnected and abandoned utilities.

3.04 SELECTIVE DEMOLITION FOR ALTERATIONS

- A. Existing construction and utilities indicated on drawings are based on casual field observation and existing record documents only.
 1. Verify construction and utility arrangements are as indicated.
 2. Report discrepancies to Owner before disturbing existing installation.
 3. Beginning of demolition work constitutes acceptance of existing conditions that would be apparent upon examination prior to starting demolition.
- B. Maintain weatherproof exterior building enclosure, except for interruptions required for replacement or modifications; prevent water and humidity damage.
- C. Remove existing work as indicated and required to accomplish new work.
 1. Remove rotted wood, corroded metals, and deteriorated masonry and concrete; replace with new construction indicated.
 2. Remove items indicated on drawings.
- D. Services including, but not limited to, HVAC, Plumbing, Fire Protection, Electrical, and Telecommunications: Remove existing systems and equipment as indicated.
 1. Maintain existing active systems to remain in operation, and maintain access to equipment and operational components.
 2. Verify that abandoned services serve only abandoned facilities before removal.
 3. Remove abandoned pipe, ducts, conduits, and equipment, including those above accessible ceilings. Remove back to source of supply where possible, otherwise cap stub and tag with identification.
- E. Protect existing work to remain.
 1. Prevent movement of structure. Provide shoring and bracing as required.
 2. Perform cutting to accomplish removal work neatly and as specified for cutting new work.
 3. Repair adjacent construction and finishes damaged during removal work.
 4. Patch to match new work.

3.05 DEBRIS AND WASTE REMOVAL

- A. Remove debris, junk, and trash from site.
- B. Leave site in clean condition, ready for subsequent work.
- C. Clean up spillage and wind-blown debris from public and private lands.

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AUBURN, WASHINGTON**

**SECTION 024100
DEMOLITION**

- D. Unless otherwise indicated in Contract Documents or specified by Owner, items of salvageable value to Contractor shall be removed from site. Storage or sale of removed items on site will not be permitted and shall not interfere with other work specified.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Concrete formwork.
- B. Concrete foundations and anchor bolts for pre-engineered building.
- C. Concrete reinforcement.
- D. Miscellaneous concrete elements, including equipment pads.
- E. Concrete curing.

1.02 REFERENCE STANDARDS

- A. ACI 117 - Specification for Tolerances for Concrete Construction and Materials 2010 (Reapproved 2015).
- B. ACI 211.1 - Selecting Proportions for Normal-Density and High Density-Concrete - Guide 2022.
- C. ACI 301 - Specifications for Concrete Construction 2020.
- D. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete 2000 (Reapproved 2009).
- E. ACI 308R - Guide to External Curing of Concrete 2016.
- F. ACI 318 - Building Code Requirements for Structural Concrete 2019 (Reapproved 2022).
- G. ACI 347R - Guide to Formwork for Concrete 2014 (Reapproved 2021).
- H. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement 2022.
- I. ASTM C33/C33M - Standard Specification for Concrete Aggregates 2023.
- J. ASTM C39/C39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens 2021.
- K. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete 2023.
- L. ASTM C143/C143M - Standard Test Method for Slump of Hydraulic-Cement Concrete 2020.
- M. ASTM C150/C150M - Standard Specification for Portland Cement 2022.
- N. ASTM C173/C173M - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method 2016.
- O. ASTM C260/C260M - Standard Specification for Air-Entraining Admixtures for Concrete 2010a (Reapproved 2016).
- P. ASTM C685/C685M - Standard Specification for Concrete Made by Volumetric Batching and Continuous Mixing 2017.
- Q. ASTM C1602/C1602M - Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete 2018.
- R. ASTM D2103 - Standard Specification for Polyethylene Film and Sheeting 2015.
- S. ASTM E1745 - Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs 2017 (Reapproved 2023).

1.03 SUBMITTALS

- A. Product Data: Submit manufacturers' data on manufactured products showing compliance with specified requirements and installation instructions.
- B. Mix Design: Submit proposed concrete mix design.
- C. Samples: Submit samples of underslab vapor retarder to be used.
- D. Test Reports: Submit report for each test or series of tests specified.
- E. Steel Reinforcement Shop Drawings: Placing Drawings that detail fabrication, bending, and placement. Include bar sizes, lengths, material, grade, bar schedules, stirrup spacing, bent bar diagrams, bar

arrangement, splices and laps, mechanical connections, tie spacing, hoop spacing, and supports for concrete reinforcement.

F. Qualification Data: For Installer.

1.04 QUALITY ASSURANCE

- A. Perform work of this section in accordance with ACI 301 and ACI 318.
- B. Installer Qualifications: A qualified installer who employs on Project personnel qualified as ACI-certified Flatwork Technician and Finisher and a supervisor who is an ACI-certified Concrete Flatwork Technician.
- C. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.

PART 2 PRODUCTS

2.01 FORMWORK

- A. Formwork Design and Construction: Comply with guidelines of ACI 347R to provide formwork that will produce concrete complying with tolerances of ACI 117.
- B. Form Materials: Contractor's choice of standard products with sufficient strength to withstand hydrostatic head without distortion in excess of permitted tolerances.
 - 1. Form Coating: Release agent that will not adversely affect concrete or interfere with application of coatings.

2.02 REINFORCEMENT MATERIALS

- A. Reinforcing Steel: ASTM A615/A615M, Grade 60 (60,000 psi).
- B. Reinforcement Accessories:
 - 1. Tie Wire: Annealed, minimum 16 gauge, 0.0508 inch.
 - 2. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for adequate support of reinforcement during concrete placement.
 - 3. Provide stainless steel, galvanized, plastic, or plastic coated steel components for placement within 1-1/2 inches of weathering surfaces.

2.03 CONCRETE MATERIALS

- A. Cement: ASTM C150/C150M, Type I - Normal Portland type.
 - 1. Acquire cement for entire project from same source.
- B. Water: ASTM C1602/C1602M; clean, potable, and not detrimental to concrete.

2.04 ADMIXTURES

- A. Do not use chemicals that will result in soluble chloride ions in excess of 0.1 percent by weight of cement.
- B. Air Entrainment Admixture: ASTM C260/C260M.

2.05 ACCESSORY MATERIALS

- A. Underslab Vapor Retarder:
 - 1. Sheet Material: ASTM E1745, Class A; stated by manufacturer as suitable for installation in contact with soil or granular fill under concrete slabs. Single-ply polyethylene is prohibited.
 - 2. Accessory Products: Vapor retarder manufacturer's recommended tape, adhesive, mastic, prefabricated boots, etc., for sealing seams and penetrations.

2.06 CURING MATERIALS

- A. Evaporation Reducer: Liquid thin-film-forming compound that reduces rapid moisture loss caused by high temperature, low humidity, and high winds; intended for application immediately after concrete placement.
- B. Polyethylene Film: ASTM D2103, 4 mil, 0.004 inch thick, clear.

- C. Water: Potable, not detrimental to concrete.

2.07 CONCRETE MIX DESIGN

- A. Concrete Strength: Establish required average strength for each type of concrete on the basis of field experience or trial mixtures, as specified in ACI 301.
 - 1. For trial mixtures method, employ independent testing agency acceptable to Owner for preparing and reporting proposed mix designs.
- B. Admixtures: Add acceptable admixtures as recommended in ACI 211.1 and at rates recommended or required by manufacturer.
- C. Normal Weight Concrete:
 - 1. Compressive Strength, when tested in accordance with ASTM C39/C39M at 28 days: 3,000 pounds per square inch.
 - 2. Cement Content: Minimum 470 pounds per cubic yard.
 - 3. Water-Cement Ratio: Maximum 40 percent by weight.
 - 4. Total Air Content: 5 percent, determined in accordance with ASTM C173/C173M.
 - 5. Maximum Slump: 3 inches.
 - 6. Maximum Aggregate Size: 5/8 inch.

2.08 MIXING

- A. On Project Site: Mix in drum type batch mixer, complying with ASTM C685/C685M. Mix each batch not less than 1-1/2 minutes and not more than 5 minutes.
- B. Transit Mixers: Comply with ASTM C94/C94M.
- C. Adding Water: If concrete arrives on-site with slump less than suitable for placement, do not add water that exceeds the maximum water-cement ratio or exceeds the maximum permissible slump.

PART 3 EXECUTION

3.01 PREPARATION

- A. Formwork: Comply with requirements of ACI 301. Design and fabricate forms to support all applied loads until concrete is cured, and for easy removal without damage to concrete.
- B. Verify that forms are clean before applying release agent.
- C. Coordinate placement of embedded items with erection of concrete formwork and placement of form accessories.

3.02 INSTALLING REINFORCEMENT AND OTHER EMBEDDED ITEMS

- A. Comply with requirements of ACI 301. Clean reinforcement of loose rust and mill scale, and accurately position, support, and secure in place to achieve not less than minimum concrete coverage required for protection.
- B. Verify that anchors, seats, plates, reinforcement and other items to be cast into concrete are accurately placed, positioned securely, and will not interfere with concrete placement.

3.03 PLACING CONCRETE

- A. Place concrete in accordance with ACI 304R.
- B. Notify Owner not less than 24 hours prior to commencement of placement operations.
- C. Maintain records of concrete placement. Record date, location, quantity, air temperature, and test samples taken.

3.04 CONCRETE FINISHING

- A. Unexposed Form Finish: Rub down or chip off fins or other raised areas 1/4 inch or more in height.

3.05 CURING AND PROTECTION

- A. Comply with requirements of ACI 308R. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.

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**SECTION 033000
CAST-IN-PLACE CONCRETE**

- B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.
- C. Formed Surfaces: Cure by moist curing with forms in place for full curing period.

3.06 FIELD QUALITY CONTROL

- A. Provide free access to concrete operations at project site and cooperate with appointed firm.
- B. Submit proposed mix design to testing firm for review prior to commencement of concrete operations.
- C. Compressive Strength Tests: ASTM C39/C39M, for each test, mold and cure three concrete test cylinders. Obtain test samples for every 100 cubic yards or less of each class of concrete placed.
- D. Perform one slump test for each set of test cylinders taken, following procedures of ASTM C143/C143M.

3.07 DEFECTIVE CONCRETE

- A. Test Results: The testing agency shall report test results in writing to Owner and Contractor within 24 hours of test.
- B. Defective Concrete: Concrete not complying with required lines, details, dimensions, tolerances or specified requirements.
- C. Repair or replacement of defective concrete will be determined by the Owner. The cost of additional testing shall be borne by Contractor when defective concrete is identified.
- D. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of Owner for each individual area.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Free-standing exterior railings.
- B. Interior stair railing.

1.02 REFERENCE STANDARDS

- A. ADA Standards - 2010 ADA Standards for Accessible Design 2010.
- B. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless 2022.
- C. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products 2017.
- D. ASTM E935 - Standard Test Methods for Performance of Permanent Metal Railing Systems and Rails for Buildings 2021.
- E. AWS B2.1/B2.1M - Specification for Welding Procedure and Performance Qualification 2021.
- F. SSPC-Paint 15 - Steel Joist Shop Primer/Metal Building Primer 2004.
- G. SSPC-Paint 20 - Zinc-Rich Coating (Type I - Inorganic, and Type II - Organic) 2019.

1.03 SUBMITTALS

- A. Shop Drawings: Indicate profiles, sizes, connection attachments, anchorage, size and type of fasteners, and accessories.
- B. Welders' Qualification Statement: Welders' certificates in accordance with AWS B2.1/B2.1M and dated within the previous 12 months.

1.04 QUALITY ASSURANCE

- A. Fabricator Qualifications:
 - 1. A company specializing in manufacturing products specified in this section, with not less than five years of documented experience.

PART 2 PRODUCTS

2.01 RAILINGS - GENERAL REQUIREMENTS

- A. Design, fabricate, and test railing assemblies in accordance with the most stringent requirements of applicable local code.
- B. Allow for expansion and contraction of members and building movement without damage to connections or members.
- C. Dimensions: See drawings for configurations and heights.
- D. Provide anchors and other components as required to attach to structure, made of same materials as railing components unless otherwise indicated; where exposed fasteners are unavoidable provide flush countersunk fasteners.
- E. Provide slip-on non-weld mechanical fittings to join lengths, seal open ends, and conceal exposed mounting bolts and nuts, including but not limited to elbows, T-shapes, splice connectors, flanges, escutcheons, and wall brackets.

2.02 STEEL RAILING SYSTEM

- A. Steel Pipe: ASTM A53/A53M Grade B Schedule 80, black finish.
- B. Non-Weld Mechanical Fittings: Slip-on, galvanized malleable iron castings, for Schedule 40 pipe, with flush setscrews for tightening by standard hex wrench, no bolts or screw fasteners.
- C. Exposed Fasteners: Flush countersunk screws or bolts; consistent with design of railing.
- D. Galvanizing: In accordance with requirements of ASTM A123/A123M.

1. Touch-Up Primer for Galvanized Surfaces: SSPC-Paint 20 Type I - Inorganic.
- E. Shop and Touch-Up Primer: SSPC-Paint 15, complying with VOC limitations of authorities having jurisdiction.

2.03 FABRICATION

- A. Accurately form components to suit specific project conditions and for proper connection to building structure.
- B. Fit and shop assemble components in largest practical sizes for delivery to site.
- C. Fabricate components with joints tightly fitted and secured. Provide spigots and sleeves to accommodate site assembly and installation.
- D. Welded Joints:
 1. Exterior Components: Continuously seal joined pieces by intermittent welds and plastic filler. Drill condensate drainage holes at bottom of members at locations that will not encourage water intrusion.
 2. Interior Components: Continuously seal joined pieces by intermittent welds and plastic filler.
 3. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Install components plumb and level, accurately fitted, free from distortion or defects, with tight joints.
- C. Install railings in compliance with ADA Standards for accessible design at applicable locations.
- D. Anchor railings securely to structure.
- E. Conceal anchor bolts and screws whenever possible. Where not concealed, use flush countersunk fastenings.

3.02 TOLERANCES

- A. Maximum Variation From Plumb: 1/8 inch per floor level, non-cumulative.
- B. Maximum Offset From True Alignment: 1/8 inch.
- C. Maximum Out-of-Position: 1/8 inch.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Structural dimension lumber framing.
- B. Nonstructural dimension lumber framing.
- C. Rough opening framing for doors, windows, and roof openings.
- D. Sheathing.
- E. Preservative treated wood materials.
- F. Miscellaneous framing and sheathing.
- G. Concealed wood blocking, nailers, and supports.

1.02 REFERENCE STANDARDS

- A. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware 2023.
- B. ASTM C557 - Standard Specification for Adhesives for Fastening Gypsum Wallboard to Wood Framing 2003 (Reapproved 2017).
- C. AWPA U1 - Use Category System: User Specification for Treated Wood 2023.
- D. ICC (IBC) - International Building Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- E. PS 2 - Performance Standard for Wood Structural Panels 2018.
- F. PS 20 - American Softwood Lumber Standard 2021.
- G. WCLIB (GR) - Standard Grading Rules for West Coast Lumber No. 17 2018.
- H. WWP A G-5 - Western Lumber Grading Rules 2021.

1.03 SUBMITTALS

- A. Product Data: Provide technical data on wood preservative materials and application instructions.
- B. Structural Composite Lumber: Submit manufacturer's published structural data including span tables, marked to indicate which sizes and grades are being used; if structural composite lumber is being substituted for dimension lumber or timbers, submit grading agency structural tables marked for comparison.
- C. Manufacturer's Certificate: Certify that wood products supplied for rough carpentry meet or exceed specified requirements.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. General: Cover wood products to protect against moisture. Support stacked products to prevent deformation and to allow air circulation.
- B. Fire Retardant Treated Wood: Prevent exposure to precipitation during shipping, storage, and installation.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

- A. Dimension Lumber: Comply with PS 20 and requirements of specified grading agencies.
 - 1. If no species is specified, provide species graded by the agency specified; if no grading agency is specified, provide lumber graded by grading agency meeting the specified requirements.
 - 2. Grading Agency: Grading agency whose rules are approved by the Board of Review, American Lumber Standard Committee at www.alsc.org, and who provides grading service for the species and grade specified; provide lumber stamped with grade mark unless otherwise indicated.

3. Lumber of other species or grades is acceptable provided structural and appearance characteristics are equivalent to or better than products specified.

2.02 DIMENSION LUMBER FOR CONCEALED APPLICATIONS

- A. Grading Agency: West Coast Lumber Inspection Bureau; WCLIB (GR).
- B. Grading Agency: Western Wood Products Association; WWPA G-5.
- C. Sizes: Nominal sizes as indicated on drawings, S4S.
- D. Moisture Content: S-dry or MC19.
- E. Stud Framing (2 by 2 through 2 by 6):
 1. Species: Doug fir-larch No. 2 grade or Hem-fir No. 1 grade. Utility and standard grades not permitted..
- F. Joist, Rafter, and Small Beam Framing (2 by 6 through 4 by 16):
 1. Species: Doug fir-larch No. 2 grade or Hem-fir No. 1 grade. Utility and standard grades not permitted..
- G. Miscellaneous Framing, Blocking, Nailers, Grounds, and Furring:
 1. Lumber: S4S, Doug fir-larch No. 2 grade or Hem-fir No. 1 grade. Utility and standard grades not permitted..

2.03 CONSTRUCTION PANELS

- A. Roof Sheathing: DOC PS1-09 or DOC PS2-10 Exterior rated sheathing.
 1. Span Rating: Not less than 32/16.
 2. Nominal Thickness: Not less than 1/2 inch.
- B. Wall Sheathing: Doc PS1-09 or DOC PS2-10 Exterior rated sheathing.
 1. Span Rating: Not less than 32/16 inch.
 2. Nominal Thickness: Not less than 1/2 inch.

2.04 ACCESSORIES

- A. Fasteners and Anchors:
 1. Metal and Finish: Hot-dipped galvanized steel complying with ASTM A153/A153M for high humidity and preservative-treated wood locations, unfinished steel elsewhere.
 2. Drywall Screws: Bugle head, hardened steel, power driven type, length three times thickness of sheathing.
- B. General Purpose Construction Adhesives: Comply with ASTM C557.
- C. Water-Resistive Barrier: See Section 072500.

2.05 FACTORY WOOD TREATMENT

- A. Treated Lumber and Plywood: Comply with requirements of AWWPA U1 - Use Category System for wood treatments determined by use categories, expected service conditions, and specific applications.
 1. Preservative-Treated Wood: Provide lumber and plywood marked or stamped by an ALSC-accredited testing agency, certifying level and type of treatment in accordance with AWWPA standards.

PART 3 EXECUTION

3.01 INSTALLATION - GENERAL

- A. Select material sizes to minimize waste.
- B. Reuse scrap to the greatest extent possible; clearly separate scrap for use on site as accessory components, including: shims, bracing, and blocking.
- C. Where treated wood is used on interior, provide temporary ventilation during and immediately after installation sufficient to remove indoor air contaminants.

3.02 FRAMING INSTALLATION

- A. Set structural members level, plumb, and true to line. Discard pieces with defects that would lower required strength or result in unacceptable appearance of exposed members.
- B. Make provisions for temporary construction loads, and provide temporary bracing sufficient to maintain structure in true alignment and safe condition until completion of erection and installation of permanent bracing.
- C. Install structural members full length without splices unless otherwise specifically detailed.
- D. Comply with member sizes, spacing, and configurations indicated, and fastener size and spacing indicated, but not less than required by applicable codes and AWC (WFCM) Wood Frame Construction Manual.
- E. Install horizontal spanning members with crown edge up and not less than 1-1/2 inches of bearing at each end.
- F. Construct double joist headers at floor and ceiling openings and under wall stud partitions that are parallel to floor joists; use metal joist hangers unless otherwise detailed.
- G. Frame wall openings with two or more studs at each jamb; support headers on cripple studs.
- H. Provide single bottom plate and double top plates using members of 2-inch nominal thickness whose widths equal that of studs, except single top plate may be used for non-load bearing non-head partitions. Fasten plates to supporting construction unless otherwise indicated.
- I. Construct corners and intersections with three or more studs, except that two studs may be used for interior non-load bearing partitions.

3.03 BLOCKING, NAILERS, AND SUPPORTS

- A. Provide framing and blocking members as indicated or as required to support finishes, fixtures, specialty items, and trim.
- B. In framed assemblies that have concealed spaces, provide solid wood fireblocking as required by applicable local code, to close concealed draft openings between floors and between top story and roof/attic space; other material acceptable to authorities having jurisdiction may be used in lieu of solid wood blocking.
- C. In walls, provide blocking attached to studs as backing and support for wall-mounted items, unless item can be securely fastened to two or more studs or other method of support is explicitly indicated.
- D. Where ceiling-mounting is indicated, provide blocking and supplementary supports above ceiling, unless other method of support is explicitly indicated.
- E. Provide the following specific nonstructural framing and blocking:
 - 1. Cabinets and shelf supports.
 - 2. Wall brackets.
 - 3. Grab bars.
 - 4. Towel and bath accessories.
 - 5. Wall-mounted door stops.
 - 6. Wall paneling and trim.
 - 7. Joints of rigid wall coverings that occur between studs.

3.04 INSTALLATION OF CONSTRUCTION PANELS

- A. Roof Sheathing: Secure panels with long dimension perpendicular to framing members, with ends staggered and over firm bearing.
 - 1. Nail panels to framing; staples are not permitted.
- B. Wall Sheathing: Secure with long dimension perpendicular to wall studs, with ends over firm bearing and staggered, using nails, screws, or staples.
 - 1. Place water-resistive barrier horizontally over wall sheathing, weather lapping edges and ends.

3.05 TOLERANCES

- A. Framing Members: 1/4 inch from true position, maximum.

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**SECTION 061000
ROUGH CARPENTRY**

- B. Surface Flatness of Floor: 1/8 inch in 10 feet maximum, and 1/4 inch in 30 feet maximum.
- C. Variation from Plane, Other than Floors: 1/4 inch in 10 feet maximum, and 1/4 inch in 30 feet maximum.

3.06 CLEANING

- A. Waste Disposal: See Section 017419 - Construction Waste Management and Disposal.
 - 1. Comply with applicable regulations.
 - 2. Do not burn scrap on project site.
 - 3. Do not burn scraps that have been pressure treated.
 - 4. Do not send materials treated with pentachlorophenol, CCA, or ACA to co-generation facilities or “waste-to-energy” facilities.
- B. Do not leave wood, shavings, sawdust, etc. on the ground or buried in fill.
- C. Prevent sawdust and wood shavings from entering the storm drainage system.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Wood casings and moldings.
- B. Wood stair treads.
- C. Wood handrail.
- D. Hardware and attachment accessories.

1.02 REFERENCE STANDARDS

- A. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards, 2nd Edition 2014, with Errata (2016).
- B. AWMAC/WI (NAAWS) - North American Architectural Woodwork Standards 2021, with Errata.
- C. PS 20 - American Softwood Lumber Standard 2021.

1.03 SUBMITTALS

- A. Product Data:
 - 1. Provide instructions for attachment hardware and finish hardware.
- B. Samples: Submit two samples of wood trim 6 inch long.

1.04 QUALITY ASSURANCE

- A. Fabricator Qualifications: Company specializing in fabricating the products specified in this section with minimum three years of documented experience.
 - 1. Accredited participant in the specified certification program prior to the commencement of fabrication and throughout the duration of the project.
- B. Quality Certification:
 - 1. Provide labels or certificates indicating that work complies with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS) requirements for grade or grades specified.
 - 2. Provide designated labels on shop drawings as required by certification program.
 - 3. Provide designated labels on installed products as required by certification program.
 - 4. Submit certifications upon completion of installation that verifies this work is in compliance with specified requirements.

1.05 MOCK-UPS

- A. Provide mock-up, full size, illustrating finish and construction.
- B. Locate where directed.
- C. Mock-up may remain as part of the work.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Store finish carpentry items under cover, elevated above grade, and in a dry, well-ventilated area not exposed to heat or sunlight.
- B. Protect from moisture damage.
- C. Handle materials and products to prevent damage to edges, ends, or surfaces.

PART 2 PRODUCTS

2.01 FINISH CARPENTRY ITEMS

- A. Quality Standard: Custom Grade, in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS), unless noted otherwise.
- B. Interior Woodwork Items:
 - 1. Moldings, Bases, Casings, and Miscellaneous Trim: Medium-density fiberboard, ANSI A208.2, Grade MD-Exterior Glue, prepare for paint finish.
 - 2. Casing Header: 1" x 3" MDF Flat stock.

3. Casing Legs: 9/16" x 2-1/2" MDF Flat stock.
4. Jamb Liner: 9/16" MDF Flat stock. Cut to fit opening.
5. Moisture Content: 4 percent to 7 percent.
6. Formaldehyde Content: Manufactured with no added formaldehyde, including formaldehyde free binders. Labeled by manufacturer as containing no added urea formaldehyde (NAUF).

2.02 FASTENINGS

- A. Fasteners: Of size and type to suit application; Recessed screws, finish, or casing nails in exposed locations.
- B. Fasteners for Exterior Applications: Stainless steel; length required to penetrate wood substrate 1-1/2 inch minimum.

2.03 ACCESSORIES

- A. Adhesive: Type recommended by fabricator to suit application.
- B. Lumber for Shimming and Blocking: Softwood lumber of indicated species.
- C. Primer: Alkyd primer sealer.
- D. Wood Filler: Solvent base, tinted to match surface finish color.

2.04 FABRICATION

- A. Shop assemble work for delivery to site, permitting passage through building openings.
- B. When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide trim for scribing and site cutting.

2.05 SHOP FINISHING

- A. Sand work smooth and set exposed nails and screws.
- B. Apply wood filler in exposed nail and screw indentations.
- C. Prime paint surfaces in contact with cementitious materials.
- D. Back prime woodwork items to be field finished, prior to installation.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install custom fabrications in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS) requirements for grade indicated.
- B. Set and secure materials and components in place, plumb and level.
- C. Carefully scribe work abutting other components, with maximum gaps of 1/32 inch. Do not use additional overlay trim to conceal larger gaps.
- D. Install trim with minimum number of joints practical, using full-length pieces from maximum lengths of lumber available. Do not use pieces less than twenty-four (24") inches long except where necessary.
- E. Use blind fastening where indicated or practical. At face of finished work, use finish nails or finish head screws at face of finished installations.
- F. Unless otherwise indicated, countersink fasteners, fill surface flush, and sand where face fastening is unavoidable.
- G. Interface with adjacent system. Carefully bring together work of this Section with related work; transitions smooth, no abrupt rough edges or intersections. Stagger end joints in adjacent and related members.
- H. Space screws and nails at equal intervals at spacing to fasten permanently and securely in place, except not less than one fastener at each end and at center of each item.
- I. Install to detail with tight joints.
- J. Miter casings and moldings except as otherwise indicated.

- K. Cut butt splices at 30-degree angles.
 - L. Make members and lines level, plumb, and square to line with adjacent construction. Use concealed shims where necessary for alignment.
 - M. Select and cut material to exclude damaged, marked, or defective areas.
 - N. Eased Edges: Ease exposed edges of finish work 1/16-inch minimum radius whether indicated or not.
 - O. Close exposed joints, spaces, and openings against adjacent construction with scribes, fillers, and trim pieces of same material and finish as finish carpentry item.
 - P. Prior to securing items, adjust to ensure proper matching at joints and correct alignment throughout their length. Shim as required using concealed shims.
 - Q. Do not use additional overlay trim to conceal larger gaps unless specifically approved by Owner after review of conditions of installation.
 - R. Do not use materials that are unsound, warped, improperly treated or finished, inadequately seasoned, or too small to fabricate with proper jointing arrangements.
 - 1. Do not use manufactured units with defective surfaces, sizes or patterns.
 - S. Provide for thermal and building movements.
- 3.02 PREPARATION FOR SITE FINISHING
- A. Set exposed fasteners. Apply wood filler in exposed fastener indentations. Sand work smooth.
 - B. Site Finishing: See Section 099113 and 099123.
 - C. Before installation, prime paint surfaces of items or assemblies to be in contact with cementitious materials.
- 3.03 TOLERANCES
- A. Maximum Variation from True Position: 1/16 inch.
 - B. Maximum Offset from True Alignment with Abutting Materials: 1/32 inch.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Specially fabricated cabinet units.
- B. Hardware.
- C. Factory finishing.

1.02 REFERENCE STANDARDS

- A. ANSI A208.2 - Medium Density Fiberboard (MDF) for Interior Applications 2022.
- B. AWI (QCP) - Quality Certification Program Current Edition.
- C. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards, 2nd Edition 2014, with Errata (2016).
- D. AWMAC/WI (NAAWS) - North American Architectural Woodwork Standards 2021, with Errata.
- E. BHMA A156.9 - Cabinet Hardware 2020.
- F. NEMA LD 3 - High-Pressure Decorative Laminates 2005.

1.03 ADMINISTRATIVE REQUIREMENTS

- A. Preinstallation Meeting: Convene a preinstallation meeting not less than one week before starting work of this section; require attendance by all affected installers.

1.04 SUBMITTALS

- A. Shop Drawings: Indicate materials, component profiles, fastening methods, jointing details, and accessories.
- B. Product Data: Provide data for hardware accessories.
- C. Samples: Submit actual samples of architectural cabinet construction, minimum 12 inches square, illustrating proposed cabinet and shelf unit substrate and finish.
- D. Samples: Submit actual sample items of proposed pulls, hinges, shelf standards, and locksets, demonstrating hardware design, quality, and finish.
- E. Certificate: Submit labels and certificates required by quality assurance and quality control programs.

1.05 QUALITY ASSURANCE

- A. Fabricator Qualifications: Company specializing in fabricating the products specified in this section with minimum three years of documented experience.
 - 1. Accredited participant in the specified certification program prior to the commencement of fabrication and throughout the duration of the project.
 - 2. Single Source Responsibility: Provide and install this work from single fabricator.
- B. Quality Certification:
 - 1. Comply with AWI (QCP) woodwork association quality certification service/program in accordance with requirements for work specified in this section: www.awiqcp.org/#sle.
 - 2. Provide labels or certificates indicating that the installed work complies with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS) requirements for grade or grades specified.
 - 3. Provide designated labels on shop drawings as required by certification program.
 - 4. Provide designated labels on installed products as required by certification program.
 - 5. Submit certifications upon completion of installation that verifies this work is in compliance with specified requirements.
 - 6. Replace, repair, or rework all work for which certification is refused.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Protect units from moisture damage.

1.07 FIELD CONDITIONS

- A. During and after installation of custom cabinets, maintain temperature and humidity conditions in building spaces at same levels planned for occupancy.

PART 2 PRODUCTS

2.01 CABINETS

- A. Quality Standard: Custom Grade, in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS), unless noted otherwise.
- B. Plastic Laminate Faced Cabinets: Custom grade.

2.02 PANEL CORE MATERIALS

- A. Medium Density Fiberboard (MDF): Composite panel composed of cellulosic fibers, additives, and bonding system; cured under heat and pressure; comply with ANSI A208.2.
 - 1. Grade: 115; moisture resistance: MR10.

2.03 THERMALLY FUSED LAMINATE PANELS

- A. Thermally Fused Laminate (TFL): Melamine- or polyester-resin-saturated decorative papers; for fusion to composite wood substrates under heat and pressure.
 - 1. Test in accordance with NEMA LD 3 Section 3.
 - 2. Panel Core Substrate: Medium Density Fiberboard (MDF).
 - 3. Color: As selected from manufacturer's standard range of colors.

2.04 LAMINATE MATERIALS

- A. Manufacturers:
 - 1. Formica Corporation: www.formica.com/#sle.
 - 2. Or approved equal.
- B. High Pressure Decorative Laminate (HPDL): NEMA LD 3, types as recommended for specific applications.

2.05 PLASTIC-LAMINATE CABINETS

- A. AWI Type of Cabinet Construction: Reveal overlay or Reveal overlay on face frame.
- B. Reveal Dimension: 1/2 inch 13 mm.
- C. Laminate Cladding for Exposed Surfaces: High-pressure decorative laminate complying with the following requirements:
 - 1. Horizontal Surfaces Other Than Tops: Grade HGS.
 - 2. Vertical Surfaces: Grade HGS.
 - 3. Edges: Grade HGS
- D. Materials for Semiexposed Surfaces:
 - 1. Surfaces Other Than Drawer Bodies: Thermoset decorative panels.
 - a. For semiexposed backs of panels with exposed plastic-laminate surfaces, provide surface of high-pressure decorative laminate, Grade VGS.
 - 2. Drawer Sides and Backs: Solid-hardwood lumber.
 - 3. Drawer Bottoms: Hardwood plywood.
- E. Concealed Backs of Panels with Exposed Plastic Laminate Surfaces: High-pressure decorative laminate, Grade BKL.
- F. Basis of Design: Formica Bleached Lengo, Matte Finish.

2.06 ACCESSORIES

- A. Adhesive: Type recommended by fabricator to suit application.
- B. Fasteners: Size and type to suit application.

- C. Bolts, Nuts, Washers, Lags, Pins, and Screws: Of size and type to suit application; galvanized finish in concealed locations and stainless steel finish in exposed locations.

2.07 HARDWARE

- A. Hardware: BHMA A156.9, types as recommended by fabricator for quality grade specified.
- B. Adjustable Shelf Supports: Standard side-mounted system using multiple holes for pin supports and coordinated self rests with shelf hold-down clip, satin chrome finish, for nominal 1 inch spacing adjustments.
- C. Drawer and Door Pulls: "U" shaped wire pull, steel with satin finish, 4 inch centers.
- D. Drawer Slides:
 - 1. Type: Full extension.
 - 2. Static Load Capacity: Heavy Duty grade.
 - 3. Mounting: Side mounted.
 - 4. Stops: Integral type.
 - 5. Features: Provide self closing/stay closed type.
- E. Soft-Close, Door and Drawer Adjustable Dampers:

2.08 FABRICATION

- A. Assembly: Shop assemble cabinets for delivery to site in units easily handled and to permit passage through building openings.
- B. Plastic Laminate: Apply plastic laminate finish in full uninterrupted sheets consistent with manufactured sizes. Fit corners and joints hairline; secure with concealed fasteners. Slightly bevel arises. Locate counter butt joints minimum 2 feet from sink cut-outs.
 - 1. Cap exposed plastic laminate finish edges with material of same finish and pattern.
- C. Mechanically fasten back splash to countertops as recommended by laminate manufacturer at 16 inches on center.
- D. Provide cutouts for plumbing fixtures. Verify locations of cutouts from on-site dimensions. Prime paint cut edges.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify adequacy of backing and support framing.
- B. Condition woodwork to average prevailing humidity conditions in installation areas.

3.02 INSTALLATION

- A. Install work in accordance with AWI/AWMA/WI (AWS) or AWMA/WI (NAAWS) requirements for grade indicated.
- B. Set and secure custom cabinets in place, assuring that they are rigid, plumb, and level.
- C. Use fixture attachments in concealed locations for wall mounted components.
- D. Use concealed joint fasteners to align and secure adjoining cabinet units.
- E. Carefully scribe casework abutting other components, with maximum gaps of 1/32 inch. Do not use additional overlay trim for this purpose.
- F. Secure cabinets to floor using appropriate angles and anchorages.
- G. Countersink anchorage devices at exposed locations. Conceal with solid wood plugs of species to match surrounding wood; finish flush with surrounding surfaces.
- H. Cabinets: Install without distortion so doors and drawers fit openings properly and are accurately aligned. Adjust hardware to center doors and drawers in openings and to provide unencumbered operation. Complete installation of hardware and accessory items as indicated.

1. Install cabinets with no more than 1/8 inch in 96-inch sag, bow, or other variation from a straight line.
2. Fasten wall cabinets through back, near top and bottom, at ends and not more than 16 inches on center with No. 10 wafer-head screws sized for 1-inch penetration into wood framing, blocking, or hanging strips.

3.03 ADJUSTING

- A. Adjust installed work.
- B. Adjust moving or operating parts to function smoothly and correctly.

3.04 CLEANING

- A. Clean casework, counters, shelves, hardware, fittings, and fixtures.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Fiberglass reinforced plastic panels.
- B. Trim.

1.02 REFERENCE STANDARDS

- A. ASTM D5319 - Standard Specification for Glass-Fiber Reinforced Polyester Wall and Ceiling Panels 2022.
- B. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials 2023c.

1.03 SUBMITTALS

- A. Product Data: Provide data on specified products, describing physical and performance characteristics; including sizes, patterns and colors available; and installation instructions.
- B. Samples: Submit two samples 12 inch by 12 inch in size illustrating material and surface design of panels.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Store panels flat, indoors, on a clean, dry surface. Remove packaging and allow panels to acclimate to room temperature for 48 hours prior to installation.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Fiberglass Reinforced Plastic Panels:
 - 1. Marlite, Inc; Induro FRP: www.marlite.com/#sle.
 - 2. Or approved equal.

2.02 PANEL SYSTEMS

- A. Wall Panels:
 - 1. Panel Size: 4 by 10 feet.
 - 2. Panel Thickness: 0.09 inch.
 - 3. Surface Design: Smooth.
 - 4. Basis of Design: Marlite Induro, 'Titanium'.
 - 5. Attachment Method: Adhesive only, with trim and sealant in joints.

2.03 MATERIALS

- A. Panels: Fiberglass reinforced plastic (FRP), complying with ASTM D5319.
 - 1. Surface Burning Characteristics: Maximum flame spread index of 25 and smoke developed index of 450; when system tested in accordance with ASTM E84.
- B. Trim: Aluminum; color coordinating with panel.
- C. Adhesive: Type recommended by panel manufacturer.
- D. Sealant: Type recommended by panel manufacturer; color matching panel.

PART 3 EXECUTION

3.01 INSTALLATION - WALLS

- A. Install panels in accordance with manufacturer's instructions.
- B. Cut and drill panels with carbide tipped saw blades, drill bits, or snips.
- C. Apply adhesive to the back side of the panel using trowel as recommended by adhesive manufacturer.
- D. Apply panels to wall with seams plumb and pattern aligned with adjoining panels.

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**SECTION 068316
FIBERGLASS REINFORCED PANELING**

- E. Install panels with manufacturer's recommended gap for panel field and corner joints.
- F. Place trim on panel before fastening edges, as required.
- G. Fill channels in trim with sealant before attaching to panel.
- H. Install trim with adhesive and screws or nails, as required.
- I. Seal gaps at floor, ceiling, and between panels with applicable sealant to prevent moisture intrusion.
- J. Remove excess sealant after paneling is installed and prior to curing.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Water-resistive barriers.

1.02 REFERENCE STANDARDS

- A. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials 2023c.
- B. ASTM E96/E96M - Standard Test Methods for Gravimetric Determination of Water Vapor Transmission Rate of Materials 2022a, with Editorial Revision (2023).
- C. ICC-ES AC308 - Acceptance Criteria for Water-Resistive Barriers 2016, with Editorial Revision (2021).
- D. ICC-ES AC148 - Acceptance Criteria for Flexible Flashing Materials 2017, with Editorial Revision (2021).

1.03 SUBMITTALS

- A. Product Data: Provide data on material characteristics.
- B. Manufacturer's Installation Instructions: Indicate preparation, installation methods, and storage and handling criteria.
- C. Warranty: Manufacturer's ten (10) year limited product and labor warranty.

1.04 MOCK-UPS

- A. Locate where directed.
- B. Mock-up may remain as part of work.

PART 2 PRODUCTS

2.01 WATER-RESISTIVE BARRIER MATERIALS

- A. Basis of Design: Dupont Tyvek "DrainWrap," spunbonded polyolefin, non-woven, non-perforated, weather barrier and related assembly components or approved equal.
 - 1. Air Penetration: 0.004 cfm/ft² at 75 Pa, when tested in accordance with ASTM E2178. Type I per ASTM E1677.
 - 2. Drainage: >98%, when tested in accordance with ASTM E2273.
 - 3. Water Vapor Transmission: 50 perms, when tested in accordance with ASTM E96, Method B.
 - 4. Water Penetration Resistance: 210 cm when tested in accordance with AATCC Test Method 127.
 - 5. Basis Weight: 2.1 oz/yd², when tested in accordance with TAPPI Test Method T-410.
 - 6. Air Resistance: 300 seconds, when tested in accordance with TAPPI Test Method T-460.
 - 7. Tensile Strength: 30/30 lbs/in., when tested in accordance with ASTM D882, Method A.
 - 8. Tear Resistance: 7/9 lbs, when tested in accordance with ASTM D1117.
 - 9. Surface Burning Characteristics: Class A, when tested in accordance with ASTM E84. Flame Spread: 5, Smoke Developed: 25
 - 10. Manufacturers:
 - a. DuPont Tyvek,
 - b. Benjamin Obdyke,
 - c. Fortifiber Building Systems Group,
 - d. Kimberly-Clark,
 - e. Or approved equal.

2.02 ACCESSORIES

- A. Sealants, Tapes, and Accessories Used for Sealing Water-Resistive Barrier and Adjacent Substrates: As indicated or complying with water-resistive barrier manufacturer's installation instructions.
- B. Seam Tape
 - 1. Basis-of-Design: Three (3") inch wide, DuPont™ Tyvek® Tape for commercial applications or approved equal.

- C. Fasteners
 - 1. Basis-of-Design: Tyvek® Wrap Caps for use with wood construction, as distributed by DuPont: #4 nails with large one (1")-inch plastic cap fasteners, or one (1")-inch plastic cap staples with leg length sufficient to achieve a minimum penetration of 5/8-inch into the wood stud or approved equal.
- D. Sealants
 - 1. Provide sealants that comply with ASTM C920, elastomeric polymer sealant to maintain watertight conditions. Reference Section 079200 - Joint Sealants.
- E. Adhesives
 - 1. Products:
 - a. Liquid Nails® LN-109.
 - b. Denso Butyl Liquid.
 - c. 3M High Strength 90.
 - d. SIA 655.
 - e. Or approved equal.
- F. Primers
 - 1. Provide flashing manufacturer recommended primer to assist in adhesion between substrate and flashing.
 - 2. Products:
 - a. 3M High Strength 90.
 - b. Denso Butyl Spray.
 - c. SIA 655.
 - d. Permagrip 105.
 - e. ITW TACC Sta' Put SPH.
 - f. Or approved equal.
- G. Flexible Flashing
 - 1. Basis-of-Design: DuPont™ StraightFlash™, as distributed by DuPont: straight flashing membrane materials for flashing windows and doors and sealing penetrations or approved equal.
- H. Flexible Sill Flashing
 - 1. Basis-of-Design: DuPont™ FlexWrap™ NF, as distributed by DuPont: flexible membrane flashing materials for window openings and penetrations or approved equal.
- I. Flashing Tape:
- J. Basis-of-Design: Four (4") inch wide, DuPont™ Flashing Tape, as distributed by DuPont: flexible membrane flashing materials for adhering metal head flashing or approved equal.
- K. Flashing Panels
 - 1. Basis-of-Design: Manufactured by QuickFlash, Inc. Size and type to suit application and conditions in field or approved equal.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that surfaces and conditions comply with requirements of this section.

3.02 PREPARATION

- A. Remove projections, protruding fasteners, and loose or foreign matter that might interfere with proper installation.

3.03 INSTALLATION

- A. Install materials in accordance with manufacturer's installation instructions.
- B. Water-Resistive Barriers: Install continuous water-resistive barrier over surfaces indicated, with sheets lapped to shed water but with seams not sealed.

- C. Apply sealants and adhesives within recommended temperature range in accordance with manufacturer's installation instructions.
- D. Mechanically Fastened Exterior Sheets:
 - 1. Install sheets shingle-fashion to shed water, with seams aligned horizontal.
 - 2. Overlap seams as recommended by manufacturer, 6 inches, minimum.
 - 3. Overlap at outside and inside corners as recommended by manufacturer, 12 inches, minimum.
 - 4. Install water-resistive barrier over jamb flashings.
 - 5. Install head flashings under water-resistive barrier.
 - 6. At framed openings with frames having nailing flanges, extend sheet into opening and over flanges; at head of opening, seal sheet over flange and flashing.
- E. Openings and Penetrations in Exterior Water-Resistive Barriers:
 - 1. Install flashing over sills, covering entire sill framing member, and extend at least 5 inches onto water-resistive barrier and at least 6 inches up jambs; mechanically fasten stretched edges.
 - 2. At openings filled with frames having nailing flanges, seal head and jamb flanges using a continuous bead of sealant compressed by flange and cover flanges with sealing tape at least 4 inches wide; do not seal sill flange.
 - 3. At openings filled with nonflanged frames, seal water-resistive barrier to each side of framing at opening using flashing at least 9 inches wide, and covering entire depth of framing.
 - 4. At head of openings, install flashing under water-resistive barrier extending at least 2 inches beyond face of jambs; seal water-resistive barrier to flashing.
 - 5. At interior face of openings, seal gaps between window and door frames and rough framing using appropriate joint sealant over backer rod.
 - 6. Service and Other Penetrations: Form flashing around penetrating items and seal to surface of water-resistive barrier.

3.04 FIELD QUALITY CONTROL

- A. Obtain approval of installation procedures from water-resistive barrier manufacturer based on a mock-up installed in place, prior to proceeding with remainder of installation.

3.05 PROTECTION

- A. Do not leave materials exposed to weather longer than recommended by manufacturer.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Asphalt shingle roofing.
- B. Flexible sheet membranes for eave protection, underlayment, and valley protection.
- C. Metal flashing.

1.02 REFERENCE STANDARDS

- A. ASTM D1970/D1970M - Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection 2021.
- B. ASTM D3462/D3462M - Standard Specification for Asphalt Shingles Made from Glass Felt and Surfaced with Mineral Granules 2023.
- C. ASTM D4586/D4586M - Standard Specification for Asphalt Roof Cement, Asbestos-Free 2007 (Reapproved 2018).
- D. ASTM E108 - Standard Test Methods for Fire Tests of Roof Coverings 2020a.
- E. ASTM F1667/F1667M - Standard Specification for Driven Fasteners: Nails, Spikes, and Staples 2021a.
- F. NRCA (RM) - The NRCA Roofing Manual 2023.
- G. SMACNA (ASMM) - Architectural Sheet Metal Manual 2012.

1.03 SUBMITTALS

- A. Product Data: Provide data indicating material characteristics, performance criteria, and limitations.
- B. Samples: Submit two samples of each shingle color indicating color range and finish texture/pattern ; for color selection.
- C. Manufacturer's Installation Instructions: Indicate installation criteria and procedures.
- D. Warranty Documentation: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.
- E. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.

1.04 QUALITY ASSURANCE

- A. Installer Qualifications: Company specializing in installing asphalt shingles, with at least 3 years of documented experience.

1.05 WARRANTY

- A. Standard Product Warranty: Manufacturer's warranty against manufacturing defects.
 - 1. 50-years from date of Substantial Completion.
- B. Standard Product Warranty - Algae: Manufacturer's warranty, agreeing to repair or replace shingles that fail to resist discoloration or staining due to algae growth.
 - 1. 20- years from date of Substantial Completion.
- C. Standard Product Warranty - Wind: Manufacturer's warranty, agreeing to repair or replace shingles with damage caused by winds up to 110 mph.
 - 1. 10- years from date of Substantial Completion.
- D. Special Project Warranty: Watertight and weatherproof warranty signed by installer covering work of this Section.
 - 1. 2-years from date of Substantial Completion.
- E. Ridge Vents: Provide manufacturer's standard 30-year Warranty.

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PART 2 PRODUCTS**

**SECTION 073113
ASPHALT SHINGLES**

2.01 MANUFACTURERS

- A. Asphalt Shingles:
 - 1. Certaineed Roofing: www.certainteed.com/#sle.
 - 2. GAF: www.gaf.com/#sle.
 - 3. Owens Corning Corp: www.owenscorning.com/#sle.
 - 4. Or approved equal.

2.02 ASPHALT SHINGLES

- A. Asphalt Shingles: Asphalt-coated glass felt, mineral granule surfaced, complying with ASTM D3462/D3462M.
 - 1. Basis of Design: Marqui WeatherMax Shingles by GAF.
 - 2. Fire Resistance: Class A, complying with ASTM E108.

2.03 SHEET MATERIALS

- A. Eave Edge Starter Shingles: Glass felt base, with ceramic coated mineral granules tightly embedded in refined, water-resistant asphalt, complying with ASTM D3462/D3462M.
 - 1. Shingle Size: 8.5" by 40" inches, nominal.
 - 2. Products:
 - a. GAF; WeatherBlocker Eave/Rake Starter Strip: www.gaf.com/#sle.
 - b. Or approved equal.
- B. Leak Barrier: Self-adhering, self-sealing, bituminous leak barrier surfaced with fine, skid-resistant granules.
 - 1. Products:
 - a. GAF; WeatherWatch Leak Barrier: www.gaf.com/#sle.
 - b. Or approved equal.
- C. Underlayment: Synthetic non-asphaltic sheet, intended by manufacturer for mechanically fastened roofing underlayment without sealed seams.
 - 1. Number of layers: Two.
 - 2. Self Sealability: Passing nail sealability test specified in ASTM D1970/D1970M.
 - 3. Low Temperature Flexibility: Passing test specified in ASTM D1970/D1970M.
 - 4. Fasteners: As recommended by manufacturer or building code qualification report or approval.
 - 5. Products:
 - a. GAF; Tiger Paw Roof Deck Protection: www.gaf.com/#sle.
 - b. Or approved equal.

2.04 METAL FLASHING

- A. Metal Flashing: Prefinished aluminum; see Section 076200.

2.05 ACCESSORIES

- A. Roofing Nails: Standard round wire shingle type, galvanized steel, stainless steel, aluminum roofing nails, or copper roofing nails, minimum 3/8-inch head diameter, 12-gauge, 0.109-inch nail shank diameter, 1-1/2 inches long and complying with ASTM F1667/F1667M.
- B. Asphalt Roof Cement: ASTM D4586/D4586M, asbestos-free.
 - 1. Products:
 - a. Henry 204 Plastic Roof Cement.
 - b. Or approved equal.
- C. Plastic Ridge Vents: Extruded plastic with vent openings that do not permit direct water or weather entry; flanged to receive shingles.
 - 1. Color: Black.
 - 2. Products:
 - a. Cor-A-Vent S-400.

- b. Or approved equal.

PART 3 EXECUTION

3.01 PREPARATION

- A. Seal roof deck joints wider than 1/16 inch as recommended by shingle manufacturer.
- B. At areas where eave protection membrane is to be adhered to substrate, fill knot holes and surface cracks with latex filler.
- C. Broom clean deck surfaces before installing underlayment or eave protection.
- D. Install eave edge flashings tight with fascia boards, weather lap joints 2 inches and seal with roof cement, and secure flange.

3.02 INSTALLATION

- A. Eave Protection Membrane:
 - 1. Install eave protection membrane from eave edge to minimum 48 inches up-slope beyond interior face of exterior wall.
 - 2. Install eave protection membrane in accordance with manufacturer's instructions and NRCA (RM) applicable requirements.
- B. Underlayment:
 - 1. Roof Slopes Up to 4:12: Install two layers of underlayment over area not protected by eave protection, with ends and edges weather lapped minimum 4 inches; stagger end laps of each consecutive layer and nail in place.
 - 2. Roof Slopes Greater Than 4:12: Install underlayment perpendicular to slope of roof, with ends and edges weather lapped minimum 4 inches; stagger end laps of each consecutive layer, nail in place, and weather lap minimum 4 inches over eave protection.
 - 3. Weather lap and seal watertight with plastic cement any items projecting through or mounted on roof.
- C. Valley Protection:
 - 1. Install valley protection in accordance with SMACNA (ASMM).
 - 2. Install flexible flashing in accordance with manufacturer's instructions and NRCA (RM) applicable requirements.
- D. Metal Flashing:
 - 1. Install flashings in accordance with manufacturer's instructions and NRCA (RM) applicable requirements.
 - 2. Weather lap joints minimum 2 inches and seal weather tight with plastic cement.
 - 3. Secure in place and conceal fastenings.
 - 4. Items Projecting Through or Mounted on Roofing: Flash and seal weather tight with plastic cement.
- E. Shingles:
 - 1. Install shingles in accordance with manufacturer's instructions and NRCA (RM) applicable requirements.
 - a. Fasten individual shingles using two nails per shingle, or as required by manufacturer and local building code, whichever is greater.
 - b. Fasten strip shingles using four nails per strip, or as required by manufacturer and local building code, whichever is greater.
 - 2. Place shingles in straight coursing pattern with 5-inch weather exposure to produce double thickness over full roof area, and provide double course of shingles at eaves.
 - 3. Project first course of shingles 3/4 inch beyond fascia boards.
 - 4. Extend shingles 1/2 inch beyond face of gable edge fascia boards.
 - 5. Coordinate installation of roof mounted components or work projecting through roof with weathertight placement of counterflashings.
 - 6. Complete installation to provide weathertight service.

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**SECTION 073113
ASPHALT SHINGLES**

3.03 CLEANING

- A. Clean exposed work upon completion of installation; remove grease and oil films, excess joint sealer, handling marks, and debris from installation, leaving work clean and unmarked, free from dents, creases, waves, scratch marks, or other damage to finish.

3.04 PROTECTION

- A. Do not permit traffic over finished roof surface; protect roofing until completion of project.
- B. Touch-up, repair, or replace damaged asphalt shingles or accessories.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Fiber-cement siding.

1.02 REFERENCE STANDARDS

- A. ASTM C1186 - Standard Specification for Flat Fiber-Cement Sheets 2022.
- B. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials 2023c.

1.03 SUBMITTALS

- A. Product Data: Submit manufacturer's data sheets on each product to be used, including:
 - 1. Manufacturer's requirements for related materials to be installed by others.
 - 2. Preparation instructions and recommendations.
 - 3. Storage and handling requirements and recommendations.
 - 4. Installation methods, including nail patterns.
- B. Installer's qualification statement.
- C. Maintenance Instructions: Periodic inspection recommendations and maintenance procedures.
- D. Warranty: Submit copy of manufacturer's warranty, made out in Owner's name, showing that it has been registered with manufacturer.
- E. Warranty Documentation for Installation of Building Rainscreen Assembly: Submit installer warranty and ensure that forms have been completed in Owner's name and registered with installer.

1.04 QUALITY ASSURANCE

- A. Installer Qualifications: Company specializing in performing work of type specified in this section with not less than three years of experience.
- B. Obtain all siding materials from a single source manufacturer.
- C. Mockup:
 - 1. Size: Minimum 4 x 8 feet
 - 2. Show: Weather resistant barrier, siding, trim, flashings and joint sealers. Include one (1) window, and one (1) external corner.
 - 3. Location to be coordinated with Owner.
 - 4. Approved mockup may remain as part of the Work.
- D. Pre-Installation Conference:
 - 1. Convene at site two (2) weeks prior to beginning work of this Section.
 - 2. Attendance: Owner, Contractor, siding system installer and related trades.
 - 3. Review and discuss: Contract Documents, siding system manufacturer's literature, moisture barrier requirements, project conditions, scheduling and other matters affecting installation.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. See Section 017419 - Construction Waste Management and Disposal for packaging waste requirements.
- B. Deliver and store materials in manufacturer's unopened packaging, with labels intact, until ready for installation.
- C. Store materials under dry and waterproof cover, well ventilated, and elevated above grade on a flat surface.

1.06 WARRANTY

- A. Provide manufacturer's non-pro-rated thirty (30) year warranty providing coverage against hail and termite damage and defects in materials and workmanship.
- B. Provide installer's two (2) year warranty providing coverage against defects in installation. This is an extension of the Contractor's standard one (1) year warranty.

2.01 FIBER-CEMENT SIDING

- A. Lap Siding: Individual horizontal boards made of cement and cellulose fiber formed under high pressure with integral surface texture, complying with ASTM C1186, Type A, Grade II; with machined edges, for nail attachment.
 - 1. Style: Standard lap style.
 - 2. Texture: Smooth.
 - 3. Length: 12 feet, nominal.
 - 4. Width (Height): 5-1/4 inches.
 - 5. Thickness: 5/16 inch, nominal.
 - 6. Finish: Factory applied primer.
 - 7. Warranty: 30 year limited; transferable.
 - 8. Products:
 - a. James Hardie Building Products, Inc: www.jameshardie.com/#sle.
 - b. Or approved equal.
- B. Panel Siding: Vertically oriented panels made of cement and cellulose fiber formed under high pressure with integral surface texture, complying with ASTM C1186, Type A, Grade II; with machined edges, for nail attachment.
 - 1. Texture: Smooth.
 - 2. Length (Height): 96 inches, nominal.
 - 3. Width: 48 inches.
 - 4. Thickness: 5/16 inch, nominal.
 - 5. Finish: Factory applied primer.
 - 6. Warranty: 30 year limited; transferable.
 - 7. Products:
 - a. James Hardie Building Products, Inc: www.jameshardie.com/#sle.
 - b. Or approved equal.
- C. Vented and Non-Vented Soffit Panels: Panels made of cement and cellulose fiber formed under high pressure with integral surface texture, complying with ASTM C1186, Type A, Grade II; with machined edges, for nail attachment.
 - 1. Texture: Vented-Smooth and Non-Vented Smooth.
 - 2. Length: 96 inches, nominal.
 - 3. Width: 48 inches.
 - 4. Thickness: 5/16 inch, nominal.
 - 5. Finish: Factory applied primer.
 - 6. Manufacturer: Same as siding.

2.02 ACCESSORIES

- A. Trim: Same material and texture as siding.
- B. Fiber Cement Mounting Block: Mounting block made of cement and cellulose fiber formed under high pressure with integral surface texture, complying with ASTM C1186, Type A, Grade II.
 - 1. Application: Hose bibbs, HVAC drip lines, receptacle outlet, exterior wall mounted lights.
 - 2. Size: As recommended by manufacturer.
 - 3. Finish: Factory applied primer.
 - 4. Basis of Design: Sturdi Mount; 29797 Beck Rd, Wixom, MI 48393; Toll Free Tel: 800-521-8486; Web: www.sturdimount.com
- C. Fasteners: Galvanized or corrosion resistant; length as required to penetrate, 1-1/4 inches, minimum.
 - 1. At fiber cement panel, use stainless steel T- or pan-head screws as recommended by panel manufacturer, of equal or greater holding power than required by manufacturer's Code compliance reports.
- D. Edge Sealer: Type recommended by siding manufacturer.

3.01 INSTALLATION

- A. Install in accordance with manufacturer's instructions and recommendations.
 - 1. Read warranty and comply with terms necessary to maintain warranty coverage.
 - 2. Blind nailing (fastening each piece such that the lap above it covers the fastener) is to be done according to manufacturer's recommendations.
 - 3. Use trim details as indicated on drawings.
 - 4. Touch up field cut edges before installing.
 - 5. Pre-drill nail holes if necessary to prevent breakage.
- B. Over Wood and Wood-Composite Sheathing: Fasten siding through sheathing into studs.
- C. Joints in Horizontal Siding: Avoid joints in lap siding except at corners; where joints are inevitable stagger joints between successive courses. Follow manufacturer's installation instructions for treatment of butt joints.
- D. Joints in Vertical Siding: Install Z-flashing in horizontal joints between successive courses of vertical siding.
- E. Do not install siding less than 6 inches from ground surface, or closer than 1 inch to roofs, patios, porches, and other surfaces where water may collect.
- F. Exterior Soffit Vents: Install in accordance with manufacturer's written instructions and at locations indicated on drawings; provide vent area as indicated on drawings.
- G. After installation, seal joints except lap joints of lap siding; seal around penetrations, and paint exposed cut edges.
- H. Leave gap between horizontal drainage flashings and bottom of siding above. Do not seal this space.
- I. Cut to fit around penetrations with maximum 1/4-inch gap. Smooth and seal cut edges.
- J. Finish Painting: See Section 099113.

3.02 TOLERANCES

- A. Maximum Variation from Plumb and Level: 1/4 inch per ten (10') feet.
- B. Maximum Offset From Joint Alignment: 1/16 inch.

3.03 CLEANING

- A. Clean faced panels in accordance with manufacturer's maintenance instructions, using cleaning materials and methods acceptable to manufacturer.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Fabricated sheet metal items, including flashings, counterflashings, gutters, downspouts, sheet metal roofing, exterior penetrations, and other items indicated in Schedule.
- B. Sealants for joints within sheet metal fabrications.

1.02 REFERENCE STANDARDS

- A. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix) 2022.
- B. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process 2023.
- C. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar 2023.
- D. ASTM B32 - Standard Specification for Solder Metal 2020.
- E. ASTM C920 - Standard Specification for Elastomeric Joint Sealants 2018.
- F. ASTM D4586/D4586M - Standard Specification for Asphalt Roof Cement, Asbestos-Free 2007 (Reapproved 2018).
- G. SMACNA (ASMM) - Architectural Sheet Metal Manual 2012.

1.03 SUBMITTALS

- A. Shop Drawings: Indicate material profile, jointing pattern, jointing details, fastening methods, flashings, terminations, and installation details.
- B. Samples: Submit two samples of each material specified, illustrating metal finish color.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Stack material to prevent twisting, bending, and abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.
- B. Prevent contact with materials that could cause discoloration or staining.

1.05 WARRANTY

- A. Pre-Finished Steel Sheet and Coil Coating Warranty: Manufacturer's 20-year Warranty against fading, color change, chalking, peeling, cracking, or delaminating.
- B. Contractor Warranty: Warranty work of this Section to be waterproof and weather-tight against ordinary wear and usage for two (2) years from date of Substantial Completion, including material and labor. This is an extension of the standard one (1)-year warranty.

PART 2 PRODUCTS

2.01 SHEET MATERIALS

- A. Pre-Finished Galvanized Steel: ASTM A653/A653M, with G90/Z275 zinc coating; minimum 24-gauge, 0.0239-inch thick base metal, shop pre-coated with PVDF coating.
 - 1. Polyvinylidene Fluoride (PVDF) Coating: Superior performing organic powder coating, AAMA 2605; multiple coat, thermally cured fluoropolymer finish system.
 - 2. Color: White.
- B. Stainless Steel: ASTM A666, Type 304 alloy, soft temper, 28 gauge, 0.0156 inch thick; smooth No. 4 - Brushed finish.

2.02 FABRICATION

- A. Form sections true to shape, accurate in size, square, and free from distortion or defects.

- B. Fabricate cleats and starter strips same material as sheet, in widths required by SMACNA, inter-lockable with sheet.
- C. Form pieces in longest possible lengths.
- D. Provide expansion joints at minimum forty (40') foot intervals or as required by SMACNA or as indicated.
- E. Hem exposed edges on underside 1/2 inch; miter and seam corners.
- F. Form material with flat lock seams, except where otherwise indicated; at moving joints, use sealed lapped, bayonet-type or interlocking hooked seams.
- G. Seal laps. Provide a minimum six (6") inch end lap and seal with two (2) continuous beads of approved sealant.
- H. Fabricate corners from one piece with minimum 18-inch long legs; seam for rigidity, seal with sealant.
- I. Fabricate vertical faces with bottom edge formed outward 1/4 inch and hemmed to form drip.
- J. Provide folded end dams at ends of horizontal flashing.
- K. Cap neat ends.
- L. Solder and seal metal joints.
 - 1. After soldering, remove flux.
 - 2. Wipe and wash solder joints clean.

2.03 GUTTERS AND DOWNSPOUTS

- A. Gutters: Profile as indicated.
- B. Downspouts: Rectangular profile.
- C. Gutters and Downspouts: Sizes indicated.
- D. Accessories: Profiled to suit gutters and downspouts.
 - 1. Anchorage Devices: In accordance with SMACNA (ASMM) requirements.
 - 2. Gutter Supports: Brackets.
 - 3. Downspout Supports: Brackets.
- E. Gutter Debris Protection: Amerimax Home Products Metal Lock-in Gutter Guard, Raptor Gutter Guard Stainless Steel screwed in gutter guard, or approved equal. Color as selected by Owner from manufacturer's standard white.
- F. Downspout Boots: Plastic.
- G. Seal metal joints.

2.04 EXTERIOR PENETRATION FLASHING PANELS

- A. Flashing Panels for Exterior Wall Penetrations: Premanufactured components and accessories as required to preserve integrity of building envelope; suitable for conduits and facade materials to be installed.

2.05 ACCESSORIES

- A. Fasteners: Galvanized steel, with soft neoprene washers.
- B. Primer Type: Zinc chromate.
- C. Concealed Sealants: Non-curing butyl sealant.
- D. Exposed Sealants: ASTM C920; elastomeric sealant, with minimum movement capability as recommended by manufacturer for substrates to be sealed; color to match adjacent material.
- E. Asphalt Roof Cement: ASTM D4586/D4586M, Type I, asbestos-free.
- F. Electrolytic Protection to separate dissimilar materials: Cold-applied asphalt-mastic complying with SSPC-Paint 12 requirements, containing no asbestos, formulated for 30-mil thickness per coat.
- G. Solder: ASTM B32, Alloy Grade - Sn50 (50/50).
- H. Commercial quality, type suited to material to be soldered.

3.01 INSTALLATION

- A. Install in conformance to SMACNA, NRCA, and provisions of the Contract Documents.
- B. Neatly form and finish joints and seams. Make lines, moldings, and edges sharp and true. Reinforce as required for stiffness.
- C. Make surfaces free from waves and buckles. Build in expansion joints and make other provisions to allow for thermal expansion and contraction to prevent distortion and oil-canning.
- D. Overlapping Metal Flashing Joints: Install lap sealant at copings, reglets, counterflashing, gutters, and other continuous flashing joint overlaps.
 - 1. Install minimum one bead of butyl bedding sealant between flashing overlaps.
 - 2. Seal exposed open ends of flashing with silicon joint sealant.
 - 3. Install bead of butyl or silicone sealant at joints under cap flashing and overlapped flashing. Install minimum one bead of butyl bedding sealant or silicone sealant on each side of joint.
 - 4. Install one bead of butyl bedding sealant or silicone sealant between substrate and flush mounted reglets, termination bars, and other overlaps or metal to metal or metal to other construction.
 - 5. Do not compress sealant beads between overlapping flashing.
- E. Slope copings and other horizontal installations for positive drainage to shed water.
- F. Secure flashings in place using concealed fasteners, and use exposed fasteners only where permitted..
- G. Apply plastic cement compound between metal flashings and felt flashings.
- H. Fit flashings tight in place; make corners square, surfaces true and straight in planes, and lines accurate to profiles.
- I. Seal penetrations through sheet metal and flashings by lapping with air barrier or with sealant.
- J. Solder metal joints for full metal surface contact, and after soldering wash metal clean with neutralizing solution and rinse with water.
- K. Sweat Soldering:
 - 1. Pre-tin edges of sheet metal to a width of 1-1/2" inches before beginning soldering.
 - 2. Fully sweat solder joints to a minimum depth of 1/2" by applying heat from iron to upper sheet, drawing solder fully into joint below.
- L. Electrolytic Protection: Prevent galvanic action where dissimilar metals are in galvanic range of each other. Separate with tape, bituminous protective backing, 2 coats of bituminous paint, or other isolation methods.
- M. Gutters and Downspouts
 - 1. Secure gutters and downspouts in place with concealed fasteners.
 - 2. Install continuous gutter cleats allowing for free thermal expansion and contraction.
 - 3. Install steel gutter spacer straps and gutter brackets not exceeding 3 foot on center spacing.
 - 4. Secure continuous eave hanger to solid wood framing.
 - 5. Insert downspouts into downspout outlets and sweat solder into place.
 - 6. Flash and seal with joint sealer for watertight connections and joints.
 - 7. Install expansion joints and covers at continuous gutter sections at 50 foot on center. Provide exposed splice plates and expansion joint covers.
 - 8. Support downspouts with downspout straps 8 to 10 foot on center, maximum, except not less than 2 per downspout. Space at even intervals.
 - 9. Connect downspouts with neoprene downspout boot to below grade tightline storm drainage system. Do not connect into foundation drainage system.
- N. Connect downspouts to downspout boots, and grout connection watertight.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Roof hatches, manual and automatic operation, including smoke vents.
- B. Roof ventilation louvers.
- C. Built-up roofing vents.
- D. Attic vents.
- E. Ridge vents.

1.02 SUBMITTALS

- A. Product Data: Manufacturer's data sheets on each product to be used.
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Installation methods.
 - 4. Maintenance requirements.
- B. Warranty Documentation:
 - 1. Submit manufacturer warranty.
 - 2. Ensure that forms have been completed in Owner's name and registered with manufacturer.

PART 2 PRODUCTS

2.01 ROOF HATCHES AND VENTS

- A. Roof Ventilation Louvers: Roof mounted, with drainable louver blades in square profiles.
 - 1. Louver Profile: As indicated on drawings.
 - 2. Size: As indicated on drawings.
 - 3. Material:
 - a. Aluminum: Comply with ASTM B209/B209M.
- B. Ridge Vents: Factory fabricated, formed panels with integral attachment flanges and snap-on cover.
 - 1. Products:
 - a. Cor-A-Vent; V-400; www.cor-a-vent.com/#sle.
 - b. Or approved equal.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install in accordance with manufacturer's instructions, in manner that maintains roofing system weather-tight integrity.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Firestopping systems.
- B. Firestopping of joints and penetrations in fire-resistance-rated and smoke-resistant assemblies, and other openings indicated.

1.02 REFERENCE STANDARDS

- A. ASTM G21 - Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi 2015, with Editorial Revision (2021).
- B. ITS (DIR) - Directory of Listed Products Current Edition.
- C. FM (AG) - FM Approval Guide Current Edition.
- D. SCAQMD 1168 - Adhesive and Sealant Applications 1989, with Amendment (2022).
- E. UL (FRD) - Fire Resistance Directory Current Edition.

1.03 SUBMITTALS

- A. Schedule of Firestopping: List each type of penetration, fire rating of the penetrated assembly, and firestopping test or design number.
- B. Product Data: Provide data on product characteristics, performance ratings, and limitations.
- C. Manufacturer's Installation Instructions: Indicate preparation and installation instructions.
- D. Installer's qualification statement.

1.04 QUALITY ASSURANCE

- A. Fire Testing: Provide firestopping assemblies of designs that provide the scheduled fire ratings when tested in accordance with methods indicated.
 - 1. Listing in UL (FRD), FM (AG), or ITS (DIR) will be considered as constituting an acceptable test report.
 - 2. Valid evaluation report published by ICC Evaluation Service, Inc. (ICC-ES) at www.icc-es.org will be considered as constituting an acceptable test report.
 - 3. Submission of actual test reports is required for assemblies for which none of the above substantiation exists.
- B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.
- C. Installer Qualifications: Company specializing in performing the work of this section and:
 - 1. Verification of minimum three years documented experience installing work of this type.

1.05 MOCK-UPS

- A. Install one firestopping assembly representative of each fire rating design required on project.
 - 1. Where one design may be used for different penetrating items or in different wall constructions, install one assembly for each different combination.
- B. Obtain approval of authorities having jurisdiction (AHJ) before proceeding.
- C. If accepted, mock-up will represent minimum standard for this work.
- D. If accepted, mock-up may remain as part of this work. Remove and replace mock-ups not accepted.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Firestopping Manufacturers:
 - 1. 3M Fire Protection Products: www.3m.com/firestop/#sle.
 - 2. Hilti, Inc: www.hilti.com/#sle.

3. Specified Technologies Inc: www.stifirestop.com/#sle.
4. Tremco Commercial Sealants & Waterproofing: www.tremcosealants.com/#sle.

2.02 MATERIALS

- A. Firestopping Materials: Any materials meeting requirements.
- B. Volatile Organic Compound (VOC) Content: Provide products having VOC content lower than that required by SCAQMD 1168.
- C. Mold and Mildew Resistance: Provide firestopping materials with mold and mildew resistance rating of zero(0) in accordance with ASTM G21.
- D. Primers, Sleeves, Forms, Insulation, Packing, Stuffing, and Accessories: Provide type of materials as required for tested firestopping assembly.
- E. Fire Ratings: Refer to drawings for required systems and ratings.
- F. Firestop System Warning Label: Minimum 3-inch by 5-inch label. Red color or with red colored type. Adhesive backed or other means for permanent attachment. "WARNING" written in bold type. Identify or include spaces for following information:
 1. Name of manufacturer.
 2. Name of installer.
 3. Date firestop system was installed.
 4. Firestop System Assembly Reference Number in O&M Manual as Closeout Submittal.
 5. Firestop System UL number or manufacturer's engineered design number.
 6. F Rating and T Rating (as applicable).

2.03 AUXILIARY AND FILL MATERIALS

- A. General: Provide auxiliary and fill materials for each firestopping system necessary to maintain fire-resistance ratings required. Use only those materials specified by the firestopping manufacturer and approved by the qualified testing agency for the designated fire-resistance-rated systems.
- B. Cast-In-Place Firestop Devices: Factory-assembled devices for use in cast-in-place concrete, consisting of an outer sleeve lined with an intumescent strip, a flange attached to one end of the sleeve for fastening to concrete formwork, and a neoprene gasket.
- C. Firestop Devices: Factory-assembled collars formed from galvanized steel and lined with intumescent material sized to fit specific diameter of penetrant.
- D. Intumescent Composite Sheets: Rigid panels consisting of aluminum-foil-faced intumescent elastomeric sheet bonded to galvanized-steel sheet.
- E. Intumescent Putties: Non-hardening, water-resistant, intumescent putties containing no solvents or inorganic fibers.
- F. Intumescent Wrap Strips: Single-component intumescent elastomeric sheets with aluminum foil on one side.
- G. Mortars: Prepackaged dry mixes consisting of a blend of inorganic binders, hydraulic cement, fillers and lightweight aggregate formulated for mixing with water at Project site to form a non-shrinking, homogeneous mortar.
- H. Pillows/Bags: Reusable heat-expanding pillows/bags consisting of glass-fiber cloth cases filled with a combination of mineral-fiber, water-insoluble expansion agents, and fire retardant additives. Where exposed, cover openings with steel-reinforcing wire mesh to protect pillows/bags from being easily removed.
- I. Plugs and Blocks: Re-enterable, foam plugs and blocks impregnated with intumescent material for use in blank openings and cable sleeves made in fire-rated wall or floor assemblies, where future penetration of pipes, conduits, or cables is expected.
- J. Silicone Foams: Multicomponent, silicone-based liquid elastomers that, when mixed, expand and cure in place to produce a flexible, non-shrinking foam.
- K. Sealants and Caulking Materials:

1. Silicone Sealants: Single-component, silicone-based, neutral-curing elastomeric sealants.
2. Latex Sealants: Single-component latex formulations that do not re-emulsify after cure during exposure to moisture.
- L. Fire-Safing: Preformed rock/mineral wool, as required by Project conditions. Include specially designed safing impaling clips.
- M. Other auxiliary and fill materials required for the designated fire-resistance-rated system.

2.04 FIRESTOPPING SYSTEMS

- A. Penetration Firestopping Systems:
 1. Penetrations in Fire-Resistance-Rated Walls: Penetration firestopping systems with ratings determined per ASTM E814 or UL 1479, based on testing at a positive pressure differential of 0.01-inch wg.
 - a. F-Rating: Not less than the fire-resistance rating of constructions penetrated.
 2. Penetrations in Horizontal Assemblies: Penetration firestopping systems with ratings determined per ASTM E814 or UL 1479, based on testing at a positive pressure differential of 0.01-inch wg.
 - a. F-Rating: At least one hour, but not less than the fire-resistance rating of constructions penetrated.
 - b. T-Rating: At least one hour, but not less than the fire-resistance rating of constructions penetrated except for floor penetrations within the cavity of a wall.
 - c. W-Rating (for water resistance): Provide penetration firestopping systems showing no evidence of water leakage when tested according to UL 1479.
 3. Penetrations in Smoke Barriers: Penetration firestopping systems with ratings determined per UL 1479, tested at a positive pressure differential of 0.30-inch wg.
 - a. L-Rating: Not exceeding 5.0 cfm/sq. ft. of penetration opening at and no more than 50 cfm cumulative total for any 100 sq. ft. at both ambient and elevated temperatures.
- B. Joint Firestopping Systems:
 1. Joints in or between Fire-Resistance-Rated Construction (including top-of-rated wall): Joint firestopping systems with ratings determined per ASTM E1966 or UL 2079.
 - a. F-Rating: Equal to or exceeding the fire-resistance rating of the wall, floor, or roof in or between which it is installed.
 2. Joints in Smoke Barriers: Fire-resistive joint systems with ratings determined per UL 2079 based on testing at a positive pressure differential of 0.30-inch wg.
 - a. L-Rating: Not exceeding 5.0 cfm/ft. of joint at both ambient and elevated temperatures.
 3. Joints at Intersection between Rated Wall Assemblies and Non-Rated Horizontal Assemblies: Joint firestopping systems with ratings determined by ASTM E2837.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install materials in manner described in fire test report and in accordance with manufacturer's instructions, completely closing openings.
- B. Do not cover installed firestopping until inspected by authorities having jurisdiction.
- C. Install labeling required by code.

3.02 CLEANING

- A. Clean adjacent surfaces of firestopping materials.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Nonsag gunnable joint sealants.
- B. Joint backings and accessories.

1.02 REFERENCE STANDARDS

- A. ASTM C661 - Standard Test Method for Indentation Hardness of Elastomeric-Type Sealants by Means of a Durometer 2015 (Reapproved 2022).
- B. ASTM C834 - Standard Specification for Latex Sealants 2017 (Reapproved 2023).
- C. ASTM C919 - Standard Practice for Use of Sealants in Acoustical Applications 2022.
- D. ASTM C920 - Standard Specification for Elastomeric Joint Sealants 2018.
- E. ASTM C1193 - Standard Guide for Use of Joint Sealants 2016 (Reapproved 2023).
- F. ASTM C1521 - Standard Practice for Evaluating Adhesion of Installed Weatherproofing Sealant Joints 2019 (Reapproved 2020).
- G. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials 2022.
- H. SCAQMD 1168 - Adhesive and Sealant Applications 1989, with Amendment (2022).
- I. UL 263 - Standard for Fire Tests of Building Construction and Materials Current Edition, Including All Revisions.

1.03 SUBMITTALS

- A. Product Data: Submit manufacturer's technical datasheets for each product to be used; include the following:
 - 1. Physical characteristics, including movement capability, VOC content, hardness, cure time, and color availability.
 - 2. List of backing materials approved for use with the specific product.
 - 3. Substrates that product is known to satisfactorily adhere to and with which it is compatible.
 - 4. Substrates the product should not be used on.
- B. Color Cards for Selection: Where sealant color is not specified, submit manufacturer's color cards showing standard colors available for selection.
- C. Installation Plan: Submit at least four weeks prior to start of installation.
- D. Installation Log: Submit filled-out log for each length or instance of sealant installed.
- E. Installer's qualification statement.
- F. Executed warranty.

1.04 QUALITY ASSURANCE

- A. Single Source Responsibility for Joint Sealant Materials:
 - 1. Obtain joint sealants from a single manufacturer for each different product required to ensure compatibility.
 - 2. Manufacturer shall instruct applicator in procedures for intersecting sealants.
- B. Installer Qualifications: Company specializing in performing the work of this section and with at least three years of documented experience.
- C. Installation Plan: Include schedule of sealed joints, including the following:
 - 1. Installation Log Form: Include the following data fields, with known information filled out.
 - a. Location on project.
 - b. Substrates.
 - c. Sealant used.
 - d. Date of installation.
 - e. Name of installer.

- f. Actual joint width; provide space to indicate maximum and minimum width.
 - g. Actual joint depth to face of backing material at centerline of joint.
 - h. Air temperature.
- D. Field Adhesion Tests of Joints: Test for adhesion using most appropriate method in accordance with ASTM C1521, or another applicable method as recommended by manufacturer.

1.05 WARRANTY

- A. Manufacturer Warranty: Provide 5-year manufacturer warranty for installed sealants and accessories that fail to achieve a watertight seal, exhibit loss of adhesion or cohesion, or do not cure. Complete forms in Owner's name and register with manufacturer.
- B. Applicator's Warranty: Provide 2-year applicator warranty for installed sealants and accessories covering workmanship. Complete forms in Owner's name.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Nonsag Sealants:
 - 1. Dow: www.dow.com/#sle.
 - 2. Sika Corporation: www.usa.sika.com/#sle.
 - 3. Tremco Commercial Sealants & Waterproofing: www.tremcosealants.com/#sle.
 - 4. Or approved equal.

2.02 JOINT SEALANTS - GENERAL

- A. Sealants and Primers: Provide products having lower volatile organic compound (VOC) content than indicated in SCAQMD 1168.
- B. Colors: As selected by Owner from samples of manufacturer's standard color range.
- C. Compatibility:
 - 1. Provide joint sealants, joint fillers and accessory joint materials that are compatible with one another and with joint substrates under project conditions.
 - 2. Install joint sealants, joint fillers and related joint materials that are non-staining to visible joint surfaces and surrounding substrate surfaces.

2.03 NONSAG JOINT SEALANTS

- A. Silicone Sealant: ASTM C920, Grade NS, Uses M and A; not expected to withstand continuous water immersion or traffic.
 - 1. Movement Capability: Plus and minus 25 percent, minimum.
 - 2. Color: Match adjacent finished surfaces.
 - 3. Cure Type: Single component, neutral moisture curing.
- B. Mildew-Resistant Silicone Sealant: ASTM C920, Grade NS, Uses M and A; single component, mildew resistant; not expected to withstand continuous water immersion or traffic.
 - 1. Color: White.
- C. Acrylic-Urethane Sealant: ASTM C920, Grade NS, Uses M and A; single component; paintable; not expected to withstand continuous water immersion or traffic.
 - 1. Movement Capability: Plus and minus 12-1/2 percent, minimum.
 - 2. Color: White.
- D. Acrylic Emulsion Latex: Water-based; ASTM C834, single component, nonstaining, nonbleeding, nonsagging; not intended for exterior use.
 - 1. Color: Standard colors matching finished surfaces, Type OP (opaque).
 - 2. Grade: ASTM C834; Grade NF.
- E. Acrylic Latex Sealant: ASTM C834; for use as acoustical sealant and in firestopping systems for expansion joints and through penetrations.
 - 1. Color: Standard colors matching finished surfaces.

2. Fire Rated System: Complies with UL 263 and ASTM E119 with UL fire resistance classifications.

2.04 ACCESSORIES

- A. Backer Rod: Cylindrical cellular foam rod with surface that sealant will not adhere to, compatible with specific sealant used, and recommended by backing and sealant manufacturers for specific application.
 1. Closed Cell and Bi-Cellular: 25 to 33 percent larger in diameter than joint width.
 2. Polystyrene foam not acceptable.
- B. Backing Tape: Self-adhesive polyethylene tape with surface that sealant will not adhere to and recommended by tape and sealant manufacturers for specific application.
- C. Masking Tape: Self-adhesive, nonabsorbent, nonstaining, removable without adhesive residue, and compatible with surfaces adjacent to joints and sealants.
- D. Joint Cleaner: Noncorrosive and nonstaining type, type recommended by sealant manufacturer; compatible with joint forming materials.
- E. Primers: Type recommended by sealant manufacturer to suit application; nonstaining.

PART 3 EXECUTION

3.01 PREPARATION

- A. Remove loose materials and foreign matter that could impair adhesion of sealant.
- B. Clean joints, and prime as necessary, in accordance with manufacturer's instructions.
- C. Perform preparation in accordance with manufacturer's instructions and ASTM C1193.
- D. Mask elements and surfaces adjacent to joints from damage and disfigurement due to sealant work; be aware that sealant drips and smears may not be completely removable.

3.02 INSTALLATION

- A. Install this work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.
- B. Seal joints before final coat of finish is applied to adjacent surfaces.
- C. Provide joint sealant installations complying with ASTM C1193.
- D. Install acoustical sealant application work in accordance with ASTM C919.
- E. Measure joint dimensions and size joint backers to achieve the following, unless otherwise indicated:
 1. Width/depth ratio of 2:1.
 2. Neck dimension no greater than 1/3 of the joint width.
 3. Surface bond area on each side not less than 75 percent of joint width.
 4. Where more than 3/4" wide pack with foam backer rod material to within 1/2" of surface.
 5. Where less than 1/2" wide install foam rod backer rod material to within 1/4" of surface.
- F. Provide backing materials in as long lengths as practicable; install with proper tool. Force backing into joint to proper depth for sealant.
- G. Install bond breaker backing tape where backer rod cannot be used.
- H. Install sealant free of air pockets, foreign embedded matter, ridges, and sags, and without getting sealant on adjacent surfaces.
- I. Do not install sealant when ambient temperature is outside manufacturer's recommended temperature range, or will be outside that range during the entire curing period, unless manufacturer's approval is obtained and instructions are followed.
- J. Nonsag Sealants: Tool surface concave, unless otherwise indicated; remove masking tape immediately after tooling sealant surface.
- K. Curing

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**SECTION 079200
JOINT SEALANTS**

1. Prior to painting or coating, allow sealant joints to cure as directed by sealant manufacturer, minimum seven (7) days for a single component and three (3) days for a multi-component.
2. Ambient temperatures and humidity affect the cure rate and time required for joint to be “tack-free”. Notify Owner if cure times exceed the minimums listed.

3.03 FIELD QUALITY CONTROL

- A. Field-Adhesion Testing: Field test joint-sealnt adhesion to joint substrates in accordance with manufacturer's instructions and ASTM C1193, Method A, Field-Applied Sealnt Joint Hand-Pull Tab. Perform 5 tests for each 1,000 linear feet of applied sealant.
 1. For sealants applied between dissimilar materials, test both sides of joint.
- B. Sealants failing adhesion test shall be removed, substrateds cleaned, sealants re-installed, and re-testing performed.

3.04 SCHEDULE

JOINT SEALANT	APPLICATION
Single-Component Neutral Curing Silicone Sealant	- Exterior joins in exterior finish systems - Exterior perimeter joints at frames of doors and windows. - Exterior control and expansion joints in ceilings and other overhead surfaces - All other exterior vertical and horizontal non-traffic joints unless noted otherwise
Single-Component Mildew-Resistant Neutral-Curing Silicone Sealant	Exterior joints with galvanized steel
Single-Component Nonsag Uretane Sealant	Interior joints of exterior openings
Latex Sealant	Perimeter joints between interior wall surfaces and frames of interior doors and windows
Acoustical Sealant for Exposed and Concealed Joints	- Both faces of interior gypsum board partitions at head, sill, perimeter, and through penetrations - At perimeter of resilient ceilings -Other acoustical-rated constructions

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Hollow metal frames for wood doors.

1.02 REFERENCE STANDARDS

- A. ADA Standards - 2010 ADA Standards for Accessible Design 2010.
- B. ANSI/SDI A250.6 - Recommended Practice for Hardware Reinforcing on Standard Steel Doors and Frames 2020.
- C. ANSI/SDI A250.8 - Specifications for Standard Steel Doors and Frames (SDI-100) 2023.
- D. ANSI/SDI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames 2020.
- E. ICC A117.1 - Accessible and Usable Buildings and Facilities 2017.
- F. NAAMM HMMA 840 - Guide Specifications For Receipt, Storage and Installation of Hollow Metal Doors and Frames 2017.
- G. NAAMM HMMA 861 - Guide Specifications for Commercial Hollow Metal Doors and Frames 2014.
- H. SDI 117 - Manufacturing Tolerances for Standard Steel Doors and Frames 2023.

1.03 SUBMITTALS

- A. Product Data: Materials and details of design and construction, hardware locations, reinforcement type and locations, anchorage and fastening methods, and finishes.
- B. Shop Drawings: Details of each opening, showing elevations, glazing, frame profiles, gauge, fire rating, and any indicated finish requirements.
- C. Schedule of Doors and Frames: Use the same reference number as the Contract Documents.
- D. Installation Instructions: Manufacturer's published instructions, including any special installation instructions relating to this project.

1.04 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than three years documented experience.
- B. Manufacturer Qualifications: Provide hollow metal doors and frames from SDI Certified manufacturer: <https://steeldoor.org/sdi-certified/#sle>.
- C. Installer Qualifications: Company specializing in performing work of the type specified and with at least three years of documented experience.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Comply with NAAMM HMMA 840 or ANSI/SDI A250.8 (SDI-100) in accordance with specified requirements.
- B. Protect with resilient packaging; avoid humidity build-up under coverings; prevent corrosion and adverse effects on factory applied painted finish.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Hollow Metal Frames:
 - 1. Curries, an Assa Abloy Group company: www.assaabloydss.com/#sle.
 - 2. Steelcraft, an Allegion brand: www.allegion.com/#sle.
 - 3. Or accepted equal..
- B. Basis of Design: Curries, "Standard" Frames specified for type, performance, and quality.

2.02 HOLLOW METAL FRAMES

- A. Comply with standards and/or custom guidelines as indicated for corresponding door in accordance with applicable door frame requirements.
- B. Type: Level 2, Heavy Duty.
- C. Frame Finish: Factory primed and field finished.
- D. Interior Door Frames, Non-Fire Rated: Full profile/continuously welded type.
 - 1. Terminated Stops: Provide at interior doors; closed end stop terminated 6 inch, maximum, above floor at 45 degree angle.
 - 2. Frame Metal Thickness: 16 gauge, 0.053 inch, minimum.
 - 3. Frame Finish: Factory primed and field finished.
- E. Frames for Wood Doors: Comply with frame requirements in accordance with corresponding door.

2.03 FINISHES

- A. Primer: Rust-inhibiting, complying with ANSI/SDI A250.10, door manufacturer's standard.
- B. Field-Applied Finish Coating: See Section 099123.

2.04 ACCESSORIES

- A. Frame Anchors: Hot-dip galvanized according to ASTM A153 anchors. Types and spacings in accordance with SDI standards to suit conditions.
 - 1. Stud-Wall Type Jamb Anchor: Designed to engage stud, factory-welded to the back of frames, not less than 18 gauge thickness.
 - 2. Floor and Base Anchors: Formed from same material as frames, but no less than 18 gauge sheet steel. Weld floor anchors to bottoms of jambs.
- B. Inserts, Bolts, and Fasteners: Manufacturer's standard corrosion-resistant material compatible with frame material specified, of type suitable for substrate and application indicated.
- C. Silencers: Resilient rubber, fitted into drilled hole; provide three on strike side of single door, three on center mullion of pairs, and two on head of pairs without center mullions.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify that opening sizes and tolerances are acceptable.
- C. Verify that finished walls are in plane to ensure proper door alignment.

3.02 INSTALLATION

- A. Install doors and frames in accordance with manufacturer's instructions and related requirements of specified door and frame standards or custom guidelines indicated.
- B. Set frames accurately in place; square, plumb, aligned, and securely braced until permanent anchors are set.
- C. Provide insulation fill at existing exterior door frames. Solidly pack frames with batt insulation inside metal stud partitions, and fill space between frames and concrete with batt insulation.
- D. Coordinate frame anchor placement with wall construction.
- E. Install door hardware as specified in Section 087100.
 - 1. Comply with recommended practice for hardware placement of doors and frames in accordance with ANSI/SDI A250.6 or NAAMM HMMA 861.
- F. Joint Sealant: Install sealant between door frames and wall.
- G. Touch up damaged factory finishes.

3.03 TOLERANCES

- A. Clearances Between Door and Frame: Comply with related requirements of specified frame standards or custom guidelines indicated in accordance with SDI 117 or NAAMM HMMA 861.
- B. Maximum Diagonal Distortion: 1/16 inch measured with straight edge, corner to corner.

3.04 ADJUSTING

- A. Adjust for smooth and balanced door movement.
- B. Test doors for force to close, latch, and unlatch; adjust as necessary in compliance with accessibility requirements.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Flush wood doors; flush and flush glazed configuration; non-rated.

1.02 REFERENCE STANDARDS

- A. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards, 2nd Edition 2014, with Errata (2016).
- B. AWMAC/WI (NAAWS) - North American Architectural Woodwork Standards 2021, with Errata.
- C. ICC (IBC) - International Building Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- D. WDMA I.S. 1A - Interior Architectural Wood Flush Doors 2021, with Errata (2022).

1.03 SUBMITTALS

- A. Product Data: Indicate door core materials and construction; veneer species, type and characteristics.
- B. Shop Drawings: Show doors and frames, elevations, sizes, types, swings, undercuts, beveling, blocking for hardware, factory machining, factory finishing, cutouts for glazing and other details.
- C. Warranty, executed in Owner's name.

1.04 QUALITY ASSURANCE

- A. Installer Qualifications: Company specializing in performing work of the type specified in this section, with not less than three years of documented experience.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Package, deliver and store doors in accordance with specified quality standard.
- B. Accept doors on site in manufacturer's packaging, and inspect for damage.
- C. Protect doors with resilient packaging; do not store in damp or wet areas or areas where sunlight might bleach veneer; seal top and bottom edges if stored more than one week, and break seal on site to permit ventilation.

1.06 WARRANTY

- A. Manufacturer Warranty: Provide manufacturer's warranty on interior doors for the life of the installation. Complete forms in Owner's name and register with manufacturer.
 - 1. Include coverage for delamination of veneer, warping beyond specified installation tolerances, defective materials, and telegraphing core construction.

PART 2 PRODUCTS

2.01 DOORS

- A. Doors: See drawings for locations and additional requirements.
 - 1. Quality Standard: Custom Grade, Heavy Duty performance, in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS), unless noted otherwise.
 - 2. Fabricate doors with adhesives and composite wood products that do not contain urea formaldehyde.
- B. Interior Doors: 1-3/4 inches thick unless otherwise indicated; flush construction.
 - 1. Provide solid core doors at each location.

2.02 DOOR AND PANEL CORES

- A. Non-Rated Solid Core and 20 Minute Rated Doors: Type particleboard core (PC), plies and faces as indicated.

2.03 DOOR FACINGS

- A. Veneer Facing for Transparent Finish: Natural birch, veneer grade in accordance with quality standard indicated, plain sliced (flat cut), with slip match between leaves of veneer, running match of spliced veneer leaves assembled on door or panel face.
 - 1. Vertical Edges: Same species as face veneer.
 - 2. "Running Match" each pair of doors and doors in close proximity to each other.

2.04 DOOR CONSTRUCTION

- A. Fabricate doors in accordance with door quality standard specified.
- B. Cores Constructed with stiles and rails:
 - 1. Provide solid blocks at lock edge for hardware reinforcement.
 - 2. Provide solid blocking for other throughbolted hardware.
 - a. 5-inch top-rail blocking, in doors indicated to have closers.
 - b. 5-inch bottom-rail blocking, in exterior doors and doors indicated to have kick, mop, or armor plates.
 - c. 5-inch midrail blocking, in doors indicated to have exit devices.
- C. Factory machine doors for hardware other than surface-mounted hardware, in accordance with hardware requirements and dimensions.
- D. Factory fit doors for frame opening dimensions identified on shop drawings, with edge clearances in accordance with specified quality standard.
- E. Provide edge clearances in accordance with the quality standard specified.

2.05 FINISHES - WOOD VENEER DOORS

- A. Finish work in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS), Section 5 - Finishing for grade specified and as follows:
 - 1. Transparent:
 - a. System - 1, Lacquer, Nitrocellulose.
 - b. Stain: As selected by Owner.
 - c. Sheen: Satin.
- B. Factory finish doors in accordance with approved sample.
- C. Seal door top edge with color sealer to match door facing.

2.06 ACCESSORIES

- A. Hollow Metal Door Frames: See Section 081113.
- B. Door Window Frames: Door window frames with glazing securely fastened within door opening.
 - 1. Size: As indicated on drawings.
 - 2. Glazing: 1/4 inch thick, tempered glass, in compliance with requirements of authorities having jurisdiction.
- C. Glazing Stops: Wood, of same species as door facing, butted corners; prepared for countersink style tamper proof screws.
- D. Door Hardware: See Section 087100.
- E. Louvers: See Section 089100.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install doors in accordance with manufacturer's instructions and specified quality standard.
- B. Factory-Finished Doors: Do not field cut or trim; if fit or clearance is not correct, replace door.
- C. Use machine tools to cut or drill for hardware.
- D. Coordinate installation of doors with installation of frames and hardware.

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**SECTION 081416
FLUSH WOOD DOORS**

E. Coordinate installation of glazing.

3.02 TOLERANCES

A. Comply with specified quality standard for fit and clearance tolerances.

B. Comply with specified quality standard for telegraphing, warp, and squareness.

3.03 ADJUSTING

A. Adjust doors for smooth and balanced door movement.

B. Adjust closers for full closure.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Fiberglass doors.
- B. Fiberglass door frames.

1.02 REFERENCE STANDARDS

- A. ASTM D635 - Standard Test Method for Rate of Burning and/or Extent and Time of Burning of Plastics in a Horizontal Position 2022.
- B. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials 2023c.
- C. ASTM E331 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference 2000 (Reapproved 2023).
- D. ASTM E2112 - Standard Practice for Installation of Exterior Windows, Doors and Skylights 2023.

1.03 SUBMITTALS

- A. Product Data: Provide manufacturer's standard details, installation instructions, hardware and anchor recommendations.
- B. Shop Drawings: Indicate layout and profiles; include assembly methods.
 - 1. Indicate product components, including hardware reinforcement locations and preparations, accessories, finish colors, patterns, and textures.
 - 2. Indicate wall conditions, door and frame elevations, sections, materials, gauges, finishes, location of door hardware by dimension, and details of openings; use same reference numbers indicated on drawings to identify details and openings.
- C. Installer's qualification statement.
- D. Maintenance Data: Include instructions for repair of minor scratches and damage.
- E. Warranty: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer; include detailed terms of warranty.

1.04 QUALITY ASSURANCE

- A. Installer Qualifications: Company specializing in performing work of the type specified and with at least three years of documented experience.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.
- B. Store materials in original packaging, under cover, protected from exposure to harmful weather conditions and from direct contact with water.
 - 1. Store at temperature and humidity conditions recommended by manufacturer.
 - 2. Do not use non-vented plastic or canvas shelters.
 - 3. Immediately remove wet wrappers.
- C. Store in position recommended by manufacturer, elevated minimum 4 inches above grade, with minimum 1/4 inch space between doors.

1.06 WARRANTY

- A. Provide five (5) year manufacturer warranty covering materials and workmanship, including degradation or failure due to chemical contact.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Fiberglass Composite Doors:
 - 1. Therma-Tru Corp; Smooth Star Full Lite Flush S118: thermatru.com/#sle.

2. Or approved equal.

2.02 DOOR AND FRAME ASSEMBLIES

- A. Door and Frame Assemblies: Factory-fabricated, prepared and machined for hardware.
 1. Operation: Manual.
 2. Screw-Holding Capacity: Tested to 890 pounds, minimum.
 3. Surface Burning Characteristics: Flame spread index (FSI) of 0 to 25, Class A, and smoke developed index (SDI) of 450 or less, when tested in accordance with ASTM E84.
 4. Flammability: Self-extinguishing when tested in accordance with ASTM D635.
 5. Clearance Between Door and Frame: 1/8 inch, maximum.
 6. Clearance Between Bottom of Door and Finished Floor: 3/4 inch, maximum; not less than 1/4 inch clearance to threshold.
 7. Provide frame anchors that allow for variation in rough opening size; field cutting of doors or frames to fit is not permitted.

2.03 COMPONENTS

- A. Doors: Fiberglass construction with reinforced core.
 1. Type: As indicated on drawings, including swinging and sliding doors.
 2. Thickness: 1-3/4 inch, nominal.
 3. Core Material: Manufacturer's standard core material for application indicated.
 4. Construction:
 5. Face Sheet Texture: Smooth.
 6. Door Panel Configuration: As indicated on drawings.
 7. Subframe and Reinforcements: Manufacturer's standard materials.
 8. Waterproof Integrity: Provide factory fabricated edges, cut-outs, and hardware preparations of fiberglass reinforced plastic (FRP); provide cut-outs with joints sealed independently of glazing, louver inserts, or trim.
 9. Hardware Preparations: Factory reinforce, machine, and prepare for door hardware including field installed items; provide solid blocking for each item; field cutting, drilling or tapping is not permitted; obtain manufacturer's hardware templates for preparation as necessary.
- B. Door Frames: Provide type in compliance with performance requirements specified for doors.
 1. Type: Factory assembled with chemically welded joints.
 2. Profiles: 5-1/2" inches.
 3. Hinges: Pre-hung for specified hinges.
 4. Frame Anchors: Stainless steel, Type 304; provide three anchors in each jamb for heights up to 84 inches with one additional anchor for each additional 24 inches in height.
 5. Reinforcing: Provide manufacturer's standard reinforcing at hinge, strike, and closer locations.
 6. Include manufacturer's integral door gasket.
- C. Threshold: Manufacturer's adjustable composite threshold for inswing doors.

2.04 HARDWARE

- A. Door Hardware: See Section 087100.

2.05 ACCESSORIES

- A. Stops for Glazing and Louver: Fiberglass, unless otherwise indicated or required by fire rating; provided by door manufacturer to fit factory made openings, with color and texture to match door; fasteners shall maintain waterproof integrity.
 1. Exterior Doors: Provide non-removable stops on exterior side with continuous compression gasket weatherseal.
 2. Opening Sizes and Shapes: As indicated on drawings.

3.01 INSTALLATION

- A. Install in accordance with manufacturer's instructions; do not penetrate frames with anchors.
- B. Pre-hang doors in framed specified.
- C. Install exterior doors in accordance with ASTM E2112.
- D. Set units plumb, level, and true-to-line, without warping or racking doors, and with specified clearances; anchor in place.
- E. Set thresholds in continuous bed of sealant.
- F. Separate aluminum and other metal surfaces from sources of corrosion of electrolytic action at points of contact with other materials.

3.02 ADJUSTING

- A. Lubricate, test, and adjust doors to operate easily, free from warp, twist or distortion, and to fit watertight for entire perimeter.
- B. Adjust hardware for smooth and quiet operation.
- C. Adjust doors to fit snugly and close without sticking or binding.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Wall-mounted access units.
- B. Ceiling-mounted access units.

1.02 SUBMITTALS

- A. Product Data: Provide sizes, types, finishes, hardware, scheduled locations, and details of adjoining work.
- B. Shop Drawings: Indicate exact position of each access door and/or panel unit.

PART 2 PRODUCTS

2.01 ACCESS DOORS AND PANELS ASSEMBLIES

- A. Wall-Mounted Units in Wet Areas:
 - 1. Location: As indicated on drawings.
 - 2. Panel Material: Steel, hot-dipped zinc, or zinc-aluminum-alloy coated.
 - 3. Size: 12 by 12 inches.
 - 4. Door/Panel: Hinged, standard duty, with tool-operated spring or cam lock and no handle.
 - 5. Wall Mounting Criteria: Provide surface-mounted face frame and door surface flush with frame surface.
- B. Ceiling-Mounted Units:
 - 1. Location: As indicated on drawings.
 - 2. Size - Other Ceilings: 36" by 48" inches.
 - 3. Door/Panel: Hinged, standard duty, with tool-operated spring or cam lock and no handle.

2.02 WALL- AND CEILING-MOUNTED ACCESS UNITS

- A. Manufacturers:
- B. Wall- and Ceiling-Mounted Units: Factory-fabricated door and frame, fully assembled units with corner joints welded, filled and ground flush; square and without rack or warp; coordinate requirements with type of installation assembly being used for each unit.
 - 1. Style: Exposed frame with door surface flush with frame surface.
 - 2. Door Style: Single thickness with rolled or turned in edges.
 - 3. Frames: 16-gauge, 0.0598-inch minimum thickness.
 - 4. Insulation: Non-combustible mineral wool or glass fiber.
 - 5. Units in Fire-Rated Assemblies: Fire rating as required by applicable code for fire-rated assembly that access doors are being installed.
 - 6. Door/Panel Size: As indicated on the drawings.
 - 7. Hardware:
 - a. Hardware for Fire-Rated Units: As required for listing.
 - b. Hinges for Non-Fire-Rated Units: Concealed, constant force closure spring type.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install units in accordance with manufacturer's instructions.
- B. Install frames plumb and level in openings, and secure units rigidly in place.
- C. Position units to provide convenient access to concealed equipment when necessary.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Vinyl-framed, factory-glazed windows.
- B. Operating hardware.
- C. Insect screens.

1.02 REFERENCE STANDARDS

- A. AAMA/WDMA/CSA 101/I.S.2/A440 - North American Fenestration Standard/Specification for Windows, Doors, and Skylights 2022.
- B. AAMA 502 - Voluntary Specification for Field Testing of Newly Installed Fenestration Products 2021.
- C. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements 2009 (Reapproved 2016).
- D. ASTM E783 - Standard Test Method for Field Measurement of Air Leakage Through Installed Exterior Windows and Doors 2002 (Reapproved 2018).
- E. ASTM E1105 - Standard Test Method for Field Determination of Water Penetration of Installed Exterior Windows, Skylights, Doors, and Curtain Walls, by Uniform or Cyclic Static Air Pressure Difference 2015 (Reapproved 2023).
- F. ASTM E2112 - Standard Practice for Installation of Exterior Windows, Doors and Skylights 2023.

1.03 SUBMITTALS

- A. Product Data: Provide component dimensions, anchors, fasteners, glass, and internal drainage.
- B. Shop Drawings: Indicate opening dimensions, framed opening tolerances, affected related work, and installation requirements. Include window schedule, elevations, sections, and details. Include head, sill, and jamb conditions, operable parts, and direction/handing.
- C. Field Quality Control Submittals: Report of field testing for water penetration and air leakage.

1.04 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than three years of documented experience.
- B. Installer Qualifications: Company specializing in performing of type specified and with at least three years documented experience.
- C. Certifications for Insulated Glass Units: Insulated glass units are certified to ASTM E2188/E2190 per the Associated Laboratories Incorporated (ALI) guidelines.
- D. AAMA: Windows shall be Gold Label certified with label attached to frame per AAMA requirements.
- E. NFRC: Windows shall be NFRC certified with temporary U-factor label applied to glass and an NFRC tab added to permanent AAMA frame label.
- F. Source Limitations: Obtain vinyl windows through one source from a single manufacturer.
- G. Inspect windows in accordance with Manufacturer's Quality Control Program as required by AAMA Gold Label Certification.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Protect finished surfaces with wrapping. Do not use adhesive papers or sprayed coatings that bond when exposed to sunlight or weather.
- B. Jig, brace, and box the window frame assemblies for transport to minimize flexing of members or joints.

1.06 FIELD CONDITIONS

- A. Do not install sealants when ambient temperature is less than 40 degrees F.
- B. Maintain this minimum temperature during and after installation of sealants.

- C. Field Measurements: Verify vinyl window openings by field measurements before fabrication and indicate measurements on Shop Drawings. Confirm flashing dimensions.

1.07 WARRANTY

- A. Correct defective work within a 5-year period after Date of Substantial Completion.
- B. Manufacturer's Warranty: Provide five-year manufacturer warranty for insulated glass units from seal failure, interpane dusting or misting, and replacement of same. Include coverage for degradation of vinyl color finish. Complete form in Owner's name and register with manufacturer.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Vinyl Windows:
 - 1. Milgard Manufacturing; www.milgard.com/#sle; 1010 54th Avenue East, Tacoma, WA 98424..
 - 2. Or approved equal.

2.02 GENERAL REQUIREMENTS

- A. Windows shall be ENERGY STAR qualified products that meet or exceed the ENERGY STAR performance rating or better.
- B. Air Leakage, Water Resistance, Structural Test: Comply with ANSI/AAMA /NWWDA 101/I.S.2.
- C. Forced-Entry Resistance: Comply with CAWM 301-90.
- D. Thermal Transmittance: Provide vinyl windows with a whole-window, U-factor maximum indicated at 15-mph exterior wind velocity and winter condition temperatures when tested according to AAMA 1503 and NFRC 100.
 - 1. U-Factor: 0.3 Btu/sq. ft. x h x deg. F or better.
 - 2. Alternate glazing U-factor: 0.22 or better
- E. Solar Heat-Gain Coefficient (SHGC): Provide vinyl windows with a whole-window SHGC maximum of 0.40, determined according to NFRC 200 procedures.

2.03 MATERIALS

- A. Integral color PVC compound containing impact-resistant solid plasticizer, titanium dioxide UV inhibitor, and surface and color stabilizers.
- B. Weatherstripping:
 - 1. Vinyl compression bulb seal

2.04 WINDOW TYPES

- A. Per list below and As indicated on the Drawings.
- B. Horizontal Slider – 1-3/8-inch nail fin setback. TUSCANY Series 8120
 - 1. Frame: 3-1/4" minimum depth. Multi-chambered vinyl profile.
 - 2. Sash: 1-1/4" minimum depth. Multi-chambered vinyl profile, includes vent stops located in fixed sash.
 - 3. Sightlines: Equal for operating and fixed sash.
 - 4. Structural Class:
 - a. 72" x 60": LC40
 - b. 71 1/2" x 71 1/2": LC25
 - 5. Hardware:
 - a. SmartTouch® direct action locking mechanism.
 - 1) Unlocking: Lock shall function such that the unlocking and movement of the sash are performed with the same continuous motion.
 - 2) Locking: Lock shall function such that the locking mechanism shall be actuated automatically upon closing of the sash.
 - b. Nylon rollers with stainless steel axles, extruded vinyl snap-on monorail roller track.
 - c. Dual pull rails.

6. Weatherstripping: Fin seal polypropylene pile.
- C. Fixed Casement - 1-3/8" nail fin setback. TUSCANY Series 8521.
 1. Frame: 3-1/4" minimum depth. Multi-chambered vinyl profile.
 2. Sightlines: Equal to Casement.
 3. Structural Class:
 - a. 96" x 72": LC35
- D. Awning – 1-3/8" nail fin setback. TUSCANY Series 8420.
 1. Frame: 3-1/4" minimum depth. Multi-chambered vinyl profile.
 2. Sash: 2-5/8" minimum depth. Multi-chambered vinyl profile.
 3. Structural Class:
 - a. 60" x 36": LC40
 4. Hardware:
 - a. Stainless steel rotary scissor operator with standard fold-down nesting handle.
 - b. Dual lever locking mechanism.
 - c. Two bar stainless steel hinge.
 5. Weatherstripping: Foam filled bulb (interior and exterior); flexible leaf (middle).
- E. Lower Awning Windows: Unit configuration and window types as shown on drawings and matching existing, mulled together to form a single window unit.

2.05 GLAZING

- A. Insulated Glass Units: ASTM E 774, Class A, 7/8 inch thick overall. Clear, insulating- glass units, with low-E coating pyrolytic on second surface, double pane or sputtered on second or third surface.
 1. Glazing Type: Sun Coat Low E / Clear
- B. Glazing System: Manufacturer's standard factory-glazing system that produces weathertight seal. Units shall be able to be re-glazed without dismantling sash framing.
- C. Spacer Type: Warm edge stainless steel spacer .
- D. Gas Filled: Argon.
- E. Glass Thickness: Per Manufacturer's Specifications.

2.06 HARDWARE

- A. General: Provide manufacturer's standard hardware fabricated from aluminum, stainless steel, carbon steel complying with AAMA 907, or other corrosion-resistant material compatible with vinyl; designed to smoothly operate, tightly close, and securely lock vinyl windows, and sized to accommodate sash or ventilator weight and dimensions. Do not use aluminum in frictional contact with other metals. SmartTouch direct action locking mechanism is to be used. Nylon rollers with stainless steel axles, extruded vinyl snap-on monorail roller track. Dual pull rails.
- B. Locks and Latches: Designed to allow unobstructed movement of the sash across adjacent sash in direction indicated and operated from the inside only.
- C. Sash lock: Lever handle with cam lock.

2.07 ACCESSORIES

- A. Insect Screens:
 1. Rolled formed Aluminum insect screen frames: Manufacture's standard aluminum alloy complying with SMA 1004. Fabricate frames with mitered or coped joints or corner extrusions, concealed fasteners and removable PVC spline/anchor concealing edge of frame.
 2. Screen Cloth: Pure View High Visibility fiberglass mesh.
- B. Passive Fresh Air Ventilation System: All windows to have fresh air ventilation system. Vents to be vinyl construction which match color of new windows and meet following features:
 1. No hood design.
 2. Positive open and close design.
 3. Full operation of window shall not be limited by vent. Installed insect screen.

4. Meets Washington State Energy Code for fresh air ventilation.

2.08 FABRICATION

- A. Fabricate frames and sash with mitered and fusion welded corners and joints.
- B. Trim and finish corners and welds to match adjacent surfaces.
- C. Provide concealed metal reinforcements in sash frame for attachment of lock mechanism.
- D. Factory interior glaze (except Double Hung and Double Slider) with snap-on mitered PVC glazing stops matching bevels on the sash and frame. Insulated glass units shall be re-glazeable without dismantling sash framing.
- E. Note: Field glazing is required for large window units (over 40 sq. ft.).

2.09 FINISHES

- A. Frame and Sash Color:
 1. Exterior: White
 2. Interior: As selected by Owner from Manufacturer's standard finish options.
- B. Hardware: Manufacturer's standard
- C. Screen Frame Color:
 1. Matched to exterior frame color

2.10 SOURCE QUALITY CONTROL:

- A. Inspect windows in accordance with Manufacturer's Quality Control Program as required by AAMA Gold Label Certification.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install window unit assemblies in accordance with manufacturers instructions and applicable building codes.
- B. Install windows in accordance with ASTM E2112.
- C. Attach window frame and shims to perimeter opening to accommodate construction tolerances and other irregularities as necessary.
- D. Align window plumb and level, free of warp or twist, and maintain dimensional tolerances and alignment with adjacent work.
- E. Set sill members and sill flashing in continuous bead of sealant.
- F. Provide thermal isolation where components penetrate or disrupt building insulation. Pack fibrous insulation in shim spaces at perimeter of assembly to maintain continuity of thermal barrier.
- G. Install operating hardware.

3.02 TOLERANCES

- A. Maximum Variation from Level or Plumb: 0.06 inches every 3 ft non-cumulative or 0.5 inches per 100 ft, whichever is less.

3.03 FIELD QUALITY CONTROL

- A. Provide services of vinyl window manufacturer's field representative to observe for proper installation of system and submit report.
- B. Provide field testing of installed vinyl windows by independent laboratory in accordance with AAMA 502 and AAMA/WDMA/CSA 101/I.S.2/A440 during construction process and before installation of interior finishes.
 1. Field test for water penetration in accordance with ASTM E1105 using Procedure B - cyclic static air pressure difference; test pressure shall not be less than 1.9 psf.

2. Field test for air leakage in accordance with ASTM E783 with uniform static air pressure difference of 6.27 psf.
 - C. Repair or replace fenestration components that have failed designated field testing, and retest to verify performance complies with specified requirements.
- 3.04 ADJUSTING
- A. Adjust hardware for smooth operation and secure weathertight closure.
- 3.05 CLEANING
- A. Remove protective material from pre-finished surfaces.
 - B. Wash surfaces by method recommended and acceptable to window manufacturer; rinse and wipe surfaces clean.
 - C. Remove excess glazing sealant by moderate use of mineral spirits or other solvent acceptable to sealant manufacturer and appropriate for application indicated.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Hardware for wood and fiberglass doors.
- B. Thresholds.
- C. Weatherstripping and gasketing.

1.02 REFERENCE STANDARDS

- A. ADA Standards - 2010 ADA Standards for Accessible Design 2010.
- B. BHMA A156.1 - Standard for Butts and Hinges 2021.
- C. BHMA A156.2 - Bored and Preamsembled Locks and Latches 2022.
- D. BHMA A156.4 - Door Controls - Closers 2019.
- E. BHMA A156.6 - Standard for Architectural Door Trim 2021.
- F. BHMA A156.7 - Template Hinge Dimensions 2016.
- G. BHMA A156.8 - Door Controls - Overhead Stops and Holders 2021.
- H. BHMA A156.13 - Mortise Locks & Latches Series 1000 2022.
- I. BHMA A156.16 - Auxiliary Hardware 2023.
- J. BHMA A156.17 - Self Closing Hinges & Pivots 2019.
- K. BHMA A156.18 - Materials and Finishes 2020.
- L. BHMA A156.21 - Thresholds 2019.
- M. BHMA A156.22 - Standard for Gasketing 2021.
- N. BHMA A156.28 - Standard for Recommended Practices for Mechanical Keying Systems 2023.
- O. BHMA A156.115 - Hardware Preparation in Steel Doors and Frames 2016.
- P. BHMA A156.115W - Hardware Preparation in Wood Doors with Wood or Steel Frames 2006.
- Q. DHI (KSN) - Keying Systems and Nomenclature 2019.
- R. DHI (LOCS) - Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames 2004.
- S. ICC A117.1 - Accessible and Usable Buildings and Facilities 2017.
- T. UL 437 - Standard for Key Locks Current Edition, Including All Revisions.
- U. UL 1784 - Standard for Air Leakage Tests of Door Assemblies Current Edition, Including All Revisions.

1.03 ADMINISTRATIVE REQUIREMENTS

- A. Coordinate the manufacture, fabrication, and installation of products that door hardware is installed on.
- B. Sequence installation to ensure utility connections are achieved in an orderly and expeditious manner.
- C. Preinstallation Meeting: Convene a preinstallation meeting one week prior to commencing work of this section; attendance is required by affected installers and the following:
 - 1. Owner.
 - 2. Installer's Architectural Hardware Consultant (AHC).
 - 3. Hardware Installer.
- D. Furnish templates for door and frame preparation to manufacturers and fabricators of products requiring internal reinforcement for door hardware.
- E. Convey Owner's keying requirements to manufacturer.

1.04 SUBMITTALS

- A. Product Data: Manufacturer's catalog literature for each type of hardware, marked to clearly show products to be furnished for this project, and includes construction details, material descriptions, finishes, and dimensions and profiles of individual components.
- B. Shop Drawings - Door Hardware Schedule: Submit detailed listing that includes each item of hardware to be installed on each door. Use door numbering scheme as included in Contract Documents.
 - 1. Prepared by or under supervision of Architectural Hardware Consultant (AHC).
 - 2. Provide complete description for each door listed.
 - 3. Provide manufacturer name, product names, and catalog numbers; include functions, types, styles, sizes and finishes of each item.
 - 4. Include account of abbreviations and symbols used in schedule.
- C. Manufacturer's Installation Instructions: Indicate special procedures and perimeter conditions requiring special attention.
- D. Maintenance Data: Include data on operating hardware, lubrication requirements, and inspection procedures related to preventative maintenance.
 - 1. Submit manufacturer's parts lists and templates.
- E. Keying Schedule:
 - 1. Submit three (3) copies of Keying Schedule in compliance with requirements established during Keying Requirements Meeting unless otherwise indicated.
- F. Specimen warranty.
- G. Maintenance Materials and Tools: Furnish the following for Owner's use in maintenance of project.
 - 1. Lock Cylinders: Ten for each master keyed group.
 - 2. Tools: One set of each special wrench or tool applicable for each different or special hardware component, whether supplied by hardware component manufacturer or not.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum three years of documented experience.
- B. Installer Qualifications: Company specializing in performing work of the type specified for commercial door hardware with at least three years of documented experience.
- C. Supplier Qualifications: Company with certified Architectural Hardware Consultant (AHC) to assist in work of this section.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Package hardware items individually; label and identify each package with door opening code to match door hardware schedule.

1.07 WARRANTY

- A. Manufacturer's Warranty: Provide warranty against defects in material and workmanship for period indicated. Complete forms in Owner's name and register with manufacturer.
 - 1. Closers: 25 years, minimum.
 - a. Concealed: 5 years, minimum
 - 2. Exit Devices: Three years, minimum.
 - 3. Locksets and Cylinders: Three years, minimum.
 - 4. Other Hardware: Two years, minimum.

PART 2 PRODUCTS

2.01 DESIGN AND PERFORMANCE CRITERIA

- A. Provide specified door hardware as required to make doors fully functional, compliant with applicable codes, and secure to extent indicated.
- B. Provide individual items of single type, of same model, and by same manufacturer.

- C. Provide door hardware products that comply with the following requirements:
 - 1. Applicable provisions of federal, state, and local codes.
 - 2. Accessibility: ADA Standards and ICC A117.1.
 - 3. Hardware Preparation for Steel Doors and Steel Frames: BHMA A156.115.
 - 4. Hardware Preparation for Wood Doors with Wood or Steel Frames: BHMA A156.115W.

2.02 HINGES

- A. Hinges: Comply with BHMA A156.1, Grade 1.
 - 1. Self Closing Hinges: Comply with BHMA A156.17.
 - 2. Butt Hinges: Comply with BHMA A156.1 and BHMA A156.7 for templated hinges.
 - a. Provide hinge width required to clear surrounding trim.
 - 3. Provide hinges on every swinging door.
 - 4. Provide five-knuckle full mortise butt hinges unless otherwise indicated.
 - 5. Provide ball-bearing hinges at each door with closer.
 - 6. Provide non-removable pins on exterior outswinging doors.
 - 7. Provide following quantity of butt hinges for each door:
 - a. Doors From 60 inches High up to 90 inches High: Three hinges.

2.03 LOCK CYLINDERS

- A. Lock Cylinders: Provide key access on outside of each lock, unless otherwise indicated.
 - 1. Provide cams and/or tailpieces as required for locking devices.

2.04 CLOSERS

- A. Closers: Comply with BHMA A156.4, Grade 1.
 - 1. Type: Concealed, overhead mounted and Surface mounted.
 - 2. Provide door closer on each exterior door.
 - 3. Where an overlapping astragal is included on pairs of swinging doors, provide coordinator to ensure door leaves close in proper order.

2.05 OVERHEAD STOPS AND HOLDERS

- A. Overhead Stops and Holders (Door Checks): Comply with BHMA A156.8, Grade 1.
 - 1. Provide stop for every swinging door, unless otherwise indicated.

2.06 PROTECTION PLATES

- A. Protection Plates: Comply with BHMA A156.6.
- B. Metal Properties: Stainless steel material.
 - 1. Metal, Standard Duty: Thickness 0.050 inch, minimum.
- C. Edges: Beveled, on four sides unless otherwise indicated.
- D. Fasteners: Countersunk screw fasteners.

2.07 KICK PLATES

- A. Kick Plates: Provide along bottom edge of push side of every door with closer, except aluminum storefront and glass entry doors, unless otherwise indicated.
 - 1. Singles: 8 inch high by 2 inch less door width (LDW) on push side of door.
 - 2. Pairs: 8 inch high by 1 inch less door width (LDW) on push side of doors.

2.08 DOOR HOLDERS

- A. Door Holders: Comply with BHMA A156.16, Grade 1.
 - 1. Provide surface mounted door holders when wall or floor stop is not applicable and hold-open device is mounted on door.
 - 2. Type: Push-to-Hold.
 - 3. Material: Stainless steel.

2.09 FLOOR STOPS

- A. Floor Stops: Comply with BHMA A156.16, Grade 1 and Resilient Material Retention Test as described in this standard.
 - 1. Provide floor stops when wall surface is not available; be cautious not to create a tripping hazard.
 - 2. Type: Push-to-Hold, with dome floor stop.
 - 3. Material: Stainless steel housing with rubber insert.

2.10 WALL STOPS

- A. Wall Stops: Comply with BHMA A156.16, Grade 1 and Resilient Material Retention Test as described in this standard.
 - 1. Provide wall stops to prevent damage to wall surface upon opening door.
 - 2. Type: Bumper, concave, wall stop.
 - 3. Material: Stainless steel housing with rubber insert.

2.11 ASTRAGALS

- A. Astragals: Comply with BHMA A156.22.
 - 1. Provide surface mounted astragal to cover or fill space for full door height between pair of doors or door and adjacent jamb.
 - 2. Type: Split, two parts, and with sealing gasket.
 - 3. Interior: Split, two parts, and with sealing gasket.
 - 4. Exterior: Security astragal with sealing gasket.
 - 5. Material: Stainless steel or Aluminum, with neoprene weatherstripping.
 - 6. Provide non-corroding fasteners at exterior locations.

2.12 THRESHOLDS

- A. Thresholds: Comply with BHMA A156.21.
 - 1. Provide threshold at interior doors for transition between two different floor types, and over building expansion joints, unless otherwise indicated.
 - 2. Provide threshold at each exterior door, unless otherwise indicated.
 - 3. Provide threshold with Sound Transmission Class (STC) of 25-30 at locations indicated.
 - 4. Type: Flat surface.
 - 5. Material: Aluminum.
 - 6. Threshold Surface: Fluted horizontal grooves across full width.
 - 7. Field cut threshold to profile of frame and width of door sill for tight fit.
 - 8. Provide non-corroding fasteners at exterior locations.

2.13 WEATHERSTRIPPING AND GASKETING

- A. Weatherstripping and Gasketing: Comply with BHMA A156.22.
 - 1. Head and Jamb Type: Screw applied, compatible with stop/closer arm mounting.
 - 2. Door Sweep Type: Door shoe with drip cap.
 - 3. Material: Stainless steel or Aluminum, with Neoprene or brush weatherstripping.
 - 4. Provide weatherstripping on each exterior door at head, jambs, and meeting stiles of door pairs, unless otherwise indicated.
 - 5. Provide door bottom sweep on each exterior door, unless otherwise indicated.
 - 6. Provide sound-rated gasketing and automatic door bottom on doors indicated as "Sound-Rated", "Acoustical", or with "Sound Transmission Class (STC) rating"; fabricate as continuous gasketing, do not cut or notch gasketing material.

2.14 LATCH PROTECTOR

- A. Latch Protector: Provide on door to protect latch from being tampered with while in locked position.
 - 1. Type: Standard latch protector.
 - 2. Material: Stainless steel.

2.15 SILENCERS

- A. Silencers: Provide at equal locations on door frame to mute sound of door's impact upon closing.
 - 1. Single Door: Provide three on strike jamb of frame.
 - 2. Pair of Doors: Provide two on head of frame, one for each door at latch side.
 - 3. Material: Rubber, black color.

2.16 KEY CONTROL SYSTEMS

- A. Key Control Systems: Comply with guidelines of BHMA A156.28.
 - 1. Provide keying information in compliance with DHI (KSN) standards.
 - 2. Keying: Grand master keyed.
 - 3. Include construction keying and control keying with removable core cylinders.
 - 4. Supply keys in following quantities:
 - a. 4 each Master keys.
 - b. 1 each Grand Master keys.
 - c. 4 Control keys if new system.
 - d. 6 Extra Cylinder cores. Two sets of three keyed alike.
 - e. 4 Change keys for each keyed core.
 - 5. Key Management System: For each keyed lock on project, provide one set of consecutively numbered duplicate key tags with hanging hole and snap catch.

2.17 FIRE DEPARTMENT LOCK BOX

- A. Fire Department Lock Box:
 - 1. Heavy-duty, surface mounted, solid stainless-steel box with hinged door and interior gasket seal; single drill resistant lock with dust covers and tamper alarm.
 - 2. Capacity: Holds 10 keys.
 - 3. Finish: Manufacturer's standard black.

2.18 FINISHES

- A. Finishes: Provide door hardware of same finish, unless otherwise indicated.
 - 1. Primary Finish: 625; bright chromium plated over nickel, with brass or bronze base material (former US equivalent US26); BHMA A156.18.
 - 2. Secondary Finish: 625; bright chromium plated over nickel, with brass or bronze base material (former US equivalent US26); BHMA A156.18.
 - a. Use secondary finish in kitchens, bathrooms, and other spaces containing chrome or stainless steel finished appliances, fittings, and equipment; provide primary finish on one side of door and secondary finish on other side if necessary.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install hardware in accordance with manufacturer's instructions and applicable codes.
- B. Use templates provided by hardware item manufacturer.
- C. Door Hardware Mounting Heights: Distance from finished floor to center line of hardware item. As indicated in following list; unless noted otherwise in Door Hardware Schedule or on drawings.
- D. Set exterior door thresholds with full-width bead of elastomeric sealant at each point of contact with floor providing a continuous weather seal; anchor thresholds with stainless steel countersunk screws.

3.02 ADJUSTING

- A. Adjust hardware for smooth operation.
- B. Adjust gasketing for complete, continuous seal; replace if unable to make complete seal.

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**SECTION 087100
DOOR HARDWARE**

3.03 CLEANING

- A. Clean finished hardware in accordance with manufacturer's written instructions after final adjustments have been made.
- B. Clean adjacent surfaces soiled by hardware installation.

PART 4 HARDWARE SETS

4.01 GENERAL

- A. These Hardware Sets indicate requirements for single doors that type with conditional requirements for pairs and other situations.

4.02 SET #01, DOORS: 102B

3 HINGES	FBB179 4.5" X 4.5"	26D	ST
1 STOREROOM LOCK		626	BE
1 LOCK GUARD	LG10	1630	IVE
1 OH STOP	90S	630	ST
1 SURFACE CLOSER	1461 EDA	689	LCN
1 KICK PLATE	K0050 10" X2" LDW B4E CS	630	TR
1 RAIN DRIP	346C	AL	PEM
1 SEAL	18100CNB	AL	PEM
1 THRESHOLD	BY DOOR MFR, COMPOSITE ADJUSTABLE		NA

4.03 HW 02 - EXTERIOR DOUBLE DOOR (102B)

6 HINGES	FBB179 4.5" X 4.5"	26D	ST
1 MANUAL FLUSH BOLT	FB458	626	BE
1 DUST PROOF STRIKE	LG10	1630	IVE
1 STORE ROOM LOCK	AL80RD SAT	626	SCH
1 OH STOP	90S	630	ST
1 SURFACE CLOSER	1461 EDA	689	LCN
1 KICK PLATE	K0050 10" X2" LDW B4E CS	630	TR
1 RAIN DRIP	346C	AL	PEM
1 SEAL	18100CNB	AL	PEM
ASTRAGAL	BY DOOR MFR	AL	
1 THRESHOLD	BY DOOR MFR, COMPOSITE ADJUSTABLE		NA

4.04 HW 03 - SIDE ACCESS DOOR (113B)

3 HINGES	FBB179 4.5" X 4.5"	26D	ST
1 STOREROOM LOCK		626	BE
1 LOCK GUARD	LG10	1630	IVE
1 OH STOP	90S	630	ST
1 SURFACE CLOSER	1461 EDA	689	LCN
1 KICK PLATE	K0050 10" X2" LDW B4E CS	630	TR
1 RAIN DRIP	346C	AL	PEMKO
1 SEAL	18100CNB	AL	PEMKO
1 THRESHOLD	BY DOOR MFR, COMPOSITE ADJUSTABLE		NA

4.05 HW 04 - PASSAGE (102A)

3 HINGES	FBB179 4.5" X 4.5"	26D	ST
1 PASSAGE SET	F10ELA	626	BE
1 DOOR CLOSER	QDC111	689	ST
1 KICK PLATE	K0050 10" X2" LDW B4E CS	630	TR
1 WALL BUMPER	1270WV	630	TR

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**SECTION 087100
DOOR HARDWARE**

	1 SEAL	5075 B HEAD AND JAMBS		NA
4.06	HW 05 - CONFERENCE ROOM DOOR (105, 111A, 111B)			
	3 HINGES	FBB179 4.5" X 4.5"	26D	ST
	1 CLASSROOM LOCK	45H-7R16J L/C	626	BE
	1 MORTISE CYLINDER	MATCH EXISTING SYSTEM	626	ME
	1 DOOR CLOSER	QDC111	689	ST
	1 KICK PLATE	K0050 10" X2" LDW B4E CS	630	TR
	1 WALL BUMPER	1270WV	630	TR
	1 SOUND SEAL	5075 B HEAD AND JAMBS		NA
	1 AUTO DOOR BOTTOM	423 N		NA
4.07	HW 06 - OFFICE (106)			
	3 HINGES	FBB179 4.5" X 4.5"	26D	ST
	1 PRIVACY SET	45H-0L16J VIN	626	BE
	1 MORTISE CYLINDER	MATCH EXISTING SYSTEM	626	ME
	1 DOOR CLOSER	QDC111	689	ST
	1 KICK PLATE	K0050 10" X2" LDW B4E CS	630	TR
	1 WALL BUMPER	1270WV	630	TR
	1 GASKETING	5050 B HEAD AND JAMBS		NA
4.08	HW 07 - RESTROOM DOOR (104, 107, 108)			
	3 HINGES	FBB179 4.5" X 4.5"	26D	ST
	1 PRIVACY SET	45H-0L16J VIN	626	BE
	1 DOOR CLOSER	QDC111	689	ST
	1 KICK PLATE	K0050 10" X2" LDW B4E CS	630	TR
	1 WALL BUMPER	1270WV	630	TR
	1 GASKETING	5050 B HEAD & JAMBS		NA
4.09	HW 08 - STORAGE DOOR (115)			
	3 HINGES	FBB179 4.5" X 4.5"	26D	ST
	1 STOREROOM LOCK	45H-7D16J L/C	626	BE
	1 MORTISE CYLINDER	MATCH EXISTING SYSTEM	626	ME
	1 DOOR CLOSER	QDC111	689	ST
	1 KICK PLATE	K0050 10" X2" LDW B4E CS	630	TR
	1 WALL BUMPER	1270WV	630	TR
	1 GASKETING	5050 B HEAD & JAMBS		NA

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Insulating glass units.
- B. Glazing units.
- C. Glazing compounds.

1.02 REFERENCE STANDARDS

- A. 16 CFR 1201 - Safety Standard for Architectural Glazing Materials Current Edition.
- B. ANSI Z97.1 - American National Standard for Safety Glazing Materials Used in Buildings - Safety Performance Specifications and Methods of Test 2015 (Reaffirmed 2020).
- C. ASTM C864 - Standard Specification for Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers 2005 (Reapproved 2019).
- D. ASTM C920 - Standard Specification for Elastomeric Joint Sealants 2018.
- E. ASTM C1036 - Standard Specification for Flat Glass 2021.
- F. ASTM C1048 - Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass 2018.
- G. ASTM C1172 - Standard Specification for Laminated Architectural Flat Glass 2019.
- H. ASTM C1193 - Standard Guide for Use of Joint Sealants 2016 (Reapproved 2023).
- I. ASTM C1376 - Standard Specification for Pyrolytic and Vacuum Deposition Coatings on Flat Glass 2021a.
- J. ASTM E2190 - Standard Specification for Insulating Glass Unit Performance and Evaluation 2019.
- K. GANA (GM) - GANA Glazing Manual 2022.
- L. GANA (SM) - GANA Sealant Manual 2008.
- M. GANA (LGRM) - Laminated Glazing Reference Manual 2019.
- N. IGMA TM-3000 - North American Glazing Guidelines for Sealed Insulating Glass Units for Commercial & Residential Use 1990 (2016).

1.03 SUBMITTALS

- A. Product Data on Glazing Unit Glazing Types: Provide structural, physical and environmental characteristics, size limitations, special handling and installation requirements.
- B. Product Data on Glazing Compounds and Accessories: Provide chemical, functional, and environmental characteristics, limitations, special application requirements, and identify available colors.
- C. Samples: Submit two samples 12 by 12 inch in size of glass units.
- D. Warranty Documentation: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

1.04 QUALITY ASSURANCE

- A. Perform Work in accordance with GANA (GM), GANA (SM), GANA (LGRM), and IGMA TM-3000 for glazing installation methods.
- B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years of documented experience.
 - 1. Provide certified glass products through ANSI accredited certifications that include plant audits and independent laboratory performance testing.
- C. Installer Qualifications: Company specializing in performing work of the type specified and with at least three years documented experience.

1.05 WARRANTY

- A. Laminated Glass: Provide a ten (10) year manufacturer warranty to include coverage for delamination, including providing products to replace failed units.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Float Glass Manufacturers:
 - 1. Guardian Glass, LLC: www.guardianglass.com/#sle.
 - 2. Pilkington North America Inc: www.pilkington.com/na/#sle.
 - 3. Vitro Architectural Glass (formerly PPG Glass): www.vitroglazings.com/#sle.
 - 4. Or approved equal.

2.02 GLASS MATERIALS

- A. Float Glass: Provide float glass based glazing unless otherwise indicated.
 - 1. Annealed Type: ASTM C1036, Type I - Transparent Flat, Class 1 - Clear, Quality - Q3.
 - 2. Kind HS - Heat-Strengthened Type: Complies with ASTM C1048.
 - 3. Kind FT - Fully Tempered Type: Complies with ASTM C1048.
 - 4. Fully Tempered Safety Glass: Complies with ANSI Z97.1 or 16 CFR 1201 criteria for safety glazing used in hazardous locations.
- B. Laminated Glass: Float glass laminated in accordance with ASTM C1172.
 - 1. Laminated Safety Glass: Complies with ANSI Z97.1 - Class B or 16 CFR 1201 - Category I impact test requirements.
 - 2. Polyvinyl Butyral (PVB) Interlayer: 0.030 inch thick, minimum.

2.03 INSULATING GLASS UNITS

- A. Insulating Glass Units: Types as indicated.
 - 1. Durability: Certified by an independent testing agency to comply with ASTM E2190.
 - 2. Coated Glass: Comply with requirements of ASTM C1376 for pyrolytic (hard-coat) or magnetic sputter vapor deposition (soft-coat) type coatings on flat glass; coated vision glass, Kind CV; coated overhead glass, Kind CO; or coated spandrel glass, Kind CS.
 - 3. Spacer Color: Black.
 - 4. Edge Seal:
 - a. Dual-Sealed System: Provide polyisobutylene sealant as primary seal applied between spacer and glass panes, and silicone, polysulfide, or polyurethane sealant as secondary seal applied around perimeter.
 - b. Color: Black.
 - 5. Purge interpane space with dry air, hermetically sealed.

2.04 GLAZING COMPOUNDS

- A. Silicone Sealant: Single component; neutral curing; capable of water immersion without loss of properties; nonbleeding, nonstaining; ASTM C920 Type S, Grade NS, Class 25, Uses M, A, and G; with cured Shore A hardness range of 15 to 25; color as selected.

2.05 ACCESSORIES

- A. Setting Blocks: Silicone, with 80 to 90 Shore A durometer hardness; ASTM C864 Option II. Length of 0.1 inch for each square foot of glazing or minimum 4 inch by width of glazing rabbet space minus 1/16 inch by height to suit glazing method and pane weight and area.
- B. Spacer Shims: Neoprene, 50 to 60 Shore A durometer hardness; ASTM C864 Option II. Minimum 3 inch long by one half the height of the glazing stop by thickness to suit application, self adhesive on one face.
- C. Glazing Tape, Back Bedding Mastic Type: Preformed, butyl-based, 100 percent solids compound with integral resilient spacer rod applicable to application indicated; 5 to 30 cured Shore A durometer hardness; coiled on release paper; black color.

- D. Glazing Splines: Resilient silicone extruded shape to suit glazing channel retaining slot; ASTM C864 Option II; color black.

PART 3 EXECUTION

3.01 INSTALLATION, GENERAL

- A. Install glazing in compliance with written instructions of glass, gaskets, and other glazing material manufacturers, unless more stringent requirements are indicated, including those in glazing referenced standards.
- B. Install glazing sealants in accordance with ASTM C1193, GANA (SM), and manufacturer's instructions.
- C. Do not exceed edge pressures around perimeter of glass lites as stipulated by glass manufacturer.
- D. Set glass lites of system with uniform pattern, draw, bow, and similar characteristics.
- E. Prevent glass from contact with any contaminating substances that may be the result of construction operations such as, and not limited to the following; weld splatter, fire-safing, plastering, mortar droppings, etc.

3.02 INSTALLATION - DRY GLAZING METHOD (GASKET GLAZING)

- A. Application - Exterior and/or Interior Glazed: Set glazing infills from either the exterior or the interior of the building.
- B. Place setting blocks at 1/4 points with edge block no more than 6 inch from corners.
- C. Rest glazing on setting blocks and push against fixed stop with sufficient pressure on gasket to attain full contact.
- D. Install removable stops without displacing glazing gasket; exert pressure for full continuous contact.

3.03 INSTALLATION - DRY GLAZING METHOD (TAPE AND TAPE)

- A. Application - Interior Glazed: Set glazing infills from the interior of the building.
- B. Cut glazing tape to length and set against permanent stops, projecting 1/16 inch above sight line.
- C. Place setting blocks at 1/4 points with edge block no more than 6 inch from corners.
- D. Rest glazing on setting blocks and push against tape for full contact at perimeter of pane or unit.
- E. Place glazing tape on free perimeter of glazing in same manner described above.
- F. Install removable stop without displacement of tape. Exert pressure on tape for full continuous contact.
- G. Carefully trim protruding tape with knife.

3.04 INSTALLATION - WET/DRY GLAZING METHOD (TAPE AND SEALANT)

- A. Application - Interior Glazed: Set glazing infills from the interior of the building.
- B. Cut glazing tape to length and install against permanent stops, projecting 1/16 inch above sight line.
- C. Place setting blocks at 1/4 points with edge block no more than 6 inch from corners.
- D. Rest glazing on setting blocks and push against tape to ensure full contact at perimeter of pane or unit.
- E. Install removable stops, spacer shims inserted between glazing and applied stops at 24 inch intervals, 1/4 inch below sight line.
- F. Fill gaps between pane and applied stop with sealant to depth equal to bite on glazing, to uniform and level line.
- G. Carefully trim protruding tape with knife.

3.05 FIELD QUALITY CONTROL

- A. Glass and Glazing product manufacturers to provide field surveillance of the installation of their products.
- B. Monitor and report installation procedures and unacceptable conditions.

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**SECTION 088000
GLAZING**

3.06 PROTECTION

- A. After installation, mark pane with an 'X' by using removable plastic tape or paste; do not mark heat absorbing or reflective glass units.
- B. Remove and replace glass that is damaged during construction period prior to Date of Substantial Completion.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Privacy film applied to new glazing assemblies.

1.02 REFERENCE STANDARDS

- A. 16 CFR 1201 - Safety Standard for Architectural Glazing Materials Current Edition.
- B. ANSI Z97.1 - American National Standard for Safety Glazing Materials Used in Buildings - Safety Performance Specifications and Methods of Test 2015 (Reaffirmed 2020).

1.03 SUBMITTALS

- A. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Record of product certification for safety requirements.
 - 2. Preparation instructions and recommendations.
 - 3. Storage and handling requirements and recommendations.
 - 4. Installation methods.
- B. Samples: For each film product to be used, minimum size 4 inches by 6 inches, representing actual product, color, and patterns.
- C. Specimen Warranty.

1.04 WARRANTY

- A. Provide 10 year manufacturer's replacement warranty to cover film against peeling, cracking, discoloration, and deterioration.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Solyx; SXF-0600 Snow White Light Diffuser
- B. Or approved equal.

2.02 SECURITY GLAZING FILM

- A. Translucent Light Diffuser Film.
 - 1. Surface applied film.
 - 2. Solar Control Properties: Manufacturer's standard.
 - a. Film: Polymeric Vinyl.
 - b. Adhesive: Pressure-sensitive.
 - c. Thickness: 3 mil.
 - d. Liner: Polyester Release Liner
 - e. Color: White.
 - f. Visible Light Transmittance (VLT): 8 percent, nominal.

2.03 MATERIALS

- A. Glazing Film: Transparent polyester film for permanent bonding to glass.
 - 1. Thickness: 0.008 inch, minimum.
 - 2. Color: Clear.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Do not apply glazing film when surface temperature is less than 40 degrees F or if precipitation is imminent.
- B. Install in accordance with manufacturer's instructions, without air bubbles, wrinkles, streaks, bands, thin spots, pinholes, or gaps, as required to achieve specified performance.

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**SECTION 088723
SAFETY AND SECURITY FILMS**

- C. Accurately cut film with straight edges to required sizes allowing 1/16 inch to 1/8 inch gap at perimeter of glazed panel unless otherwise required by anchorage method.
- D. Seams: Seam film only as required to accommodate material sizes; form seams vertically without overlaps and gaps; do not install with horizontal seams.
- E. Clean glass and anchoring accessories following installation. Remove excess sealants and other glazing materials from adjacent finished surfaces.
- F. Remove labels and protective covers.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Louvers, frames, and accessories.

1.02 REFERENCE STANDARDS

- A. AAMA 2604 - Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix) 2022.
- B. AMCA 500-L - Laboratory Methods of Testing Louvers for Rating 2023.
- C. AMCA 511 - Certified Ratings Program Product Rating Manual for Air Control Devices 2021, with Editorial Revision (2022).

1.03 SUBMITTALS

- A. Product Data: Provide data describing design characteristics, maximum recommended air velocity, design free area, materials and finishes.
- B. Shop Drawings: Indicate louver layout plan and elevations, opening and clearance dimensions, and tolerances; head, jamb and sill details; blade configuration, screens, blank-off areas required, and frames.
- C. Test Reports: Independent agency reports showing compliance with specified performance criteria.

1.04 WARRANTY

- A. Provide five year manufacturer's warranty against distortion, metal degradation, and connection failures of louver components.
 - 1. Finish: Include twenty year coverage against degradation of exterior finish.

PART 2 PRODUCTS

2.01 LOUVERS

- A. Louvers: Factory fabricated and assembled, complete with frame, mullions, and accessories; AMCA Certified in accordance with AMCA 511.
 - 1. Intake Louvers: Design to allow maximum of 0.01 oz/sq ft water penetration at calculated intake design velocity based on design air flow and actual free area, when tested in accordance with AMCA 500-L.
 - 2. Drainable Blades: Continuous rain stop at front or rear of blade aligned with vertical gutter recessed into both jambs of frame.
 - 3. Screens: Provide insect screens at intake louvers and bird screens at exhaust louvers.
- B. Louvers: Aluminum outer frames, louver end frames only, non-thermally broken, air ventilator with overlapping louvers.
 - 1. Blades: Drainable.
 - 2. Aluminum Finish: High performance powder coatings; finish welded units after fabrication.
 - 3. Frame Size: As indicated on drawings.

2.02 FINISHES

- A. High Performance Organic Coating: Primer and topcoat coatings system based on polyester resin powder containing high-level of isophthalic acid; with minimum dry film thickness (DFT) of 2 to 3.5 mil, 0.0020 to 0.0035 inch over aluminum extrusions and panels; meeting requirements of AAMA 2604.
- B. Color: As indicated on drawings.

2.03 ACCESSORIES

- A. Screens: Frame of same material as louver, with reinforced corners; removable, screw attached; installed on inside face of louver frame.
- B. Bird Screen: Interwoven wire mesh of steel, 14 gauge, 0.0641 inch diameter wire, 1/2 inch open weave, diagonal design.

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**SECTION 089100
LOUVERS**

- C. Insect Screen: 18 x 16 size aluminum mesh.
- D. Fasteners and Anchors: Galvanized steel.
- E. Head and Sill Flashings: See Section 076200.
- F. Sealant for Setting Sills and Sill Flashing: Non-curing butyl type.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install louver assembly in accordance with manufacturer's instructions.
- B. Coordinate with installation of flashings by others.
- C. Install louvers level and plumb.
- D. Set sill members and sill flashing in continuous bead of sealant.
- E. Align louver assembly to ensure moisture shed from flashings and diversion of moisture to exterior.
- F. Secure louver frames in openings with concealed fasteners.
- G. Coordinate with installation of mechanical ductwork.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Performance criteria for gypsum board assemblies.
- B. Metal stud wall framing.
- C. Metal channel ceiling framing.
- D. Gypsum wallboard.
- E. Joint treatment and accessories.

1.02 REFERENCE STANDARDS

- A. ASTM C475/C475M - Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board 2017 (Reapproved 2022).
- B. ASTM C514 - Standard Specification for Nails for the Application of Gypsum Board 2004 (Reapproved 2020).
- C. ASTM C840 - Standard Specification for Application and Finishing of Gypsum Board 2020.
- D. ASTM C1047 - Standard Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base 2019.
- E. ASTM C1396/C1396M - Standard Specification for Gypsum Board 2017.
- F. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements 2009 (Reapproved 2016).
- G. ASTM E413 - Classification for Rating Sound Insulation 2022.
- H. GA-216 - Application and Finishing of Gypsum Panel Products 2021.
- I. GA-600 - Fire Resistance and Sound Control Design Manual 2021.

1.03 ADMINISTRATIVE REQUIREMENTS

- A. Preinstallation Meeting: Conduct a preinstallation meeting one week prior to the start of the work of this section; require attendance by all affected installers.

1.04 SUBMITTALS

- A. See Section 013000 - Administrative Requirements for submittal procedures.
- B. Product Data:
 - 1. Provide data on gypsum board, accessories, and joint finishing system.

1.05 QUALITY ASSURANCE

- A. Gypsum panel products shall be manufactured in the USA and shall carry a certification stamp on the product.
- B. Installer Qualifications: Company specializing in performing work of the type specified and with at least three years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Store gypsum products and accessories indoors and keep above freezing. Elevate boards above floor, on nonwicking supports, in accordance with manufacturer's recommendations.

PART 2 PRODUCTS

2.01 GYPSUM BOARD ASSEMBLIES

- A. Provide completed assemblies complying with ASTM C840 and GA-216.
- B. Interior Partitions, Indicated as Acoustic: Provide completed assemblies with the following characteristics:

1. Acoustic Attenuation: STC of 45-49 calculated in accordance with ASTM E413, based on tests conducted in accordance with ASTM E90.
 - C. Fire-Resistance-Rated Assemblies: Provide completed assemblies complying with applicable code.
- 2.02 BOARD MATERIALS
- A. Manufacturers - Gypsum-Based Board:
 1. CertainTeed Corporation: www.certainteed.com/#sle.
 2. Georgia-Pacific Gypsum: www.gpgypsum.com/#sle.
 3. USG Corporation: www.usg.com/#sle.
 - B. Gypsum Wallboard: Paper-faced gypsum panels as defined in ASTM C1396/C1396M; sizes to minimize joints in place; ends square cut.
 1. Application: Use for vertical surfaces and ceilings, unless otherwise indicated.
 2. Glass Mat Faced Products:
 - a. CertainTeed Corporation; GlasRoc Interior: www.certainteed.com/#sle.
 - b. Georgia-Pacific Gypsum; DensArmor Plus: www.gpgypsum.com/#sle.
 - c. USG Corporation; Sheetrock Brand Glass-Mat Panels Mold Tough Regular: www.usg.com/#sle.
 - C. Ceiling Board: Special sag resistant gypsum ceiling board as defined in ASTM C1396/C1396M; sizes to minimize joints in place; ends square cut.
 1. Application: Ceilings, unless otherwise indicated.
 2. Thickness: 1/2 inch.
 3. Edges: Tapered.
 4. Products:
 - a. CertainTeed Corporation; Interior Ceiling Drywall: www.certainteed.com/#sle.
 - b. Georgia-Pacific Gypsum; ToughRock Span 24 Ceiling Board: www.gpgypsum.com/#sle.
 - c. USG Corporation; Sheetrock Brand UltraLight Panels 1/2 in. (12.7 mm): www.usg.com/#sle.
- 2.03 GYPSUM BOARD ACCESSORIES
- A. Acoustic Insulation: See Section 072100.
 - B. Acoustic Sealant: Acrylic emulsion latex or water-based elastomeric sealant; do not use solvent-based non-curing butyl sealant.
 - C. Beads, Joint Accessories, and Other Trim: ASTM C1047, rigid plastic, galvanized steel, or rolled zinc, unless noted otherwise.
 1. Corner Beads: Low profile, for 90 degree outside corners.
 - D. Joint Materials: ASTM C475/C475M and as recommended by gypsum board manufacturer for project conditions.
 - E. Nails for Attachment to Wood Members: ASTM C514.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that project conditions are appropriate for work of this section to commence.

3.02 FRAMING INSTALLATION

- A. Suspended Ceilings and Soffits: Space framing and furring members as indicated.
- B. Studs: Space studs as indicated.
 1. Extend partition framing to structure in all locations.
- C. Furring for Fire-Resistance Ratings: Install as required for fire-resistance ratings indicated and to GA-600 requirements.
- D. Blocking: Install wood blocking for support of:
 1. Framed openings.

2. Wall-mounted cabinets.
3. Plumbing fixtures.
4. Toilet partitions.
5. Toilet accessories.
6. Wall-mounted door hardware.

3.03 ACOUSTIC ACCESSORIES INSTALLATION

- A. Acoustic Insulation: Place tightly within spaces, around cut openings, behind and around electrical and mechanical items within partitions, and tight to items passing through partitions.
- B. Sound Isolation Tape: Apply to vertical studs and top and bottom tracks/runners in accordance with manufacturer's instructions.
- C. Acoustic Sealant: Install in accordance with manufacturer's instructions.
 1. Place one bead continuously on substrate before installation of perimeter framing members.
 2. Seal around all penetrations by conduit, pipe, ducts, and rough-in boxes, except where firestopping is provided.

3.04 BOARD INSTALLATION

- A. Comply with ASTM C840, GA-216, and manufacturer's instructions. Install to minimize butt end joints, especially in highly visible locations.
- B. Single-Layer Nonrated: Install gypsum board in most economical direction, with ends and edges occurring over firm bearing.
- C. Fire-Resistance-Rated Construction: Install gypsum board in strict compliance with requirements of assembly listing.
- D. Exposed Gypsum Board in Interior Wet Areas: Seal joints, cut edges, and holes with water-resistant sealant.
- E. Installation on Wood Framing: For rated assemblies, comply with requirements of listing authority. For nonrated assemblies, install as follows:
 1. Single-Layer Applications: Screw attachment.

3.05 INSTALLATION OF TRIM AND ACCESSORIES

- A. Control Joints: Place control joints consistent with lines of building spaces and as indicated.
 1. Not more than 30 feet apart on walls and ceilings over 50 feet long.
- B. Corner Beads: Install at external corners, using longest practical lengths.
- C. Moisture Guard Trim: Install on bottom edge of gypsum board according to manufacturer's instructions and in locations indicated on drawings.

3.06 JOINT TREATMENT

- A. Glass Mat Faced Gypsum Board and Exterior Glass Mat Faced Sheathing: Use fiberglass joint tape, embed and finish with setting type joint compound.
- B. Finish gypsum board in accordance with levels defined in ASTM C840, as follows:
 1. Level 4: Walls and ceilings to receive paint finish or wall coverings, unless otherwise indicated.
 2. Level 2: In utility areas, behind cabinetry, and on backing board to receive tile finish.
 3. Level 1: Fire-resistance-rated wall areas above finished ceilings, whether or not accessible in the completed construction.
- C. Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes.
 1. Feather coats of joint compound so that camber is maximum 1/32 inch.

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**SECTION 092116
GYPSUM BOARD ASSEMBLIES**

3.07 TOLERANCES

- A. Maximum Variation of Finished Gypsum Board Surface from True Flatness: 1/8 inch in 10 feet in any direction.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Resilient sheet flooring.
- B. Resilient tile flooring.
- C. Resilient base.
- D. Installation accessories.

1.02 REFERENCE STANDARDS

- A. ASTM F1861 - Standard Specification for Resilient Wall Base 2021.
- B. ASTM F2034 - Standard Specification for Sheet Linoleum Floor Covering 2018.
- C. ASTM F2195 - Standard Specification for Linoleum Floor Tile 2018 (Reapproved 2023).

1.03 SUBMITTALS

- A. Product Data: Provide data on specified products, describing physical and performance characteristics; including sizes, patterns and colors available; and installation instructions.
- B. Selection Samples: Submit manufacturer's complete set of color samples for Owner's initial selection.
- C. Verification Samples: Submit two samples, 6 by 6 inch in size illustrating color and pattern for each resilient flooring product specified.
- D. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
 - 1. Extra Flooring Material: 1 box for every 50 boxes or fraction thereof, of each type and color.

1.04 QUALITY ASSURANCE

- A. Installer Qualifications: Company specializing in installing specified flooring with minimum three years documented experience.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Store all materials off of the floor in an acclimatized, weather-tight space.

PART 2 PRODUCTS

2.01 SHEET FLOORING

- A. Linoleum Sheet Flooring: Homogeneous wear layer bonded to backing, with color and pattern through wear layer thickness.
 - 1. Manufacturers:
 - a. Forbo Flooring, Inc; CP Sheet: www.forboflooringna.com/#sle.
 - b. Or approved equal.
 - 2. Minimum Requirements: Comply with ASTM F2034, Type corresponding to type specified.
 - 3. Backing: Jute fabric.
 - 4. Thickness: 0.080 inch, minimum, excluding backing.
 - 5. Color: To be selected by Owner from manufacturer's full range.

2.02 TILE FLOORING

- A. Linoleum Tile: Homogeneous wear layer bonded to backing, with color and pattern through wear layer thickness.
 - 1. Manufacturers:
 - a. Forbo Flooring, Inc; MCT: www.forboflooringna.com/#sle.
 - b. Or approved equal.
 - 2. Minimum Requirements: Comply with ASTM F2195, Type corresponding to type specified.
 - 3. Backing: Synthetic fabric.
 - 4. Thickness: 0.100 inch, minimum, excluding backing.
 - 5. Basis of Design: Forbo Marmoleum Concrete, 'Orbit'.

2.03 RESILIENT BASE

- A. Resilient Base: ASTM F1861, Type TS, rubber, vulcanized thermoset; style as scheduled.
 - 1. Manufacturers:
 - a. Johnsonite, a Tarkett Company: www.johnsonite.com/#sle.
 - b. Or approved equal.
 - 2. Height: 4 inches.
 - 3. Thickness: 0.125 inch.
 - 4. Finish: Satin.
 - 5. Basis of Design: Johnsonite 4" Cove Base, 'Fawn'.
 - 6. Accessories: Premolded external corners and internal corners.

2.04 ACCESSORIES

- A. Primers, Adhesives, and Seam Sealer: Waterproof; types recommended by flooring manufacturer.
- B. Transition Strips: Metal.
 - 1. Manufacturers:
 - a. Schuler Systems: schluter.com/#sle.
 - b. Or approved equal.
- C. Sealer and Wax: Types recommended by flooring manufacturer.

PART 3 EXECUTION

3.01 INSTALLATION - GENERAL

- A. Starting installation constitutes acceptance of subfloor conditions.
- B. Install in accordance with manufacturer's written instructions.
- C. Adhesive-Applied Installation:
 - 1. Place copper grounding strip in conductive adhesive and apply additional adhesive to top side of strip before installing static control flooring. Allow strip to extend beyond flooring in accordance with static control flooring manufacturer's instructions. Refer to Section 260526 for grounding and bonding to building grounding system.
 - 2. Fit joints and butt seams tightly.
 - 3. Set flooring in place, press with heavy roller to attain full adhesion.
- D. Where type of floor finish, pattern, or color are different on opposite sides of door, terminate flooring under centerline of door.
- E. Install edge strips at unprotected or exposed edges, where flooring terminates, and where indicated.
 - 1. Metal Strips: Attach to substrate before installation of flooring using stainless steel screws.
- F. Scribe flooring to walls, columns, cabinets, floor outlets, and other appurtenances to produce tight joints.

3.02 INSTALLATION - SHEET FLOORING

- A. Lay flooring with joints and seams parallel to longer room dimensions, to produce minimum number of seams. Lay out seams to avoid widths less than 1/3 of roll width; match patterns at seams.
- B. Seams are prohibited in bathrooms, kitchens, toilet rooms, and custodial closets.
- C. Cut sheet at seams in accordance with manufacturer's instructions.

3.03 INSTALLATION - TILE FLOORING

- A. Mix tile from container to ensure shade variations are consistent when tile is placed, unless otherwise indicated in manufacturer's installation instructions.
- B. Lay flooring with joints and seams parallel to building lines to produce symmetrical pattern.
- C. Install plank tile with a random offset of at least 6 inches from adjacent rows.

3.04 INSTALLATION - RESILIENT BASE

- A. Fit joints tightly and make vertical. Maintain minimum dimension of 18 inches between joints.

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**SECTION 096500
RESILIENT FLOORING**

- B. Miter internal corners. At external corners, use premolded units. At exposed ends, use premolded units.
- C. Install base on solid backing. Bond tightly to wall and floor surfaces.
- D. Scribe and fit to door frames and other interruptions.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Carpet tile, fully adhered.

1.02 REFERENCE STANDARDS

- A. ASTM D2859 - Standard Test Method for Ignition Characteristics of Finished Textile Floor Covering Materials 2016 (Reapproved 2021).
- B. CRI 104 - Standard for Installation of Commercial Carpet 2015.

1.03 SUBMITTALS

- A. Product Data: Provide data on specified products, describing physical and performance characteristics; sizes, patterns, colors available, and method of installation.
- B. Shop Drawings: Indicate layout of joints.
- C. Samples: Submit two carpet tiles illustrating color and pattern design for each carpet color selected.
- D. Manufacturer's Installation Instructions: Indicate special procedures and perimeter conditions requiring special attention.
- E. Operation and Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning.
- F. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
 - 1. Extra Carpet Tiles: Quantity equal to 5 percent of total installed of each color and pattern installed.

1.04 QUALITY ASSURANCE

- A. Installer Qualifications: Company specializing in installing carpet tile with minimum three years documented experience and approved by carpet tile manufacturer.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Tile Carpeting:
 - 1. Interface: www.interface.com/#sle.
 - 2. Or approved equal.

2.02 MATERIALS

- A. Tile Carpeting: Tufted, manufactured in one color dye lot.
 - 1. Tile Size: 18 by 18 inch, nominal.
 - 2. Products & Colors Basis of Design:
 - a. Sew Straight 'Moss', 60% coverage.
 - b. Primary Stitch, 'Moss', 32% coverage.
 - c. Viva Colores 'Teja', 2% coverage.
 - d. Viva Colores 'Grana', 2% coverage.
 - e. Viva Colores, 'Caqui', 2% coverage.
 - f. Viva Colores, 'Salvia', 2% coverage.

2.03 ACCESSORIES

- A. Edge Strips: Embossed aluminum, color as selected by Owner.
- B. Carpet Tile Adhesive: Recommended by carpet tile manufacturer.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Starting installation constitutes acceptance of subfloor conditions.

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**SECTION 096813
TILE CARPETING**

- B. Install carpet tile in accordance with manufacturer's instructions.
- C. Blend carpet from different cartons to ensure minimal variation in color match.
- D. Cut carpet tile clean. Fit carpet tight to intersection with vertical surfaces without gaps.
- E. Lay carpet tile in square pattern, with pile direction parallel to next unit, set parallel to building lines.
- F. Fully adhere carpet tile to substrate.
- G. Trim carpet tile neatly at walls and around interruptions.
- H. Complete installation of edge strips, concealing exposed edges.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Surface preparation.
- B. Field application of paints.
- C. Scope: Finish exterior surfaces exposed to view, unless fully factory-finished and unless otherwise indicated.
- D. Do Not Paint or Finish the Following Items:
 - 1. Items factory-finished unless otherwise indicated; materials and products having factory-applied primers are not considered factory finished.
 - 2. Items indicated to receive other finishes.
 - 3. Items indicated to remain unfinished.
 - 4. Fire rating labels, equipment serial number and capacity labels, and operating parts of equipment.
 - 5. Non-metallic roofing and flashing.
 - 6. Stainless steel, anodized aluminum, bronze, terne-coated stainless steel, zinc, and lead.
 - 7. Floors, unless specifically indicated.
 - 8. Glass.
 - 9. Concealed pipes, ducts, and conduits.

1.02 REFERENCE STANDARDS

- A. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency current edition.
- B. ASTM D4442 - Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Based Materials 2020.
- C. MPI (APL) - Master Painters Institute Approved Products List; Master Painters and Decorators Association Current Edition.
- D. MPI (APSM) - Master Painters Institute Architectural Painting Specification Manual Current Edition.
- E. SSPC V1 (PM1) - Good Painting Practice: Painting Manual Volume 1 2016.
- F. SSPC-SP 1 - Solvent Cleaning 2015, with Editorial Revision (2016).
- G. SSPC-SP 2 - Hand Tool Cleaning 2018.
- H. SSPC-SP 6 - Commercial Blast Cleaning 2007.

1.03 SUBMITTALS

- A. Product Data: Provide complete list of products to be used, with the following information for each:
 - 1. Manufacturer's name, product name and/or catalog number, and general product category (e.g. "alkyd enamel").
 - 2. MPI product number (e.g. MPI #47).
 - 3. Cross-reference to specified paint system(s) product is to be used in; include description of each system.
 - 4. Manufacturer's installation instructions.
- B. Samples: Submit three paper "draw down" samples, 8-1/2 by 11 inches in size, illustrating range of colors available for each finishing product specified.
 - 1. Where sheen is specified, submit samples in only that sheen.
- C. Maintenance Data: Submit data including finish schedule showing where each product/color/finish was used, product technical data sheets, material safety data sheets (MSDS), care and cleaning instructions, touch-up procedures, repair of painted and finished surfaces, and color samples of each color and finish used.
- D. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.

1. Extra Paint and Finish Materials: 1 gallon of each color; from the same product run, store where directed.
2. Label each container with color in addition to the manufacturer's label.

1.04 QUALITY ASSURANCE

- A. Applicator Qualifications: Company specializing in performing the type of work specified with minimum 3 years experience and approved by manufacturer.

1.05 MOCK-UPS

- A. Provide panel, 8 feet long by 8 feet wide, illustrating paint color, texture, and finish.
- B. Locate where directed by Owner.
- C. Mock-up may remain as part of the work.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.
- B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.
- C. Paint Materials: Store at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.

1.07 FIELD CONDITIONS

- A. Do not apply materials when surface and ambient temperatures are outside the paint product manufacturer's temperature ranges.
- B. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.
- C. Do not apply exterior paint and finishes during rain or snow, or when relative humidity is outside the humidity ranges required by the paint product manufacturer.
- D. Minimum Application Temperatures for Latex Paints: 50 degrees F for exterior; unless required otherwise by manufacturer's instructions.
- E. Provide lighting level of 80 ft candles measured mid-height at substrate surface.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Provide paints and finishes used in any individual system from the same manufacturer; no exceptions.
- B. Paints:
 1. Behr Process Corporation: www.behr.com/#sle.
 2. Rodda Paint Company: www.rodmapaint.com/#sle.
 3. Sherwin-Williams Company: www.sherwin-williams.com/#sle.
- C. Primer Sealers: Same manufacturer as top coats.

2.02 PAINTS AND FINISHES - GENERAL

- A. Paints and Finishes: Ready-mixed, unless required to be a field-catalyzed paint.
 1. Where MPI paint numbers are specified, provide products listed in Master Painters Institute Approved Product List, current edition available at www.paintinfo.com, for specified MPI categories, except as otherwise indicated.
 2. Provide paints and finishes of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.

3. Provide materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
4. Supply each paint material in quantity required to complete entire project's work from a single production run.
5. Do not reduce, thin, or dilute paint or finishes or add materials unless such procedure is described explicitly in manufacturer's product instructions.

2.03 PAINT SYSTEMS - EXTERIOR

- A. Exterior Surfaces to be Painted, Unless Otherwise Indicated: Including fiber cement siding, primed wood, primed metal, and fiber cement soffits and trim.
 1. Two top coats and one coat primer.
 2. Top Coat(s): Exterior Latex; MPI #10, 11, 15, 119, or 214.
 3. Top Coat Sheen:
 - a. Eggshell: MPI gloss level 3; use this sheen at siding and trim..
 - b. Semi-Gloss: MPI gloss level 5; use this sheen at doors.

2.04 PRIMERS

- A. Primers: Provide the following unless other primer is required or recommended by manufacturer of top coats.
 1. Latex Primer for Exterior Wood and cut ends; MPI #6.

2.05 ACCESSORY MATERIALS

- A. Accessory Materials: Provide primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials as required for final completion of painted surfaces.
- B. Patching Material: Latex filler.
- C. Fastener Head Cover Material: Latex filler.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that surfaces are ready to receive work as instructed by the product manufacturer.
- B. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially effect proper application.
- C. Test shop-applied primer for compatibility with subsequent cover materials.
- D. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:
 1. Fiber Cement Siding: 12 percent.
 2. Exterior Wood: 15 percent, measured in accordance with ASTM D4442.

3.02 PREPARATION

- A. Clean surfaces thoroughly and correct defects prior to application.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- C. Remove or repair existing paints or finishes that exhibit surface defects.
- D. Remove or mask surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces for finishing.
- E. Seal surfaces that might cause bleed through or staining of topcoat.
- F. Remove mildew from impervious surfaces by scrubbing with solution of tetra-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.

- G. Fiber Cement Siding: Remove dirt, dust and other foreign matter with a stiff fiber brush. Do not coat surfaces if moisture content or alkalinity of surfaces to be coated exceeds that permitted in manufacturer's written instructions.
- H. Galvanized Surfaces:
 - 1. Remove surface contamination and oils and wash with solvent according to SSPC-SP 1.
 - 2. Prepare surface according to SSPC-SP 2.
- I. Ferrous Metal:
 - 1. Solvent clean according to SSPC-SP 1.
 - 2. Shop-Primed Surfaces: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces.
 - 3. Remove rust, loose mill scale, and other foreign substances using methods recommended in writing by paint manufacturer and blast cleaning according to SSPC-SP 6 Commercial Blast Cleaning. Protect from corrosion until coated.
- J. Exterior Wood Surfaces to Receive Opaque Finish: Remove dust, grit, and foreign matter. Seal knots, pitch streaks, and sappy sections. Fill nail holes with tinted exterior calking compound after prime coat has been applied. Back prime concealed surfaces before installation.
- K. Fiberglass and Metal Doors to be Painted: Prime metal door top and bottom edge surfaces.

3.03 APPLICATION

- A. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.
- B. Exterior Wood to Receive Opaque Finish: If final painting must be delayed more than 2 weeks after installation of woodwork, apply primer within 2 weeks and final coating within 4 weeks.
- C. Apply products in accordance with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual".
- D. Where adjacent sealant is to be painted, do not apply finish coats until sealant is applied.
- E. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.
- F. Apply each coat to uniform appearance.
- G. Sand wood and metal surfaces lightly between coats to achieve required finish.
- H. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.
- I. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

3.04 PROTECTION

- A. Protect finishes until completion of project.
- B. Touch-up damaged finishes after Substantial Completion.

3.05 COLOR COATING SCHEDULES

- A. Schedule: Refer to Finish Schedule on Drawings for colors and locations.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Surface preparation.
- B. Field application of paints.
- C. Scope: Finish interior surfaces exposed to view, unless fully factory-finished and unless otherwise indicated.
- D. Do Not Paint or Finish the Following Items:
 - 1. Items factory-finished unless otherwise indicated; materials and products having factory-applied primers are not considered factory finished.
 - 2. Items indicated to receive other finishes.
 - 3. Items indicated to remain unfinished.
 - 4. Fire rating labels, equipment serial number and capacity labels, bar code labels, and operating parts of equipment.
 - 5. Stainless steel, anodized aluminum, bronze, terne-coated stainless steel, and lead items.
 - 6. Floors, unless specifically indicated.
 - 7. Glass.
 - 8. Concealed pipes, ducts, and conduits.

1.02 REFERENCE STANDARDS

- A. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency current edition.
- B. ASTM D4442 - Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Based Materials 2020.
- C. MPI (APL) - Master Painters Institute Approved Products List; Master Painters and Decorators Association Current Edition.
- D. MPI (APSM) - Master Painters Institute Architectural Painting Specification Manual Current Edition.
- E. SCAQMD 1113 - Architectural Coatings 1977, with Amendment (2016).
- F. SSPC V1 (PM1) - Good Painting Practice: Painting Manual Volume 1 2016.
- G. SSPC-SP 1 - Solvent Cleaning 2015, with Editorial Revision (2016).
- H. SSPC-SP 6 - Commercial Blast Cleaning 2007.

1.03 SUBMITTALS

- A. Product Data: Provide complete list of products to be used, with the following information for each:
 - 1. Manufacturer's name, product name and/or catalog number, and general product category (e.g., "alkyd enamel").
 - 2. MPI product number (e.g., MPI #47).
 - 3. Cross-reference to specified paint system products to be used in project; include description of each system.
 - 4. Manufacturer's installation instructions.
- B. Samples: Submit three paper "draw down" samples, 8-1/2 by 11 inches in size, illustrating range of colors available for each finishing product specified.
 - 1. Where sheen is specified, submit samples in only that sheen.
- C. Manufacturer's Instructions: Indicate special surface preparation procedures.
- D. Maintenance Data: Submit data including finish schedule showing where each product/color/finish was used, product technical data sheets, material safety data sheets (MSDS), care and cleaning instructions, touch-up procedures, repair of painted and finished surfaces, and color samples of each color and finish used.
- E. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.

1. Extra Paint and Finish Materials: 1 gal of each color; from the same product run, store where directed.
2. Label each container with color in addition to the manufacturer's label.

1.04 QUALITY ASSURANCE

- A. Applicator Qualifications: Company specializing in performing the type of work specified with minimum 3 years experience and approved by manufacturer.

1.05 MOCK-UP

- A. Provide panel, 8 feet long by 8 feet wide, illustrating paint color, texture, and finish.
- B. Locate where directed by Owner.
- C. Mock-up may remain as part of the work.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.
- B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.
- C. Paint Materials: Store at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.

1.07 FIELD CONDITIONS

- A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.
- B. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.
- C. Do not apply materials when relative humidity exceeds 85 percent, at temperatures less than 5 degrees F above the dew point, or to damp or wet surfaces.
- D. Minimum Application Temperatures for Paints: 50 degrees F for interiors unless required otherwise by manufacturer's instructions.
- E. Provide lighting level of 80 fc measured mid-height at substrate surface.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Provide paints and finishes used in any individual system from the same manufacturer; no exceptions.
- B. Paints:
 1. Behr Process Corporation: www.behr.com/#sle.
 2. Rodda Paint Co: www.rodmapaint.com/#sle.
 3. Sherwin-Williams Company: www.sherwin-williams.com/#sle.
 4. Benjamin Moore & Co.: www.benjaminmoore.com/#sle.
- C. Primer Sealers: Same manufacturer as top coats.

2.02 PAINTS AND FINISHES - GENERAL

- A. Paints and Finishes: Ready-mixed, unless intended to be a field-catalyzed paint.
 1. Where MPI paint numbers are specified, provide products listed in Master Painters Institute Approved Product List, current edition available at www.paintinfo.com, for specified MPI categories, except as otherwise indicated.
 2. Provide paints and finishes of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.

3. Provide materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
 4. Supply each paint material in quantity required to complete entire project's work from a single production run.
 5. Do not reduce, thin, or dilute paint or finishes or add materials unless such procedure is specifically described in manufacturer's product instructions.
- B. Volatile Organic Compound (VOC) Content:
1. Provide paints and finishes that comply with the most stringent requirements specified in the following:
 - a. 40 CFR 59, Subpart D--National Volatile Organic Compound Emission Standards for Architectural Coatings.
 - b. Ozone Transport Commission (OTC) Model Rule, Architectural, Industrial, and Maintenance Coatings; www.otcair.org; specifically:
 - 1) Opaque, Flat: 50 g/L, maximum.
 - 2) Opaque, Nonflat: 150 g/L, maximum.
 - 3) Opaque, High Gloss: 250 g/L, maximum.
 2. Determination of VOC Content: Testing and calculation in accordance with 40 CFR 59, Subpart D (EPA Method 24), exclusive of colorants added to a tint base and water added at project site; or other method acceptable to authorities having jurisdiction.

2.03 PAINT SYSTEMS - INTERIOR

- A. Interior Surfaces to be Painted, Unless Otherwise Indicated: Including gypsum board and wood.
1. Two top coats and one coat primer.
 2. Top Coat(s): High Performance Architectural Interior Latex; MPI #138, 139, 140, 141, or 142.
 3. Top Coat Sheen:
 - a. Eggshell: MPI gloss level 3; use this sheen at all locations unless noted otherwise.
 - b. Satin: MPI gloss level 4; use this sheen for items subject to frequent touching by occupants, including door frames and railings.
- B. Medium Duty Door/Trim: For surfaces subject to frequent contact by occupants, including metals and wood:
1. Two top coats and one coat primer.
 2. Top Coat(s): Interior Epoxy-Modified Latex; MPI #115 or 215.

2.04 PRIMERS

- A. Primers: Provide the following unless other primer is required or recommended by manufacturer of top coats.
1. Interior Latex Primer Sealer; MPI #50.
 2. Interior Drywall Primer Sealer.
 3. Latex Primer for Interior Wood; MPI #39.

2.05 ACCESSORY MATERIALS

- A. Accessory Materials: Provide primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials as required for final completion of painted surfaces.
- B. Patching Material: Latex filler.
- C. Fastener Head Cover Material: Latex filler.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that surfaces are ready to receive work as instructed by the product manufacturer.
- B. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.

- C. Test shop-applied primer for compatibility with subsequent cover materials.
- D. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces is below the following maximums:
 - 1. Gypsum Wallboard: 12 percent.
 - 2. Interior Wood: 15 percent, measured in accordance with ASTM D4442.

3.02 PREPARATION

- A. Clean surfaces thoroughly and correct defects prior to application.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- C. Remove or repair existing paints or finishes that exhibit surface defects.
- D. Remove or mask surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces or finishing.
- E. Seal surfaces that might cause bleed through or staining of topcoat.
- F. Gypsum Board: Fill minor defects with filler compound. Spot prime defects after repair.
- G. Ferrous Metal:
 - 1. Solvent clean according to SSPC-SP 1.
 - 2. Shop-Primed Surfaces: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces. Re-prime entire shop-primed item.
 - 3. Remove rust, loose mill scale, and other foreign substances using methods recommended in writing by paint manufacturer and blast cleaning according to SSPC-SP 6 Commercial Blast Cleaning. Protect from corrosion until coated.
- H. Wood Surfaces to Receive Opaque Finish: Wipe off dust and grit prior to priming. Seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after primer has dried; sand between coats. Back prime concealed surfaces before installation.
- I. Wood Doors to be Field-Finished: Seal wood door top and bottom edge surfaces with clear sealer.
- J. Metal Doors to be Painted: Prime metal door top and bottom edge surfaces.

3.03 APPLICATION

- A. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.
- B. Apply products in accordance with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual".
- C. Where adjacent sealant is to be painted, do not apply finish coats until sealant is applied.
- D. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.
- E. Apply each coat to uniform appearance in thicknesses specified by manufacturer.
- F. Dark Colors and Deep Clear Colors: Regardless of number of coats specified, apply as many coats as necessary for complete hide.
- G. Sand wood and metal surfaces lightly between coats to achieve required finish.
- H. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.
- I. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

3.04 PROTECTION

- A. Protect finishes until completion of project.
- B. Touch-up damaged finishes after Substantial Completion.

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**SECTION 099123
INTERIOR PAINTING**

3.05 COLOR COATING SCHEDULE

- A. Schedule: Refer to Finish Schedule on Drawings for colors and locations.
 - 1. PNT-1: Field Paint. Benjamin Moore White Dove OC-17.
 - 2. PNT-2: Door, Window, and Relite Frames. Benjamin Moore Stardust 2108-40.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Dimensional letter signage.

1.02 REFERENCE STANDARDS

- A. ADA Standards - 2010 ADA Standards for Accessible Design 2010.
- B. ICC A117.1 - Accessible and Usable Buildings and Facilities 2017.

1.03 SUBMITTALS

- A. Product Data: Manufacturer's product literature for each type of dimensional letter sign, indicating style, font, colors, locations, and overall dimensions of each sign.
- B. Shop Drawings:
 - 1. Include dimensions, locations, elevations, materials, text and graphic layout, and attachment details.
- C. Sign Schedule: Use same designations indicated in shop drawings.
- D. Samples: Submit one sample of each type of dimensional letter sign of size similar to that required for project, indicating sign style, font, and method of attachment.
- E. Warranty: Provide warranty certificate.

1.04 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years of documented experience.
- B. Regulatory Requirements: Comply with applicable provisions in ADA-ABA Accessibility Guidelines and ICC/ANSI A117.1.

1.05 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of signs that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Deterioration of polymer finishes beyond normal weathering.
 - b. Deterioration of embedded graphic image colors.
 - 2. Warranty Period: 5 years from date of Substantial Completion.

PART 2 PRODUCTS

2.01 SIGNAGE

- A. Interior Panel Signage: Size, materials, content and additional information as shown on drawings
- B. Exterior Numeral Signage: Size, materials, content and additional information as shown on drawings

2.02 FABRICATION

- A. General: Provide manufacturer's standard signs of configurations indicated.
 - 1. Mill joints to tight, hairline fit. Form joints exposed to weather to exclude water penetration.
 - 2. Preassemble signs in the shop to greatest extent possible. Disassemble signs only as necessary for shipping and handling limitations. Clearly mark units for reassembly and installation, in location not exposed to view after final assembly.
 - 3. Conceal fasteners if possible; otherwise, locate fasteners where they will be inconspicuous.

2.03 FINISHES

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.
- D. Colored Coatings for Acrylic Sheet: For copy and background colors, provide colored coatings, including inks, dyes, and paints, that are recommended by acrylic manufacturers for optimum adherence to acrylic surface and that are UV and water resistant for five years for application intended.

2.04 ACCESSORIES

- A. Concealed Screws: Noncorroding metal; stainless steel, galvanized steel, chrome plated, or other.
- B. Exposed Screws: Stainless steel.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Install with horizontal edges level.
- C. Locate dimensional letter signs and mount at heights indicated on drawings and in accordance with ADA Standards and ICC A117.1.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Corner guards.

1.02 SUBMITTALS

- A. Product Data: Indicate physical dimensions, features, wall mounting brackets with mounted measurements, anchorage details, and rough-in measurements.
- B. Manufacturer's Instructions: Indicate special procedures, perimeter conditions requiring special attention.

1.03 DELIVERY, STORAGE, AND HANDLING

- A. Deliver wall protection items in original, undamaged protective packaging. Label items to designate installation locations.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Corner Guards:
 - 1. Tarkett Commercial: commercial.tarkett.com/#sle.
 - 2. Or approved equal.

2.02 PRODUCT TYPES

- A. Corner Guards - Surface Mounted:
 - 1. Material: High impact vinyl.
 - 2. Width of Wings: 1-1/2" inches.
 - 3. Corner: Radiused.
 - 4. Basis of Design: Tarkett Corner Guards, 'Fawn'.
 - 5. Length: One piece.

2.03 FABRICATION

- A. Fabricate components with tight joints, corners and seams.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that rough openings, concealed blocking, and anchors are correctly sized and located.
- B. Verify that substrate surfaces for adhered items are clean and smooth.
 - 1. Test painted or wall covering surfaces for adhesion in inconspicuous area, as recommended by manufacturer. Follow adhesive manufacturer's recommendations for remedial measures at locations and/or application conditions where adhesion test's results are unsatisfactory.

3.02 INSTALLATION

- A. Install components in accordance with manufacturer's instructions, level and plumb, secured rigidly in position to supporting construction.
- B. Position corner guard 4 inches above finished floor to 54 inches high.

3.03 TOLERANCES

- A. Maximum Variation From Required Height: 1/4 inch.
- B. Maximum Variation From Level or Plane For Visible Length: 1/4 inch.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Commercial toilet accessories.

1.02 REFERENCE STANDARDS

- A. ADA Standards - 2010 ADA Standards for Accessible Design 2010.
- B. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process 2023.
- C. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar 2023.
- D. ASTM C1036 - Standard Specification for Flat Glass 2021.
- E. ASTM C1503 - Standard Specification for Silvered Flat Glass Mirror 2018.
- F. ICC A117.1 - Accessible and Usable Buildings and Facilities 2017.

1.03 SUBMITTALS

- A. Product Data: Submit data on accessories describing size, finish, details of function, and attachment methods.
- B. Manufacturer's Installation Instructions: Indicate special procedures and conditions requiring special attention.

1.04 WARRANTY

- A. Special Mirror Warranty: Manufacturer's standard form in which manufacturer agrees to replace mirrors that develop visible silver spoilage defects and that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: 10 years from date of Substantial Completion.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Accessories - General: Shop assembled, free of dents and scratches and packaged complete with anchors and fittings, steel anchor plates, adapters, and anchor components for installation.
 - 1. Grind welded joints smooth.
- B. Stainless Steel Sheet: ASTM A666, Type 304.
- C. Galvanized Sheet Steel: Hot-dipped galvanized steel sheet, ASTM A653/A653M, with G90/Z275 coating.
- D. Brass: ASTM B 19, flat products; ASTM B 16/B 16M, rods, shapes, forgings, and flat products with finished edges; or ASTM B 30, castings.
- E. Chrome Plating: ASTM B 456, Service Condition Number SC 2 (moderate service).
- F. ABS Plastic: Acrylonitrile-butadiene-styrene resin formulation.
- G. Mirror Glass: Annealed float glass, ASTM C1036 Type I, Class 1, Quality Q2, with silvering, protective and physical characteristics complying with ASTM C1503.
- H. Fasteners, Screws, and Bolts: Hot dip galvanized; tamper-proof; security type.

2.02 COMMERCIAL TOILET ACCESSORIES

A. PUBLIC-USE WASHROOM ACCESSORIES

- 1. Basis-of-Design Products: Bobrick Washroom Equipment, Inc. Subject to compliance with requirements, provide products indicated in this section or substituted equal approved by Owner:
- 2. Paper Towel Dispenser/Waste Receptacle:
 - a. Drawing Designation: 'B'

- b. Basis-of-Design Product: Bobrick ClassicSeries® Recessed Paper Towel Dispenser/Waste Receptacle, Model B-3944.
 - c. Description: Combination unit for dispensing C-fold or multifold towels, with removable waste receptacle.
 - d. Mounting: Recessed with projecting receptacle; designed for nominal 4-inch (100-mm) wall depth.
 - e. Minimum Towel-Dispenser Capacity: 600 C-fold or 800 multifold paper towels
 - f. Maximum Waste-Receptacle Capacity: 12 gal. (45.4 L)
 - g. Material and Finish: Type-304 Stainless steel, No. 4 finish (satin)
 - h. Liner: Reusable Heavy-Gauge Vinyl Liner, Bobrick Order Part No. 3944-12
 - i. Lockset: Tumbler type for towel-dispenser compartment and waste receptacle.
 - j. Location(s): Per drawings
3. Toilet Tissue Dispenser:
- a. Drawing Designation: 'C'
 - b. Basis-of-Design Product: Bobrick ClassicSeries® Surface-Mounted Multi-Roll Toilet Tissue Dispenser, Model B-2888.
 - c. Description: Toilet tissue dispenser shall be 22GA (0.8mm), drawn, one-piece, seamless construction.
 - d. Mounting: Surface mounted
 - e. Toilet Tissue Dispenser Capacity: Two 5-1/4" (133mm) diameter tissue rolls.
 - f. Toilet Tissue Dispenser Operation: Noncontrol delivery with theft-resistant spindles
 - g. Material and Finish: Type-304 Stainless steel, No. 4 finish (satin)
 - h. Lockset: Tumbler type.
 - i. Location(s): Per drawings
4. Seat-Cover Dispenser:
- a. Drawing Designation: 'D'
 - b. Basis-of-Design Product: Bobrick ClassicSeries® Recessed Seat-Cover Dispenser, Model B-301
 - c. Mounting: Recessed
 - d. Minimum Capacity: 500 seat covers.
 - e. Exposed Material and Finish: Type-304 Stainless steel, No. 4 finish (satin)
 - f. Lockset: Tumbler type.
 - g. Location(s): Per drawings
5. Sanitary-Napkin Disposal Unit:
- a. Drawing Designation: 'F'
 - b. Basis-of-Design Product: Bobrick ClassicSeries® Surface-Mounted Soap Dispenser, Model B2111.
 - c. Description: Designed for dispensing soap in liquid or lotion form.
 - d. Mounting: Vertically oriented, surface mounted.
 - e. Capacity: 40-fl oz (1.2-L).
 - f. Material and Finish: Type-304 Stainless steel, No. 4 finish (satin).
 - g. Lockset: Concealed, vandal resistant wall fastening; hinged filler-top requires key to open.
 - h. Refill Indicator: Unbreakable, clear acrylic refill-indicator window.
 - i. Location(s): Per drawings
6. Mirror:
- a. Drawing Designation: 'O'
 - b. Basis-of-Design Product: Bobrick B-165 Series Channel-Framed Mirrors, Model B-165 2436
 - c. Frame: One-piece channel frame 1/2" x 1/2" x 1/2" (13 x 13 x 13mm) type 430 stainless steel with bright-polished finish and mitered corners.
 - d. Hangers: Produce rigid, tamper- and theft-resistant installation, back is galvanized steel secured to concealed wall hanger with theft-resistant locking device.
 - e. Size: 24" Width x 36" Height (61 x 91cm)
 - f. Location(s): Per drawings

7. Grab Bars:
 - a. Drawing Designation: 'P'
 - b. Basis-of-Design Product: Bobrick B-6806.99 Series Concealed Mounting with Snap Flange Grab Bars:
 - 1) Side Wall, Horizontal: B-6806.99x42
 - 2) Side Wall, Vertical: B-6806.99x18
 - 3) Back Wall, Horizontal: B-6806.99x42
 - c. Mounting: Flanges with concealed fasteners.
 - d. Material: 18 gauge Type-304 Stainless steel, No. 4 finish (satin)
 - e. Outside Diameter: 1-1/2 inches (38 mm).
 - f. Location(s): Per drawings
8. Diaper-Changing Station
 - a. Drawing Designation: 'H'
 - b. Basis-of-Design Product: Koala Kare Products Horizontal Wall Mounted Baby Changing Station, Model KB200-01 (Grey)
 - c. Description: Horizontal unit that opens by folding down from stored position and with child-protection strap.
 - 1) Engineered to support a minimum of 250-lb (113-kg) static load when opened.
 - d. Mounting: Surface mounted, with unit projecting not more than 4 inches (100 mm) from wall when closed.
 - e. Operation: Pneumatic cylinder provides controlled, slow opening and closing of changing bed. Unit is opened and closed with one hand and less than 5 pounds of force (22.2 N).
 - f. Material and Finish: FDA approved injection-molded polypropylene with Microban antimicrobial additive embedded into the bed surface. Reinforced steel-on-steel hinge mechanism and metal mounting chassis with mounting hardware included. Labelled usage instructions and safety messages in four languages. Countoured changing surface w/ nylon safety strap and bag hooks.
 - g. Liner Dispenser and Liners: Equipped with dual cavity liner dispenser holds approximately 50 KB150-99 bed liners; liners provided by Owner.
 - h. Location(s): Per drawings.
9. Shelf with Mop and Broom Holder:
 - a. Drawing Designation: 'N'
 - b. Basis-of-Design Product: Bobrick Shelf with Mop and Broom Holders and Rags, Model B-224 36
 - c. Overall Length: 36 inches (914 mm)
 - d. Shelf: 18-gauge (1.2mm), 36" Long, 6" H, 8" D (915 x150 x 205mm).
 - e. Hooks: 3 stainless steel rag hooks.
 - f. Mop/Broom Holders: 4 anti-slip mop holders with spring-loaded rubber cam that grip handles 7/8" to 1-1/4" (20-30mm) in dia.; Holds mops 8" (205mm) from wall.
 - g. Rod: Equipped with Stainless Steel Rod for wet rags below shelf.
 - h. Material and Finish: Stainless steel, No. 4 finish (satin).

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install accessories in accordance with manufacturers' instructions in locations indicated on drawings.
- B. Install plumb and level, securely and rigidly anchored to substrate.
- C. Mounting Heights: As required by accessibility regulations, unless otherwise indicated.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Fire extinguishers.
- B. Fire extinguisher cabinets.
- C. Accessories.

1.02 REFERENCE STANDARDS

- A. FM (AG) - FM Approval Guide Current Edition.
- B. NFPA 10 - Standard for Portable Fire Extinguishers 2022.
- C. UL (DIR) - Online Certifications Directory Current Edition.

1.03 SUBMITTALS

- A. See Section 013000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide extinguisher operational features.
- C. Manufacturer's Installation Instructions: Indicate special criteria and wall opening coordination requirements.
- D. Maintenance Data: Include test, refill or recharge schedules and re-certification requirements.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Fire Extinguishers:
 - 1. Kidde, a unit of United Technologies Corp: www.kidde.com/#sle.
 - 2. Or accepted equal..
- B. Fire Extinguisher Cabinets and Accessories:
 - 1. Kidde, a unit of United Technologies Corp: www.kidde.com/#sle.
 - 2. Larsen's Manufacturing Co: www.larsensmfg.com/#sle.
 - 3. Or accepted equal.

2.02 FIRE EXTINGUISHERS

- A. Fire Extinguishers - General: Comply with product requirements of NFPA 10 and applicable codes, whichever is more stringent.
 - 1. Provide extinguishers labeled by UL (DIR) or FM (AG) for purpose specified and as indicated.

2.03 FIRE EXTINGUISHER CABINETS

- A. Cabinet Construction: Non-fire rated.
 - 1. Formed primed steel sheet; 0.036 inch thick base metal.
- B. Cabinet Configuration: Recessed type.
 - 1. Size to accommodate accessories.
 - 2. Trimless type.
- C. Door: 0.036 inch metal thickness, reinforced for flatness and rigidity with nylon catch. Hinge doors for 180 degree opening with two butt hinges.
- D. Door Glazing: Acrylic plastic, clear, 1/8 inch thick, flat shape and set in resilient channel glazing gasket.
- E. Cabinet Mounting Hardware: Appropriate to cabinet, with pre-drilled holes for placement of anchors.
- F. Fabrication: Weld, fill, and grind components smooth.
- G. Finish of Cabinet Exterior Trim and Door: No.4 - Brushed stainless steel.
- H. Finish of Cabinet Interior: White colored enamel.

2.04 ACCESSORIES

- A. Lettering: FIRE EXTINGUISHER decal, or vinyl self-adhering, pre-spaced black lettering in accordance with authorities having jurisdiction (AHJ).

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Secure rigidly in place.
- C. Place extinguishers in cabinets.

3.02 MAINTENANCE

- A. Provide a separate maintenance contract for specified maintenance service.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Kitchen appliances including dishwasher and range oven.

1.02 SUBMITTALS

- A. Product Data: Manufacturer's data indicating dimensions, capacity, and operating features of each piece of residential equipment specified.
- B. Copies of Warranties: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

1.03 WARRANTY

- A. Provide one (1) year Parts and Labor warranty on entire appliances.
- B. Provide ten (10) year manufacturer warranty on tub and door liner of dishwasher.

PART 2 PRODUCTS

2.01 KITCHEN APPLIANCES

- A. Provide Equipment Eligible for Energy Star Rating: Energy Star Rated.
- B. Range: Electric, free-standing, with glass-ceramic cooktop.
 - 1. Size: 30 inches wide.
 - 2. 34" Tall Range.
 - 3. Oven: Self-cleaning with electronic ignition.
 - 4. Elements: Four (4).
 - 5. Controls: Solid state electronic.
 - 6. Features: Include storage drawer, oven door window, broiler pan and grid, and oven light.
 - 7. Exterior Finish: Stainless steel, color as indicated.
 - 8. Basis of Design: Whirlpool 34" Tall Range, Model WEE515SALS.
- C. Waste Disposer: Standard type, overload protection, direct wired, dishwasher connection, drain elbow, drain connector, and sound reduction features.
 - 1. Power: 1/3 HP.
 - 2. Capacity: Large.
 - 3. Height: 14-1/2 inch.
 - 4. Depth: 8-1/2 inch.
 - 5. Controls: Wall switch.
 - 6. Voltage: 115 volts, 60 Hz, 4 amps.
 - 7. Exterior Finish: Black.
 - 8. Manufacturers:
 - a. GE Appliances: www.geappliances.com/#sle.
 - b. Whirlpool Corp: www.whirlpool.com/#sle.
 - c. Insinkerator: www.insinkerator.com/#sle.
- D. Dishwasher: Undercounter.
 - 1. Size: 24 inches wide.
 - 2. Compatible with 34" counter top height.
 - 3. Controls: Solid state electronic.
 - 4. Wash Levels: Three (3).
 - 5. Cycles: Six (6), including normal, rinse and hold, short, china/crystal, and pot and pan.
 - 6. Features: Include rinse aid dispenser, optional no-heat dry, optional water temperature boost, adjustable upper rack, and adjustable lower rack.
 - 7. Finish: Stainless steel, color as indicated.
 - 8. Basis of Design: GE Stainless Steel Interior Dishwasher, Model GDT225SSLSS.

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PART 3 EXECUTION**

**SECTION 113013
RESIDENTIAL APPLIANCES**

3.01 EXAMINATION

- A. Verify utility rough-ins are provided and correctly located.

3.02 INSTALLATION

- A. Install in accordance with manufacturer's instructions.

3.03 ADJUSTING

- A. Adjust equipment to provide efficient operation.

3.04 CLEANING

- A. Remove packing materials from equipment and properly discard.
- B. Wash and clean equipment.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Roof anchors.

1.02 REFERENCE STANDARDS

- A. 29 CFR 1910 - Occupational Safety and Health Standards Current Edition.
- B. ANSI/ASSP Z359.1 - The Fall Protection Code 2020.
- C. ANSI/ASSP Z359.7 - Qualification and Verification Testing of Fall Protection Products 2019.
- D. ANSI/ASSP Z359.11 - Safety Requirements for Full Body Harnesses 2021.
- E. ANSI/ASSP Z359.12 - Connecting Components for Personal Fall Arrest Systems 2019.
- F. ANSI/ASSP Z359.15 - Safety Requirements for Single Anchor Lifelines and Fall Arresters for Personal Fall Arrest Systems 2014.
- G. ANSI/IWCA I-14 - Window Cleaning Safety Standard 2001.
- H. ASTM A780/A780M - Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings 2020.
- I. CAL (OSHA) TITLE 8 SC 7 - California Code of Regulations, Title 8, Subchapter 7, General Industry Safety Orders 2021.

1.03 SUBMITTALS

- A. Product Data: Material, equipment, and fixture lists. Manufacturer's catalog data indicating the sizes, descriptions, capacities, test certifications, and other descriptive data showing in sufficient detail that product complies with contract requirements. Equipment and performance data including but not limited to lifeline anchors, safety tieback anchors, and lifeline cable.
- B. Shop Drawings: Installation details: plan showing locations and types of anchorage points for personal fall protection systems and building maintenance equipment.
 - 1. Detail mounting, securing, and flashing of roof-mounted items to roof structure. Indicate coordinating requirements with roof membrane system.
 - 2. Indicate anchorage details and quantity, diameter, and depth of penetration of anchors.
 - 3. Shop drawings shall be prepared and stamped by a qualified engineer licensed in the State of Washington.
- C. Manufacturer's Installation Instructions: Instructions indicating recommended method and sequence of installation for lifeline anchors, safety tieback anchors, energy-absorbing devices, and lifeline cable.
- D. Manufacturer's qualification statement.
- E. Designer's qualification statement.
- F. Installer's qualification statement, including certification by Manufacturer.
- G. Operation Data: Provide operating instructions and identify unit limitations.
- H. Maintenance Data: Include parts list and maintenance requirements for equipment.

1.04 QUALITY ASSURANCE

- A. OSHA Standards: Comply with Occupational Safety and Health Administration Standards for the Construction Industry 29 CFR § 1926.500 Subpart M (Fall Protection), and Washington State Department of Labor and Industries WISHA Chapter 296-155-24510, Fall Restraint, Fall Arrest Systems.
- B. Designer Qualifications: Perform design under direct supervision of a Professional Structural Engineer experienced in design of this work and licensed in the State of Washington.
- C. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with at least five years of documented experience.
- D. Installer Qualifications: Company specializing in performing work of type specified and with at least three years of documented experience and approved by manufacturer.

- E. Mock-Up
 - 1. Install fall restraint system on roof system where directed by Owner.
 - 2. Do not install fall restraint systems until acceptance by Owner.
 - 3. Incorporate accepted mock-up into work. Label and identify as standard of quality.

PART 2 PRODUCTS

2.01 ROOF ANCHORS

- A. Manufacturers:
 - 1. Basis of Design: Guardian Fall Protection; Ridge-It Anchor 18" Double D Ring : www.guardianfall.com/#sle.
 - 2. Or approved equal.
- B. Description:
 - 1. Roof anchorage points for personal fall protection systems; used exclusively for employee fall protection and independent of any anchorage used to suspend employees or platforms on which employees work.
- C. Structural Performance: Provide safety tieback anchors capable of withstanding design loads as required by governing regulations and codes.

PART 3 EXECUTION

3.01 PREPARATION

- A. Coordinate location of fall protection equipment indicated to be attached to structural substrate or surface of roofing system and provide anchoring devices with templates, diagrams, and installation instructions.

3.02 INSTALLATION

- A. Install anchorage and fasteners in accordance with shop drawings and manufacturer's recommendations to obtain allowable working loads published in product literature and in accordance with this specification.
- B. Coat concealed metal surfaces that will be in contact with cementitious materials or dissimilar metals with bituminous coating or by other permanent separation as recommended by fall protection system manufacturer.
- C. Seal roof penetrations at anchors with pre-molded pipe flashing, membrane flashing, or sealant acceptable to roof manufacturer.
- D. Install all roof safety anchors a minimum of 6 feet from the roof edge.

3.03 FIELD QUALITY CONTROL

- A. Inspect each anchor for conformance to manufacturer requirements, building envelope, looseness, and signs of permanent deflection during load testing.

3.04 ADJUSTING

- A. Adjust fall protection components to function smoothly and safely.

3.05 CLEANING

- A. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing in accordance with ASTM A780/A780M.
- B. Clean exposed surfaces in accordance with fall protection system manufacturer's written instructions.

3.06 CLOSEOUT ACTIVITIES

- A. Training: Train Owner's personnel on operation and maintenance of system.
 - 1. Use operation and maintenance manual as training reference, supplemented with additional training materials as required.
 - 2. Provide minimum of two hours of training.
 - 3. Instructor: Manufacturer's training personnel.

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**SECTION 118129
FACILITY FALL PROTECTION**

4. Location: At project site.

3.07 MAINTENANCE

- A. 29 CFR 1910 and ANSI/IWCA I-14 require that anchors first be certified and subsequently inspected on an annual basis. Coordinate with manufacturer and local inspectors as required to maintain compliance.
- B. Provide a separate maintenance contract for specified maintenance service.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Interior manual roller shades.

1.02 REFERENCE STANDARDS

- A. ASTM G21 - Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi 2015, with Editorial Revision (2021).
- B. NFPA 701 - Standard Methods of Fire Tests for Flame Propagation of Textiles and Films 2023, with Errata.

1.03 SUBMITTALS

- A. Product Data: Provide manufacturer's standard catalog pages and data sheets, including materials, finishes, fabrication details, dimensions, profiles, mounting requirements, and accessories.
- B. Shop Drawings: Include shade schedule indicating size, location and keys to details, head, jamb and sill details, mounting dimension requirements for each product and condition, and operation direction.
- C. Operation and Maintenance Data: List of all components with part numbers, sources of supply, and operation and maintenance instructions; include copy of shop drawings.
- D. Warranty: Submit sample of manufacturer's warranty and documentation of final executed warranty completed in Owner's name and registered with manufacturer.

1.04 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than five years of documented experience.
- B. Installer Qualifications: Company specializing in performing work of this type with minimum 3 years of documented experience with shading systems of similar size and type.

1.05 WARRANTY

- A. Provide manufacturer's warranty from Date of Substantial Completion, covering the following:
 - 1. Shade Hardware: One year.
 - 2. Fabric: One year.
 - 3. Aluminum and Steel Coatings: One year.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Interior Manually Operated Roller Shades:
 - 1. Norman Window Fashions: www.normanusa.com/#sle.

2.02 ROLLER SHADES

- A. General:
 - 1. Provide shade system components that are easy to remove or adjust without removal of mounted shade brackets.
 - 2. Provide shade system that operates smoothly when shades are raised or lowered.
- B. Roller Shades:
 - 1. Description - Interior Roller Shades: Single roller, manually operated fabric window shade system complete with mounting brackets, roller tubes, hembars, hardware, and accessories.
 - a. Drop Position: Regular roll.
 - b. Roll Direction: Roll down, closed position is at window sill.
 - c. Mounting: Window jamb mounted - inside, between jambs.
 - d. Size: As indicated on drawings.
 - e. Basis of Design: Norman Soluna.

2. Brackets and Mounting Hardware: As recommended by manufacturer for mounting indicated and to accommodate shade fabric roll-up size and weight.
3. Roller Tubes: As required for type of shade operation.
4. Hembars: Designed to maintain bottom of shade straight and flat.
5. Manual Operation for Interior Shades:
 - a. Clutch Operator: Manufacturer's standard material and design, permanently lubricated.
 - b. Drive Chain: Continuous loop beaded ball chain, 95 lb minimum breaking strength. Provide upper and lower limit stops.

2.03 SHADE FABRIC

- A. Fabric: Nonflammable, color-fast, impervious to heat and moisture, and able to retain its shape under normal operation.
 1. Manufacturers:
 - a. Norman Window Fashions: www.normanusa.com/#sle.
 - b. Or approved equal.
 2. Material: Vinyl coated polyester.
 3. Performance Requirements:
 - a. Flammability: Pass NFPA 701 large and small tests.
 - b. Fungal Resistance: No growth when tested according to ASTM G21.
 4. Basis of Design: Norman Solar Screens Commercial Grade A400, Chalk Beige 5%
 5. Color: As selected by Owner from manufacturer's full range of colors.

2.04 ROLLER SHADE FABRICATION

- A. Field measure finished openings prior to ordering or fabrication.
- B. Dimensional Tolerances: Fabricate shades to fit openings within specified tolerances.
 1. Vertical Dimensions: Fill openings from head to sill with 1/2 inch space between bottom bar and window stool.
 2. Horizontal Dimensions - Inside Mounting: Fill openings from jamb to jamb.
- C. Dimensional Tolerances: As recommended in writing by manufacturer.
- D. At openings requiring continuous multiple shade units with separate rollers, locate roller joints at window mullion centers; butt rollers end-to-end.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install in accordance with manufacturer's instructions and approved shop drawings, using mounting devices as indicated.
- B. Adjust level, projection, and shade centering from mounting bracket. Verify there is no telescoping of shade fabric. Ensure smooth shade operation.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Countertops for architectural cabinet work.
- B. Wall-hung counters and vanity tops.

1.02 REFERENCE STANDARDS

- A. ISFA 2-01 - Classification and Standards for Solid Surfacing Material 2013.
- B. ISFA 3-01 - Classification and Standards for Quartz Surfacing Material 2013.
- C. NEMA LD 3 - High-Pressure Decorative Laminates 2005.

1.03 SUBMITTALS

- A. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Specimen warranty.
- B. Shop Drawings: Complete details of materials and installation ; combine with shop drawings of cabinets and casework specified in other sections.
- C. Verification Samples: For each finish product specified, minimum size 6 inches square, representing actual product, color, and patterns.
- D. Test Reports: Chemical resistance testing, showing compliance with specified requirements.
- E. Maintenance Data: Manufacturer's instructions and recommendations for maintenance and repair of countertop surfaces.

1.04 QUALITY ASSURANCE

- A. Manufacturer's Limited Warranty: Provide manufacturer's standard 10-year Commercial Warranty against defects in solid surface materials.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

PART 2 PRODUCTS

2.01 COUNTERTOPS

- A. Solid Surfacing Countertops: Solid surfacing sheet or plastic resin casting over continuous substrate.
 - 1. Flat Sheet Thickness: 1/2 inch, minimum.
 - 2. Solid Surfacing Sheet and Plastic Resin Castings: Complying with ISFA 2-01 and NEMA LD 3; acrylic or polyester resin, mineral filler, and pigments; homogenous, non-porous and capable of being worked and repaired using standard woodworking tools; no surface coating; color and pattern consistent throughout thickness.
 - a. Manufacturers:
 - 1) Formica Corporation: www.formica.com/#sle.
 - 2) Or approved equal..
 - b. Basis of Design: Formica Everform Solid Surface.
 - c. Finish on Exposed Surfaces: Matte, gloss rating of 5 to 20.
 - d. Color and Pattern: Limed Concrete, as selected from manufacturer's standard line.
 - 3. Other Components Thickness: 1/2 inch, minimum.
 - 4. Back and End Splashes: Same sheet material, square top; minimum 4 inches high.
 - 5. Skirts: As indicated on drawings.
 - 6. Fabricate in accordance with manufacturer's standard requirements.

2.02 ACCESSORIES

- A. Fixed Top-Mounted Countertop Support Brackets:
 - 1. Material: Steel.
 - 2. Finish: Manufacturer's standard, factory-applied, textured powder coat.
 - 3. Color: Black.

2.03 FABRICATION

- A. Fabricate tops and splashes in the largest sections practicable, with top surface of joints flush.
 - 1. Join lengths of tops using best method recommended by manufacturer.
 - 2. Fabricate to overhang fronts and ends of cabinets 1 inch except where top butts against cabinet or wall.
 - 3. Prepare all cutouts accurately to size; replace tops having improperly dimensioned or unnecessary cutouts or fixture holes.
- B. Provide back/end splash wherever counter edge abuts vertical surface unless otherwise indicated.
 - 1. Secure to countertop with concealed fasteners and with contact surfaces set in waterproof glue.
 - 2. Height: 4 inches, unless otherwise indicated.
- C. Wall-Mounted Counters: Provide skirts, aprons, brackets, and braces as indicated on drawings, finished to match.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install vanities in accordance with manufacturer's instructions and approved shop drawings
- B. Securely attach countertops to cabinets using concealed fasteners. Make flat surfaces level; shim where required.
- C. Seal joint between back/end splashes and vertical surfaces.

3.02 TOLERANCES

- A. Variation From Horizontal: 1/8 inch in 10 feet, maximum.
- B. Offset From Wall, Countertops: 1/8 inch maximum; 1/16 inch minimum.
- C. Field Joints: 1/8 inch wide, maximum.

3.03 CLEANING

- A. Clean countertops surfaces thoroughly.

3.04 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Date of Substantial Completion.

END OF SECTION

PART 1 GENERAL

1.01 WORK INCLUDED IN THIS SECTION

- A. Provide operation and maintenance manuals to the Owner.
- B. Provide Owner training on operation and maintenance procedures of Division 22 products, equipment and systems.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 OPERATIONS AND MAINTENANCE MANUALS

- A. Furnish operations and maintenance (O&M) manuals to the Owner before conducting owner instruction session in accordance with Division 1.
- B. O & M manuals shall include full descriptions of all systems and products installed under this contract. Furnish complete narrative descriptions, product and originals of equipment descriptions with exploded diagrams, parts lists including part numbers, disassembly and assembly instructions and control wiring diagrams. Documents must include manufacturer's recommended maintenance schedule.
- C. O & M manual shall also contain the following:
 - 1. Completed factory start-up forms for each piece of equipment.
 - 2. A copy of the final TAB report. Refer to 23 05 93.
 - 3. Special maintenance materials and protocols.
 - 4. Copies of all warranties and guarantees.

3.02 INSTRUCTION PERIODS FOR OWNER'S PERSONNEL

- A. Description: Following installation of all mechanical equipment and prior to acceptance of the mechanical work, conduct demonstrations and instruction periods to point out locations of servicing points and required points of maintenance to Owner's representative(s).
 - 1. Field demonstration shall include a site walk through of the Owner, Owner's maintenance staff, and shall show the location of all equipment. The field demonstration shall also include a walkthrough of all maintenance access points.
 - 2. Instruction periods for the following shall be included as part of the base bid:
 - a. Domestic water system equipment (Hot Water Heater, Circulators, etc.)
- B. Refer to Division 1 for other requirements regarding Instruction Periods. Provide a video recording of instruction periods at the request of the Owner.

END OF SECTION

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. General Plumbing Valves.
 - 2. Hangers and Supports.
 - 3. Firestopping.
 - 4. Access Panels
 - 5. Tags and Identification.
 - 6. Execution

1.02 GENERAL REQUIREMENTS

- A. Comply with requirements and recommendations of Manufacturers Standardization Society of the Valve and Fittings Industry (MSS) Standards SP- 58 and SP-69.
- B. Comply with Federal "Reduction of Lead in Drinking Water Act" – 2011. Pipes, pipe fittings, plumbing fittings and fixtures shall be "Lead Free" meaning not more than a weighted average of 0.25% lead in wetted surfaces.

1.03 SCOPE

- A. This section includes products, assemblies and methods applicable to more than one of the systems specified in the following sections of Division 22.

1.04 MATERIALS AND EQUIPMENT

- A. Where two or more units of same class of equipment are required, use products of a single manufacturer. All equipment shall be new and free from damage.
- B. Protect stored material and equipment against weather, corrosion and dirt. Protect installed components, including but not limited to piping, fixtures, and equipment against weather damage, corrosion, dirt and construction dust. Seal equipment and fixtures where and when necessary to be kept clean.
- C. Provide major equipment components with manufacturer's name, address, catalog number and capacity indicated on a nameplate, securely affixed in a conspicuous place.
- D. Furnish standard and fabricated hangers and supports complete with necessary inserts, bolts, nuts, rods, washers and other accessories.

1.05 REQUIREMENTS

- A. Provide incompressible inserts and shields at all piping supports on pipe to be insulated per 220700.
- B. Firestopping Materials: Firestop interruptions to fire rated assemblies, materials and components. Achieve fire ratings as noted on Drawings for adjacent construction, but not less than 1 hour fire rating.
 - 1. Ratings may be 3-hours for firestopping in through-penetrations of 4-hour fire rated assemblies unless otherwise required by applicable codes.
 - 2. Surface Burning: ASTM E84 and UL 723 with maximum flame spread/ smoke developed rating of 25/50.
 - 3. Firestop interruptions to fire rated assemblies, materials, and components.
- C. Prevent contact between dissimilar metals, such as copper tubing and steel, by use of copper-plated, plastic coated, or flexible materials. All supports which contact copper tubing shall be copper plated.

1.06 QUALITY ASSURANCE

- A. Installed products shall have surface Burning Characteristics: 25/50 flame spread/smoke developed index when tested in accordance with ASTM E84.
- B. Perform work in accordance with local jurisdiction's requirements and AWS D1.1 for welding hanger and support attachments to building structure.

PART 2 PRODUCTS

2.01 GENERAL VALVE REQUIREMENTS

- A. Bronze valves shall be made with dezincification-resistant materials. Bronze valves made with copper alloy (brass) containing more than 15 percent zinc are not permitted. Brass valves are not permitted.
- B. Valve Pressure and Temperature Ratings: Not less than indicated and as required for system pressures and temperatures.
- C. Valve Sizes: Same as upstream piping unless otherwise indicated.

2.02 GATE VALVES

- A. All gate valves shall be Class 150 at 150 psi (min.) for steam – 300 psi (min.) for water, oil, or gas. *Ohio Brass, Nibco, Wolverine*, or approved equal.

2.03 BALL VALVES

- A. Manufacturers: NIBCO or equal by Apollo, Hammond, Milwaukee, Stockham or approved equal.
- B. 2 inches and Smaller: Lead-Free, NSF-61-8, UPC-IGC-157, MSS SP 110, 600 psi WOG, two piece silicon-performance bronze body, bronze trim, bronze ball, full port, PTFE seats, blow-out proof stem, solder or threaded ends with union, lever handle. For insulated piping provide 2" extended handles of non-thermal conductive material. Nibco Model T/S-585-80-LF.

2.04 PIPE HANGERS AND SUPPORTS

- A. Provide hangers and supports with incompressible insulation inserts and shields for all piping to be insulated per 220700.
 - 1. Manufacturer: Pipe Shields, INC or approved equal.
 - 2. Material: Calcium Silicate or Urethane per temperature application.
 - 3. Thickness: Insert thickness shall match required insulation thickness per 220700.
- B. Plumbing Piping - DWV: Cast-iron
 - 1. Hangers for Pipe Sizes 1/2 to 1-1/2 inch: Carbon steel, adjustable swivel, split ring.
 - 2. Hangers for Pipe Sizes 2 inches and Larger: Carbon steel, adjustable, clevis.
 - 3. Multiple or Trapeze Hangers: Steel channels with welded spacers and hanger rods.
 - 4. Wall Support for Pipe Sizes 3 inches and Smaller: Cast iron hook.
 - 5. Wall Support for Pipe Sizes 4 inches and Larger: Welded steel bracket and wrought steel clamp.
 - 6. Floor Support: Cast iron adjustable pipe saddle, lock nut, nipple, floor flange, and concrete pier or steel support.
- C. Plumbing Piping - Water: Copper
 - 1. Hangers for Pipe Sizes 1/2 to 1-1/2 inch: Carbon steel, adjustable swivel, split ring, with rigid insulation inserts.
 - 2. Multiple or Trapeze Hangers: Steel channels with welded spacers and hanger rods.
 - 3. Wall Support for Pipe Sizes 3 inches and Smaller: Cast iron hook.
 - 4. Floor Support for Cold Pipe: Cast iron adjustable pipe saddle, lock nut, nipple, floor flange, and concrete pier or steel support.
 - 5. Floor Support for Hot Pipe Sizes 4 inches and Smaller: Cast iron adjustable pipe saddle, lock nut, nipple, floor flange, and concrete pier or steel support.
 - 6. Copper Pipe Support: Copper-plated, Carbon-steel ring.

2.05 HANGER ACCESSORIES

- A. Hanger Rods: Mild steel threaded both ends, threaded on one end, or continuous threaded.

2.06 INSERTS

- A. Malleable iron case of galvanized steel shell and expander plug for threaded connection with lateral adjustment, top slot for reinforcing rods, lugs for attaching to forms; size inserts to suit threaded hanger rods.

2.07 ACCESS PANELS

- A. Milcor or approved equal.

- B. Include an allowance for a minimum of 4 access panels.
- C. Architectural grade, 14 gauge frame and door, painted steel or stainlesssteel based on application.

2.08 UNIONS AND FLANGES

- A. Unions for Pipe 2 inches and Smaller:
 - 1. Ferrous Piping: Class 150, 300 psi CWP, malleable iron, threaded.
 - 2. Copper Piping: Class 150, 300 psi CWP, bronze unions.
 - 3. Dielectric Connections: Union with galvanized or plated steelthreaded end, copper solder end, water impervious isolation barrier.

2.09 SLEEVES

- A. Sleeves for Pipes Through Non-fire Rated Floors: 18 gage galvanized steel.
- B. Sleeves for Pipes Through Non-fire Rated Beams, Walls, Footings, and Potentially Wet Floors: Steel pipe or 18 gage galvanized steel.
- C. Sealant: Acrylic
- D. Size large enough to allow for movement due to expansion and to provide for continuous insulation or installation of fire sealant at fire-rated walls. Notethat insulation is discontinuous at fire walls.

2.10 MECHANICAL FIRESTOPPING SLEEVE SEALS

- A. Manufacturers: Metraflex Metraseal 120 or approved equal.
- B. Product Description: Modular mechanical type, consisting of interlocking intumescent synthetic rubber links shaped to continuously fill annular space between object and sleeve, connected with bolts and pressure plates causing rubber sealing elements to expand when tightened, providing watertight seal and electrical insulation. UL listed for 2 hour fire protection.

2.11 FORMED STEEL CHANNEL

- A. Manufacturers: Allied Tube & Conduit, B-Line Systems, Unistrut or approved equal.
- B. Product Description: Galvanized 12 gage steel with holes 1-1/2 inches on center.

2.12 ELECTRIC HEAT TRACE (Freeze Protection)

- A. Manufacturers: Raychem XL-Trace or approved equal.
- B. General: Provide a complete UL listed system of heating cables, componentsand control for preventing pipes from freezing.
- C. Cable: Self-regulating cable with nickel-copper bus wires embedded in conductive polymer core with dielectric polyolefin jacket, braided tinnedcopper ground and outer jacket of polyolefin. Cable shall vary power output inresponse to temperature all along its length with a self-regulating factor of at least 90%.
- D. Components: Control enclosures shall be NEMA 4X rated. Connectionssystem shall not require stripping ofwires.
- E. Control: Thermostatic control with ambient sensor set at 40 F.
- F. Installation:
 - 1. Apply "Electric Traced" labels to outside of insulated pipe.
 - 2. Attached cable to metal pipe with glass cloth tape and plastic pipewith aluminum tape.
 - 3. Adjust pipe insulation size to accommodate maintenance tape.
 - 4. Follow manufacturer's installation instructions.

2.13 FIRE STOPPING-APPLIED

- A. Manufacturers: Dow Corning, 3M Fire Protection or approved equal.
- B. Product Description: Different types of products by multiple manufacturersare acceptable as required to meet specified system description andperformance requirements; provide only one type for each similar application.
 - 1. Single component silicone elastomeric compound and compatible silicone sealant.

2. Single component foam compound.
 3. Formulated compound mixed with incombustible non-asbestos fibers.
 4. Composite of mineral or ceramic fiber stuffing insulation with silicone elastomer for smoke stopping.
 5. Mechanical device with incombustible fillers and silicone elastomer, covered with sheet stainless steel jacket, joined with collars, penetration sealed with flanged stops.
 6. Intumescent putty compound which expands on exposure to surface heat gain.
- C. Primer: Type recommended by firestopping manufacturer for specific substrate surfaces and suitable for required fire ratings.
- D. Installation Accessories: Provide clips, collars, fasteners, temporary stops or dams, and other devices required to position and retain materials in place.
- E. General:
1. Furnish UL listed products.
 2. Select products with rating not less than rating of wall or floor being penetrated.
- F. Non-Rated Surfaces:
1. Stamped steel, chrome plated, hinged, split ring escutcheons or floor plates or ceiling plates for covering openings in occupied areas where piping is exposed.
 2. For exterior wall openings below grade, furnish mechanical sealing device to continuously fill annular space between piping and cored opening or water-stop type wall sleeve.

2.14 TAGS

- A. Plastic Tags: Laminated three-layer plastic with engraved black letters on light contrasting background color. Tag size minimum 1-1/2 inches high.
- B. Metal Tags: Brass, Aluminum or Stainless Steel with stamped letters; tag size minimum 1-1/2 inches diameter with finished edges. Plain English designations.
- C. Information Tags: Clear plastic with printed "Danger," "Caution," or "Warning" and message; size 3-1/4 x 5-5/8 inches with grommet and self-locking nylon ties.
- D. Tag Chart: Plain English designations so no chart or index is required.

2.15 PIPE MARKERS

- A. Color and Lettering shall conform to ASME A13.1 and UPC. Specific examples are noted in the table below.

Service	Background Color	Letter Color	Legend
Domestic Cold Water	Green	White	DOMESTIC COLD WATER
Domestic Hot Water	Green	White	DOMESTIC HOT WATER

- B. Plastic Pipe Markers: Factory fabricated, flexible, semi-rigid plastic, preformed to fit around pipe or pipe covering. Larger sizes may have maximum sheet size with spring fastener.
- C. Plastic Tape Pipe Markers: Flexible, vinyl film tape with pressure sensitive adhesive backing and printed markings.

2.16 LOCKOUT DEVICES

- A. Lockout Hasps: Anodized aluminum hasp with erasable label surface; size minimum 7-1/4 x 3 inches.
- B. Valve Lockout Devices: Nylon device preventing access to valve operator, accepting lock shackle.

PART 3 EXECUTION

3.01 EXISTING WORK

- A. Provide access to existing piping and equipment and other installations remaining active and requiring access.
- B. Extend existing piping installations using materials and methods compatible with existing installations.

3.02 SURFACE PREPARATION

- A. Clean substrate surfaces of dirt, dust, grease, oil, loose material, or other matter affecting bond of firestopping material.
- B. Remove incompatible materials affecting bond of adhesives or firestopping.
- C. Install backing or damming materials to arrest liquid material leakage.
- D. Obtain permission from Architect/Engineer before drilling or cutting structural members.
- E. Degrease and clean surfaces to receive adhesive for identification materials.

3.03 INSTALLATION-CLEARANCE

- A. Appliances and equipment shall be accessible for inspection, service, repair and replacement.
- B. A minimum of 30" of clearance shall be provided in front of the control side of appliances and equipment. Provide additional space when required by NEC.

3.04 INSTALLATION - INSERTS

- A. Install inserts for placement in concrete forms.
- B. Install inserts for suspending hangers from reinforced concrete slabs and sides of reinforced concrete beams.
- C. Provide hooked rod to concrete reinforcement section for inserts carrying pipe 4 inches and larger.
- D. Where concrete slabs form finished ceiling, locate inserts flush with slab surface.
- E. Where inserts are omitted, drill through concrete slab from below and provide through-bolt with recessed square steel plate and nut recessed into and grouted flush with slab.

3.05 INSTALLATION – ACCESS PANELS

- A. Furnish access panels for installation at all concealed equipment which requires service, maintenance or adjustment to include but not limited to equipment, valves, open drains, control valves and controls.
- B. Provide location layout and required size for all access panels to general contractor. Layout shall be regular and consistent, maintain a uniform wall panel height of 24" centerline above finished floor, unless noted otherwise.
- C. Provide stainless steel access panels where installed in tile surfaces.
- D. Furnish access panels to general contractor for installation.
- E. Paint installed access panels to match wall or ceiling. Verify that panels are not painted shut.

3.06 INSTALLATION - VALVES

- A. Install valves with stems upright or horizontal, not inverted.
- B. Install brass male adapters each side of valves in copper piped system. Solder adapters to pipe.
- C. Install 3/4 inch ball valves with cap for drains at main shut-off valves, low points of piping, bases of vertical risers, and at equipment.
- D. Install valves with clearance for installation of insulation and allowing access.
- E. Provide access panels where valves and fittings are not accessible.
- F. Insulate valves according to application in Section 22 07 00.

3.07 VALVE APPLICATIONS

- A. Install ball or butterfly valves for shut-off and to isolate equipment, part of systems, or vertical risers.

3.08 INSTALLATION - PIPE HANGERS AND SUPPORTS

- A. Support horizontal piping as scheduled.
- B. Install hangers with minimum 1/2 inch space between finished covering and adjacent work.
- C. Place hangers within 12 inches of each horizontal elbow.
- D. Use hangers with 1-1/2 inch minimum vertical adjustment.
- E. Where piping is parallel and at same elevation, provide multiple pipe or trapeze hangers.
- F. Adjust hangers and supports as required to bring system to proper line and grade. Piping shall be plumb with floor and parallel/perpendicular to building structure.
- G. Support riser piping independently of connected horizontal piping.
- H. Provide copper plated hangers and supports for copper piping, or sheet lead packing between pipe and hanger.
- I. Design hangers for pipe movement without disengagement of supported pipe.
- J. Prime coat exposed steel hangers and supports. Hangers and supports located in crawl spaces, pipe shafts, and suspended ceiling spaces are not considered exposed.
- K. Provide clearance in hangers and from structure and other equipment for installation of insulation. Insulated piping shall have insulation run continuous through hangers and supports with use of rigid inserts. Insulation shall be glued to both sides of insert at hangers and supports, no insulation gaps are allowed. Refer to Section 22 07 00.
- L. Support of pipe, tubing and equipment shall be accomplished by means of engineered products, specific to each application. Makeshift, field devised methods shall not be allowed.
- M. Support horizontal cast iron pipe adjacent to each hub, with 5 feet maximum spacing between hangers.

3.09 INSTALLATION-PIPING PROTECTION

- A. Provide protective shield plates in concealed locations where piping, other than cast-iron or steel, is installed in studs, joists or rafters. Plates shall be 16 gage steel and cover the pipe area plus 2". Shields may be omitted if piping is more than 1-1/2" from nearest edge of structural member.

3.10 INSTALLATION - SLEEVES

- A. Exterior watertight entries: Seal with mechanical sleeve seals.
- B. Set sleeves in position in forms. Provide reinforcing around sleeves.
- C. Size sleeves large enough to allow for movement due to expansion and contraction. Provide for continuous insulation wrapping.
- D. Extend sleeves through floors 1 inch above finished floor level. Caulk sleeves.
- E. Where piping penetrates floor, ceiling, or wall, close off space between pipe and adjacent work with insulation and caulk or fireproof airtight. Provide close fitting metal collar or escutcheon covers at both sides of penetration.

3.11 INSTALLATION – FIRESTOPPING AND SEALS AT PARTITIONS

- A. Install material at fire rated construction perimeters and openings containing penetrating sleeves, piping and other items requiring firestopping.
- B. Apply primer where recommended by manufacturer for type of firestopping material and substrate involved, and as required for compliance with required fire ratings.
- C. Apply firestopping material in sufficient thickness to achieve required fire and smoke rating and to uniform density and texture. Remove dam material after firestopping material has cured.
- D. Place foamed material in layers to ensure homogenous density, filling cavities and spaces. Place sealant to completely seal junctions with adjacent dissimilar materials.
- E. Place intumescent coating in sufficient coats to achieve rating required.

- F. Clean adjacent surfaces of firestopping materials.
- G. Fire Rated Surface:
 - 1. Seal opening at floor, wall, partition, ceiling, and/or roof as follows:
 - a. Install sleeve through opening and extending beyond minimum of 1 inch on both sides of building element.
 - b. Size sleeve allowing minimum of 1 inch void between sleeve and building element.
 - c. Pack void with backing material.
 - d. Seal ends of sleeve with UL listed fire resistive silicone compound to meet fire rating of structure penetrated.
- H. Non-Rated Surfaces:
 - 1. Seal opening through non-fire rated wall, partition, floor, ceiling, and/or roof opening as follows:
 - a. Install sleeve through opening and extending beyond minimum of 1 inch on both sides of building element.
 - b. Size sleeve allowing minimum of 1 inch void between sleeve and building element.
 - 2. Install escutcheons where piping penetrates non-fire rated surfaces in occupied spaces.
 - 3. Exterior wall openings below grade: Assemble rubber links of mechanical sealing device to size of piping and tighten in place, in accordance with manufacturer's instructions.
 - 4. Interior partitions: Seal pipe penetrations air tight. Apply sealant to both sides of penetration to completely fill annular space between sleeve and conduit.

3.12 INSTALLATION – VIBRATION ISOLATION

- A. Install flexible pipe connectors on pipes connected to equipment supported by vibration isolation. Provide line size flexible connectors.
- B. Install flexible connectors at right angles to displacement. Install one end immediately adjacent to isolated equipment and anchor other ends. Install in horizontal plane unless indicated otherwise.
- C. Adjust equipment level.

3.13 INSTALLATION - IDENTIFICATION

- A. Install identifying devices after completion of coverings and painting.
- B. Install plastic nameplates with corrosive-resistant mechanical fasteners, or adhesive.
- C. Install labels with sufficient adhesive for permanent adhesion and seal with clear lacquer. For unfinished canvas covering, apply paint primer before applying labels.
- D. Nameplates: Identify plumbing equipment (water heaters) with plastic nameplates.
 - 1. Identity description should be as numbered on drawings or plain English description. i.e. "WH-1" or "Rain Water Storage Tank".
- E. Valve Tags: Identify valves in main and branch piping with tags.
 - 1. Do not provide numbered tags.
 - 2. Provide tags with plain English description of service and function. i.e. "Domestic Hot Water, Kitchen"
- F. Pipe Labels: Identify piping, concealed or exposed, with plastic tape pipe markers.
 - 1. Identify service, flow direction, and pressure.
 - 2. Install in clear view and align with axis of piping.
 - 3. Locate identification on straight runs including risers and drops with spacing not to exceed 20 feet.
 - 4. Locate adjacent to each valve and tee, at each side of penetration of structure or enclosure, and at each obstruction.
- G. Equipment and Valve Tag Index: Plain English designations so no chart or index is required.

3.14 PROTECTION OF FINISHED WORK

- A. Protect adjacent surfaces from damage by firestopping material installation.

3.15 SCHEDULES

A. Pipe Hanger Spacing

PIPE MATERIAL	MAXIMUM HANGER SPACING (Feet)	HANGER ROD DIAMETER (Inches)
Cast Iron (All Sizes)	5	3/8
Cast Iron (All Sizes) with 10 foot length of pipe	10	3/8
Copper Tube, 1-1/4 inches and smaller	6	1/2
Copper Tube, 1-1/2 inches and larger	10	1/2

B. Pipe Isolation Schedule:

Pipe Size Inch	Isolated Distance from Equipment
1	120 diameters
2	90 diameters
3	80 diameters

C. Equipment isolation schedule:

ISOLATED EQUIPMENT	BASE		ISOLATOR	
	TYPE	THICKNESS	TYPE	DEFLECTION
Water Heater			Copper Flex	

END OF SECTION

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Selective demolition of existing mechanical work as indicated by plans.
 - 2. Contract requirements of the General Conditions, the Supplementary Conditions, and Division 1 apply.

1.02 QUALITY ASSURANCE

- A. Regulatory Requirements:
 - 1. Comply with applicable city, county, and state codes and ordinances.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 GENERAL

- A. Provide protective measures as required to minimize the transfer of noise, dust, dirt, and refuse to adjacent areas of the project. Such measures may include, dust tight barriers, temporary walls, portable exhaust fans, vacuum systems, and segmental partitioning.
- B. Areas of demolition shall be kept as clean and orderly as physically possible. Do not allow demolition debris to accumulate. Gather debris and dispose daily.
- C. Protect existing, furnishing, and systems with protective coverings. Protect finished surfaces including floors, ceilings, and walls.

3.02 DAMAGES

- A. Promptly repair any damage to existing surfaces, equipment, finishes, or adjacent facilities at no cost and to the satisfaction of the Owner.

3.03 UTILITY SERVICES

- A. Maintain existing services and systems as shown on the plans, or unless otherwise authorized. Do not interrupt existing utilities serving occupied or used facilities. Refer Division 1 for any relevant requirements.
- B. Coordinate all utility shutdowns with Owner.

3.04 DEMOLITION

- A. Provide demolition work required in the existing building for the removal of existing piping and the installation of new equipment or piping. Relocate or modify the existing equipment and piping as required by general construction alterations or by the installation of new equipment or piping in the existing building.
- B. Remove and dispose of existing materials indicated to be removed.
- C. Where existing piping is removed, cut back to the stack or riser and cap the piping behind the wall or below the floor. Remove unused branch piping and piping in walls to be demolished, and cap the remaining piping. Perform cutting and patching.
- D. Where existing insulation is damaged due to cutting and connection to new systems, replace damaged sections as indicated for new systems.
- E. Do not reuse existing products unless specifically indicated.
- F. Specific demolition work and operating conditions to be encountered shall be verified from on-site review and coordination with the Owner. Maintain service to existing equipment and devices during new

construction work as required by Construction Sequencing/Scheduling provisions; in areas adjacent to the new construction work, provide temporary services as necessary to meet these conditions.

- G. Repair of Damages to Underground Utilities: The exact location of existing underground utilities is not definitely known. Should any underground utilities be damaged in excavations, restore such utilities, both temporarily and permanently, as required, without additional cost to the Owner. Correct resulting damage.

3.05 SALVAGE

- A. Coordinate with Owner on salvage. Locate equipment neatly in a location maintained for salvaged materials. Maintain adequate security to prevent loss due to theft or vandalism. Salvaged items lost due to theft, vandalism, or breakage during salvage shall be replaced at no cost to the Owner.
- B. Equipment indicated to be removed shall be turned over to the Owner's Representative unless otherwise indicated.

3.06 DISPOSAL OF DEMOLISHED MATERIALS

- A. Remove debris, rubbish, and other materials resulting from demolition operations from building site. Transport and legally dispose of material off site.
- B. Repair demolition performed in excess of that required at no additional cost to the Owner. Return structures and surfaces to conditions existing prior to commencement of demolition work or as directed by Owner's representative.

3.07 CLEAN-UP AND REPAIR

- A. Upon completion of demolition work, remove tools, equipment and demolished materials from site. Remove protection and leave interior areas clean.
- B. Repair demolition performed in excess of that required at no additional cost to the Owner. Return structures and surfaces to conditions existing prior to commencement of demolition work or as directed by Owner.

END OF SECTION

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Piping system insulation.
 - 2. Equipment insulation.
 - 3. Pipe insulation jackets.

1.02 QUALITY ASSURANCE

- A. Provide insulation tested for maximum flame spread index of 25 and maximum smoke developed index of not exceeding 50 in accordance with ASTM E84.
- B. All systems components subject to heat loss or gain, such as, piping, storage tanks, vessels, valves etc. shall be insulated to conform with the Washington State Energy Code (as minimum).

1.03 IDENTIFICATION

- A. Insulation shall bear a manufacturer's mark indicating the product R-value or K-value and thickness. This mark shall be visible after installation and shall be repeated at an interval of no more than 10 feet.

PART 2 PRODUCTS

2.01 GLASS FIBER, RIGID

- A. Manufacturers: Johns Manville Micro-Lok AP-T Plus or equal by Owens- Corning, Knauf or approved equal.
- B. Insulation: Rigid, noncombustible. ASTM C547.
 - 1. 'K' factor: 0.23 at 75 degrees F.
 - 2. Fiberglass or Earthwool with ECOSE
 - 3. Maximum Service Temperature: 850 degrees F.
 - 4. Maximum Moisture Absorption: 0.2 percent by volume.
 - 5. Density: 3.0 lb/cu ft.
- C. Vapor Retarder Jacket: ASJ+ or Type I, reinforced facing, paintable. Longitudinal acrylic adhesive closure system with factory supplied buttstrips. ASTM C1136.
- D. Rigid clamp/hanger insert: Preformed, incompressible (Calcium Silicate or similar), matching pipe size and insulation thickness.

2.02 POLYOLEFIN INSULATION

- A. Manufacturers: IMCOA or similar.
- B. Polyolefin or Polyethylene pipe insulation is NOT ACCEPTABLE for any application.

2.03 PIPE INSULATION AND EQUIPMENT JACKETS

- A. PVC Plastic Pipe Jacket:
 - 1. Product Description: One piece molded type fitting covers and sheet material, off-white color. ASTM D1784.
 - 2. Thickness: 15 mil indoor, 30 mil outdoor.
 - 3. Connections: Brush on welding adhesive.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify piping and equipment has been tested before applying insulation materials.
- B. Verify surfaces are clean and dry, with foreign material removed.

3.02 INSTALLATION

- A. Apply insulation when building is thoroughly dry to prevent shrinkage.
- B. Exposed Piping: Locate insulation and cover seams in least visible locations.
- C. Insulate entire piping system including fittings, valves, unions, flanges, strainers, flexible connections, pump fittings, connections to equipment and expansion joints. Use canvas jackets for valves and other irregular shapes.
- D. Insulate flanges and unions with removable sections and jackets.
- E. Piping Inserts and Shields:
 - 1. Insulation shall be continuous through supports and hangers with incompressible inserts and shields. Do not directly clamp/support pipe scheduled to be insulated.
 - 2. Shields: Galvanized steel saddle between pipe clevis hangers or pipe rollers and insulation. Minimum 6 inches long, of contour matching adjoining insulation; may be factory fabricated.
 - 3. Inserts: Between pipe clamps, hangers or rollers and piping.
 - 4. Insert material: Compression resistant insulating material suitable for insulation type and planned temperature range and service.
 - 5. Glue insulation to both sides of insert.
 - 6. Shields without inserts may be used at clevis hangers on refrigerant piping 5/8" and smaller with continuous insulation.
- F. Continue insulation through penetrations of building assemblies or portions of assemblies having fire resistance rating of one hour or less. Provide intumescent firestopping when continuing insulation through assembly. Finish at supports, protrusions, and interruptions.
- G. Pipe Exposed in Mechanical Equipment Rooms or Finished Spaces: Finish with PVC jacket and fitting covers.
- H. Heat Traced Piping: Insulate fittings, joints, and valves with insulation of like material, thickness, and finish as adjoining pipe. Size insulation large enough to enclose pipe and heat tracer.
- I. Exposed Equipment: Locate insulation and cover seams in least visible locations.
- J. Apply insulation close to equipment by grooving, scoring, and beveling insulation. Fasten insulation to equipment with studs, pins, clips, adhesive, wires, or bands.
- K. Fill joints, cracks, seams, and depressions with bedding compound to form smooth surface. On cold equipment, use vapor retarder cement.
- L. Finish insulation at supports, protrusions, and interruptions.
- M. Nameplates and ASME Stamps: Bevel and seal insulation around; do not insulate over.
- N. Equipment Requiring Access for Maintenance, Repair, or Cleaning: Install insulation for easy removal and replacement without damage.

3.03 SCHEDULES

- A. Piping: Provide on piping as listed below.

Service	Insulation Type	PIPE SIZE			
		<1"	1" to <1-1/2"	1-1/2" to <4"	4" to <8"
Domestic water H/C/R outside conditioned space	Glass Fiber RIGID	1-1/2"	1-1/2"	2"	2"

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AUBURN, WASHINGTON**

**SECTION 220700
PLUMBING INSULATION**

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Water Piping, Above Grade.
- B. Flanges, Unions, and Couplings.
- C. Pipe Hangers and Supports.
- D. Ball Valves.
- E. Swing Check Valves.
- F. Strainers.
- G. Drain Valves.

1.02 RELATED REQUIREMENTS

- A. Section 220700 - Plumbing Insulation

1.03 REFERENCE STANDARDS

- A. ASME B16.18 - Cast Copper Alloy Solder Joint Pressure Fittings; The American Society of Mechanical Engineers; (ANSI B16.18).
- B. ASME B16.22 - Wrought Copper and Copper Alloy Solder Joint Pressure Fittings; The American Society of Mechanical Engineers.
- C. ASME B31.9 - Building Services Piping; The American Society of Mechanical Engineers; (ANSI/ASME B31.9).
- D. ASTM B32 - Standard Specification for Solder Metal.
- E. ASTM B42 - Standard Specification for Seamless Copper Pipe, Standard Sizes.
- F. ASTM B75 - Standard Specification for Seamless Copper Tube.
- G. ASTM B88 - Standard Specification for Seamless Copper Water Tube.
- H. AWS A5.8 - Specification for Filler Metals for Brazing and Braze Welding; American Welding Society.
- I. MSS SP-58 - Pipe Hangers and Supports - Materials, Design, Manufacture, Selection, Application, and Installation; Manufacturers Standardization Society of the Valve and Fittings Industry, Inc.
- J. MSS SP-67 - Butterfly Valves; Manufacturers Standardization Society of the Valve and Fittings Industry, Inc.
- K. MSS SP-69 - Pipe Hangers and Supports - Selection and Application; Manufacturers Standardization Society of the Valve and Fittings Industry, Inc.
- L. MSS SP-80 - Bronze Gate, Globe, Angle and Check Valves; Manufacturers Standardization Society of the Valve and Fittings Industry, Inc.
- M. MSS SP-89 - Pipe Hangers and Supports - Fabrication and Installation Practices; Manufacturers Standardization Society of the Valve and Fittings Industry, Inc.
- N. MSS SP-110 - Ball Valves Threaded, Socket-Welding, Solder Joint, Grooved and Flared Ends; Manufacturers Standardization Society of the Valve and Fittings Industry, Inc.
- O. NSF 61 & NSF 372 Drinking water system components and drinking water systems components – lead content.
- P. All codes and standards shall be latest version as accepted by the local Authority Having Jurisdiction.

1.04 SUBMITTALS

- A. Product Data: Provide data on all materials, tubing, tube fittings, valves, and accessories. Provide manufacturer's catalog information. Indicate valve data and ratings.

- B. Shop Drawings: Provide drawings covering all specially-designed hanger assemblies and fabrications. Also provide drawings showing assemblies of standard manufactured hangers based upon this particular project's requirements.
- C. Project Record Documents: Record actual locations of valves, buried piping, and any other changes made to contract drawings.
- D. Mechanical Contractor to submit sketches covering all hangers proposed for use on this project. Manufacturer's data shall also be submitted.

1.05 QUALITY ASSURANCE

- A. Perform work in accordance with applicable codes.
- B. Valves: Manufacturer's name and pressure rating marked on valve body.
- C. All domestic water piping and valves in contact with potable water shall be certified lead free (less than 1/4 of 1%). Any product designed for dispensing potable water must meet both the NSF 61 and NSF 372 test standards via third-party testing and certification.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Accept products on site in shipping containers with labeling in place. Inspect for damage.
- B. Protect piping systems from entry of foreign materials by providing temporary covers, completing sections of the work, and isolating parts of completed system.

PART 2 PRODUCTS

2.01 WATER PIPING, ABOVE GRADE

- A. Copper Tube: ASTM B 88 (ASTM B 88M), Type L (B), Hard Drawn.
 - 1. Fittings: ASME B16.18, cast copper alloy or ASME B16.22, wrought copper and bronze.
 - 2. Joints: ASTM B 32, lead-free solder.
 - 3. Joints: Extracted collars approved for pipe sizes 1/2" to 2". For joints made with a T-Drill mechanical extractor, follow manufacturer's operating instructions.
 - 4. Joints: Press-Seal Fitting, approved for pipe sizes 1/2" to 4". May be Viega, LLC or Nibco Press System, conforming to the material and sizing requirements of ASME B16.18 or ASME B16.22 and the performance requirements of IAPMO PS 117. Elastomeric seals shall be made of EPDM material. Fittings shall be manufactured with an inboard bead design having compression crimp applied on both upstream and downstream sides of EPDM seal bead and un-pressed fitting leak identification feature. Joints: Grooved mechanical couplings. 200 psi minimum joint working pressure, cast ductile iron housing conforming with ASTM A-536. Gaskets for domestic water service, EPDM per ASTM D-2000, Victaulic or Gruvlok.
 - 5. Joints: Grooved mechanical flange adapters shall be ductile iron (ASTM A-536), engaging directly into roll grooved copper tube and fittings and bolting directly into ANSI Class 150 steel flanged components. Gasket material similar to coupling gasket material noted above.

2.02 FLANGES, UNIONS, AND COUPLINGS

- A. Unions for Pipe Sizes 2" and Under:
 - 1. Copper tube: Class 150 bronze unions with soldered joints.
- B. Flanges for Pipe Size 2-1/2" and larger:
 - 1. Copper tube: Class 150 slip-on bronze flanges; preformed EPDM gaskets.
- C. Mechanical Couplings for Grooved and Shouldered Joints:
 - 1. Two or more curved housing segments with continuous key to engage pipe groove, circular C-profile gasket, and bolts to secure and compress gasket.
 - 2. Dimensions and Testing: In accordance with AWWA C606.

3. Housing Material: Ductile iron conforming to ASTM A-536, grade 65-45-12.
4. Housing Coating: Copper colored alkyd enamel.
5. Gasket Material: Grade EHP or EP, UL classified in accordance with ANSI/NSF 61 for cold +86°F/+30°C and hot +180°F/+82°C potable water service.
6. Bolts and Nuts: Hot dipped galvanized.
7. When pipe is field grooved, provide coupling manufacturer's grooving tools.
8. Manufacturers:
 - a. Victaulic
 - b. Gruvlock
 - c. Approved equal.

D. Dielectric Connections:

1. Manufacturers:
 - a. Victaulic
 - b. Gruvlok
 - c. Approved equal.
2. Provide dielectric waterway fittings that maintain external electrical continuity while maintaining internal isolation. Fittings shall comply with ASTM F 492, and be listed by IAPMO. For pipe sizes 2" and less used dielectric nipples and for pipe sizes 2-1/2" and larger use dielectric flange kits.
3. Do not use dielectric unions.

2.03 PIPE HANGERS AND SUPPORTS

A. Provide hangers and supports that comply with ASME B31.9, MSS SP-58 & SP-69.

1. If type of hanger or support for a particular situation is not indicated, select appropriate type using MSS SP-58 & SP-69 recommendations, see Section 220050.
2. Overhead Supports: Individual steel rod hangers attached to structure or to trapeze hangers.

B. Plumbing Piping - Water:

1. Conform to ASME B31.9.
2. Hangers for Pipe Sizes 1/2" to 2": Carbon steel, adjustable swivel, split ring.
3. Hangers for Cold Water Piping Sizes 2" and Over: Carbon steel, adjustable, clevis.
4. Hangers for Hot Water Piping Sizes 2" and over: Carbon steel, adjustable, clevis.
5. Adjustable side beam clamps MSS-SP69-Type 25 or approved equal.
6. Multiple or Trapeze Hangers: Steel channels with welded supports or spacers and hanger rods.
7. Multiple or Trapeze Hangers for Hot Piping Sizes 6" and over: Steel channels with welded supports or spacers and hanger rods, cast iron roll.
8. Vertical Support: Steel riser clamp.
9. Floor Support for Cold Piping: Cast iron adjustable pipe saddle, lock nut, nipple, floor flange, and or steel support.
10. Floor Support for Hot Piping: Cast iron adjustable pipe saddle, locknut, nipple, floor flange, and steel support.
11. Floor Support for Hot Piping Sizes 6" and Over: Adjustable cast iron pipe roll and stand, steel screws, and steel support.
12. Copper Tube Support: Carbon steel ring, adjustable, copper plated.
13. Hanger Rods: Mild steel threaded both ends, threaded one end, or continuous threaded, zinc plated.
14. All hanger materials to be zinc or cadmium plated.
15. Isolate all pipe work within the first 50' of vibration isolated equipment or within the mechanical spaces, whichever is greater.
16. Provide roller hangers for all applications where thermal movement causes hanger rods to deviate more than 4 degrees from vertical or longitudinal movement exceeds 1/2". Provide protection saddles for use with roller hanger.
17. All auxiliary steel necessary for the installation of the pipe hangers and supports shall be designed in accordance with the AISC Steel Handbook and furnished by the Mechanical Contractor and shall have one coat of primer paint prior to or after installation.

18. It shall be the responsibility of the Mechanical Contractor to provide an adequate pipe suspension system in accordance with recognized engineering practices, using standard, commercially-accepted pipe hangers and accessories.

2.04 BALL VALVES

A. Manufacturers:

1. Nibco, Inc.
2. Milwaukee Valve Company
3. Victaulic
4. Gruvlok
5. Stockham Valve Company
6. Red-White Valve Corporation
7. Viega, LLC
8. Approved equal

B. 2" and Smaller:

1. MSS SP-110, 150 psig SWP, 600 psig CWP, bronze, two-piece body, chrome-plated brass ball, full port, teflon seats and stuffing box ring, blow-out-proof stem, lever handle, with solder, threaded, or grooved ends; provide stem extension to allow operation without interfering with pipe insulation.

2.05 STRAINERS

A. Manufacturers:

1. Victaulic
2. Gruvlock
3. Zurn-Wilkins Industries
4. Watts Regulator Company
5. Nibco, Inc.
6. Red-White Valve Corporation
7. Approved equal

B. Size 2" and Under:

1. Threaded bronze body for 175 psi working pressure, Y-pattern with 1/32" stainless steel perforated screen. Equal to Watts #777.

C. Size 2-1/2" and Larger:

1. Class 125, flanged bronze body, Y- pattern with 3/16" stainless steel perforated screen. Equal to Watts #77F-B.

2.06 DRAIN VALVES

- A. Provide a full-port ball valve with 3/4" hose connection, cap and chain at all low points and at equipment drains. Nibco #T-585-70HC or approved equal.

PART 3 EXECUTION

3.01 PREPARATION

- A. Ream pipe and tube ends. Remove burrs.
- B. Remove scale and dirt on inside and outside before assembly.
- C. Prepare piping connections to equipment with flanges or unions.
- D. Keep open ends of pipe free from scale and dirt; protect open ends with temporary plugs or caps.
- E. After completion, fill, clean and disinfect system.

3.02 INSTALLATION

- A. Install in accordance with manufacturer's instructions.

- B. Lead type solders are not allowed on the jobsite.
- C. Use only water soluble paste flux designed to work with lead free solders.
- D. Provide non-conducting dielectric waterway connections wherever jointing dissimilar metals. Dielectric unions are not allowed.
- E. Route piping in orderly manner and maintain gradient. Route parallel and perpendicular to walls.
- F. Install piping to maintain 6'-6" headroom minimum, conserve space, and do not interfere with use of the space.
- G. Group piping whenever practical at common elevations.
- H. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment.
- I. Provide clearance in hangers and from structure and other equipment for installation of insulation and access to valves and fittings. Refer to Section 220500.
- J. Provide access where valves and fittings are not exposed, minimum size 12" x 12".
- K. Install valves with stems upright or horizontal, not inverted.
- L. Provide circuit balance and check valves between domestic hot water and hot water circulating branch lines on the return leg, even if not shown on the Plans. All branches to be balanced.
- M. Install water piping to ASME B31.9.
- N. Copper Tube Extracted Joints may be used on copper tubing. Dimple branch connection to control insertion. Brazed joints only.
- O. Tube Press Fit Joints shall be installed in accordance with the manufacturer's installation instructions. The tubing shall be fully inserted into the fitting and the tubing marked at the shoulder of the fitting. The fitting alignment shall be checked after pressing against the mark on the tubing to assure the tubing is fully inserted into the fitting. The joints shall be pressed using only the tool approved by the manufacturer.
- P. Copper Tube Rolled Groove Joint shall be installed in accordance with manufacturer's instructions.
- Q. Provide sleeves for pipes passing through partitions, walls and floors. Use commercially manufactured modular seals for sleeves passing through floors, below-grade walls and floor slabs below grade. Make these penetrations water-tight against ground water pressure.
- R. Pipe Hangers and Supports:
 - 1. It shall be the responsibility of the Contractor to provide an adequate pipe suspension system in accordance with recognized engineering practices, using standard commercially-accepted pipe hangers and accessories.
 - 2. Install in accordance with ASME B31.9 and MSS SP-89.
 - 3. Use only adjustable side beam clamps (Type 25); standard beam clamps are not acceptable.
 - 4. Inserts and shields are to be placed at each hanger by the piping contractor. Reference Section 220500.
 - 5. Install hangers to provide a minimum of 1/2" space between finished covering and adjacent work.
 - 6. Place hangers within 12" of each horizontal elbow.
 - 7. Use hangers with 1-1/2" minimum vertical adjustment. Design hangers for pipe movement without disengagement of supported pipe.
 - 8. Support vertical piping at every floor. Support riser piping independently of connected horizontal piping.
 - 9. Where more than one piping run can be installed in parallel and at same elevation, provide multiple or trapeze hangers.
 - 10. Provide copper-plated hangers and supports for un-insulated copper tubing. Pipe-tight hangers are acceptable only for piping conveying fluids at ambient temperatures. All Hot Water, Hot Water Circulating, Cold Water, Heating Water, Condensing Water, and Chilled Water piping, etc., is to be insulated.

11. Provide hangers adjacent motor-driven equipment with vibration isolation.
12. Auxiliary Steel: All auxiliary steel necessary for the installation of the pipe hangers and supports shall be designed in accordance with the AISC Steel Handbook, and shall be furnished and installed by this Contractor.
13. All steel rods, hangers and brackets, shall be electro-plated. Custom fabricated steel brackets or hangers shall receive one shop coat primer paint by this Contractor.

3.03 APPLICATION

- A. Use grooved mechanical couplings and fasteners only in accessible locations.
- B. Install unions downstream of valves and at equipment or apparatus connections.
- C. Install ball valves for shut-off and to isolate equipment, parts of systems, or vertical risers.
- D. Provide flow controls in water recirculating systems where required or indicated.
- E. Provide restroom isolation valves with positive shutoff for domestic hot water, cold water and hot water recirculation. Isolation valves shall be located above T-bar ceiling in area adjacent restrooms where possible. If located above a hard ceiling, provide access panel.
- F. Connect hot water circulating piping to hot water piping within 3' of plumbing fixtures. Bring circulating piping down into wall as needed to meet this distance requirement.

3.04 TOLERANCES

- A. Water Piping: Slope at minimum of 1/32" per foot, and arrange to drain at low points.

3.05 DISINFECTION OF DOMESTIC WATER PIPING SYSTEM

- A. Prior to starting work, verify system is complete, flushed, and clean.
- B. Inject disinfectant (free chlorine in liquid, powder, tablet or gas form) throughout system to obtain 50 to 80 mg/L residual.
- C. Bleed water from outlets to ensure distribution, and test for disinfectant residual at minimum of 15% of outlets.
- D. Leave disinfectant in system for 24 hours.
- E. If final disinfectant residual tests less than 25 mg/L, repeat treatment.
- F. Flush disinfectant from system until residual is equal to that of incoming water or 1.0 mg/L.
- G. Take samples no sooner than 24 hours after flushing, from 10% of outlets and from water point of entry; analyze in accordance with AWWA C651.
- H. Provide copies of certified test reports from the Health Department to the Owner's Commissioning Agent, Owner's representative, and General Contractor prior to occupancy.

3.06 TESTING

- A. Test Domestic Water a minimum of 100 PSI or 1-1/2 times incoming pressure whichever is greater and hold pressure for two hours, without loss of pressure. Have the test witnessed by the Commissioning Agent and the Owner's representative. If the building is phased, provide multiple tests as needed. Do not over pressurize the system if there is PEX tubing in the system.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Pipe, pipe fittings, and connections for piping systems.
- B. Sanitary Sewer piping, Above Grade.
- C. Flanges, Unions, and Couplings
- D. Pipe Hangers and Supports.

1.02 RELATED SECTIONS

- A. Section 220700 - Plumbing Insulation

1.03 REFERENCES

- A. ASME B31.9 - Building Services Piping; The American Society of Mechanical Engineers; (ANSI/ASME B31.9).
- B. ASTM A 74 - Standard Specification for Cast Iron Soil Pipe and Fittings.
- C. ASTM C 564 - Standard Specification for Rubber Gaskets for Cast Iron Soil Pipe and Fittings.
- D. CISPI 301 - Standard Specification for Hubless Cast Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste and Vent Piping Applications; Cast Iron Soil Pipe Institute.
- E. CISPI 310 - Specification for Coupling for Use in Connection with Hubless Cast Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste, and Vent Piping Applications; Cast Iron Soil Pipe Institute.
- F. MSS SP-58 - Pipe Hangers and Supports - Materials, Design and Manufacture; Manufacturers Standardization Society of the Valve and Fittings Industry, Inc.
- G. MSS SP-69 - Pipe Hangers and Supports - Selection and Application; Manufacturers Standardization Society of the Valve and Fittings Industry, Inc.
- H. MSS SP-89 - Pipe Hangers and Supports - Fabrication and Installation Practices; Manufacturers Standardization Society of the Valve and Fittings Industry, Inc.
- I. Reference standards shall be the latest revision as accepted by the local Authority Having Jurisdiction.

1.04 SUBMITTALS

- A. Product Data: Provide data on pipe materials, pipe fittings, valves, and accessories. Provide manufacturer's catalog information. Indicate valve data and ratings.
- B. Provide sketches covering all specially designed hanger assemblies and fabrications. Also provide sketches showing assemblies of standard manufactured hangers based on this particular project's requirements.

1.05 QUALITY ASSURANCE

- A. Perform work in accordance with applicable codes.
- B. Products specified in this section shall be manufactured in the United States of America. Products shall be labeled with the manufacturer's logo and country of origin as well as other markings required by these specifications. This paragraph will be strictly enforced.

1.06 DELIVERY, STORAGE, AND PROTECTION

- A. Accept products on-site in shipping containers with labeling in place. Inspect for damage.
- B. Protect piping systems from entry of foreign materials by temporary covers, completing sections of the work, and isolating parts of completed system.

PART 2 PRODUCTS

2.01 SANITARY SEWER PIPING, ABOVE GRADE

- A. Cast Iron Pipe: ASTM A 74, service weight.
 - 1. Fittings: Cast iron.
 - 2. Joint Seals: ASTM C 564 neoprene gaskets.
 - 3. Pipe and fittings shall be marked with the collective trademark of the Cast Iron Soil Pipe Institute and manufactured by AB&I, Charlotte, or Tyler or receive prior approval from the Owner's representative.
- B. Cast Iron Pipe: CISPI 301, hubless, service weight.
 - 1. Fittings: Cast iron.
 - 2. Joints: CISPI 310, neoprene gaskets and stainless steel clamp-and-shield assemblies conforming to ASTM C1277, Clamp-all Hi-Torq 80.
 - 3. Pipe and fittings shall be marked with the collective trademark of the Cast Iron Soil Pipe Institute and manufactured by AB&I, Charlotte, or Tyler or receive prior approval from the Owner's representative.

2.02 PIPE HANGERS AND SUPPORTS

- A. Plumbing Piping - Drain, Waste, and Vent:
 - 1. Conform to ASME B31.9.
 - 2. Hangers for Pipe Sizes 1/2" to 1-1/2": Carbon steel, adjustable swivel, split ring.
 - 3. Hangers for Pipe Sizes 2" and Over: Carbon steel, adjustable, clevis.
 - 4. Adjustable side beam clamps MSS-SP69-Type 25 or approved equal.
 - 5. Multiple or Trapeze Hangers: Steel channels with welded spacers and hanger rods.
- B. Vertical Support: Steel riser clamp.
- C. Floor Support: Cast iron adjustable pipe saddle, lock nut, nipple, floor flange, and steel support.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Ream pipe and tube ends. Remove burrs.
- B. Remove scale and dirt, on inside and outside, before assembly.
- C. Keep open ends of pipe free from scale and dirt, protect open ends with temporary plugs or caps.
- D. After completion, fill, clean and flush system.

3.02 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Route piping in orderly manner and maintain gradient. Route parallel and perpendicular to walls.
- C. Install piping to maintain 6'-8" minimum headroom, conserve space, and not interfere with use of space.
- D. Group piping whenever practical at common elevations.
- E. Install piping to allow for expansion and contraction without stressing pipe, or joints.
- F. Provide clearance in hangers and from structure and other equipment for installation of insulation and access to valves and fittings.
- G. Install vent piping penetrating roofed areas to maintain integrity of roof assembly; All pipe shall be flashed, flashing shall extend to at least 10" in all directions from pipe and run at least 12" above roof around pipe. Each pipe shall be counter-flashed or turned down inside of pipe. Vent flashing shall be made watertight. Two-piece flashings are not acceptable.
- H. Pipe Hangers and Supports:
 - 1. It shall be the responsibility of the Contractor to provide an adequate pipe suspension system in accordance with recognized engineering practices, using standard commercially-accepted pipe hangers and accessories.

2. Use only adjustable side beam clamps (Type 25), standard beam clamps are not acceptable.
 3. Inserts: Insulated pipe inserts shall be provided at hanger, support, anchor, and guide locations on piping requiring insulation. The insert is to consist of either hydrous calcium silicate or polyisocyanurate foam insulation (urethane) encircling the entire circumference of the pipe, with a 360-degree PVC (1/16" thick) or galvanized steel jacket (20 gauge minimum). Inserts are to be installed on piping during piping installation, by the piping contractor. Provide continuous insulation vapor barrier. Seal penetrations in insulation at hangers, supports, anchors, and other projections with vapor-retarder mastic.
 4. Install hangers to provide a minimum of 1/2" space between finished covering and adjacent work.
 5. Place hangers within 12" of each horizontal elbow.
 6. Use hangers with 1-1/2" minimum vertical adjustment. Design hangers for pipe movement without disengagement of supported pipe.
 7. Support vertical piping at every floor. Support riser piping independently of connected horizontal piping.
 8. Where several pipes can be installed in parallel and at same elevation, provide multiple or trapeze hangers.
 9. Provide hangers adjacent to motor driven equipment with vibration isolation.
 10. Support cast iron drainage piping at every joint.
 11. Auxiliary Steel; All auxiliary steel necessary for the installation of the pipe hangers and supports shall be designed in accordance with the AISC Steel Handbook, and furnished and installed by this Contractor.
 12. All steel rods, hangers and brackets, shall be electro-plated. Custom-fabricated steel brackets or hangers shall receive one shop coat of primer paint by this Contractor.
- I. Indirect drain piping shall terminate two (2) pipe diameters above the flood rim of the receptor and shall be cut at a 45-degree angle.

3.03 ERECTION TOLERANCES

- A. Drainage Piping: Establish invert elevations within 1/2" vertically of location indicated and slope to drain at minimum of 1/4" per foot slope.

3.04 SERVICE CONNECTIONS

- A. Provide new sanitary sewer services. Before commencing work check invert elevations required for sewer connections, confirm inverts and ensure that these can be properly connected with slope for drainage and cover to avoid freezing.
- B. Provide sleeves in walls or floors for service mains. Caulk enlarged sleeve and make watertight with modular seals and pliable material. Anchor service main inside to concrete walls or floors.
- C. Sleeves around service mains to be Schedule 40 galvanized pipe to 1" above finished floor.

3.05 TESTING

- A. Test the Drainage Systems as required by local Authority Having Jurisdiction.

END OF SECTION

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Water heaters and accessories.
 - 2. Frost-resistant hose bibbs.

1.02 QUALITY ASSURANCE

- A. Water Heater Performance Requirements: Equipment efficiency not less than prescribed by Washington State Energy Code and scheduled on drawings.
- B. Comply with governing codes and regulations. Provide products of acceptable manufacturers which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.
- C. Coordinate location of systems to avoid interference with location of structure and other building systems. Notify Owner prior to construction of conflicts which cannot be resolved.

1.03 SUBMITTALS

- A. Product Data: Submit manufacturer's product data and installation instructions for each material and product used including but not limited to:
 - 1. Water heaters
 - 2. Frost Resistant Hose Bibbs
 - 3. Pipe and Fittings
 - 4. Accessories
- B. Shop Drawings: Submit shop drawings indicating material characteristics, details of construction, connections, and relationship with adjacent construction.
 - 1. Shop drawings shall be prepared and stamped by a qualified engineer licensed in the jurisdiction of the project.
 - 2. Provide hydraulic calculations for pipe sizing.
- C. Operation and Maintenance Data: Submit manufacturer's operation and maintenance data, including operating instructions, list of spare parts and maintenance schedule.

PART 2 PRODUCTS

2.01 HOSE BIBB:

- A. Prier freezeless wall hydrant model p-264, anti-siphon freeze proof wall hydrant, with vacuum breaker, key operated with key lock.
- B. Wall thickness: coordinate with field conditions and procure as required.
- C. Inlet option: ep inlet, union elbow with ¾" male pipe thread.
- D. Pressure Ratings: Provide all components with minimum pressure rating of 150 psig working pressure.

2.02 ELECTRIC HEAT PUMP WATER HEATERS

- A. Manufacturers: AO Smith or approved equal.
- B. Type: Tanked hybrid electric heat pump water heater, sized per equipment schedule.
- C. Provide with CTA-2045-A port.

2.03 CIRCULATION PUMP

- A. In-line hot water circulation pump. Grundfos, Bell, Taco, or approved equal.

2.04 EXPANSION TANK

- A. Provide in-line, diaphragm expansion tank, sized per equipment schedule. Amtrol or approved equal.

2.05 TEMPERING VALVE

- A. Provide domestic hot water heater with a tempering valve; size per fixture load and manufacturer's written instructions. Leonard, Watts or accepted equal.
- B. Provide valves per ASSE 1070 at fixture Groups as required by local AHJ.

2.06 SEISMIC BRACE

- A. Galvanized steel strap brace, secure to structure. Hold Rite or accepted equal.

PART 3 EXECUTION

3.01 PREPARATION

- A. Existing conditions and connecting water supply piping are not shown. Field verify locations of new and existing work prior to commencing work of this Section.

3.02 DEMOLITION

- A. Coordinate construction sequence with Owner prior to beginning demolition. Review demolition, installation, and operation procedures with Owner prior to beginning work. Communicate any service outage and collaborate with Owner to plan the installation with a minimum disruption to the occupant's activities.
- B. Remove equipment at locations indicated in Drawings. Cap piping in place where indicated. Prepare piping for installation of new equipment where called for. Leave substrate suitable for installation of new finishes.

3.03 INSTALLATION

- A. Install equipment at locations indicated. Provide in permanent operation.
- B. Flush all piping after fabrication and prior to connecting into existing systems and pressure testing.
- C. Remove strainer screens during flushing except those protecting control equipment. Clean the screens protecting control equipment during flushing and after flushing is completed.
- D. Flush piping systems as indicated on drawings.

3.04 PRESSURE TESTING

- A. Pressure test piping and new fixtures and repair any leaks disclosed by the testing.
- B. Rectify all defects disclosed by the tests without additional cost to the Owner. Make test in the presence of the Owner. Furnish memo to the Owner on letterhead indicating that the testing has been successfully completed.
- C. Test piping systems after the lines have been cleaned and flushed, and before any insulation has been applied.
- D. Test Pressures: Test piping systems at pressure of one and one-half times the design working pressure or at 50 psig, whichever is greater.
- E. Hydrostatically test all liquid piping..

3.05 TEST PROCEDURE:

- A. Before tests, remove or valve off from the system all gauges, traps and other apparatus which may be damaged by the test procedure.
- B. Subject the system to a calibrated test pressure for a sufficient length of time to enable an inspection to be made at all joints and connections.
- C. Rectify all defects which develop during testing and retest the piping systems until they show no defect or weakness and are tight.

3.06 INSTALLATION – WATER HEATER

- A. Maintain manufacturer's recommended clearances around and over water heaters.

- B. Anchor or strap to structure to resist horizontal displacement due to earthquake. IAPMO listed, galvanized steel, double body straps, Hubbard Quick Strap or approved equal.
- C. Connect domestic hot water and domestic cold water piping to water heater connections.
- D. Install the following piping accessories.
 - 1. On cold water:
 - a. Thermometer well and thermometer.
 - b. Strainer.
 - c. Pressure gage.
 - d. Shutoff ball valve.
 - 2. On hot water:
 - a. Thermometer well and thermometer.
 - b. Shutoff ball valve.
- E. Install discharge piping from relief valves and drain valves to nearest floor drain or indirect waste location. Determine best routing.
- F. Install water heater trim and accessories furnished loose for field mounting.
- G. Install electrical devices furnished loose for field mounting.

END OF SECTION

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. General Plumbing Fixtures: Water closets, Lavatories, Drinking Fountains, Sinks.
2. Faucets and valves
3. Accessories.

1.02 SCOPE

- A. This section includes all plumbing fixtures, trim and installation, to include owner furnished equipment.

1.03 REQUIREMENTS

- A. Fixtures by type and material shall be of the same manufacturer except when scheduled or approved otherwise.
- B. All new construction or substantial development shall comply with current applicable Building Code. Programs for specific projects will indicate additional requirements for Barrier Free Accessibility. For renovation of existing facilities, design to meet the intent of these (ADA) regulations wherever feasible and review such situations with the appropriate Agencies.
- C. All construction shall be in accordance with the current applicable plumbing codes and all other related codes.
- D. All water and sewer piping, traps, clean-outs, etc., for toilets, urinals, and lavatories shall be accessible from behind where feasible. Use approved access panels where not feasible.
- E. Pipes in the pipe alley must be installed as close to the wall as possible in order to allow maximum clear work space in the pipe alley.
- F. Plumbing contractor shall be responsible for obtaining all necessary permits.
- G. All work shall be performed by a licensed and bonded plumbing contractor. The plumbing contractor shall be licensed in the State of Washington.

1.04 SUBMITTALS

- A. Provide catalog cuts (fittings, fixtures, etc.), for SPR review.

PART 2 PRODUCTS

2.01 FIXTURES

- A. Refer to fixture schedules on Plumbing drawings.

2.02 FIXTURE SUPPLIES

- A. Manufacturers: Brass Craft or approved equal.
- B. Chrome plated brass angle stops with fixed key metal handle and chrome plated escutcheon. Chrome plated copper flexible supplies for exposed connections, braided supplies acceptable where concealed. Provide stop and supply type as applicable to specific fixtures.

2.03 TRAPS

- A. Manufacturers: Brass Craft or approved equal.
- B. Adjustable type, polished chrome plated brass with escutcheon. Provide type as applicable to specific fixture installation. PVC acceptable only where concealed.

2.04 CARRIERS

- A. Manufacturers: Wade, J.R. Smith, Zurn, Josam or approved equal.
- B. Water Closet: Adjustable, coated cast iron assembly with neoprene closet gasket, integral drain hub and vent, lugs for floor and wall attachment, suitable for type of closet and connecting pipe.

- C. Urinal: Adjustable, coated cast iron assembly with neoprene closet gasket, tubular legs, lugs for floor and wall attachment, suitable for type of closet and connecting pipe.
 - D. Lavatory: Provide concealed arm carriers for all wall mounted lavatories. Coated steel uprights with welded feet, cast iron adjustable headers, concealed arms, lugs for floor and wall attachment, steel sleeves, alignment truss.
- 2.05 TOILET WATER SUPPLY
- A. Water Supply: Type L copper
 - B. Waste Lines: Cast iron or approved.
- 2.06 ANCHORS
- A. No equipment anchors shall be plastic. Through bolting is preferred.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify walls and floor finishes are prepared and ready for installation of fixtures.
- B. Verify electric power is available and of correct characteristics.
- C. For all lavatories and sinks verify required number of holes and hole spacing before ordering.

3.02 PREPARATION

- A. Rough-in fixture piping connections in accordance with minimum sizes indicated in fixture rough-in schedule for particular fixtures and in accordance with manufacturer's details.
- B. Locate fixtures in accordance with architectural drawings, details on structural drawings and/or Engineer's direction in field. Mount ADA fixtures according to dimensions on architectural drawings.
- C. If drain, tailpiece, strainer or other accessories are not furnished by fixture manufacturer then provide accessories by Brass Craft or approved equal.
- D. Provide vandal proof features on faucets, aerators, bubblers and pop-up waste assemblies on fixtures in public areas.

3.03 INSTALLATION

- A. Install shut-off valves on water lines servicing a fixture group.
- B. Support piping at stop, valve or flush valve.
- C. Align fixtures and equipment installed in accord with architectural drawings.
- D. Seal fixtures to wall and floor surfaces with silicon sealant, color to match fixture.
- E. Solidly attach water closets to floor with lag screws. Lead flashing is not intended hold fixture in place.
- F. For ADA accessible water closets, install flush valve with handle to wide side of stall.

3.04 INTERFACE WITH OTHER PRODUCTS

- A. Review millwork shop-drawings. Confirm location and size of fixtures and openings before rough in and ordering.

3.05 ADJUSTING

- A. Adjust stops or valves for intended water flow rate to fixtures without splashing, noise, or overflow.
- B. Adjust flush lever or valve for intended flow rate and operation.

END OF SECTION

PART 1 GENERAL

1.01 WORK INCLUDED IN THIS SECTION

- A. Provide operation and maintenance manuals to the Owner.
- B. Provide owner training on operation and maintenance procedures of Division 23 products equipment and systems.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 OPERATIONS AND MAINTENANCE MANUALS

- A. Furnish operations and maintenance (O&M) manuals to the Architect before conducting owner instruction session in accordance with Division 1. Furnish copies of the O & M manuals for review in accordance with Division 1; include one additional hard copy for the Engineer's records.
- B. O & M manuals shall include full descriptions of all systems and products installed under this contract. Furnish complete narrative descriptions, product and originals of equipment descriptions with exploded diagrams, parts lists including part numbers, disassembly and assembly instructions and control wiring diagrams. Documents must include manufacturer's recommended maintenance schedule.
- C. O & M manual shall also contain the following:
 - 1. Completed factory start-up forms for each piece of equipment
 - 2. A copy of the final TAB report. Refer to 230593.
 - 3. Special maintenance materials and protocols.
 - 4. Copies of all warranties and guarantees.

3.02 INSTRUCTION PERIODS FOR OWNER'S PERSONNEL

- A. Description: Following installation of all mechanical equipment and prior to acceptance of the mechanical work, conduct demonstrations and instruction periods to point out locations of servicing points and required points of maintenance to Owner's representative(s).
 - 1. Field demonstration shall include a site walk through of the Owner, Owner's maintenance staff, and shall show the location of all equipment. The field demonstration shall also include a walkthrough of all maintenance access points.
 - 2. Instruction periods for the following shall be included as part of the base bid:
 - a. Instrumentation and control systems
 - b. HVAC equipment
 - c. Ventilation/exhaust Fans
- B. Refer to Division 01 for other requirements regarding Instruction Periods. Provide a video recording of instruction periods at the request of the Owner.

END OF SECTION

PART 1 GENERAL

1.01 WORK INCLUDED

A. Work includes the following:

1. Provide all materials, equipment, labor, supervision, tools and items necessary for the construction, installation, connection, start-up, testing and operation of all mechanical heating, ventilation, and air-conditioning work for this project as defined by Division 23 and the Contract Documents.

1.02 DEFINITIONS AND ABBREVIATIONS

A. The word "provide", as used in these specifications, means "furnish and install".

B. The word "accepted", as used in these specifications, means the acceptance of the Engineer and/or Architect.

C. Abbreviations:

ADC	Air Diffusion Council
AMCA	Air Moving and Conditioning Association
ANSI	American National Standards Institute
ASHRAE	American Society of Heating, Refrigerating & Air Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWS	American Welding Society
CISPI	Cast Iron Soil Pipe Institute
F	Fahrenheit
FM	Factory Mutual Engineering Corporation
HI	Hydraulic Institute
IBC	International Building Code
IMC	International Mechanical Code
MSS	Manufacturers' Standardization Society of the Valve and Fittings Industry, Inc.
NEC	National Electric Code
NEMA	National Electrical Manufacturer's Association
NFPA	National Fire Protection Association
NSF	National Sanitation Foundation
OSHA	Occupational Safety and Health Administration
psi	Pounds per square inch
psig	Pounds per square inch gauge pressure
SMACNA	Sheet Metal and Air-Conditioning Contractors' National Association
UL	Underwriters' Laboratories, Inc.
UPC	Uniform Plumbing Code
WAC	Washington Administrative Code
WSEC	Washington State Energy Code
WISHA	Washington Industrial Safety & Health Act

D. Refer also to Division 1 for additional acronyms and for additional definitions and explanations of terms.

E. Some of these abbreviations may not be used. All other abbreviations shall have the definition commonly associated with them by the trade or industry. Confirm the meaning of any unclear or unknown definitions with the Architect before proceeding with any work.

1.03 PLANS AND SPECIFICATIONS

- A. The drawings and specifications are intended to describe all mechanical work, unless otherwise shown. Provide all materials which are necessary for the proper completion of the installation or operation of the equipment. Where no basis of design is noted, refer to the equipment schedules, in the absence of schedules provide a product during submittals that meets the specified criteria.
- B. The drawings are diagrammatic and do not show exact or complete ductwork and piping configurations or the necessary number and types of fittings. Provide all labor and materials required to complete the work indicated.
- C. Scope of work listed, noted, or otherwise shown on the plans for which no product is supplied in the specification is still the responsibility of the contractor as part of the base bid work for this section. Such items shall be submitted along with other product data.
- D. Any questions occurring during bidding or construction shall be resolved by direction in writing from the Architect. Any issues not so resolved or any conflicts shall result with the contractor bidding, furnishing and installing the most stringent condition. No exceptions.

1.04 LAW AND ORDINANCES

- A. General:
 - 1. All mechanical work specified under this contract shall be in strict accordance with the latest rules and regulations of all applicable codes.
 - 2. Contractor is not relieved from furnishing and installing work shown or specified which may be beyond requirements of ordinances, laws, regulations, and codes. This work shall be included within the construction contract.
 - 3. Contractor is not relieved from furnishing and installing work required by the local Authority Having Jurisdiction (AHJ) which may be beyond requirements of ordinances, laws, regulations, and codes. Review by AHJ of systems should be sequenced to accommodate time in the construction schedule for revisions/correction and second review by AHJ.
- B. Approval: File necessary plans, prepare documents and obtain necessary approval of governmental departments having jurisdiction and required certificates of inspection for work and deliver same to Architect before requesting acceptance and final payment for work.
- C. Permits, Certificates and Taxes: Procure and pay for all the necessary permits, certificates, and taxes for all work as required in the General and Supplementary Conditions. In addition, perform all ordinance and performance tests in the presence of the Architect, and be responsible for advance notification. Submit copies of signed and accepted permits to the Architect.
- D. Structural Calculations: Provide resources to generate any structural support calculations requested by the building official or code reviewer. Resources should cover the cost to hire a licensed structural engineer to create and stamp the drawings and coordinate this effort between the trades.

1.05 SUBMITTALS

- A. General:
 - 1. Deliver material, submittal and shop drawing data to Architect in accordance with the requirements of the General Conditions, Supplemental Conditions, this section and Division 1.
 - 2. Do not place orders for materials, fixtures, or equipment until approval is obtained from Architect in writing. Verbal approval shall not be contractually binding and will not be considered.
 - 3. Make every attempt to respond to the reviewer's comments in a timely manner.
 - 4. The project construction schedule, beginning with the acceptance of the bid and confirmation of the successful bidder, is not the responsibility of the Consultant Engineer. The Contractor's schedule shall recognize and accommodate the review intervals specified herein. The schedule shall identify and accommodate the specified submittal and re-submittal review and response period. The contractor shall not anticipate or base the construction schedule on expedited reviews or reviews of partial submittals. Submittals shall be organized and delivered as specified. No exceptions.
- B. Submit
 - 1. Provide submittals for all equipment and systems indicated and specified by the Contract Documents

2. Provide five copies of the submittals in 3-ring notebook(s), organized by specification section, large enough to accept total volume of material to the Architect. Reference project information shall include
 - a. Project title,
 - b. Project number and Location,
 - c. Architect,
 - d. Engineer,
 - e. Contractor,
 - f. Subcontractor(s),
 - g. Submission date,
 - h. Specification sections submitted.
 3. Label cover and binder end. Clearly indicate any items not included with submitted assemblies. Consultant Engineer will not take responsibility for collating submitted information into notebooks.
 4. Submit only the work of one section per submittal. Submittals within a section shall be organized by subsection so that they are in the order they appear in the specification. Items not in the specification but shown only on the plans shall be included as though they appear at the back of the specification section and be labeled with the appropriate sheet number or be submitted in a separate submittal.
 5. Label every submitted product with the associated specification section reference (e.g. 230500-1.05.B.3-"Product A") and indicate the specific product if multiple products, sizes, models, etc., are shown.
 6. The Contractor shall make every attempt to respond to the Consultant Engineer's comments in a timely manner. Submittal material requiring more than three Consultant Engineer reviews will be considered non-responsive. The Consultant Engineer may elect to charge the contractor on an hourly basis for additional consultation as required to secure a responsive submittal.
 7. Submittals not bound and organized as specified will be rejected.
 8. Digital PDF submittals will be accepted in lieu of physical submittals at the discretion of the Architect and must meet the same organizational requirements.
- C. Standards Compliance and Certification:
1. Where equipment or materials are specified to conform with requirements of standards of recognized technical or industrial organizations such as American National Standards Institute (ANSI), American Society for Mechanical Engineers (ASME), Underwriters Laboratories Refrigeration Institute (ARI), or National Electrical Manufacturer's Association (NEMA), that use a label or published listing as a method of indicating compliance, proof of such conformance shall be submitted and accepted.
 2. Submit certification for the product submitted and not pre-printed certifications. Do not make statements in the certifications that could be interpreted to imply the product does not meet all requirements specified, such as "as good as"; "achieve the same end use and results as materials formulated in accordance with the referenced publications"; "equal or exceed the service and performance of the specified material." Simply state that the product conforms to the requirements specified.
- D. Substitution of Materials: Substitutions of materials will only be considered where specified materials cannot be obtained or where prior approval has been provided. All work and equipment required incidental to the substitution is the responsibility of the Contractor. Refer to Division 1 for the requirements related to substitutions and prior approvals.

1.06 SHOP DRAWINGS

- A. Shop drawings required for submission shall include but are not limited to:
1. Sheet metal work.
 2. Plan location of all Division 23 equipment

3. Heating/cooling piping.
 4. Gas piping.
 5. Refrigerant piping.
 6. Access Doors for all Division 23 equipment
 7. Control systems (Wire and Equipment, Control Sequences).
 8. Mechanical room(s) layout.
- B. Refer to Division 1 for further shop drawing requirements.
- C. All shop drawings shall bear the Contractor's stamp, certifying that the contractor has:
1. Verified all field dimensions and quantities as shown on the shop drawings.
 2. Verified all field construction criteria, materials, catalog numbers and similar data.
 3. Reviewed and coordinated submittal data with requirements of the work and the Contract Documents with the field conditions.
 4. Coordinated all equipment clearances and manufacturers' written installation requirements.
 5. Coordinate equipment orientation and hand with submittals. Equipment submitted prior to the submittal of shop drawings will not be back checked for orientation or fit; this is the responsibility of the sub-contractor during the shop drawing process.
 6. Coordinated with all other trades' routing, access, space and clearance requirements.
- D. Shop drawings shall be drawn on the Architect's final backgrounds; at a minimum, all walls, room numbers, and plan name indicating floor are to be included on the shop drawings. Drawings should be performed by Computer Aided Drafting software (preferred) or drawn neatly by hand in permanent ink. Any field verified dimensions should be shown, as well as each piece of equipment related to the shop drawing. Do not resubmit the mechanical or architectural sheets marked-up with notes.
- E. Submit in mailing tube if drawing cannot be shipped flat. Do not fold.
- F. Submit drawings the same size as the bid set, 8-1/2" x 11", 11" x 17" or 24" x 36" unless size of the items depicted makes such sizes impractical. Shop drawings may be submitted as PDFs but must be full size or half-size documents.
- G. Acceptance does not extend to products not represented by or included on the shop drawings, nor does it extend to verification of quantity or dimension surveys. Review is limited to checking for conformance with the design concept and to verify that the contractor has taken care in coordination between trades. No changes from the provisions of the Contract Documents are intended and the Contractor remains responsible for compliance with the provisions therein.
- H. Shop drawings that do not meet the above requirements will be returned without review.
- 1.07 CONSULTANT REVIEW
- A. Review in general and does not:
1. Permit departure from Contract Documents.
 2. Relieve Contractor from responsibility for error in detail, quantities, dimensions or related items.
 3. Accepted departure from previous instructions or detail.
 4. Relieve Contractor of responsibility to provide all components, wiring, etc., required to make item operational or usable.
 5. Relieve Contractor of the responsibility to coordinate all power and clearance requirements with other trades.
 6. Imply acceptance of items for which no data is submitted.
- B. Work which requires submittals shall not be started without Consultant Engineer's review.
- C. Allow fifteen (15) working days for Consultant Engineer review.
- D. Acceptance will be indicated by a signed stamp affixed to the submittal, or a letter over the Consultant Engineer's signature. No exceptions.
- E. Re-submittals
1. Items of materials, fixtures and equipment not accepted by Consultant Engineer shall be resubmitted within 15 working days after Consultant Engineer review. If Contractor fails to submit items listed

below for approval or resubmit in the event of disapproval within specified time, Contractor shall provide materials, fixtures and equipment as scheduled on drawings. Where equipment is not scheduled the Contractor shall provide materials, fixtures and equipment as identified in the specifications.

2. Decision of Consultant Engineer shall be final and binding and items shall be provided without change in contract price or time of completion.

1.08 PUNCH LIST & WARRANTY

- A. Warranty: Refer to the requirements of Division 1.
- B. Inform project design team of construction progress and schedule a site visit by the Engineer prior to covering pipe, valves, equipment that will, once construction is completed, be otherwise hidden from view. A substantial completion site visit will be completed at a later date.
- C. Punch list items shall be provided to the contractor in writing. A written response indicating the corrective action taken or explanation of the situation must be returned to the Engineer.

PART 2 PRODUCTS

2.01 MOTORS

- A. Provide motors conforming to the following unless noted otherwise:
 1. Design and Construction: Unless otherwise indicated, provide electric motors and enclosures described by this specification conforming to the applicable definitions and requirements of NEMA MG-1.
 2. Standard Commercial Product: Provide motors of manufacturers' standard commercial product. A standard commercial product is a product which has been or will be sold on the commercial market through advertisements or manufacturers' catalogs or brochures, and represents the latest production model(s).
 3. Nameplates: Provide all motors with readily visible nameplates containing the information required in NEMA MG-1.
 4. Drive guards: Provide drive guards and shaft guards for all exposed, rotating, shafts and drive connections.
- B. Motor Requirements:
 1. Manufacturer: General Electric, Lincoln, Allis-Chalmers, Goulds or U.S. Motors or accepted equal.
 2. Type: Furnish High Efficiency motors. Motor efficiencies shall meet or exceed the efficiency values required by the Washington State Energy Code.

2.02 MOTOR CONTROL EQUIPMENT

- A. General: The mechanical contractor is responsible for providing and installing motor control equipment as required for mechanical equipment and systems. Refer also to the requirements of Division 26 and coordinate power requirements. Motor control equipment shall be comprised of the following:
 1. Magnetic motor starters
 2. Overload devices
 3. Combination motor starter and disconnects
 4. Manual starters
 5. Simple disconnects
 6. Control relays
 7. Control interface equipment
 8. Wire for control and power of the above.
- B. Magnetic motor starters: Where equipment is under automatic control and is furnished with a disconnecting means, provide magnetic motor starters. Starters shall conform to or contain items called for below and unless noted otherwise, shall be full voltage non-reversing for NEMA size 3 and under. No starters smaller than NEMA size 0 and no half size starters are permitted. Provide starters with protection

for phase loss, phase imbalance, overload, and ground fault. Wye-delta type must have motor designed for this use. Coordinate work as required.

1. Overload devices: Melting alloy or bimetallic type. One overload shall be provided for each phase. Provide ambient compensated overload devices only when the motor is at a constant temperature and the controller is subject to a separate, varying temperature. Automatic reset overload devices are not permitted.
 2. Accessories: Each magnetic motor controller shall include, "HAND-OFF-AUTO" selector switch, 120 volt coil (unless noted otherwise), red running pilot light, green off pilot light, 100VA (minimum) control transformer (except for 115 volt motors), surge suppression kit, with fused primary and secondary, two spare auxiliary interlock contacts and all other accessories required or noted.
 3. Enclosures: Motor controllers shall be contained in an enclosure suitable for the environment in which the controller is mounted. Enclosures located in damp, moist locations and outdoors shall be NEMA 3R throughout.
- C. Combination motor controller; motor starter and disconnect. Where equipment is under automatic control and is not provided with a disconnecting means in addition to a means of interface to the control system, provide combination motor starter and disconnect. Provide as specified above, and also include a disconnecting means. Shall be fused switch type (Class RK5), or motor circuit protector type rated for 22,000 RMS A.I.C. minimum unless noted otherwise and containing all accessories as listed above. If externally powered control circuits are used, provide an auxiliary switch on the disconnect switch or protector and fuse in lieu of the control transformer. Switch or protector shall be capable of being padlocked in the off position.
- D. Manual Starters: Where equipment is under manual control, provide manual starter. Starter shall be toggle switch type, lockable in the "off" position, with overload relays, pilot light and enclosure per above.
- E. Disconnects: Simple disconnects by Division 23.
- F. Accepted Manufacturers: Allen Bradley or as accepted through prior approval.
- 2.03 EXPANSION SHELLS AND BOLTS
- A. Expansion Shells for Rod Hangers
 1. Phillips, Gregory, Omark, or Fastite in holes drilled in concrete.
 - B. Expansion Bolts for Equipment
 1. USM or McCullough in holes drilled in concrete.
 2. No screwed adapters underground.
- 2.04 FORMED STEEL CHANNELS AT SLAB
- A. Provide for all equipment; number and size per manufacturer's recommendations or as indicated.
- 2.05 ANCHOR BOLTS
- A. Provide for all equipment; number and size per manufacturers' recommendations or as indicated.
- 2.06 SUPPLEMENTARY STEEL FRAMING
- A. Standard structural steel shapes or Schedule 40 steel pipe, galvanized with extra-heavy finish.
- 2.07 SLEEVES
- A. Materials, General Schedule: 40 galvanized steel pipe with unthreaded ends, or standard structural steel shapes.
 - B. Firestopping: Three-hour rated penetration sealing system per UL 1479 and ASTM E-814. 3M Fire Barrier, Dow Chemical RTV, Manville Cerafiber, or accepted.
 - C. Seal: Seal annulus with bolted compression type seal. Link Seal or accepted equal.
- 2.08 WELDING TO BUILDING STRUCTURAL MEMBERS

- A. Not allowed except as indicated.

2.09 NAMEPLATES

- A. Laminated black plastic with lettering cut through to white background. Plastic strips with raised letters made by a marking device are not acceptable.

2.10 VALVE TAGS

- A. Shall be 0.030" thick brass, 1" diameter size; state the service and destination of the line controlled. Provide tag inscriptions made with a lettering device with 5/16" high cut lettering. Laminated plastic tags, construction similar to nameplates will also be acceptable.
- B. Provide a valve tag list that assigns valve tag numbers to functions.

2.11 PIPING IDENTIFICATION

- A. Self adhesive, pre-printed identification labels indicating direction of flow and pipe contents, using common industry abbreviations. Identify pipe at every change of direction.
- B. Comply with the latest ANSI Pipe Marking Standards for letter height and label placement.

2.12 PAINTING

- A. Paint all exposed fixtures and equipment in conformance with Division 10. Coordinate color with Architect. Refer to Architectural documents for paint and application requirements.

2.13 EQUIPMENT LISTING REQUIREMENTS

- A. Whenever UL Standards exist for equipment provide UL-accepted equipment bearing the UL label.

PART 3 EXECUTION

3.01 INSPECTION

- A. Verify installation conditions as satisfactory to receive work of this Divisions. Do not install until any unsatisfactory conditions are corrected. Beginning work constitutes acceptance of conditions as satisfactory.

3.02 RECORD DOCUMENTS

- A. Maintain accurate record documents by marking up as constructed conditions on a set of record plans as construction commences. Evaluation of pay requests shall be partially based on the level of completion indicated by the record documents.
- B. Final record drawings shall be made by Computer Aided Drafting software and final full size plans shall be provided to the Owner at the completion of the project. Contractor to arrange and pay for the completion of the record documents.
- C. Refer to the requirements of Division 1.

3.03 PREPARATION

- A. Field Measurements: Field-verify locations of new and existing work prior to commencing work of this Division.
- B. Protect surrounding areas and surfaces to preclude damage from work of this Division.

3.04 INSTALLATION, ERECTION, AND PERFORMANCE

- A. Install, apply, erect, and perform the work in accordance with "Quality Assurance" provisions, Specifications, and manufacturers' installation instructions and directions. Where these may be in conflict, the more-stringent requirements govern.

3.05 CLEANING

- A. Promptly remove waste material and rubbish caused by mechanical construction work. At completion of the project, clean all equipment, piping and fixtures installed or provided under this Contract.

3.06 CUTTING AND PATCHING

- A. Cut all openings and holes required for mechanical work. Carefully examine existing conditions prior to commencing work.
- B. Refer to Division 1 and coordinate all cuts and patches with Architect prior to proceeding.

3.07 ACCESSIBILITY

- A. Locate valves, dampers, controls, etc., to be easily accessible.
- B. Install all equipment that requires periodic servicing or repairs to be readily accessible. Otherwise, obtain Architect's approval of location. Where valve and equipment is concealed behind access panels or by ceiling tiles, label panel or tile appropriately.
- C. Provide access panels as indicated or required for piping, valve or equipment access. Refer to Architectural Documents to determine fire-rating requirements. The access panel size shall be in proportion to the equipment, piping, or valve requiring access. Minimum access panel size shall be 12" x 12". Due to the diagrammatic nature of the drawings, not all access panels are shown. Access panels are to be included as part of the base bid work. *Access panels shall be factory primed for painting.*
(Addendum 1)

3.08 SPECIAL PROTECTION

- A. Exercise maximum precaution to provide positive protection for the existing building and equipment from damage of any kind, and in particular prevent any water and dust seepage into the existing building.
- B. Storage of materials: Make all necessary provisions to prevent damage or corrosion of materials.

3.09 EQUIPMENT INSTALLATION

- A. General: Provide supports for all equipment and appurtenances as required, including braces as required for seismic restraint; these include frames or supports for pumps and air handlers and all mechanical equipment. Bracing shall conform with the requirements of IBC and IMC. Include the design, engineering and installation of these members is the responsibility of the contractor.
- B. Suspended Equipment: Provide hangers from structure as required; span between structural members with additional structural steel as required to mount equipment in locations shown. Do not fasten hangers to metal deck. Do not use powder-actuated fasteners.
- C. Floor-Mounted Equipment - General:
 - 1. Provide machine and floor or foundation fastenings; set equipment on concrete pads. Provide equipment base drawings, bolt-setting information, and anchors for all floor-mounted equipment. Provide concrete expansion anchors through concrete equipment pads, installed into existing structural concrete slabs.
 - 2. Install all equipment at the locations, and to the dimensions indicated. Set equipment accurately with principal centerlines and level, using manufacturers' leveling screws, blocks, shims, or wedges. Do not distort equipment or base plates.
 - 3. Install all equipment, piping and ducting such as to provide adequate access for service. This includes access to equipment covered in other divisions or sections of this specification.

3.10 PIPE SUPPORTS

- A. Attach hangers and support rigidly to the building structure; provide supplementary steel framing and bracing at all changes in pipe direction to resist thrust of flowing water. Provide seismic bracing as required by codes. Do not fasten hangers to metal deck. Do not use powder-actuated fasteners.
- B. Provide additional steel support for piping runs through tight confinements. Provide trapeze system with vibration isolation and seismic restraint for piping through joists and as applicable, due to accessibility of ductwork and mechanical equipment.

3.11 EXPANSION SHELLS AND BOLTS

- A. Use only where necessary to support piping or equipment from existing concrete slabs or walls.

3.12 SLEEVES AND SEALING OF SLEEVES

- A. Provide all sleeving and sealing of sleeves for pipes and ducts.

- B. Provide annular clear space of approximately 1/4" to 1/2"; size to accommodate insulation passing through sleeve where applicable.
- C. Wherever piping passes through any floor slab above occupied space or equipment, provide pipe sleeves extending 1" above floor.
- D. Set sleeves in place prior to pouring of concrete in new construction; core drill and grout sleeves in place for unit masonry construction and existing construction.
- E. Sealing of sleeves through floor slabs and firewalls: Provide firestop system by 3M or accepted equal.
- F. Sealing of sleeves for below grade floors and walls: Provide Link Seal. Refer to 232113.

3.13 NAMEPLATES

- A. Provide for all equipment; fasten mechanically. Label access panel or ceiling appropriately for concealed equipment.

3.14 VALVE TAGS

- A. Provide on all new valves; fasten with brass chain to the valve stem.

3.15 PIPING IDENTIFICATION

- A. Provide pipe identification labels on not less than 10 foot centers, on both sides of a wall penetration, and at every change in direction, so that a label is visible from a standing position on the floor, not more than three feet from the wall. Refer also to this Section for pipe labeling requirements.

3.16 PAINTING

- A. General Paint exposed equipment, ducts, piping, sheet metal work and mechanical system appurtenances unless noted otherwise. Coordinate color with Architect and Contract Documents.
- B. Application:
 - 1. Thoroughly clean surfaces to be painted to remove dirt, grease and scale. Wash galvanized surfaces with mild solution of acid prior to painting to effectively clean oils from surface and to etch zinc.
 - 2. Paint insulated surfaces and covered piping with one primer coat and two finish coats.
 - 3. Paint exposed equipment, pipes and supports with one primer coat and two finish coats. Paint factory painted equipment to match colors selected by the Architect: touch up damaged areas with paint to match factory color.
 - 4. Paint the supporting devices for mechanical devices or systems specified to be painted.

3.17 MISCELLANEOUS EQUIPMENT AND FIXTURE CONNECTIONS

- A. Provide piping, ductwork, and make all final mechanical connections in accordance with manufacturers' recommendations for Owner-furnished equipment and fixtures, and equipment and fixtures specified.
- B. Perform on-site review and refer to manufacturers' shop drawings for details of connections. Provide rough-in at locations to conveniently serve items.

3.18 BALANCING WORK

- A. General: The Mechanical Subcontractor shall provide all support for balancing and testing work. Coordinate with Section 230593.

3.19 WIRING

- A. Wiring shall conform to applicable sections of these specifications. Provide wiring from branch circuit over current device to motor controller and to motor terminals, including installation of starter and all connections. Provide raceway and conductors as shown for remote control, or interlock connections. Coordinate other control wiring with Division 23 of the Specifications. Provide overload elements in controllers sized to match motor nameplate full load amperes. Space within controllers shall not be used as a junction box.
- B. Where power for a piece of equipment is not shown on electrical drawings, provide resources to install wire from piece of equipment to nearest electrical panel; coordinate power requirements with electrical engineer and wire as directed.

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**SECTION 230500
COMMON WORK RESULTS FOR HVAC**

END OF SECTION

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Selective demolition of existing mechanical work as indicated by plans.
2. Contract requirements of the General Conditions, the Supplementary Conditions, and Division 01 apply.

1.02 QUALITY ASSURANCE

A. Regulatory Requirements:

1. Comply with applicable city, county, and state codes and ordinances.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 GENERAL

- A. Provide protective measures as required to minimize the transfer of noise, dust, dirt, and refuse to adjacent areas of the project. Such measures may include, dust tight barriers, temporary walls, portable exhaust fans, vacuum systems, and segmental partitioning.
- B. New ductwork or equipment will be sealed at fabrication shop and all equipment will be wrapped sufficiently to insure all new materials are dry and clean when delivered to the construction site and remain covered until installation is complete. Plastic will remain over all ductwork, equipment, grilles and diffusers until HVAC system are officially started and tested. Contractor will also be required to protect any grilles, diffuser, and equipment if general contractor superintendent schedules punch list repairs after the ductwork protective plastic has been removed. General contractor superintendent is to coordinate all punch list work with all trades with intent to protect HVAC, FA, FS, and BMS systems.
- C. Areas of demolition shall be kept as clean and orderly as physically possible. Do not allow demolition debris to accumulate. Gather debris and dispose daily.
- D. Protect existing, furnishing, and systems with protective coverings. Protect finished surfaces including floors, ceilings, and walls.

3.02 DAMAGES

- A. Promptly repair any damage to existing surfaces, equipment, finishes, or adjacent facilities at no cost to the Owner and to the satisfaction of the A/E and the Owner's representative.

3.03 UTILITY SERVICES

- A. Maintain existing services and systems as shown on the plans, or unless otherwise authorized. Do not interrupt existing utilities serving occupied or used facilities. Refer Division 01 for any relevant requirements.
- B. Coordinate all utility shutdowns with Owner.

3.04 DEMOLITION

- A. Provide demolition work required in the existing building for the removal of existing piping and the installation of new equipment or piping. Relocate or modify the existing equipment and piping as required by general construction alterations or by the installation of new equipment or piping in the existing building.
- B. Remove and dispose of existing materials indicated to be removed.
- C. Where existing piping is removed, cut back to the stack or riser and cap the piping behind the wall or below the floor. Remove unused branch piping and piping in walls to be demolished, and cap the remaining piping. Perform cutting and patching.

- D. Where existing insulation is damaged due to cutting and connection to new systems, replace damaged sections as indicated for new systems.
- E. Do not reuse existing products unless specifically indicated.
- F. Specific demolition work and operating conditions to be encountered shall be verified from on-site review and coordination with the Owner. Maintain service to existing equipment and devices during new construction work as required by Construction Sequencing/Scheduling provisions; in areas adjacent to the new construction work, provide temporary services as necessary to meet these conditions.
- G. Repair of Damages to Underground Utilities: The exact location of existing underground utilities is not definitely known. Should any underground utilities be damaged in excavations, restore such utilities, both temporarily and permanently, as required, without additional cost to the Owner. Correct resulting damage.

3.05 SALVAGE

- A. Coordinate with Owner on salvage. Locate equipment neatly in a location maintained for salvaged materials. Maintain adequate security to prevent loss due to theft or vandalism. Salvaged items lost due to theft, vandalism, or breakage during salvage shall be replaced at no cost to the Owner.
- B. Equipment indicated to be removed shall be turned over to the Owner's Representative unless otherwise indicated.

3.06 DISPOSAL OF DEMOLISHED MATERIALS

- A. Remove debris, rubbish, and other materials resulting from demolition operations from building site. Transport and legally dispose of material off site.
- B. Repair demolition performed in excess of that required at no additional cost to the Owner. Return structures and surfaces to conditions existing prior to commencement of demolition work or as directed by Owner's representative.

3.07 CLEAN-UP AND REPAIR

- A. Upon completion of demolition work, remove tools, equipment and demolished materials from site. Remove protection and leave interior areas clean.
- B. Repair demolition performed in excess of that required at no additional cost to the Owner. Return structures and surfaces to conditions existing prior to commencement of demolition work or as directed by Architect.

END OF SECTION

PART 1 GENERAL

1.01 WORK INCLUDED

- A. Work includes testing, adjusting and balancing of mechanical systems and plumbing systems.
- B. Provide balance report documenting the work of this section.
- C. Contract requirements of the General Conditions, the Supplementary Conditions and Division 01 apply to all work in this Section.
- D. Provide building commissioning support to Commissioning Agent.

1.02 QUALITY ASSURANCE

- A. Regulatory Requirements:
 - 1. Comply with all applicable City, County and State Codes and Ordinances. In case of conflict with drawings or specifications, the Codes and Ordinances govern.
 - 2. Balancing contractor shall be NEBB certified.
- B. Accepted TAB Contractors:
 - 1. American Air Measurement
 - 2. Neudorfer Engineers
 - 3. Approved equal

1.03 SUBMITTALS

- A. General: Submit in accordance with Division 01, Section 230500 and the following.
- B. Preliminary Data: Submit the following within 30 days after Award of Contract:
 - 1. Name of TAB contractor.
 - 2. Individual qualifications of all persons responsible for supervising and performing the work of this project.
 - 3. TAB agenda listing methods and procedures and including blank forms applicable to this project. Provide copy to Commissioning Authority as well as engineer.
- C. Pre-Balance System Evaluation Report: Prior to commencement of TAB work, mechanical contractor shall confirm in writing that equipment and system check-out has been performed. The Mechanical Contractor shall deliver written certification to the Architect that all equipment and controls are operational and functioning as designed prior to beginning balancing. Start-up reports for each piece of each system shall be provided to the balancer by the installing contractor.
- D. Balancing Report:
 - 1. Provide sample copy of complete Balancing Report as indicated, including the following:
 - a. System Diagrams/Floor Plans.
 - b. Economizer Operation, Outside Air Values.
 - c. Fan Test Reports.
 - d. Mechanical Motor Test Reports.
 - e. Rectangular and Round Duct Traverse Reports.
 - f. Grille, Register and Diffuser Test Reports.
 - g. Domestic Heating Water Circulation System Reports.
 - h. Electric and Gas Fired Unit Heater Test Reports
 - i. Report all operating motor voltages, amperages, rpms and adjustments as required.
 - j. Instrument Calibration Report.

PART 2 PRODUCTS

2.01 TAB INSTRUMENTATION

- A. TAB contractor shall furnish materials and equipment necessary to properly measure system capacities, electrical voltage and current, fan speeds, static pressures, air velocities, water pressure drops, refrigeration pressures and other readings necessary to evaluate system performance and adjust quantities to those indicated. Equipment must be capable of taking readings with the same level of precision as the specified values. Materials and equipment shall remain in the possession of the TAB contractor after project is completed.
- B. Instrumentation shall be accurate, with calibration histories available for examination upon request.
- C. Instrumentation shall be used in accordance with manufacturers instructions.

PART 3 EXECUTION

3.01 INSPECTION

- A. Verify site conditions as satisfactory to receive work of this Section. Do not begin work until any unsatisfactory conditions are corrected. Beginning work constitutes acceptance of conditions as satisfactory.
- B. Verify that all work by Mechanical contractor (Section 3.04) has been completed and documented prior to starting work of this section.

3.02 PREPARATION

- A. Field verify locations of new and existing work prior to commencing work of this Section.
- B. Protect surrounding areas and surfaces to preclude damage from work of this Section.

3.03 PERFORMANCE

- A. Perform the work in accordance with "Quality Assurance" provisions, Specifications and Manufacturer's operation instructions and directions. Where these may be in conflict, the more stringent requirements govern.

3.04 WORK BY MECHANICAL CONTRACTOR

- A. System Performance: This mechanical contractor is responsible for the performance of the equipment and the system. Do not assume that supplier will ship equipment adjusted to meet the project requirements.
- B. Equipment Operation:
 - 1. Check equipment for proper operation as soon as electrical power is available. Perform adjustments required for proper operation.
 - 2. Provide the balancing subcontractor with access to all equipment installed under this contract requiring balancing. Provide ladders, scaffolding, lifts as required to permit the Subcontractor to complete their work.
 - 3. Operate the mechanical systems and be responsible for all equipment until the balancing and testing is complete. Before balancing and testing commences, check all rotating equipment for proper rotation and lubricate per the manufacturers' recommendations.
 - 4. Do not assume that equipment is shipped from the factory configured to meet specified volumes and quantities. Include belt, sheave, starter heater and other equipment changes, and all work as required as part of this contract in order to permit balancing to required values.
 - 5. Report malfunctions to the manufacturer, and take corrective action immediately to prevent delay of the work.
 - 6. Check-out equipment for electrical problems, check rotation of motors, read voltage and current in each leg of each motor, heater, etc., and check the readings against the nameplate. Lubricate per manufacturer's recommendations.
 - 7. Before balancing and testing commences, operate (test run) equipment for a minimum of one week. Each operational mode should be tested. During this period, check out and calibrate all control components under operating service.

- C. Air Distribution System Inspection: Inspect the air distribution system to ensure that each outlet is properly connected to the branch duct, and that a volume damper exists for each outlet (supply, return and exhaust) and is in the wide-open position; in addition, verify existence, access, and function of all other volume dampers.
- D. Controls Operation: Inspect and calibrate all control components under equipment and system operation service; these components include, but are not limited to, thermostats to ensure they are connected to the appropriate device, respond to the temperature changes, and provide the correct action to be compatible with the controlled device.
- E. Strainers and Filters: After equipment and system check-out work has been completed and prior to commencement of TAB work, perform the following:
 - 1. Clean strainers in hydronic systems.
 - 2. Replace air filters in air distribution equipment and systems with new filters.
 - 3. Tighten belts to accommodate new stretch.
- F. Access: Provide scaffolds, staging and accessories required to allow TAB contractor to gain access to equipment, dampers, valves and other devices located beyond the range of a 6-foot stepladder.
- G. Fan Drives: Coordinate drive changes necessary with Mechanical Contractor, including any required sheave and belts changes.
- H. Cleaning: Clean equipment and devices after check-out and test run period prior to TAB work.
- I. Mechanical contractor to provide fan sheaves and coordinate and pay for pump impeller changes as required by the Balancer to set the system to design operating conditions.

3.05 WORK BY TAB CONTRACTOR

- A. General:
 - 1. Perform TAB of mechanical systems in accordance with SMACNA publication "HVAC Systems - Testing, Adjusting and Balancing"; adjust quantities to within plus 10% and minus 10% of design values, and/or as subsequently directed by the Engineer to secure an adequate balance for distribution and noise.
 - 2. Set restrooms, storage rooms, janitor's closets, etc. to be slightly negative the surrounding spaces.
- B. Systems: Include, but are not limited to, the following:
 - 1. Building supply and exhaust air system
 - 2. Heat pumps and VRF equipment
 - 3. Exhaust Fans
- C. Balancing Report:
 - 1. General: Provide readings including, but not limited to, the following:
 - a. Air Quantities: Supply, return, exhaust and outdoor air at each terminal. Air quantities for some supply ducts shall be adjusted and balanced with orifice plates or perforated plates, provided, modified and secured as required by the balancing contractor.
 - b. Air temperatures and humidity:
 - (i) Outside air at equipment.
 - (ii) Return air at equipment.
 - (iii) Supply air leaving equipment.
 - (iv) Mixture of outside and return air before entering the air handling unit
- D. Inspection and Recheck:
 - 1. Readings that are more than +/- 10% of the design value will not be accepted. Provide a written note in the Balancing Report indicating the perceived cause of the discrepancy. The Engineer reserves the right to request a recheck of such a value after corrective direction has been issued.

2. Upon request, recheck random selections of up to 10% of the readings recorded in the Balancing Report in the presence of the Engineer.
 3. The Balancing Report will be rejected if more than 20% of the rechecked readings deviate more than 10% of the recorded reading in the report. In such an event, provide complete re-balancing.
- E. Marking of Adjustments:
1. Permanently mark and date dampers, valves and other adjustment devices to allow adjustment to be restored if disturbed in the future.
 2. If recheck requires re-balancing, eradicate previous markings and remark.
 3. If variable frequency drives are used for balancing document the initial and final settings applied to the digital controller.
- F. System Difficulties: Obtain readings on each unit or piece of equipment as early as possible, such that any apparent difficulties can be resolved before the anticipated close of the job.
- 3.06 COMFORT BALANCING
- A. Provide resources for an additional post-occupancy visit for comfort balancing based on occupant preferences. This visit shall be in addition to any other visits (commissioning or re-test related).

END OF SECTION

PART 1 GENERAL

1.01 WORK INCLUDED IN THIS SECTION

- A. Work includes materials and labor for the complete installation of all insulation for plumbing piping and equipment.

1.02 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with all applicable City, County, and State codes and ordinances. In case of conflict with drawings or specifications, the codes and ordinances govern.
- B. Basis: International Building Code; Uniform Plumbing Code; International Mechanical Code; Washington State Energy Code.

1.03 SUBMITTALS

- A. General: Submit in accordance with Section 230500 and Division 01.
- B. Product Data:
 - 1. Insulation
 - 2. Adhesives and Cements
 - 3. Finishes

1.04 APPLICABLE PUBLICATIONS (MOST RECENT EDITIONS)

- A. American Society for Testing and Materials (ASTM) Standards:
 - 1. Surface Burning Characteristics of Building Materials
 - 2. Test for Water Vapor Transmission of Materials
- B. National Fire Protection Association (NFPA) Standards
- C. Building Materials, Tests of Surface Burning Characteristics
 - 1. Underwriters' Laboratories, Inc. (UL) Publications:
 - 2. Hazard Classification of Building Materials

1.05 DEFINITIONS AND ABBREVIATIONS USED IN THIS SECTION

- A. Definitions:
 - 1. "Exposed" is work exposed to the view of occupants in normally occupied areas and in equipment rooms.
 - 2. "Concealed" is work located in ceiling spaces, chases and other locations not exposed to view.
 - 3. "Cold Piping" includes the piping to 70 degrees F:
 - 4. "Hot Piping" includes the piping from to 71 to 250 degrees F
- B. Abbreviations:

ASJ	All-Service Jacket
FSK	Foil-Scrim-Kraft Jacket
K	Thermal Conductivity, BTU per hour per square foot per degree F for each inch of thickness.
PCF	Pound per cubic foot density
Perm	Water vapor transmission rate (permeability)
SSL	Self-Sealing Lap

1.06 SURFACE BURNING CHARACTERISTICS

- A. Provide composite or component ratings per NFPA 255, ASTM E84, or UL 723, as follows: Fiberglass Insulation, flame spread 25, smoke developed 50.
- B. Composite includes insulation, jacketing and adhesive used to secure jacketing or facing.

C. Components include PVC jacketing and fittings, adhesive, mastic, cement, tape and cloth.

1.07 MINIMUM INSULATION THICKNESS

A. Thickness of insulation is defined as the thickness of the basic insulating medium not including finishing materials.

B. Duct Insulation Table

Duct Type	Location	R-Value
Supply/Return	Not within conditioned space / exterior	R-8 (Include approved weatherproof barrier)
Supply/Return	Unconditioned space (Interior to envelope)	R-6
Outside Air (<2,800 CFM Supply Unit)	Within conditioned space (not considered part of building envelope)	R-7 (Include damper at envelope penetration)
Outside Air (>2.800 CFM Supply Unit)	Within conditioned space (not considered part of building envelope)	Must insulate to envelope requirements of C406 (or local code if more stringent)
Supply	Within conditioned space	R-3.3

C. Equipment, including but not limited to heat exchangers, air separators, etc. Rigid fiberglass board- 2" thickness.

PART 2 PRODUCTS

2.01 DUCT INSULATION

- A. General: Coordinate with the duct installation work.
- B. Fiberglass board: Base Product: Owens-Corning Fiberglass type 703/705 with FRK vapor barrier jacket. Thermal conductivity not greater than 0.25 at a mean temperature of 75 degrees F. Accepted Alternative Products: Manville, Knauf, Certainteed.
- C. Duct Wrap: Base-Product: Owens-Corning Fiberglass, SOFTR Duct Wrap FRK vapor barrier jacket. Thermal conductivity not greater than 0.25 at a mean temperature of 75 degrees F. Accepted Alternative Products: Manville, Knauf, Certainteed.
- D. Application:
 - 1. Duct Wrap: Concealed locations in conditioned spaces only.
 - 2. Fiberglass Board: Exposed Locations, Exterior Locations (where applicable), Unconditioned spaces.

2.02 EQUIPMENT INSULATION

- A. Unfaced board, 6 PCF density, consisting of glass fibers bonded with thermosetting resin. Suitable for temperatures to 450 Deg F.

PART 3 EXECUTION

3.01 INSPECTION

- A. Verify installation conditions as satisfactory to receive work of this Section. Do not install until unsatisfactory conditions are corrected. Install insulation and related equipment in accordance with the manufacturers written instructions. Beginning work constitutes acceptance of conditions as satisfactory.

3.02 PREPARATION

- A. Field Measurements: Field-verify locations of new and existing work prior to commencing work of this Section.
- B. Protect surrounding areas and surfaces to preclude damage from work of this Section.

3.03 INSTALLATION, APPLICATION, ERECTION AND PERFORMANCE

- A. Install, apply, erect, and perform the work in accordance with "Quality Assurance" provisions, Specifications, and manufacturers' installation instructions and directions. Where these may be in conflict, the more stringent requirements govern.

3.04 TIME OF APPLICATION

- A. Apply insulation only after piping and or duct systems have been tested and certified by the Architect and Engineer as ready for insulation. If insulation is applied prior to testing, necessary removals, repairs and modifications to insulation due to leaks that may occur in piping systems shall be made without additional cost.

3.05 EXTENT OF INSULATION

- A. Insulate all piping, ductwork and equipment completely, except as indicated.
- B. Do not insulate the following:
 - 1. Piping: Valve stems, handwheels and operators and unions.
 - 2. Equipment: Items with factory-applied insulation meeting the requirements of this Section. Do not apply insulation over coil and damper access panels, or over internally lined ductwork that satisfies the specified insulation requirements.

3.06 INSTALLATION, GENERAL

- A. Apply in a workmanlike manner, by skilled workmen regularly engaged in this type of work.
- B. Apply to clean and dry surfaces.
- C. On cold surfaces, apply with continuous, unbroken moisture and vapor seal. Insulate and vapor seal all hangers, supports, anchors, and other projections that are secured to cold surfaces, to prevent condensation.
- D. Extend all surface finishes to protect all raw edges, ends, and surfaces of insulation.
- E. Install all piping and duct insulation continuous through walls, ceilings, and floor openings and sleeves, except where firestop or firesafing materials are required.
- F. Install with all joints tightly butted.
- G. Tuck and tuft all edges of insulation.
- H. Install insulation to allow easy access to equipment for inspection and repairs.
- I. Carefully bevel and seal insulation around equipment nameplates.

3.07 DUCTWORK

- A. Extent of Insulation: Insulate all ductwork as specified.
- B. Application:
 - 1. Adhesive: Apply adhesive in strips to the sheetmetal, as recommended by the manufacturer, with 100 percent coverage to bottom horizontal duct and plenum surfaces.
 - 2. Pins: Apply welded pins on the duct surfaces on minimum 24 inch centers in each dimension.
 - 3. Insulation: Install insulation to all duct surfaces with insulation and jacket impaled on the pins and with tightly fitted transverse and longitudinal butt joints.
 - 4. Jackets: Install insulation jacket with all jacket joints lapped 2 inches, lap stapled on 6 inch centers. Seal jacket lap with a vapor barrier adhesive recommended by the insulation manufacturer. Use adhesive to seal the entire surface of all laps and also stapled areas. Repair all small punctures and holes with insulation adhesive.
 - 5. Washers: Install washers flush with the jacket and trim pins flush with the washers.
 - 6. Insulated ductwork installed outdoors and/or exposed to weather: Apply embossed aluminum weather cover to entire surface of exposed duct insulation. Double fold seams and seal with approved mastic.

END OF SECTION

PART 1 GENERAL

1.01 WORK INCLUDED

- A. Work includes sheet metal work, related components and duct cleaning.
- B. Contract requirements of the General Conditions, the Supplementary Conditions, and Division 01 apply to all work in this Section.

1.02 QUALITY ASSURANCE

- A. Regulatory Requirements:
 - 1. Comply with all applicable City, County and State Codes and Ordinances and local amendments to Codes and Ordinances. In case of conflict with drawings or specifications, the Codes and Ordinances govern.
 - 2. Basis: International Building Code; International Mechanical Code; Washington State Energy Code; NFPA 90A.

1.03 SUBMITTALS

- A. General: Submit in accordance with Division 01, 230500 and the following.
- B. Shop Drawings: Submit coordinated ductwork shop drawings for the building. Prepare shop drawings on backgrounds provided by the Architect coordinated with steel, plumbing, piping and electrical.
- C. Product Data:
 - 1. Ductwork
 - 2. Fasteners
 - 3. Hangers and Support Accessories.
 - 4. Flexible Ductwork.
 - 5. Flexible Equipment Connections.

PART 2 PRODUCTS

2.01 SHEETMETAL WORK

- A. Duct Construction: Comply with SMACNA HVAC Duct Construction Standards, Metal and Flexible; galvanized steel.
- B. Ductwork; Construct in accordance with SMACNA HVAC Duct Construction Standards as follows:
 - 1. Low Pressure (Equipment up to 2" w.g.):
 - a. Rectangular duct: Table 1-5, 2" w.g. static pressure, positive or negative.
 - b. Round duct and flat oval duct: Table 3-2, 2" w.g. static pressure, positive or negative.
- C. Gauge for ductwork and fittings not described above, or otherwise indicated shall be as follows:

Maximum Size, Inches	Minimum Gauge
Rectangular Ducts:	
Up to 12	24
13 to 30	22
31 to 54	20
55 to 84	18
85 and over.	16
Round Ducts:	
Up to 13	22
14 to 22	20

23 to 36	18
37 to 50	18
51 to 60	18
61 to 84	18

- D. Fabricate fan plenums, plenums downstream of fan, and hoods in accordance with the most stringent of the minimum gauge requirements as recommended by ASHRAE, SMACNA or tabulated above. Substitute the maximum dimension of fitting or device for diameter to determine gauge.
- E. Turning Vanes: Acoustical double thickness type with runners. Acousti-San or accepted equal. Furnish all rectangular elbows with turning vanes.
- F. Sheet metal Connections To Building Construction: Use steel angles, riveted to the sheet metal and bolted, using embedded bolts to the building surface with compressible glass fiber under the angle; angle size same as for bracing, except 1" X 1" X 1/8" minimum.
- G. Access Doors and Frames:
 - 1. General: Include access door wherever access to ducts is necessary for reaching equipment; double construction, tight fitting, hinged, with latch, insulation or sound lining equivalent to that of the duct; steel angle frame.
 - 2. Fire Rating: Coordinate rating with enclosure rating requirement.
 - 3. Access Doors Sizes: As indicated; 12" X 16" minimum size.
 - 4. Latches: Die-cast, Ventfabrics No. 100 for doors 2' -0" high or smaller; Catalog No. 260 for up to 3' -0" height; Catalog No. 310 or larger and use minimum two.
- H. Duct Lining - Standard: Fiber glass, 1" thickness with a black pigmented neoprene coated mat surface on the airstream side, 1-1/2 pounds per cubic foot density, Fire Hazard Classification FHC 25/50 per UL 723; Owens-Corning Aeroflex, Knauf, Manville or Certainteed accepted.
- I. Duct Sealing: Seal ductwork in accordance with the following seal class levels as defined by ASHRAE and SMACNA:
 - 1. Outdoor Ductwork, Supply: Seal Class A
 - 2. Outdoor Ductwork, Ex/Return: Seal Class A
 - 3. Unconditioned space, Supply: Seal Class A
 - 4. Unconditioned Space, Ex/Return: Seal Class B
 - 5. Conditioned space, Supply: Seal Class A
 - 6. Conditioned Space, Ex/Return: Seal Class B
 - 7. Duct Seal Levels:
 - a. Level A sealing shall be accomplished by sealing all transverse joints, longitudinal seams, and duct wall penetrations. Level B sealing shall be accomplished by sealing all transverse joints and longitudinal seams.

2.02 PVC-COATED GALVANIZED SHEETMETAL

- A. Base material shall be G 60 galvanized sheet metal and comply with ASTM A 653/ A 653M
- B. Minimum thickness for factory-applied PVC coating is 4 mils of polyvinyl coating on sheet metal surface of ducts and fittings exposed to corrosive conditions. Minimum PVC coating thickness on the other side is 1 mil.

2.03 FASTENERS

- A. General: Use blind rivets, sheetmetal screws, or bolted connections where required by SMACNA for attachment purposes for sheetmetal. Sheetmetal screws and rivets shall be of the minimum length required for a secure fastening.
- B. For all ductwork, grilles, and accessories exposed to view in finished rooms, provide finish type fasteners.

1. Permanent Work: Blind and stainless steel pop rivets.
2. Removable Items and Grilles: Stainless steel pan head or countersunk tapping screws.

2.04 HANGERS FOR SHEETMETAL WORK

- A. Description: Provide hangers, supports and anchor bolts for all sheetmetal work and equipment.
- B. Duct Sizes: Refer to maximum cross-section dimension, at location of hangers.
- C. Horizontal Low Pressure Ducts:
 1. Concealed Ducts Under 36" Width: Galvanized straps running down the side and turning under the bottom, attached with rivets.
 2. Exposed Ducts Under 36" Width: 1/4" rods, one on each side at each point of suspension, end of the rod flattened and riveted at the top.
 3. Ducts 36" and Larger: 3/8" minimum rods through the ends of the angle stiffeners under the ducts. If stiffeners are not located properly for the hangers, provide additional angles of same size.
 4. Spacing: 8 feet maximum, in general; 4 feet maximum for ducts 38" maximum size and larger.
- D. Vertical Ducts: Angles riveted to the sides, in pairs; size same as bracing; 1" X 1" X 1/8" minimum. In shafts, provide supplementary steel angles or saddles at each floor, to distribute loads from bracing angles or channels, to the steel supports for the gratings and walkways and to the slabs.
- E. Roof mounted ducts shall be supported by pre-fabricated non-penetrated duct supports.

2.05 FLEXIBLE DUCTWORK

- A. Insulated type, 1-1/4" thick fiber glass bonded to vinyl coated spring steel helix. Outer jacket shall be reinforced mylar/neoprene laminate reinforced with fiber glass scrim. Thermoflex Type M-KE.

PART 3 EXECUTION

3.01 INSPECTION

- A. Verify installation conditions as satisfactory to receive work of this Section. Do not install until any unsatisfactory conditions are corrected. Beginning work constitutes acceptance of conditions as satisfactory.

3.02 PREPARATION

- A. Field Measurements: Field verify locations of new and existing work prior to commencing work of this Section.
- B. Protect surrounding areas and surfaces to preclude damage from work of this Section.

3.03 CLEANING AND ADJUSTING

- A. Plenums and casings shall be thoroughly cleaned of all debris and blown free of all small particles of rubbish and dust before installing and making final duct connections. Equipment shall be wiped clean, with all traces of oil, dust, dirt or paint spots removed. Ductwork and plenums shall be cleaned, and openings sealed during any construction activities. Covers from duct openings may be removed when the system is approved to be operated for air balancing and building conditioning.

3.04 INSTALLATION, APPLICATION, ERECTION AND PERFORMANCE

- A. Install, apply, erect and perform the work in accordance with "Quality Assurance" provisions, Specifications, and Manufacturer's installation instructions and directions. Where these may be in conflict, the more stringent requirements govern.
- B. Ductwork: All ductwork shall be installed in workmanlike manner, by craftsmen with at least five years of experience in the sheet metal trade. Fabrications, fittings, joints, take-offs, attachment to sheetmetal work, turning vanes, dampers and sealing shall be in accordance with the requirements of SMACNA HVAC Duct Construction Standards and as indicated.

- C. Offsets: The drawings do not show all offsets which may be required. Make offsets with fittings with as small an angle of offset as possible; do not use square corners unless specifically shown; when square corners are used, install turning vanes.
- D. Access Doors: Provide at each duct smoke detector, motor-operated damper, plenum, fire damper, or at other points requiring maintenance access.
- E. Flexible Connections: Provide at all fans except internally isolated equipment and air terminal units.
- F. All exterior ducts shall be sealed watertight and pitched to shed water.

3.05 ADDITIONAL REQUIREMENTS FOR INSTALLATION OF EXPOSED DUCTWORK

- A. Protect ducts exposed in finished spaces from being dented, scratched, or damaged.
- B. Trim duct sealants flush with metal. Create a smooth and uniform exposed bead. Do not use two-part tape sealing system.
- C. Maintain symmetry and uniformity in the arrangement and fabrication of fittings, hangers and supports, duct accessories, and air outlets.
- D. Repair or replace damaged sections and finished work that does not comply with these requirements.

3.06 COLLARS

- A. Provide 2" wide 18 gauge sheetmetal angle collars wherever exposed ducts pass through walls, slabs or ceilings.

3.07 DUCT LINING

- A. Installation: Provide duct lining to the extent indicated. Install duct lining per SMACNA Standards; impale liner on welded stick pins on 24" centers after coating all of the mating duct and liner surface with fire-retardant adhesive which bonds to all fibers and prevents any raw edges. Duct dimension shown is net inside dimension, inside lining.

3.08 FLEXIBLE DUCTWORK

- A. Install with a minimum bend radius equal to the duct diameter plus 6". The maximum total length of flexible duct shall not exceed 6 feet per connection. No exceptions.

3.09 DUCT LEAKAGE TESTING

- A. Duct systems shall be field leak tested at 100% of the duct construction rating. Leak testing shall follow general procedures (Chapter 3) and use apparatus (Chapter 5) as outlined in the SMACNA HVAC Air Duct Leakage Test Manual, Latest Edition. The maximum allowable leakage rate is 5 percent. Ductwork to be leak tested after all branch connections are installed. Coordinate duct leakage report requirements and testing with the Commissioning Authority.
- B. Comply with the latest Energy Star duct leakage limits; less than 0.06 CFM50 per square foot of floor area.

END OF SECTION

PART 1 GENERAL

1.01 WORK INCLUDED

- A. Work includes sheet metal work and related components.
- B. Contract requirements of the General Conditions, the Supplementary Conditions, and Division 01 apply to all work in this Section.

1.02 QUALITY ASSURANCE

- A. Regulatory Requirements:
 - 1. Comply with all applicable City, County and State Codes and Ordinances and local amendments to Codes and Ordinances. In case of conflict with drawings or specifications, the Codes and Ordinances govern.
 - 2. Basis: International Building Code; International Mechanical Code; Washington State Energy Code, NFPA 90A.

1.03 SUBMITTALS

- A. General: Submit in accordance with Division 01, 230500 and the following.
- B. Shop Drawings: Submit coordinated ductwork shop drawings for the building. Prepare shop drawings on backgrounds provided by the Architect coordinated with steel, plumbing, piping and electrical.
- C. Product Data:
 - 1. Balancing Dampers, Volume Dampers
 - 2. Motor Operated Dampers
 - 3. Fire and Fire-Smoke Dampers

PART 2 PRODUCTS

2.01 BALANCING DAMPERS, VOLUME DAMPERS

- A. Construction: Provide dampers in accordance with SMACNA HVAC Duct Construction Standards.
- B. Dampers where ducts are not accessible or concealed above hard ceilings: Flush mounting concealed type, Ventfabrics Catalog Type 66, or Young Regulator No. 301 Series.
- C. Document and coordinate damper access points on shop drawings.
- D. Provide structural support at any point where remote volume damper controls are grouped. Coordinate location of remote actuators with architect. Label each control with a permanently affixed label. Document each controller on as-built drawings as construction progresses and provide to balancing agent.

2.02 MOTOR OPERATED AIR CONTROL DAMPERS

- A. Ratings
 - 1. Volume.
 - a. Dampers shall have a maximum leakage of 6 cfm/ sq. ft. @ 4 in. wg or 3 cfm/ sq. ft. @ 1 in. wg.
 - 2. Differential Pressure:
 - a. Dampers shall have a maximum differential pressure rating of 8 in. wg
 - 3. Velocity:
 - a. Dampers shall have a maximum velocity rating of 4000 fpm (20.3 m/s).
- B. Construction:
 - 1. Frame:

- a. Damper frame shall be 16 ga. galvanized steel formed into a 5" x 1" structural hat channel. Top and bottom frame members on dampers less than 17" high shall be low profile design to maximize the free area of these smaller dampers. Frame shall be 4-piece construction with 1 1/2" (minimum) integral overlapping gusset reinforcements in each corner to assure square corners and provide maximum resistance to racking.
 2. Blades:
 - a. Blades: Damper blades shall be airfoil shape galvanized steel double skin construction (14 ga. equivalent). Each blade shall be symmetrical relative to its axle pivot point, presenting identical performance characteristics with air flowing in either direction through the damper. Provide symmetrical blades of varying size as required to completely fill the damper opening. Blade orientation is horizontal. Blade operation is opposed.
 3. Blade Stops:
 - a. Each blade stop (at top and bottom of damper frame) shall occupy no more than 1/2" of the damper opening area to allow for maximum free area and to minimize pressure loss across the damper.
 4. Seals:
 - a. Blade Edge: Blade seals shall be silicone permanently bonded to the appropriate blade edges.
 - b. Jamb: Flexible stainless steel compression type
 5. Linkage: Concealed in jamb, plated steel material.
 6. Axles: Minimum 1/2 inch dia. plated steel. Stainless steel axle is optional.
 7. Bearings: Axle bearings shall be bronze sintered sleeve rotating in polished extruded holes in the damper frame.
 8. Finish: Mill Galvanized finish
- C. Actuators:
1. Coordinate actuator requirements with Control Contractor. Dampers shall be low voltage and provided, wired and installed by Division 23.
 2. Coordinate access to all actuators on shop drawings.
- D. Flange Frame
1. 1 1/2 inches, rolled formed as part of frame.
- E. Sleeve
1. Damper sleeve supplied as a single assembly with a factory sleeve.
- F. Basis of Design: Greenheck VCD-33. Accepted alternates: American Air Warming, Nailor.
- 2.03 COMBINATION FIRE AND SMOKE DAMPERS
- A. Description: Provide all combination fire and smoke dampers, as indicated and required, each with frame and sleeve. Conform with SMACNA Fire, Smoke and Radiation Damper Installation Guide and local building code. Coordinate damper rating requirement with Architectural documents; damper shall be rated in accordance with UL Standard UL555S, and comply with UBC standard No. 43-7.
 - B. Size: Free area inside sleeves and within damper stop, 90% minimum of area of connecting duct; increase size as required, above the connected duct, to maintain this free area.
 - C. Sleeves: 14-gage minimum steel with attachment lugs or straps; anchor to wall independently of ductwork; slip fit, connection to ducts tightly fitted, sealed with mastic, riveted on 6" centers.
 - D. Access Panels: Provide in walls, ceilings and ducts as required to reach dampers and to replace fusible links; minimum size 12" X 12"; gasketed; attached by sheetmetal screws, spacing 6" in centers maximum.
 - E. Combination Smoke and Fire Damper: Coordinate damper rating with Architectural documents. Damper shall be classified by UL for application to smoke control systems and conform to UBC standards Nos.

43-7 and 43-12, with a minimum leakage rate of III. Provide with 120 volt actuator/fusible link rating as required by code and/or local authority.

F. Manufacturer: Greenheck, Nailor, Prefco, Air Balance.

2.04 AIR FILTERS AND FILTER RACKS

A. Provide filters to all air handling units and fans that supply air to, or recirculate air from, an occupied area. Provide filters upstream from all coils and heat exchangers to protect the equipment from dust and debris.

B. Materials: Fixed media type filters, general

1. Filters

- a. 24" x 24" x 2" thick, pleated media filter with 25% minimum dust spot efficiency (30% nominal efficiency, 96% arrestance) per ASHRAE Standard 52.1-92 Test Method with synthetic atmospheric dust. Minimum efficiency reporting value (MERV) of 13 per ASHRAE Standard 52.2-1999
- b. American Air Filter Perfect Pleat Ultra, Purolator Mark 80, Filtration Group Series 400, or approved equal.

2. Filter frames

- a. Provide access to all filter racks. Filters generally will be required to be completely changed from limited side access. Provide filter with slide support and access to permit replacement the space indicated.
- b. Stationary assembly built up of individual stationary filter frames, with gaskets and with latching devices to hold replaceable media and holding frame firmly in the stationary frame.
- c. Individual frames formed steel angle type made of steel, No. 16 gauge at least 3 inches deep, permanently assembled with solid rivets
- d. Where height or width exceeds 6 feet, provide stiffener of No. 16 gauge sheet metal with hemmed exposed edge, 8 inches wide, full height and width of filters on 6-foot centers.
- e. Finish of all metal parts of frame shall be hot-dip galvanized with additional high build epoxy finish 0.020" minimum thickness.
- f. Gasketing shall be included, with tight seal to filter face.
- g. Filter airflow resistance gauge: DWYER "Series 2000"; 0-2 inch WC. Range for final filters; 0-1 inch WC. Range for pre-filters.

3. Filter Rack sizing:

- a. Filter racks shown on drawings are diagrammatic and final sizes should be based on design air flows.
- b. Filters shall have a face velocity of no more than 500 fpm.

PART 3 EXECUTION

3.01 INSPECTION

A. Verify installation conditions as satisfactory to receive work of this Section. Do not install until any unsatisfactory conditions are corrected. Beginning work constitutes acceptance of conditions as satisfactory.

3.02 PREPARATION

- A. Field Measurements: Field verify locations of new and existing work prior to commencing work of this Section.
- B. Protect surrounding areas and surfaces to preclude damage from work of this Section.

3.03 CLEANING AND ADJUSTING

- A. Plenums and casings shall be thoroughly cleaned of all debris and blown free of all small particles of rubbish and dust before installing and making final duct connections. Equipment shall be wiped clean, with all traces of oil, dust, dirt or paint spots removed. Ductwork and plenums shall be cleaned, and openings sealed during any construction activities. Covers from duct openings may be removed when the system is approved to be operated for air balancing and building conditioning.

3.04 INSTALLATION, APPLICATION, ERECTION AND PERFORMANCE

- A. Install, apply, erect and perform the work in accordance with "Quality Assurance" provisions, Specifications, and Manufacturer's installation instructions and directions. Where these may be in conflict, the more stringent requirements govern.
- B. Ductwork: All ductwork shall be installed in workmanlike manner, by craftsmen with at least five years of experience in the sheet metal trade. Fabrications, fittings, joints, take-offs, attachment to sheetmetal work, turning vanes, dampers and sealing shall be in accordance with the requirements of SMACNA HVAC Duct Construction Standards and as indicated.
- C. Offsets: The drawings do not show all offsets which may be required. Make offsets with fittings with as small an angle of offset as possible; do not use square corners unless specifically shown; when square corners are used, install turning vanes.
- D. Access Doors: Provide at each duct smoke detector, motor-operated damper, plenum, fire damper, or at other points requiring maintenance access.
- E. Flexible Connections: Provide at all fans except internally isolated equipment and air terminal units.

3.05 VOLUME DAMPERS

- A. Provision: Dampers are not shown generally; include a damper in the duct to each supply or exhaust opening.
- B. Location: Provide dampers in accessible locations; where possible, arrange with the axis of the blade in the long dimension; locate as far from the outlet as possible. If not accessible provide a remote actuated volume damper.

3.06 AIR CONTROL DAMPERS

- A. Provide air control dampers where indicated or required for the control of moving air in the building.
- B. Install dampers in accordance with the manufacturer's written installation instructions.
- C. Install damper in manufacturer's recommended configuration for airflow and flow modulation.
- D. Install damper in a fashion to maintain free operation of damper linkages and blades and access to motor operator (if required).
- E. Install damper frames with backing and secured to the building with bolted fasteners (not self-tapping). Locate and adequately place backing between frame and structure to prevent distortion and "racking" when the frame fasteners are tightened.
- F. Pack any remaining space between damper and structure with rock-wool or fire rated caulking.
- G. Provide removable sheetmetal trim piece around perimeter of damper on both sides to prevent air leakage and finish edges.

END OF SECTION

PART 1 GENERAL

1.01 DESCRIPTION

A. General:

1. Work includes all heating, ventilation, and air conditioning equipment, including all products, material, equipment, and installation. Provide all equipment as required by the mechanical system design, the specifications, and/or the contract documents. Provide a complete and operable system. Coordinate electrical requirements of all equipment furnished hereunder with the Temperature Control contractor, Division 26, and the Electrical Contractor.

B. Work Includes:

1. Split System Heat Pumps
 - a. Variable Capacity multi-zone heat pump air-conditioning system consisting of two or more ductless or ducted indoor units with remote controls, connected to an inverter driven heat pump outdoor unit.
 - b. Single zone heat pump air-conditioning system consisting of a remotely controlled indoor ducted multi-position air handling unit connected to an inverter driven heat pump outdoor unit of matched capacity.
 - c. Single zone heat pump air-conditioning system consisting of a remotely controlled ductless wall-mounted fan-coil unit connected to a variable-speed inverter driven heat pump outdoor unit.
2. Energy Recovery Ventilators
 - a. Ventilation system consisting of a packaged 100% outside air supply and exhaust air system with an air-to-air energy recovery core.
3. Electric Duct Heaters

C. Code:

1. All work shall be installed in accordance with International Mechanical Code, International Building Code, Washington State Energy Code and all local codes. All assemblies shall be UL listed.

D. Standards:

1. AMCA Testing Standard 210
2. Testing and Rating Code for Finned Tube Commercial Radiation: IBR/
3. Advanced Installation Guide for Hydronic Heating Systems: IBR 250, 2nd Edition.

E. Abbreviations:

AMCA	Air Moving and Conditioning Association
ADC	Air Diffusion Council
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
UL	Underwriters Laboratories

1.02 SUBMITTALS

- A. Provide submittal information in accordance with Section 230500 and Division 01. Provide submittal information for all equipment items specified including the following:**
1. Heat Pump Outdoor Units, ODU
 2. Heat Pump Indoor Units, IDU
 3. Electric Duct Heaters, EDH
 4. Energy Recovery Ventilators, ERV

1.03 QUALITY ASSURANCE

- A. Comply with the requirements of Section 230500.**

PART 2 PRODUCTS

2.01 SPLIT SYSTEM HEAT PUMP OUTDOOR UNITS

A. General

1. Factory assembled, piped, wired, and tested outdoor units specifically designed to operate when connected to split-system heat pump indoor units of the same system configuration.
2. Units shall be located outside of conditioned spaces.
3. Basis of design: Mitsubishi Electric
 - a. Accepted alternatives: Daikin, Panasonic, Hitachi, or by prior approval

2.02 SPLIT SYSTEM HEAT PUMP INDOOR UNITS

A. General

1. Factory assembled, wired, piped, and tested ducted or ductless air handling units for HVAC application containing an electronic linear expansion device, control circuit board, and fan with fan motor working in conjunction with their associated outdoor unit to provide indoor DX cooling and heat pump heating in the following configurations:
 - a. Wall-mounted ductless fans
 - b. UL 1995 (4th edition) compliant four-way ceiling-recessed cassette-style indoor unit with ceiling grille
 - c. Multi-position air-handling unit suitable for use in air handling spaces in accordance with UL 1995 section 18.2.
2. The unit shall fit within and be supported by the structure indicated. Coordinate the size of the unit with the structure and space available. Refer to the Architectural Documents.
3. Basis for design: Mitsubishi Electric. Accepted Alternates: Carrier or by prior approval.

B. Cabinet

1. Wall-mounted indoor units shall have a white finish
2. Four-way ceiling cassette cabinets shall:
 - a. fit within a standard 24" square ceiling grid.
 - b. Have a grille fixed to the bottom allowing for two, three, and four-way airflow patterns.
3. Multi-position air-handling units, when referencing its vertical configuration, shall:
 - a. include a fixed bottom return, a fixed vertical discharge supply.
 - b. be pre-insulated and of galvanized steel sheet metal construction

C. Cabinet Penetrations

1. Duct, pipe conduit and other penetrations of fan cabinets shall be tightly sealed against present and anticipated air, sound and water leaks. Resiliently gasketed sleeves or accepted equal.

D. Access Doors

1. Construct similarly to cabinet panels. Brass hinges, continuous bulb gasket all around door. Camlock compression type multiple latches each door; interior and exterior handles, construction similar to Ventlock.

E. Fans

1. Fans shall be of the size, arrangement and configuration indicated on the contract documents.
2. Fan wheels shall be fully welded to the solid backplate and inlet shroud. Forward curved fans shall have blades mechanically fastened in an accepted manner.

F. Balance and Shafting

1. The fan shaft shall be sized to not exceed 75% of the first critical speed under the specified operating conditions, and the lateral static deflection of the shaft shall not exceed 0.003 per foot of length of shaft. The fan shaft shall be hollow ground and statically and dynamically balanced in two planes

with the fan wheel as an assembly. Residual unbalance shall not exceed .15 oz. at 95% of the fan wheel radius in each plane. Maximum wheel runout measured by dial indicator in any direction shall not exceed .060 inches.

G. Bearings

1. Pillowblock ball bearings selected to L10 life of 200,000 hours. All bearings shall be pressure lubricated ball type with safety pressure relief grease fittings. All grease fittings shall be extended to the accessible side of the unit. Bearing supports shall be of heavy structural steel channel. Supplemental support shall be required and all supports above size 11 shall be bolted construction to facilitate fan wheel removal. Bearings shall comply with the American Fan Bearing Manufacturers' Association Series FS (Fairly Silent) Acoustical criteria, at rotational speeds 1/3 of the fan RPM or higher.

H. Drives

1. All drives shall be direct to plug type fan.
2. Fan system is constant volume. Air handler manufacturer shall provide VFD for capacity adjustment for the direct drive plug fan. Air handler manufacturer shall ship VFD mounted and wired; or alternatively, if shipped loose, arrange and pay for jobsite electrician to mount and wire VFD.

I. Motors

1. Motors shall be standard NEMA frames. Integral horsepower motors shall be ball bearing, rigid mounted. TEFC with sealed and permanently lubricated bearings. Motor speeds shall not exceed 1750 rpm. Motors shall be rated in writing by the manufacturer for variable frequency drive service. Refer to Section 23 05 00 for motor requirements.
2. Coordinate power connection with Electrical contractor prior to ordering.

J. Vibration Isolation

1. Internal spring vibration isolation. Mount motor and fan on a common base and support by seismically restrained spring isolators, all within the fan cabinet. Spring isolator static deflection shall be 2" minimum. Make motor electrical connection flexible through a generous length of flex conduit.

K. Dampers

1. Opposed blade, low leakage type. Gasket blade and edge seals. Blade ends to be sealed with aluminum "arc" seals. Damper frame shall be of heavy gauge welded steel construction and with 1/4" plate bearing bars and bronze or oilite insert bearing. Linkage shall be arranged for opposed blade operation. Dampers shall be rated low leakage type. Ruskin or accepted equal.

L. Coils

1. Copper tube mechanically bonded to non-ferrous fins with continuous fin collars and sleeved end supports, maximum fins per inch as scheduled. Coil tubing wall thickness shall be minimum .035". Coils shall be leak tested to 300 psi, maximum working pressure 200 psi, rated in accordance with ARI standard 441-70.
2. Furnish with galvanized steel drain pan with solderless connections and minimum 1 inch thick foam insulating liner.
3. Maximum 525 fpm face velocity cooling coils, maximum 600 fpm face velocity heating coils. Size for capacity of not more than 135% of scheduled output.

M. Filters

1. Description
 - a. Replaceable in slide-out frames. Z or W rack frame constructed of galvanized steel channel with spring clips to secure filters in place. Frames shall be fully gasketed to prevent bypass leakage. Furnish filter section with a manometer to indicate filter pressure drop, Dwyer Magnehelic 2000 or equal.
2. Rating/Capacity

- a. MERV 13. Maximum 250 foot per minute face velocity across the nominal filter area.
 3. Manufacturers
 - a. Base: FARR. Alternate: Cambridge, Burke, American Air Filter, Eco Aire.
 - N. Mounting
 1. Description
 - a. Provide steel frame rail base suitable for mounting to concrete housekeeping pad.
- 2.03 ENERGY RECOVERY VENTILATORS
- A. General
 1. Packaged attic-mounted heat recovery ventilator consisting of a flat plate heat exchanger, ventilation air fan, exhaust air fan, dampers, temperature sensors and controls.
 2. Factory assembled, wired, and tested air-handling equipment for ventilation and exhaust airflows with energy recovery cores.
 3. Equipment shall be installed indoors.
 4. Basis of Design: RenewAire HE1XINH.
 - a. Accepted Alternatives: Lossnay (Mitsubishi Electric), Greenheck, Ventacity, Aldes
 - B. Unit Cabinet
 1. Materials: Formed double wall insulated metal cabinet, fabricated to permit access to internal components for maintenance.
 2. Outside casing: 20 gauge, galvanized (G90) steel meeting ASTM A653 for components that do not receive a painted finish.
 3. Access doors shall be hinged with airtight closed cell foam gaskets. Door pressure taps, with captive plugs, shall be provided for cross-core pressure measurement allowing for accurate airflow measurement.
 4. Unit shall have factory-installed duct flanges on all duct openings.
 5. Cabinet Insulation: Unit walls and doors shall be insulated with 1 inch, 4 pound density, foil/scrim faced, high density fiberglass board insulation, providing a cleanable surface and eliminating the possibility of exposing the fresh air to glass fibers, and with a minimum R-value of 4.3 (hr-ft²-°F/BTU).
 6. Enthalpy core: Energy recovery core shall be of the total enthalpy type, capable of transferring both sensible and latent energy between airstreams. Latent energy transfer shall be accomplished by direct water vapor transfer from one airstream to the other, without exposing transfer media in succeeding cycles directly to the exhaust air and then to the fresh air. No condensate drains shall be allowed. The energy recovery core shall be designed and constructed to permit cleaning and removal for servicing. The energy recovery core shall have a ten year warranty. Performance criteria are to be as specified in AHRI Standard 1060.
 7. Passive Frost Control: The ERV core shall perform without condensing or frosting under normal operating conditions (defined as outside temperatures above -10°F and inside relative humidity below 40%). Occasional more extreme conditions shall not affect the usual function, performance or durability of the core. No condensate drains will be allowed.
 8. Motorized Isolation Dampers: Return Air and Outside Air motorized dampers of an AMCA Class I low leakage type shall be factory installed.
 - C. Operating Characteristics
 1. Unit shall be capable of providing a constant volume of air at a specified external static pressure at all fan operating speeds.
 - D. Blowers
 1. Blower section construction, Supply Air and Exhaust Air: Blower assemblies consist of a 208-230V, 1 Phase, 60 HZ, TEFC motor, and a belt driven forward-curved blower.
 2. Fan ratings are based on tests made in accordance with AMCA Standard 210.

3. Blowers shall be selected to operate on a stable, efficient part of the fan curve when delivering air quantities scheduled against static of the system.
4. Fan blades shall be statically and dynamically balanced and tested prior to shipment.
5. Fan shall be provided with internal vibration isolation mounts.
6. Fan discharge shall be as indicated by the contract documents.

E. Motors.

1. Blower motors shall be Premium Efficiency, EISA compliant for energy efficiency. The blower motors shall be totally enclosed (TEFC) and be shall be supplied with factory installed Variable Frequency Drives.
2. Belt drive motors shall be provided with adjustable pulleys and motor mounts allowing for blower speed adjustment, proper motor shaft orientation and proper belt tensioning

F. Electrical Requirements

1. Unit shall have single point power connection only (230V).
2. All controls shall be factory mounted and wired, requiring only field installation of remote sensing devices and wiring to unit mounted terminal strips.

G. Flat Plate Heat Exchanger

1. Flat plate, cross flow heat exchanger shall be made of rugged polypropylene with a minimum 0.008" [0.02mm] wall thickness and rated to UL94HB. Plate corners shall be sealed with silicone or hot melt and be capable of withstanding 10" of water [2500 Pa] pressure differentials without permanent deformation or decrease in performance. Heat exchanger shall operate at temperature up to 140°F [60°C].
2. Energy transfer ratings shall be AHRI Certified™ to AHRI Standard 1060 and bear the AHRI Certified™ mark signature for the Air-to-Air Energy Recovery Ventilation Equipment Program. Ratings "in accordance with 1060" without certification shall be deemed unacceptable.
3. The flat plate heat exchanger shall be a UL recognized component and shall be manufactured under ISO 9001-2000 certified quality procedures.

H. Controls

1. Unit shall be provided with factory mounted and wired microprocessor control.
2. See Sequence of Operations in Mechanical drawing documents.
3. All service connectors shall be quick disconnect type.
4. Unit circuitry shall allow the following operational characteristics:
 - a. selection of low or high speeds
 - b. remote wall control contacts for 12V DC room humidistat and wall-mounted override timer switch.
5. The sensors that will be required for control are:
 - a. Programmable room humidistat
 - b. (2) Differential pressure sensors for filter alarms

I. Filtration

1. Provide 2" filter Merv 8 minimum for outside air.
2. Provide 1" media filter for exhaust.
3. All filters shall be accessible from the exterior of the unit.

J. Access Door

1. Unit shall come equipped with reversed door (right hand flow) option.

K. Low Speed

1. Unit shall come equipped with ability to change between high and low speed.

2.04 ELECTRIC DUCT HEATERS

- A. Provide open coil electric duct heater of the size, capacity and performance shown on the equipment schedule. Greenheck IDHC, RenewAire, or approved equal.
 1. Coil Assembly: Comply with UL 1996.
 2. Heating Elements: Open-coil resistance wire of 80 percent nickel and 20 percent chromium, supported and insulated by floating ceramic bushings recessed into casing openings, and fastened to supporting brackets.
 3. High-Temperature Coil Protection: Disk-type, automatically reset, thermal-cutout, safety device; serviceable through terminal box without removing heater from duct or casing.
 - a. Secondary Protection: Load-carrying, manually reset or manually replaceable, thermal cutouts; factory wired in series with each heater stage.
 4. Control Panel: Unit mounted with disconnecting means and overcurrent protection. Include the following controls:
 - a. Magnetic contactor.
 - b. SCR Controller
 - c. Airflow proving switch.
 - d. Duct mounted temperatures sensor.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify conditions, including defects or errors which would cause defective installation/ application of products or cause latent defects in workmanship or function.

3.02 INSTALLATION AND ADJUSTMENT

- A. Install in accordance with manufacturer's written recommendations and as specified. Furnish all required materials, accessories, appurtenances and work required to support or suspend equipment. Install equipment with associated ductwork and piping to permit access to doors and panels as required for periodic maintenance.
- B. Roof Mounted equipment must be installed more than 10ft from the roof edge. No exceptions.
- C. Balance airflow to volumes indicated in contract documents.

3.03 LOCATION AND SIZE

- A. The equipment scheduled on the drawings is selected and configured to fit in the mechanical space available. Insure that substitute equipment will fit without change in function or quality. Cost of all materials and work to accommodate substitute equipment is the sole responsibility of the contractor.

3.04 MECHANICAL EQUIPMENT

- A. Equipment shall be wiped clean, with all traces of oil, dust, dirt or paint spots removed. Temporary filters shall be provided for all fans that are operated during construction, and after construction dirt has been removed from the building, new filters shall be installed.
- B. Bearings shall be properly lubricated with oil and grease as recommended by the manufacturer.
- C. All controls and other miscellaneous equipment requiring adjustment shall be adjusted to setting indicated or directed. Fans shall be adjusted to the speed indicated by the manufacturer to meet specified conditions, ready for air balancing.
- D. Furnish and install complete all pipe, duct and control connections required.

END OF SECTION

PART 1 GENERAL

1.01 WORK INCLUDED

- A. Work includes sheet metal work and components related to air diffusers, registers, and grilles.
- B. Contract requirements of the General Conditions, the Supplementary Conditions, and Division 1 apply to all work in this Section.

1.02 QUALITY ASSURANCE

- A. Regulatory Requirements:
 - 1. Comply with all applicable City, County and State Codes and Ordinances and local amendments to Codes and Ordinances. In case of conflict with drawings or specifications, the Codes and Ordinances govern.
 - 2. Basis: International Mechanical Code; NFPA 90A.

1.03 SUBMITTALS

- A. General: Submit in accordance with Division 01, 230500 and the following.
- B. Product Data:
 - 1. Grilles, Registers, Diffusers
 - 2. Dimensional Drawings
 - 3. Style
 - 4. Type
 - 5. Ceiling Compatibility and Type
 - 6. Schedule showing each GRD's: CFM, pressure drop, and throw
 - 7. Sound generation at specified selection point

PART 2 PRODUCTS

2.01 DIFFUSERS, REGISTERS AND GRILLES

- A. General: Provide air diffusion devices, including grilles, register and diffusers as specified herein and indicated by the contract documents. Heavy duty, anti-ligature, tamper-proof models shall be used in all areas accessible to patients.
- B. Diffusers, register and grilles: Coordinate color with Architect. Diffusers shall conform to the schedules shown on the contract documents.
- C. Coordinate location, ceiling frame type and fire rating requirement with the Architectural Documents.
- D. Manufacturers: Price, Anemostat, Kees, Titus.

PART 3 EXECUTION

3.01 INSPECTION

- A. Verify installation conditions as satisfactory to receive work of this Section. Do not install until any unsatisfactory conditions are corrected. Beginning work constitutes acceptance of conditions as satisfactory.

3.02 PREPARATION

- A. Field Measurements: Field verify locations of new and existing work prior to commencing work of this Section.
- B. Protect surrounding areas and surfaces to preclude damage from work of this Section.

3.03 CLEANING AND ADJUSTING

- A. Plenums and casings shall be thoroughly cleaned of all debris and blown free of all small particles of rubbish and dust before installing and making final duct connections.

- B. Equipment shall be wiped clean, with all traces of oil, dust, dirt or paint spots removed. Ductwork and plenums shall be cleaned, and openings sealed during any construction activities. Covers from duct openings may be removed when the system is approved to be operated for air balancing and building conditioning.
- C. Balance to volumes indicated in contract documents. Adjust diffusers to avoid drafts.

3.04 INSTALLATION, APPLICATION, ERECTION AND PERFORMANCE

- A. Install, apply, erect and perform the work in accordance with "Quality Assurance" provisions, Specifications, and Manufacturer's installation instructions and directions. Where these may be in conflict, the more stringent requirements govern.
- B. Install diffusers, registers, and grilles with airtight connections to ducts and to allow service and maintenance of dampers, air extractors, and fire dampers.
- C. Drawings indicate general arrangement of ducts, fittings, and accessories. Air outlet and inlet locations have been indicated to achieve design requirements for air volume, noise criteria, airflow pattern, throw, and pressure drop. Make final locations as indicated by the Architect's reflected ceiling plan.

3.05 LOCATION OF DIFFUSERS AND GRILLES

- A. Location: Locate per Architectural drawings in areas with finished ceilings, otherwise where shown.
- B. Verification: Verify that ceiling diffuser and grille frames match ceiling type and finish prior to ordering.

END OF SECTION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. The provisions and intent of the General and Supplementary Conditions, Special Conditions, and Division 01 apply to Work in this section.

1.02 SUMMARY

- A. Provide all labor, materials, tools, equipment, supervision, and services required for the construction, installation, connection, testing and operation of electrical work described herein and shown on the Contract Drawings. This section applies to all Division 26, 27 and 28 sections.

1.03 PERMITS

- A. Purchase the necessary permits, including State of Washington Labor and Industries permit fees, licenses and approvals required for execution of this work and include all costs in the bid.

1.04 CODES AND STANDARDS

- A. Execute electrical work in strict accordance with the 2020 National Electrical Code, and the current Washington State Electrical Rules and Regulations, and local ordinances and regulations.
- B. Conform to applicable industry standards, UL standards, NEMA standards, and other standards as noted.
 - 1. Notify the A/E of deviations in Contract Documents to applicable codes and ordinances prior to installation of the Work. Perform changes in the Work after initial installation due to requirements of code enforcing agencies at no additional cost to the Owner.
 - 2. If conflict occurs between legally adopted codes and the Contract Documents, the codes prevail, except that this shall not be construed as relieving the Contractor from complying with requirements of the Contract Documents which may exceed code requirements and not contrary to same.

1.05 DEFINITIONS AND ABBREVIATIONS

- A. Refer to Division 01 for definitions and abbreviations. Additional definitions and abbreviations are as follows.
- B. "Approved" or "Approval" means written approval by the owner or "Owner's agent" (A/E).
- C. "Codes" means AHJ adopted codes, rules, and ordinances and additional codes as specified herein.
- D. "Concealed" means spaces out of sight. For example, above ceilings, below floors, between double walls, furred-in areas, pipe and duct shafts, and similar spaces.
- E. The word "Contractor", as used in Division 26 sections, means the electrical subcontractor.
- F. "Coordination", "Coordinating", and "Coordinate" means to bring, or the bringing, into a common action, movement, or combination so as to act together in a smooth concerted way.
- G. "Directed", "Requested", "Accepted", and Similar Terms means these terms imply "by the A/E" unless otherwise indicated.
- H. "Exposed" means open to view. For example, raceways installed in a tunnel or raceways installed in a room and not covered by other construction.
- I. "Furnish" means supply and deliver to the project site ready for unloading, unpacking, assembly, installation, and similar activities.
- J. "Indicated" and "Indicated on the Drawings" means shown on Contract Drawings by notes, graphics or schedules, or written into other portions of Contract Documents. Terms such as "shown", "noted", "scheduled" and "specified" have same meanings as "indicated" and are used to assist the reader in locating particular information.
- K. "Install" means to place in position for service or use. Includes operations at project site, such as unloading, unpacking, assembly, erection, placing, preserving, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar activities.
- L. "Provide" means furnish and install for a complete, finished, and operable system and ready for intended use.

- M. "Shop Drawings" means Document which fully details equipment and intended installation relative to this specific Project.
- N. "Substantial Completion" shall mean that the entire project (or readily definable portion thereof if so designated in the Contract Documents) is acceptable to code enforcement authorities and to extent required by such authorities, has been inspected and approved by such authorities, and is suitable for occupancy by the Owner or occupant for the purpose intended. Refer to Division 0 and 1 for additional requirements.
- O. "Work" or "Project" means entire scope of work required by the Contract Documents.
- P. Abbreviations:
 - A/E Architect
 - AHJ Authorities Having Jurisdiction
 - ANSI American National Standards Institute
 - ASTM American Society for Testing and Materials
 - C Degrees Celsius
 - ETL Environmental Technology Laboratory
 - F Degrees Fahrenheit
 - FM Factory Mutual Engineering Corporation
 - IBC International Building Code
 - NEC National Electrical Code, NFPA 70 (latest adopted edition with Amendments)
 - NEMA National Electrical Manufacturer's Association
 - NFPA National Fire Protection Association
 - OSHA Occupational Safety and Health Administration
 - UL Underwriters Laboratories Inc.
 - RMS Root Mean Square
 - THD Total Harmonic Distortion
 - V Volts

1.06 SUBMITTALS

- A. Comply with requirements in Division 01 and with additional requirements indicated in this article.
- B. Comply with requirements in Section 013300 and additional requirements indicated in this article.
- C. Confirm with A/E whether product data and shop drawings may be submitted electronically in lieu of physical submittal. Format organization and requirements shall follow that of a physical submittal.
- D. Pre-Construction Submittals:
 - 1. Product Data: (Physical hard copy)
 - a. Submit prior to fabrication of assemblies and delivery of purchased items.
 - b. Submit complete at one time. Submit each specification section complete at one time with a dedicated submittal number for each section. Partial product submittals are not acceptable and will be returned not reviewed.
 - c. Clearly mark catalog pages, equipment, and model number to be used. Note required accessories.
 - d. Format:
 - 1) Assemble submittals in 3-ring binders. Use multiple binders if pages in a single binder would exceed 2.5" inch thickness. Separate binders for each category, such as Electrical, Telecommunications, Electronic Safety and Security. Where one subject matter encompasses more than one binder, differentiate by volume numbers. Include indexed tabs for each binder.
 - 2) Include overall table of contents of items submitted, organized by specification section.
 - 3) Include heavy, tabbed divider sheet for each specification section, with specification section number and title on tab. Include table of contents for each specification section, including catalog numbers or drawing numbers if appropriate.
 - 4) Fold drawings to 8-1/2-inch size and bind as above (with reinforcing at punched holes) or place in clear plastic holder designed for 3 ring binders.

- 5) Include contractor and manufacturer's representative contact information for each product.
- e. Identify on cover and spine for each binder with printed title "ELECTRICAL", "TELECOMMUNICATION", or "ELECTRONIC SAFETY AND SECURITY" SUBMITTALS, names of project, Owner, general contractor, electrical subcontractor, Architect, and electrical engineer, and year of project completion.
2. Product Data: (Electronic copy)
 - a. Submit prior to fabrication of assemblies and delivery of purchased items.
 - b. Submit complete at one time. Submit each specification section complete at one time with a dedicated submittal number for each section. Partial product submittals are not acceptable and will be returned not reviewed.
 - c. Submit signed letter indicating 3D model coordination has started and will continue through construction. 3D model not required to be submitted/reviewed during construction phase.
 - d. Clearly mark catalog pages, equipment, and model number to be used. Note required accessories.
 - e. Provide product data in Adobe PDF format with Bookmarks for each submittal section allowing browsing to the paragraph number.
 - f. Provide a table of contents for each specification section.
3. Shop Drawings:
 - a. Submit as specified in the individual specification sections. Submit minimum 30 days prior to starting fabrication on installation work. Do not fabricate or install until reviewed by the A/E. Include complete location dimensions, and hanger and support sizes and dimensions.
 - b. "Typical" drawings and wiring diagrams not accepted unless they specifically apply to this project.
 - c. Drawings shall be drawn at sufficient scale to show details clearly on same size sheets as Drawings.
 - d. Show required coordination with work of other trades.
 - e. Identify details and show their locations in Project.
 - f. Include description of configuration and operation of proposed systems.
 - g. Include outline drawings of proposed equipment in plan and elevation views including overall dimensions, weights, and clearance required.
 - h. Include one-line electrical diagrams required for control and sensing.
 - i. CAD Drawings: AutoCAD floor plan backgrounds are available in electric format and shall be requested from the A/E.
 - j. Direct use of the Contract Drawings as the basis of Contractor's prepared Shop Drawings not acceptable.
 - k. Where electronic shop drawings are permitted by the A/E, provide full size shop drawings in Adobe PDF format.
- E. Approval: Approval of a manufacturer's name or product by the A/E does not relieve the Contractor of the responsibility for providing materials and equipment which comply in detail with requirements of the Contract Documents.
- F. Re-Submittals: Clearly identify re-submittals. Provide revised tabs, indexes, page renumbering, and other formats to interface with original submittal. Identify changes and include date for project tracking.
- G. Test reports and Certificates: Submit as a package prior to Substantial Completion.
- H. Certifications: Submit written certifications from the governing building authorities stating that work has been inspected and accepted and complies with applicable codes and ordinances.
- I. Record Drawings: Comply with Article "Record Drawings" in this section.
- J. Schedule of Values:

1. Comply with the requirements in Division 1 with additional requirements as indicated in this paragraph.
2. Include costs in Schedule of Values as follows:
 - a. Mobilization.
 - b. Submittals.
 - c. Electrical Permit.
 - d. Electrical Site – Lighting Rough In & Wiring, Material.
 - e. Electrical Site – Lighting Rough In & Wiring, Labor.
 - f. Electrical Site – Power Rough-in & Wiring, Material.
 - g. Electrical Site – Power Rough-in & Wiring, Labor.
 - h. Lighting Systems – Fixtures & Lamps Material.
 - i. Lighting Systems – Fixtures & Lamps Labor.
 - j. Lighting Systems – Branch Circuit Rough-in & Wiring, Material.
 - k. Lighting Systems – Branch Circuit Rough-in & Wiring, Labor.
 - l. Lighting Systems – Devices & Trim, Material.
 - m. Lighting Systems – Devices & Trim, Labor.
 - n. Lighting Controls Systems – Lighting Controls, Material
 - o. Lighting Controls Systems – Lighting Controls, Labor
 - p. Power Systems – Switchgear/Panels, Disconnects, Material.
 - q. Power Systems – Switchgear/Panels, Disconnects, Labor.
 - r. Power Systems – Feeder Rough-in, Material.
 - s. Power Systems – Feeder Rough-in, Labor.
 - t. Power Systems – Equipment Connections.
 - u. Power Systems – Branch Circuit Rough-in & Wiring, Material.
 - v. Power Systems – Branch Circuit Rough-in & Wiring, Labor.
 - w. Power Systems – Devices & Trim, Material.
 - x. Power Systems – Devices & Trim, Labor.
 - y. Low Voltage – Telecommunications Pathway Rough-in, Material.
 - z. Low Voltage – Telecommunications Pathway Rough-in, Labor.
 - aa. Low Voltage – Fire Alarm Rough-in & Wiring, Material.
 - bb. Low Voltage – Fire Alarm Rough-in & Wiring, Labor.
 - cc. Low Voltage – Fire Alarm Trim, Material.
 - dd. Low Voltage – Fire Alarm Trim, Labor.
 - ee. Punch List and Close Out.
 - ff. Commissioning and Training

1.07 MATERIALS

- A. Where 2 or more manufacturers are listed, select for use any of those listed. The first mentioned, in general, was used as the basis of design. Bids on any manufacturer named acceptable as long as that manufacturer meets every aspect of the Contract Documents. Note that equipment layout is based on equipment listed in equipment schedules.
- B. Where other than the first named manufacturer is selected, include cost of resulting work and redesign of associated services and structure. Include redesign drawings with Shop Drawings.
- C. Ensure that equipment will fit within available space, including manufacturer's recommended clearances and code required clearances.
- D. Should any proposed product require redesign work by A/E to accommodate proposed Product, costs for such redesign work shall be included in the Bid amount. The Owner will compensate Engineer through

the A/E at rate of \$155.00 per hour for time and expense for required review of submittals and additional coordination for redesign work. Amount of compensation will be deducted from Final Payment to the Contractor.

1.08 STANDARDS OF QUALITY

- A. Materials and Equipment: UL listed and labeled or other AHJ approved testing laboratory and in compliance with other industry standards as specified.
- B. Equipment shall be manufacturer's regularly catalogued items and shall be supplied as a complete unit in accordance with manufacturer's standard specifications and any optional items required for proper installation for equipment unless otherwise noted. Equipment and materials shall be installed in accordance with the manufacturer's recommendations and best trade practices.
- C. Products shall be new unless indicated otherwise in the Contract Documents.
- D. Fabricator and Manufacturer Qualifications: Specialists with at least 5 years experience and regularly engaged in manufacture of equipment and materials specified.
- E. Furnish products of a single manufacturer for items which are used in quantity. A Product, for the purpose of this paragraph, is an assembly of components such as switchboards, transformers, panelboards, and similar items. Materials such as wire and cable, raceways, outlet boxes, and similar items not requiring maintenance are not included in the single manufacturer requirement of this paragraph.
- F. Installer Qualifications: Specialists with at least 5 years experience and regularly engaged in the installation of the system, equipment, and materials specified. Where required by the AHJ, employ licensed trades persons.

1.09 DELIVERY, STORAGE AND HANDLING

- A. Deliver, store, and handle products in accordance with manufacturer's recommendations, using means and methods to prevent damage, deterioration, and loss, including theft.
- B. Deliver products to site in manufacturer's original containers, complete with labels.
- C. Inspect products upon delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.
- D. Store products subject to damage by weather conditions above ground, under cover in weathertight enclosure, with ventilation adequate to prevent condensation. Maintain temperature and humidity within range required by manufacturer's instructions.

1.10 SUBSTITUTIONS

- A. Comply with requirements in Division 01 with additional requirements indicated in this article.
- B. Substitutions will be considered following bid award only when a product becomes unavailable through no fault of the Contractor.
- C. Where "Manufacturer" paragraphs include the words "or approved", prior approval of the proposed substitution is required. The A/E is sole judge of quality of proposed substitution.
- D. When the A/E approves a substitution request, the approval is given with the understanding that the Bidder:
 - 1. Has investigated proposed Product and determined that it meets or exceeds the quality level of the specified Product.
 - 2. Will provide the same warranty for the Substitution as for the specified Product.
 - 3. Will coordinate installation and make changes to other Work which may be required for the Work to be complete with no additional cost to Owner.
 - 4. Waives claims for additional costs or time extension which may subsequently become apparent.
- E. Whenever a Product is described by detail, specification, trade name, manufacturer's name or catalog reference, use only such Product, unless written approval is given for substitution prior to bid. Submit written requests on substitution request form included in Division 1.
- F. Provide as specified certain products, materials, and systems where "manufacturer" paragraphs are followed by the words "no substitutions".

- G. Substitutions will not be considered when they are indicated or implied on Shop Drawings or product data submittals, without separate written prior approval, or when approval will require revision to the Contract Documents.

1.11 DRAWINGS AND SPECIFICATIONS

- A. General: The electrical Contract Drawings are diagrammatic. Complete details of building features which affect electrical installation may not be shown. For additional details, refer to other Contract Documents. Report any discrepancies to the A/E along with suggested revisions. Obtain written response from the A/E before proceeding with changes.
- B. Depiction of Work: Contract Drawings do not show the exact characteristics of the work including, physical arrangement of equipment, lengths of wiring or conduit runs. Base work on actual field measurements and conditions. Provide work required to complete the installation.
- C. Dimensions: Do not scale drawings. Dimensional accuracy is not guaranteed, and field verification of dimensions, locations, and levels to suit field conditions is required.
- D. Since the Drawings of floor, wall, and ceiling installation, are made at small scale, outlets, devices, equipment, and similar items are indicated only in their approximate location. Locate outlets and apparatus symmetrically on floors, walls, and ceilings where not dimensioned and coordinate such locations with work of other trades to prevent interferences.
- E. Discrepancies: Field verify dimensions and existing conditions prior to performing work. Bring to the A/E's attention any discrepancies within the Contract Documents and between the Contract Documents and field conditions. Also, for any design and layout changes required due to specific equipment selection, prior to the Contractor's work (equipment and material purchasing and installation). Any corrective work required by the Contractor after his discovery of such discrepancies, inconsistencies, or ambiguities shall be at no additional cost to the Owner.
- F. Specifications: These specifications are written in imperative mood and streamlined form. The imperative language is directed to the Contractor, unless specifically noted otherwise. The words "shall be" are included by inference where a colon (:) is used within sentences or phrases.

1.12 RECORD DRAWINGS

- A. Comply with requirements in Division 01, with additional requirements as indicated in this article.
- B. Prepare Record Drawings. Record Drawings shall be new blue line prints (pencil and black pen not acceptable) and shall show the measured locations of portions of the Work and changes the Contractor has made.
- C. Record corrections and changes made during the progress of the work, showing work as actually installed. In general, tolerance plus or minus 1'-0" from actual location. Indicate installed locations for underground raceways. Neatly hand-draft on daily basis. Keep readily available at project site. Use latest revisions and keep neat and clean. Do not use Contractor's working drawings.
- D. Record Drawings are subject to review by the A/E on a regular basis throughout construction. At end of construction, check drawings for completeness and accuracy.
- E. Drawings shall show addendum items, change orders, clarifications, supplemental instructions, and deviations from the Drawings.
- F. Per project closeout procedures, submit in AutoCAD format along with corrected blue line drawings. Each sheet shall be noted as "RECORD DRAWING".
- G. 3D Coordination Model: Include fully coordinated 3D model.]

1.13 COORDINATION

- A. Coordinate Division 26, 27 and 28 work with other trades.
- B. Be aware of restricted space for installation of electrical systems. Include offsets and perform rerouting and coordination to fit elements in available space. Include provisions for such requirements in bid.
- C. Electrical equipment and systems shown are based on existing drawings as available and on limited project site observations to the extent possible under current conditions. Field verify existing conditions prior to commencement of work. Obtain specific locations of structural and architectural features or

equipment items from referenced drawings, field measurements, or trade providing material or equipment.

- D. Coordinate raceway installations to clear light fixtures and electrical cable trays. Include clearance over light fixtures to allow removal and replacement. Include minimum 12-inch clearance above and to at least one side of cable trays.
- E. Existing Conditions:
 - 1. General Construction:
 - a. Installation of electrical work will require openings, removal and replacement of ceilings, sleeves, and restoration of general construction to match existing. Some work occurs in areas not requiring alterations as part of architectural work. Coordinate new openings and restoration work so that there is no additional cost to the Owner.
 - b. General construction work shown on the architectural drawings may require removal, relocation, and reinstallation of existing electrical work. Since existing conditions cannot be completely detailed on the Drawings, survey the site and perform required Work at no additional cost to the Owner.
 - 2. This project may require work in the presence of asbestos containing material (ACM). Division 26 does not provide for or cover the identification, removal, encapsulation, or disposal of such material. If the presence of ACM is suspected, notify the General contractor prior to proceeding with in the vicinity of ACM.
- F. Be responsible for beam penetrations as they relate to the electrical work. Submit sizes and locations to the structural engineer for review and determination of structural details.
- G. Coordinate attachments to structure to verify that attachment points on equipment and structure can accept seismic, weight, and other loads imposed.

1.14 WORKMANSHIP

- A. Work shall be in accordance with best trade practices. Remove substandard workmanship and provide new material at no extra cost to the Owner.

1.15 SITE VISIT

- A. The Contractor shall visit site during bidding period to note conditions affecting installation of Work. No additional charges allowed due to failure to adequately review conditions.
- B. Investigate each space through which equipment must be moved. Where necessary, arrange with equipment manufacturers to ship equipment in sections with suitable dimensions for moving through restricted spaces. For movement through occupied spaces, ascertain from the Owner as acceptable times of day or night that movement could occur. Include costs in bid for off hours labor, reassembly, and field testing.

1.16 CERTIFICATION

- A. By submitting a bid for the electrical systems, the Contractor and his subcontractors acknowledge and certify the following:
 - 1. That they have carefully examined and fully understand the Contract Drawings and Specifications (including but not limited to architectural, site, utility, mechanical, structural, and electrical drawings and specifications. In addition, they have determined that the Contract Drawings and Specifications are adequate to complete the electrical systems and that they can provide a complete finished and operable system in accordance with the Contract Documents.
 - 2. That they have had a reasonable opportunity to discover any ambiguities in the Contract Documents and such ambiguities have been brought to the attention of the A/E in writing prior to submitting the bid.
 - 3. That they have reviewed the project progress schedule with the general contractor, fully understand the schedule, and they have verified, prior to submitting a bid, availability of necessary labor and materials, including supervision and office backup, and can comply with the schedule requirements.
 - 4. That there may be changes to the scope of work and that they understand that any proposal submitted for performance of additional work shall include costs associated with such change

including but not limited to labor, materials, subcontracts, equipment, taxes, fees, schedule impact, loss of efficiency, supervision, overhead and profit.

5. That the Contract requires them to coordinate their work with that of other trades and that responsibility for coordination includes rerouting, offsets, and similar provisions, to fit Work and address manufacturer's recommended clearances for service access, maintenance, and replacement of equipment in a manner that is compatible with work of other trades in the same area.
6. That routing of elements of electrical systems shown on the Contract Drawings is schematic only and that offsets and rerouting probably will be required in installation and that labor and materials have been included for such in their bids.
7. That they have consulted with affected utilities and included in their bids labor and materials to meet requirements which may be imposed by each utility and have included in their bids costs and fees to be paid to such utilities, including temporary services and temporary and permanent connections unless specifically excluded in the Contract Documents.
8. That they understand submittals of material and equipment to the A/E is for the purpose of establishing what they are providing for the project. Any review undertaken by the A/E does not relieve them of their responsibilities to furnish and install materials and equipment required for work in the project nor does such review relieve them of their responsibilities for coordination with other trades and designers to ensure that such materials and equipment will fit and be suitable for purpose intended.
9. That they agree to receive payment for bid amounts as full compensation for furnishing materials and labor which may be required in prosecution and completion of work required under the Contract Documents, and in respects to complete the contract work to the satisfaction of the A/E.
10. That they include in their bids costs to furnish bonds as specified in the Contract Documents.

1.17 WARRANTY

- A. Conform to requirements in General Conditions, Supplementary Conditions, and Division 01.
- B. Contractor shall provide a parts and labor guarantee on all Work. Contractor's guarantee shall be for a period of one (1) year from Date of Acceptance, except where warranty coverage from a supplier or equipment manufacturer extends for a longer period of time.
- C. Warranty periods within Divisions 26, 27 and 28 shall not commence until Substantial Completion.
- D. Contractor's guarantee shall cover all costs associated with troubleshooting, repair, and replacement of defective Work, including but not limited to costs for labor, transportation, lodging, materials, and equipment.

1.18 OWNER FURNISHED CONTRACTOR INSTALLED (OFICI) EQUIPMENT

- A. Material Handling and Delivery:
 1. Coordinate delivery of FOIC equipment. Receive, off load, transport, store, hoist, unpack, dispose of packing, same as for other project equipment arriving at job site. Requirements of the Contract Documents apply to FOIC equipment.
- B. Operation and Maintenance Data:
 1. Obtain from the Owner operation and maintenance data for the FOIC equipment and incorporate them into the Operations and Maintenance Manuals.
- C. Start-up and Warranty:
 1. FOIC equipment suppliers will pass on to the Contractor start-up information, maintenance and parts information, and warranty provisions of their products in accordance with the equipment suppliers contract requirements. Organize and coordinate start-up and warranty requirements for the FOIC equipment.
 2. Include one year warranty on FOIC equipment starting at Substantial Completion regardless of shorter time limits by FOIC suppliers.

1.19 DEMONSTRATION

- A. Comply with requirements in Division 01 with additional requirements indicated in this article.

- B. Following installation of electrical work and prior to final acceptance, demonstrate that equipment and systems operate as indicated in the Contract Documents and in accordance with manufacturer's recommendations.
- C. Perform in presence of the A/E and Owner's representative, unless otherwise directed by the A/E. Give minimum 1 week notice prior to demonstrations.
- D. Provide instruments and personnel required to conduct demonstrations.

1.20 SUBSTANTIAL COMPLETION

- A. Comply with requirements in Division 01.
- B. Prepare list of items that are not complete prior to asking for a substantial completion review by the A/E.

1.21 ALTERNATES

- A. General: See Bid Form and Alternates described in Division 01 for possible effect on work of Division 26, 27 and 28.

1.22 CONTINUITY OF EXISTING UTILITY SERVICES

- A. Shutdown Duration: Comply with requirements in Division 01. Perform work without shutdown of more than 4-hour duration of existing electrical systems. Schedule each shutdown in writing with the Owner at least 14 days in advance of shutdown and obtain advance written approval from the Owner.
- B. Temporary Services: Provide during necessary interruptions of existing utilities.
- C. Owner Occupancy:
 - 1. Perform work in the existing building with respect for the necessity of the Owner's employees to perform their regular work.
 - 2. Plan installation of new work and connections to existing work to assure minimum interference with regular operation of existing facilities. Do not remove, disconnect, or shutdown systems without prior review by the Owner to confirm that areas needed to remain in operation are not affected.
 - 3. Provide temporary, wiring, lighting, and similar systems and connect to existing systems to keep existing electrical systems in operation to service areas that need to remain occupied.]

1.23 OPERATION AND MAINTENANCE MANUALS

- A. Prepare Operation and Maintenance Manuals for equipment and materials furnished under Division 26, 27 and 28.
- B. Comply with requirements in Division 01 with additional requirements indicated in this article.
- C. Submit one hard copy and one electronic PDF format of Operation and Maintenance Manuals for review at least 4 weeks prior to Substantial Completion date. Assemble Operation and Maintenance Manual in 3-ring binder(s). Use multiple binders if pages in a single binder would exceed 2-1/2 inch thickness. Separate binders for each category, such as Electrical, Telecommunications, and Electronic Safety and Security. Where one subject matter encompasses more than one binder, differentiate by volume numbers. Include indexed tabs for each binder. Engrave cover with the project title in 1/2-inch-high letters and name and address of the Contractor in 1/4-inch-high letters. Provide same information in 1/8-inch-high letters on spine.
- D. Include complete cleaning and servicing data compiled in clearly and easily understandable form. Include serial numbers of each piece of equipment, complete lists of replacement parts, motor ratings, and similar information. Each item of equipment shall have its own individual sheet.
- E. Include the Following Information:
 - 1. Identifying name and mark number.
 - 2. Certified outline drawings and Shop Drawings.
 - 3. Parts list.
 - 4. Performance curves and data.
 - 5. Wiring diagrams.
 - 6. Manufacturer's recommended operating and maintenance instructions.

7. Vendor's name, address and telephone number for all parts and equipment.
8. Name, address and telephone number of Contractor performing the work.
9. Test reports.
10. Product data and Record Drawings.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Furnish specified items acceptable to AHJ as suitable for intended use.
- B. Furnish new materials, unless otherwise indicated, free from defects and the standard products of reputable manufacturers regularly engaged in production of such equipment.
- C. Furnish materials of the same type or classification and used for the same purpose by the same manufacturer.
- D. Materials and Equipment: Shall be UL listed and labeled or other AHJ approved testing laboratory, approved by inspection authorities, and rated by the manufacturer as suitable for the intended use.
- E. Remove rejected or damaged material from site.
- F. Samples may be required for non-standard or substituted items before installation. Submit samples as required in specific specification sections.
- G. Furnish required items necessary for installation and testing procedures.

2.02 POSTED INSTRUCTIONS

- A. Posted Operating Instructions: Furnish simplified, consolidated equipment control and power diagrams. Graphically represent entire system and actual equipment installed. Include concise written instructions on how to start and stop systems. Show settings and conditions to be observed. Indicate what control adjustments are to be made or maintained by the operator.
 1. Include control diagrams and specific operating instructions.
 2. Indicate how to energize each major component of systems. Show what action must be taken in an emergency, how to restore power following an outage, and what precautions to be taken when maintenance is required.
 3. Include photographic or comparable non-fading reproductions, either framed under glass or encased in non-discoloring plastic.
 4. Include one-line diagrams of electric power distribution riser.
- B. Copies of operating instructions shall be used with Operation and Maintenance Manuals as basis in training Owner's employees in the operation and maintenance of systems and related installed equipment.

2.03 ENCLOSURES

- A. NEMA Type 1 – Dry Interior locations unless otherwise noted on drawings or as specified below.
- B. NEMA 3R Weather-proof/Rain-proof – Windblown rain, sleet, ice – Provide in all locations where exposed to moisture unless otherwise noted.
- C. NEMA 4 – Water-tight/Rain-tight – Splashing and hose directed water, windblown dust, ice.
- D. NEMA 4X – Water-tight/Rain-tight – Splashing and hose directed water, windblown dust, ice, corrosion resistant.
- E. NEMA 12 – Dust-tight/Water-tight/Drip-tight – Circulating dust, falling dirt, dripping non-corrosive liquids.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify installation conditions as satisfactory to receive work of the various sections. Do not install until unsatisfactory conditions are corrected.

3.02 INSPECTIONS

- A. Confirm that installations have been inspected before enclosure within building features, buried, or otherwise hidden from view. Pay costs associated with uncovering or exposing installations and features not previously inspected and for repair to exposed surfaces.

3.03 PREPARATION

- A. Protect surrounding areas and surfaces to prevent damage as work is installed.
- B. Obtain equipment roughing-in dimensions from approved Shop Drawings or actual measurements.
- C. Be familiar with the location of other trade's equipment. Eliminate conflicts. Check door swings before installing switches. Locate switches on strike side of doors unless noted otherwise.
- D. Layout electrical, telecommunications, and electronic safety and security work in advance of construction to eliminate unnecessary cutting, drilling, channeling, and similar activities. Where such cutting, drilling, channeling, and similar activities become necessary for proper installation, perform with care using skilled mechanics of trades involved. Repair damage to building and equipment at no additional cost to the Owner.
- E. Provide all openings required for the electrical, telecommunications, and electronic safety and security work.
- F. Perform cutting work of other trades only with consent of that trade. Cutting structural members not permitted without consent of the A/E.

3.04 INSTALLATION

- A. Install Work as specified and in accordance with the Contract Drawings and manufacturer's instructions. Where these conflict, manufacturer's instructions govern.
- B. Review Architectural, Mechanical, and other applicable drawings and applicable Shop Drawings to prevent switches, outlets, and other equipment from being hidden behind doors, cabinets, counters, heating equipment, and similar items, or from being located in whiteboards, tackboards, glass panels, and similar items. Relocate electrical devices and connections as directed by the A/E at no additional cost to the Owner if the work is not properly coordinated.
- C. Where conduit, outlets, and apparatus are encased in concrete, locate and secure at point of installation. Check locations of electrical items before and after concrete and masonry installation and relocate displaced items.
- D. Provide block-outs, sleeves, demolition work, and similar items required for installation of Work specified in this division.

3.05 WORKMANSHIP

- A. Work and materials will be subject to observation at any time by the Owner and the A/E.
- B. Install equipment and material in a neat and workmanlike manner and align, level, and adjust for satisfactory operation. Install equipment so that all parts are easily accessible for inspection, operation, maintenance, and repair. Install material and equipment in accordance with manufacturer's instructions. Provide calibrated torque wrenches and screwdrivers as required.
- C. Cutting and Patching: Do not weld to, cut, or notch structural members or building surfaces without approval of the A/E. Restore surfaces neatly to original condition after cutting, channeling, chasing, and drilling of walls, partitions, ceilings, paving, and anchorage of conduit, raceways, and other electrical equipment.

3.06 WELDING, CUTTING, AND DRILLING

- A. Perform in accordance with American Welding Society Standards.

3.07 CLEANING

- A. Clean equipment, conduit, and fittings and remove packing cartons and other debris created by Division 26, 27 and 28 Work.
- B. Before Substantial Completion, carefully clean equipment, fixtures, exposed raceways, and similar items. Remove construction labels, dirt, cuttings, paint, plaster, mortar, concrete, and similar items. Clean fixtures, interiors and exteriors of equipment and raceways.

- C. The premises must be kept free of accumulated materials, rubbish, and debris at all times. Surplus material and equipment must not be stored at the job site.

3.08 IDENTIFICATION

- A. Provide nameplates and decals required to identify equipment and components, comply with requirements in Section 260553.
- B. Mount operating instructions and diagrams near equipment or elsewhere as otherwise designated by the Owner.

3.09 REMOVAL AND REPLACEMENT OF EXISTING ACCESSIBLE CEILING PANELS

- A. Remove and reinstall necessary panels in existing accessible ceilings to install Division 26, 27 and 28 Work in areas where no architectural work is being performed. Where existing ceiling panels are damaged, replace with new to match existing. After ceiling removal and reinstallation is complete, ceiling system appearance shall match adjacent similar ceilings that have not been removed.]

3.10 PROTECTION

- A. Protect equipment during and after electrical hookup, painting, and final testing.

3.11 PUNCHLIST AND FINAL REVIEWS

- A. At the time of punchlist and final reviews, the project electrical foreman shall accompany the reviewing party, and remove coverplates, panel covers, and other access panels as requested to allow review of entire electrical system.

3.12 PROJECT CLOSEOUT

- A. Engineering services required beyond the final completion date shall be paid by the Contractor at a rate of \$150 per hour.
- B. Punchlists will be done at Substantial Completion and final completion dates. Submit Record Drawings and final Operation and Maintenance Manuals prior to Substantial Completion date. Subsequent reviews shall be paid by the Contractor at a rate of \$145 per hour.

END OF SECTION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions, Division 01 and Section 260500 apply to Work in this section.

1.02 SUMMARY

- A. Work includes final electrical connection to equipment having electrical requirements. Contractor shall make final connections for Owner furnished equipment including switches, receptacles, and similar items. See other applicable specification sections for building temperature control wiring requirements specified in Divisions 22, and 23.
- B. Connection to Equipment Specified in Divisions 22, and 23 as Follows unless Specified Otherwise in Divisions 22, and 23:
 - 1. For motorized only equipment with built-in controllers (packaged equipment), Connect power and provide an external disconnect mounted independently at equipment. Division 23 will provide control wiring.
 - 2. For motorized only equipment with external controller (non-packaged equipment), provide external motor controller, disconnect switch, and make power wiring complete to equipment. Division 23 will provide control wiring.
 - 3. For electric duct heaters with built-in controllers (packaged type equipment), connect power complete and provide external disconnect switch at equipment. Division 23 will provide control wiring.
 - 4. For electric duct heaters with remote controllers (non-packaged type equipment), provide external controller, disconnect switch, and make power wiring to equipment. Division 23 will provide control wiring.
 - 5. For combination motorized and electric heating packaged units specified with built in controllers and specified with "single point electrical connection" under Division 23, connect power and provide external disconnect switch. Division 23 will provide control wiring.
 - 6. For equipment requiring a full voltage non-reversing starter, include as a combination disconnect unit.
 - 7. Provide a fused disconnect switch at all equipment whose nameplate indicates "Maximum Fuse Size".
- C. Refer to Division 23 sections for control system wiring.
- D. Refer to sections of other divisions for specific individual equipment power requirements.
- E. Make final connection to kitchen equipment.

1.03 QUALITY ASSURANCE

- A. Comply with applicable city, county, and state codes and ordinances.
- B. NEC Compliance: Comply with applicable portions of NEC as to type of products used and installation of electrical power connections.
- C. Comply with applicable NEMA standards and refer to NEMA standards for definitions of terminology herein. Comply with NEC for workmanship and installation requirements and to applicable Division 26 sections.
- D. UL Labels: Provide electrical connection products and materials which have been UL listed and labeled.

PART 2 - PRODUCTS

2.01 ELECTRICAL CONNECTIONS MATERIALS

- A. For each electrical connection indicated, include complete assembly of materials, including but not limited to, raceways, conductors, cords, cord caps, wiring devices, pressure connectors, terminals (lugs), electrical insulating tape, heat-shrinkable insulating tubing, cable ties, solderless wire nuts, and other items and accessories to complete splices, terminations, and connections.

- B. Comply with requirements in Section 260519 for wires and cables, Section 260533 for raceway systems, and Section 262726 for wiring devices.
- C. Include Final Connections for Equipment Consistent with the Following:
 - 1. Permanently Installed Fixed Equipment: Flexible sealite conduit from branch circuit terminal equipment, and raceway to equipment, control cabinet, terminal junction box, and wiring terminals. Totally enclose wiring in raceway.
 - 2. Movable and/or Portable Equipment: Wiring device, cord cap, and multi-conductor cord suitable for equipment and in accordance with NEC requirements.
 - 3. Other methods as required by NEC and as required by special equipment and field conditions.

PART 3 - EXECUTION

3.01 INSTALLATION OF ELECTRICAL CONNECTIONS

- A. Make electrical connections in accordance with connector manufacturer's written instructions and with recognized industry practices and complying with requirements of NEC and NECA's "Standard of Installation" to ensure that products fulfill requirements.
- B. Connect electrical power supply conductors to equipment conductors in accordance with equipment manufacturer's written instructions and wiring diagrams.
- C. Coordinate installation of electrical connections for equipment with installed equipment.
- D. Verify electrical loads (voltage, phase, full load amperes, number and point of connections, minimum circuit ampacity, and similar characteristics) for equipment furnished under other divisions, by reviewing respective Shop Drawings furnished under each division. Meet with each subcontractor furnishing equipment requiring electrical service and review equipment electrical characteristics. Report variances from electrical characteristics noted on electrical drawings to the A/E before proceeding with rough work.
- E. Obtain and review equipment submittals and shop drawings to determine particular final connection requirements before rough-in begins for each equipment item.
- F. Comply with requirements in Section 240553 for identification of electrical power supply conductor terminations.

3.02 STARTERS (CONTROLLERS)

- A. Install non-packaged starters and wiring devices near motors or as indicated on the Contract Drawings. Securely support and anchor in accordance with manufacturer's installation instructions. Locate for proper operational access, including visibility for safety.

3.03 PROVISIONS FOR MECHANICAL CONTROLS

- A. Provide 120 Volt, 20 Amp circuit at locations required and described in Section 230900. Coordinate exact locations prior to installation.
- B. Install power metering equipment at panelboards and switchboards furnished by control system subcontractor at locations required and described in Section 230900.

3.04 EQUIPMENT SHORT CIRCUIT CURRENT RATING

- A. All mechanical equipment, packaged systems, control panels, motor starters, motor controllers, variable frequency drives and similar equipment shall carry a Short Circuit Current Rating (SCCR) equal to or greater than the available fault current delivered from the electrical system. Coordinate final available fault currents with the contractors providing this equipment.

3.05 MECHANICAL - ELECTRICAL INTERFACE SCHEDULE

- A. See Mechanical - Electrical Interface Schedule at Specification Section 230513, paragraph 3.6. Comply with all requirements referenced as Division 26.

END OF SECTION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions, Division 01, and Section 260500 apply to Work in this section.

1.02 SUMMARY

- A. Work includes phased demolition of existing electrical work as indicated in the Contract Documents.

1.03 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with applicable city, county and state codes and ordinances.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

3.01 EXISTING CONDITIONS

- A. Dust Control: Provide protective measures to minimize transfer of noise, dust, dirt, and refuse to adjacent areas of building. Such measure may include dust tight barriers, temporary walls, portable exhaust fans, vacuum systems, and temporary partitioning.
- B. Extent: Keep areas of demolition as clean and orderly as physically possible. Do not allow demolition debris to accumulate. Gather debris and dispose daily. Broom or vacuum-clean work areas on daily basis.
- C. Protection: Protect existing equipment, furnishing, and systems with protective coverings. Protect finished surfaces including floors, ceilings, and walls.

3.02 DAMAGES

- A. Repairs: Promptly repair damage to existing surfaces, equipment, finishes, or adjacent facilities at no cost to the Owner and to the satisfaction of the A/E and the Owner.

3.03 DEMOLITION

- A. General: Provide demolition work required in existing building for removal of existing electrical equipment, raceways, and conductors and for installation of new electrical equipment, raceways, and conductors. Relocate and modify existing electrical equipment, raceways and conductors as required by general construction alterations and by installation of new electrical equipment, raceways, and conductors in existing building to achieve a complete and functioning installation as defined in the Contract Documents.
- B. Extent: Remove and dispose of existing materials indicated in the Contract Documents to be removed.
- C. Reuse: Do not reuse existing products unless indicated on the Drawings.
- D. Materials to Owner: Deliver items to the Owner's Representative as indicated in the Contract Documents.
- E. Materials to Contractor: Materials other than those reserved by the Owner.
- F. Existing Conditions: Comply with requirements in Division 01. Verify specific demolition work and operating conditions to be encountered from on-site review and coordination with the Owner. Maintain service to existing equipment and devices during new construction work as required by construction sequencing/scheduling provisions. In areas adjacent to new construction work, provide temporary services as necessary to meet these conditions. Protect active conductors encountered. Notify the A/E of utilities encountered whose services are not known.
- G. Repair of Damages to Underground Utilities: Exact location of existing underground utilities is not definitely known. Should any underground utilities be damaged in excavations, restore such utilities without additional cost to the Owner.

3.04 DISPOSAL OF DEMOLISHED MATERIALS

- A. Disposal: Remove debris, rubbish, and other materials resulting from demolition operations from building site unless reinstalled or delivered to the Owner as indicated in the Contract Documents. Transport and legally dispose of material off site.
- B. Burning: Burning of removed materials is not permitted on project site.

3.05 CLEAN-UP AND REPAIR

- A. Clean-Up: Upon completion of demolition work, remove tools, equipment and demolished materials from site. Remove protection and leave interior areas clean.
- B. Repair: Repair demolition performed in excess of that required at no additional cost to Owner. Return structures and surfaces to conditions existing prior to commencement of demolition work or as directed by the Owner.

END OF SECTION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 and Section 260500 apply to Work in this section.

1.02 SUMMARY

- A. Work includes wire, cable, splices, and terminations for systems 600 Volts and less and associated appurtenances.
- B. The word "Cable" in this section relates to wire only. It does not infer Metal Clad Cable. See Specification 26 0521 METAL CLAD CABLES for information on this wiring method, if approved for use on this project.
- C. If no Specification 26 0521 METAL CLAD CABLES is included in project specification, no MC cable is permitted.

1.03 SUBMITTALS

- A. Provide submittals in accordance with Division 01 and Section 260500.
- B. Submittal for this section shall be complete with all required information. Partial product submittals are not acceptable and will be returned unreviewed.
- C. Submittal shall be arranged under categories such as manufacturer warranty, products, and similar items. Include index with the submittals.
- D. Pre-construction Submittal:
 - 1. Product Data:
 - a. Organize by specification infrastructure components described in Part 2 of this section.
 - b. Submit Product Data information sheets for coordination with item and model number.
 - c. Where more than one product is shown on a page, mark product with arrow or by other means to identify exact product or products being submitted by specific part number.
- E. Test Report Submittal:
 - 1. Field test reports.
 - 2. Submit completed copy of reports and include copy in the Operation and Maintenance Manual.
- F. Closeout Submittal:
 - 1. Submit closeout documentation to the Owner's Representative and Architect under provisions of Division 01, Section 260500 and this section.
 - 2. Provide all project closeout documentation including but not limited to: test documentation, material transmittals, product data, manufacturer warranty and Operation and Maintenance Manuals.

1.04 QUALITY ASSURANCE

- A. Comply with applicable city, county and state codes and ordinances.
- B. Products shall be new unless indicated otherwise in the Contract Documents.
- C. Codes and Standards:
 - 1. NFPA 70, National Electrical Code (NEC).
 - 2. UL 83, Thermoplastic-Insulated Wires and Cables.
- D. Comply with NEC as applicable to construction and installation of electrical wire and cable. Electrical wire and cable UL listed and labeled.
- E. Comply with applicable portions of NEMA/Insulated Cable Engineers Association standards pertaining to materials, construction and testing of wire and cable.
- F. Comply with applicable portions of ANSI/ASTM and IEEE standards pertaining to construction of wire and cable.

PART 2 - PRODUCTS

2.01 POWER AND LIGHTING CIRCUITS

- A. Factory-fabricated conductors of sizes, ratings, materials and types indicated on the Contract Drawings for each service. Where not indicated, select to comply with project's installation requirements and NEC standards. Comply with the following:
 - 1. UL 83.
 - 2. Copper Conductor. No. 12 AWG and smaller AWG cable to be solid. Wire and cable larger than No. 10 AWG stranded.
 - 3. Insulation type THHN/ THWN dual rated, 600 Volt for circuits from 115 to 600 Volts.
 - 4. Use only 90° C insulated conductors based on 75° C ampacity tables of the NEC.
- B. Aluminum Conductors: Used at Contractor's option (except for ground cable) subject to the following requirements:
 - 1. Increased size for same current capacity (increased raceway size may be necessary).
 - 2. No aluminum conductors smaller than No. 2 AWG.
 - 3. Insulation requirements same as for copper wire and cable.
 - 4. Where aluminum conductors are used, compact stranded. Aluminum Association 8000-Series alloy conductor material. Alcan Cable Stabiloy or Southwire Triple E. No substitutions.

2.02 REMOTE CONTROL AND SIGNAL CIRCUITS

- A. Class 1:
 - 1. UL 83.
 - 2. Stranded copper conductor.
 - 3. Insulation type THHN, or THWN, 600 Volt for circuits from 115 to 600 Volts.
- B. Class 2 and 3:
 - 1. Copper conductor, 300 Volt insulation, rated 75° C in dry locations and 60° C in wet locations. Individual conductors twisted together and covered with non-metallic jacket unless otherwise noted on the Contract Drawings.
 - 2. UL listed for use in air handling ducts and hollow spaces used as ducts and plenums.

2.03 PLASTIC CABLE TIES

- A. Teflon or nylon, locking type.

PART 3 - EXECUTION

3.01 INSPECTION

- A. General: Verify installation conditions as satisfactory to receive work of this section. Do not install until unsatisfactory conditions are corrected. Beginning work constitutes acceptance of conditions as satisfactory.

3.02 PREPARATION

- A. Field Measurements: Field verify locations of new and existing work prior to commencing work of this section.
- B. Protection: Protect surrounding areas and surfaces to preclude damage from work of this section.

3.03 INSTALLATION, APPLICATION, ERECTION, AND PERFORMANCE

- A. General: Install, apply, erect, and perform the work in accordance with Article "Quality Assurance" provisions, specifications, and manufacturer's installation instructions and directions. Where these may be in conflict, the more stringent requirements govern.

3.04 WIRING AND CABLE INSTALLATION, GENERAL

- A. Install electric conductors and cables as indicated on the Contract Drawings, in compliance with manufacturer's written instructions, applicable requirements of NEC and NECA's "Standards of Installation," and in accordance with recognized industry practices.
- B. Coordinate installation work with electrical raceway and equipment installation work for proper interface.
- C. Pull cables by direct attachment to conductors or by use of basket weave pulling grip applied over cables. Attachment to pulling device made through approved swivel connection. Non-metallic jacketed cables of small size may be pulled directly by conductors by forming them into a loop to which pull wire can be attached. Remove insulation from conductors before forming loop. Larger sizes of cable may be pulled by using basket weave pulling grip, if pulling force does not exceed limits recommended by manufacturer. If pulling more than one cable, bind them together with friction tape before applying grip. For long pulls requiring heavy pulling force, use pulling eyes attached to conductors.
- D. Do not exceed manufacturer's recommendations for maximum allowable pulling tension, side wall pressure, and minimum allowable bending radius. In all cases, pulling tension applied to conductors limited to 0.008 lbs. per circular mil of conductor cross-section area.
- E. Pull in cable from end having the sharpest bend (bend closest to reel). Keep pulling tension to minimum by liberal use of lubricant, turning of reel, and slack feeding of cable into duct entrance. Employ not less than one man at reel and one in maintenance hole or vault during this operation.
- F. For training of cables, minimum bend radius to inner surface of cable shall be 12 times cable diameter.
- G. Where cable is pulled under tension over sheaves, conduit bends, or other curved surfaces, make minimum bend radius 50 percent greater than specified above for training.
- H. Apply wire and cable pulling compound recommended by specific cable manufacturer.
- I. Seal cable ends unless splicing is done immediately.
- J. Support cables in maintenance hole or vault, concrete trenches, and similar locations by cable racks. Secure to rack insulators with nylon cord or self-locking nylon cable ties. Place each cable on separate insulator.
- K. Follow manufacturer's instructions for splicing and cable terminations.
- L. Provide separate neutral conductor for each circuit serving single phase loads, unless indicated otherwise on the Contract Drawings. Where shared neutrals are indicated for multi-wire branch circuits, provide circuit breaker handle ties per Section 262813.]
- M. Branch circuit wiring shall be grouped in separate raceways as indicated on the Contract Drawings. Where branch circuit raceways are not indicated on Contract Drawings, a maximum of three circuits may be installed in the same raceway if each circuit originates from the same panelboard.]

3.05 WIRING METHODS, GENERAL

- A. Install wiring in raceways unless shown on the Contract Drawings or authorized by the A/E.
- B. Install Wire After:
 - 1. Interior of building is protected from weather.
 - 2. Mechanical work likely to injure conductors is completed.
 - 3. Conduits have been cleaned and moisture removed.
- C. Neatly train and lace wiring inside boxes, equipment, and panel boards.
- D. Clean raceway system before installing conductors.
- E. Use half-lapped synthetic tape if taping is utilized for insulation purposes.
- F. Provide conductor support devices as required by NEC in vertical conduit runs.
- G. Torque conductor connections and terminations to manufacturer's recommended values.
- H. Maintain minimum 12-inch clearance between open cabling and heat sources such as flues, steam pipes, and heating appliances.

3.06 MINIMUM SIZES

- A. Minimum No. 12 AWG for power and lighting circuits.
- B. Minimum No. 14 AWG for control wiring.

3.07 CABLE INSTALLATION

- A. Support cable with bridle rings, drive rings, or Teflon cable ties. Support from conduit not acceptable.
- B. Protect exposed cables where subject to damage.
- C. Support cables above accessible ceilings. Do not rest on ceiling tiles.
- D. Use suitable cable fitting and connectors.

3.08 WIRING SPLICES AND TERMINATIONS

- A. Splice only in accessible junction boxes.
- B. Use compression-set pressure connectors with insulating covers or screw-on pressure (wire nuts) for wire splices and taps sizes No. 10 AWG and smaller.
- C. Use compression-set pressure connectors with insulating covers for wire splices and taps sizes No. 8 AWG and larger. Split bolt splices and connectors not acceptable.
- D. Except where equipment is furnished with bolted or screw type lug, use compression set pressure connectors with insulating covers for wire terminations.
- E. Terminations: Eye-type compression lug when termination is to a bolt or screw terminal.
 - 1. 250 kcmil and larger, two-hole long barrel compression lugs.
 - 2. Smaller than 250 kcmil: Single-hole compression lug.
- F. Tape un-insulated portions of conductor and connectors with electrical tape to 150 percent of conductor insulation value.
- G. Clean wires before installing lugs and connectors.
- H. Make splices, taps, and terminations to carry full capacity of conductors without perceptible temperature rise.
- I. Leave minimum 8 inches of pigtail at outlet boxes for connection to fixtures and devices. Where wiring is continued to other outlets, splice connection wire in a tap. In no case will continuity through double terminal of device be allowed for either hot or neutral leg of circuit.
- J. Insulate ends of spare conductors with electrical tape or wire nut.
- K. Terminate control circuit conductors at terminal blocks only.
- L. Utilize eye or forked tongue type compression set terminator for conductors No. 12 AWG and smaller when termination is to a bolted or screw set type terminal block or terminal cabinet.
- M. Make below grade splices in manholes watertight with epoxy resin type splicing kits similar to Scotchcast.

3.09 ALUMINUM CONDUCTORS

- A. Aluminum Conductors: Terminate or splice using compressing type oxide inhibiting compound filled aluminum lugs only. Terminate or splice with bolted pressure fittings not acceptable. Where device is available with bolted lugs only, special type compression set aluminum lug with aluminum or copper "Finger" manufactured for this purpose may be used.
- B. Compression Fittings: Sized for conductor used and set with tool which ensures preset deformation before release.
- C. Plated Aluminum Lugs: Install where in contact with copper studs, bolts, or bus.
- D. Bolted Aluminum Lugs: Install with Belleville washer under nuts unless permitted otherwise by the A/E.]

3.10 FIELD QUALITY CONTROL

- A. Test for Cables 600 Volts and Less: Comply with requirements in Section 260810.

1. After installation and prior to energization, test cable and wire for continuity of circuitry and for short circuits. Megger circuits of 100 Amp and greater rating. Correct malfunctions. Submit record of megohmmeter readings to A/E.
2. Subsequent to wire and cable connections, energize circuitry and demonstrate functioning in accordance with requirements of the Contract Documents.
3. Inspect wire and cable for physical damage and proper connection.

END OF SECTION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 and Section 260500 apply to Work in this section.

1.02 SUMMARY

- A. Work includes metal clad (MC) cable for systems 600 Volts and less and associated appurtenances.

1.03 SUBMITTALS

- A. Provide submittals in accordance with Division 01 and Section 260500.
- B. Submittal for this section shall be complete with all required information. Partial product submittals are not acceptable and will be returned unreviewed.
- C. Submittal shall be arranged under categories such as manufacturer warranty, products, and similar items. Include index with the submittals.
- D. Pre-construction Submittal:
 - 1. Product Data:
 - a. Organize by specification infrastructure components described in Part 2 of this section.
 - b. Submit Product Data information sheets and manufacturer's installation instructions for coordination with item and model number.
 - c. Where more than one product is shown on a page, mark product with arrow or by other means to identify exact product or products being submitted by specific part number.
 - 2. Shop Drawings:
 - a. Drawings shall provide details of proposed system and the equipment and work to be provided.
 - b. Connections to other equipment/ systems not specified herein.
- E. Test Reports:
 - 1. Field test reports
 - 2. UL test report for MC cable.
 - 3. Submit completed copy of reports and include copy in the Operation and Maintenance Manual.
- F. Closeout Submittal:
 - 1. Submit closeout documentation to the Owner's Representative and Architect under provisions of Division 01, Section 260500 and this section.
 - 2. Provide all project closeout documentation including but not limited to; test documentation, material transmittals, product data, manufacturer warranty and Operation and Maintenance Manuals.

1.04 QUALITY ASSURANCE

- A. Comply with applicable city, county, and state codes and ordinances.
- B. Products shall be new unless indicated otherwise in the Contract Documents.
- C. Codes and Standards:
 - 1. ASTM B 3, Standard Specification for Soft or Annealed Copper Wire.
 - 2. ASTM B 8, Standard Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft.
 - 3. NFPA 70, National Electrical Code (NEC).
 - 4. UL 1569, Standard for Metal-Clad Cable.
 - 5. UL 1581, Reference Standard for Electrical Wires, Cables, and Flexible Cords.
 - 6. UL 83, Thermoplastic - Insulated Wires and Cables.
 - 7. UL 1479, Standard for Fire Tests of Through-Penetration Firestops.

- D. Comply with NEC as applicable to construction and installation of MC cable. Cable UL listed and labeled.
- E. Comply with applicable portions of NEMA/Insulated Cable Engineers Association Standards pertaining to materials, construction and testing of wire and cable.
- F. Comply with applicable portions of ANSI/ASTM and IEEE Standards pertaining to construction of wire and cable.
- G. Comply with UL 1569 for metal clad cable. Include UL label and manufacturer's "E" number.

PART 2 - PRODUCTS

2.01 METAL CLAD CABLES

- A. Manufacturers:
 - 1. AFC Cable Systems, Inc.
 - 2. Alflex
 - 3. Interflex
- B. Conductors: Copper, THHN insulation, polypropylene, or polyester assembly tape in galvanized steel armor. Conductors shall be stranded, all sizes.
- C. Electrical and Physical Properties of Copper Conductors: Conform with applicable standards referenced above. Soft-annealed copper in compliance with ASTM B 3 or ASTM B 8.
- D. Polyvinylchloride/Nylon (Polyamide Polymer), Type THHN Insulation/Jacket: Heat, flame, moisture resistant dielectric layer manufactured and tested in compliance with UL 83.
- E. Insulated grounding conductors sized in accordance with UL 1569, cabled with circuit conductors and identified in compliance with UL 1569.
- F. Circuit and grounding conductors cabled (twisted) with lay length and covered with polypropylene or polyester assembly tape.
- G. Apply blue galvanized steel armor over cabled wire assembly with interlock in compliance with UL 1569. Armor color determined by conductors used inside armor by MC manufacture color system.
- H. Furnish only UL listed and labeled MC connectors manufactured for MC cable. "Romex" and "BX" connectors not acceptable.

PART 3 - EXECUTION

3.01 INSPECTION

- A. General: Verify installation conditions as satisfactory to receive work of this section. Do not install until unsatisfactory conditions are corrected. Beginning work constitutes acceptance of conditions as satisfactory.

3.02 PREPARATION

- A. Field Measurements: Field verify locations of new and existing work prior to commencing work of this section.
- B. Protection: Protect surrounding areas and surfaces to preclude damage from work of this section. Protect exposed cable from damage. Remove cable which proves to have faulty wiring and provide new. Abandoning existing and pulling new not acceptable. Repair, repull, and restrap MC cable determined by the A/E to be poor installation.

3.03 INSTALLATION, APPLICATION, ERECTION, AND PERFORMANCE

- A. General: Install, apply, erect, and perform the work in accordance with Article "Quality Assurance" provisions, specifications, and manufacturer's installation instructions and directions. Where these may be in conflict, the more stringent requirements govern.
- B. Metal clad cable may only be used for fixture whips and for branch circuit wiring where concealed in walls between devices in finished spaces of 300 SF or less and shall extend no more than 6' to the first j-box in an accessible ceiling. Metal clad cables may not be used for branch circuit homeruns, feeders, or

services; may not be used in mechanical ducts or fabricated air plenums; may not be used in concrete or below concrete slabs on grade.

3.04 METAL CLAD CABLE INSTALLATION

- A. Install metal clad cables as indicated on the Drawings, in compliance with manufacturer's written instructions, applicable requirements of NEC and NECA's "Standards of Installation", and in accordance with recognized industry practices.
- B. Coordinate installation work with equipment installation work for proper interface.
- C. Install MC Cable After:
 - 1. Interior of building is protected from weather.
 - 2. Mechanical work likely to injure conductors is completed.
- D. Install No. 10 AWG conductors for 20 Amp 120 Volt branch circuits longer than 75 feet.
- E. Install No. 12 AWG minimum for power and lighting circuits.
- F. Splice only in accessible junction boxes.
- G. Verify continuity of each branch circuit conductor.
- H. Tape un-insulated portions of conductor and connectors with electrical tape to 150 percent of conductor insulation value.
- I. Include green wire ground. Jacket shall not serve as grounding means.
- J. Cut cable using equipment exclusively designed for such use. Thomas & Betts or approved. Knives, hacksaws, bending to break, dikes, pliers, wire cutters, or other similar methods not acceptable.
- K. Insulate ends of spare conductors with electrical tape or wire nut.
- L. Label cable as it enters panel, at junction boxes where homerun cables become branch cable, and at branch terminations using permanent cable markers. Tyton, Burndy, or approved.

3.05 FIELD QUALITY CONTROL

- A. Comply with requirements in Section 260800. In addition, test completed cable in accordance with applicable sections of UL 1569. Include copy of field test report in the Operation and Maintenance Manual.

END OF SECTION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 and Section 260500 apply to Work in this section.

1.02 SUMMARY

- A. Work includes grounding requirements for underground metal water piping, gas piping, grounding electrodes, rods, and associated appurtenances.

1.03 SUBMITTALS

- A. Provide submittals in accordance with Division 01 and Section 260500.
- B. Submittal for this section shall be complete with all required information. Partial product submittals are not acceptable and will be returned unreviewed.
- C. Submittal shall be arranged under categories such as manufacturer warranty, products, and similar items. Include index with the submittals.
- D. Pre-construction Submittal:
 - 1. Product Data:
 - a. Organize by specification infrastructure components described in Part 2 of this section.
 - b. Submit Product Data information sheets for coordination with item and model number.
 - c. Where more than one product is shown on a page, mark product with arrow or by other means to identify exact product or products being submitted by specific part number.
 - 2. Shop Drawings:
 - a. Drawing shall provide layout of ground ring, location of system grounding electrode connections, and routing of grounding electrode conductor.
- E. Test Report Submittal:
 - 1. Field test reports.
 - 2. Submit completed copy of reports and include copy in the Operation and Maintenance Manual.
- F. Record Drawing Submittal:
 - 1. Record drawings set shall indicate where material, equipment, and system component are installed differently than indicated on the Contract Drawings, clearly and neatly using red ink or indelible red pencil during construction.
 - 2. Prepare electronic set of Record Drawings, incorporating changes during construction.
 - 3. Submit Record Drawings to the Owner's Representative for review and acceptance.
 - 4. Submit Record Drawings saved as AutoCAD version 2018 (.dwg) format and in PDF format. The contractor shall request final architectural AutoCAD background drawing files that incorporate all project floor plan modifications and numbering of spaces.
 - a. AutoCAD drawings shall utilize the e-transmit capability to include all drawing backgrounds, title block and other associated files.
 - 5. Submit electronic copy of Record Drawings in full-size PDF and AutoCAD format, on CD-ROM or USB thumb drive where requested by the Owner's Representative.
- G. Closeout Submittal:
 - 1. Submit closeout documentation to the Owner's Representative and Architect or Engineer under provisions of Division 01, Section 260500 and this section.
 - 2. Provide all project closeout documentation including but not limited to; test documentation, material transmittals, Record Drawings, product data, manufacturer warranty and Operation and Maintenance Manuals.

1.04 QUALITY ASSURANCE

- A. Comply with applicable city, county, and state codes and ordinances.

- B. Codes and Standards:
 - 1. IEEE C2, National Electrical Safety Code (NESC).
 - 2. IEEE 81, Guide for Measuring Earth Resistivity, Ground Impedance and Earth Surface Potentials of a Ground System Part 2: Normal Measurements.
 - 3. NFPA 70, National Electrical Code (NEC).
 - 4. NFPA 780, Standard for the Installation of Lightning Protection Systems
 - 5. UL 467, Standard for Grounding and Bonding Equipment.
 - 6. UL486A-486B, Wire Connectors
 - 7. ANSI C119.4, Electric connectors - connectors to use between Aluminum-to-aluminum or aluminum-to-copper conductors.
- C. Comply with NEC and IEEE requirements as applicable to electrical grounding and ground fault protection systems.
- D. Products shall be Underwriters Laboratories, Inc., listed and labeled.
- E. Products shall be new unless indicated otherwise in the Contract Documents.
- F. Testing Agency Qualifications:
 - 1. Testing agency as defined by OSHA in 29 CFR 1910.7 or a member company of the International Electrical Testing Association and that is acceptable to the AHJ.
 - 2. Ground system resistance tests performed by an independent testing agency.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Ground Rods: Sectional copper clad steel, conical points, threaded joints or couplings, 3/4-inch diameter by 10 foot long sections. Ground rods minimum 20 feet long (2 sections) at each location. Copper-Weld or approved.
- B. Ground Conductors: Soft drawn bare copper.
- C. Ground Conductor in Non-Metallic Conduits: Bare, stranded, annealed, copper.
- D. Ground Connections:
 - 1. Conductor to Conductors, Conductor to Steel, and Conductor to Ground Rod: Exothermic-welded type connectors. Cadweld, Thermoweld, or approved.
 - 2. Conductor to Water Service, Conductor to Bars, and Conductor to Grounding Lugs of Electrical Equipment: UL listed grounding terminal compression set on grounding conductor.
 - 3. When making bolted connection to aluminum and galvanized structures, apply corrosion-inhibitor to contact surfaces between cable, connector, and surface of structure. Penetrox A or approved.

PART 3 - EXECUTION

3.01 INSPECTION

- A. General: Verify installation conditions as satisfactory to receive work of this section. Do not install until unsatisfactory conditions are corrected. Beginning work constitutes acceptance of conditions as satisfactory.

3.02 PREPARATION

- A. Field Measurements: Field verify locations of new and existing work prior to commencing work of this section.
- B. Protection: Protect surrounding areas and surfaces to preclude damage from work of this section.
- C. Preparation of Surfaces: Clean contacting surfaces of ground connections to bright metal before connecting.

3.03 INSTALLATION, APPLICATION, ERECTION, AND PERFORMANCE

- A. General: Install, apply, erect, and perform the work in accordance with Article "Quality Assurance" provisions, specifications, and manufacturer's installation instructions and directions. Where these may be in conflict, the more stringent requirements govern.

3.04 GROUNDING INSTALLATION

- A. Ground each separately derived system neutral to nearest building steel.
- B. Bond together system neutrals, service equipment enclosures, exposed noncurrent carrying metal parts of electrical equipment, metal raceway systems, grounding conductor in raceways and cables, receptacle ground connectors, underground metal water piping systems, and gas piping systems.
- C. Install separate, insulated equipment grounding conductor in all feeders and branch circuits. Terminate each end on grounding lug, bus, and bushing and to intermediate metallic enclosures.
- D. Connect grounding conductors to motors in accordance with NEC. Remove paint, dirt, and other surface coverings at grounding conductor connection points so that good metal-to-metal contact is made.
- E. Ground shields of shielded power and control cable at each splice and termination as recommended by manufacturer.
- F. Ground metal sheathing and exposed vertical metal structural elements of building. Ground metal fences enclosing electrical equipment. Bond metal equipment platforms which support electrical equipment to equipment ground. Provide electrical contact between metal frames and railings supporting pushbutton stations, receptacles, instrument cabinets, raceways, and similar items carrying circuits to these devices.
- G. Grounding Connections:
 - 1. Provide full weld between coupling and ground rod at joint.
 - 2. Connect grounding conductors to ground rods at upper end of rod with end of rod and connection point below finished grade.
 - 3. When making Thermite welds, wire brush or file point of contact to bare metal surface. Use Thermite welding cartridges and molds in accordance with manufacturer's recommendations. After welds have been made and cooled, brush slag from the weld area and clean joint. Use connectors of specified size for conductors and ground rods. Notify A/E before backfilling ground connections.
 - 4. Where conditions are not suitable for exothermic welding, provide permanent, non-reversing mechanical connections.
- H. System ground not to exceed maximum 5 ohms meggered resistance.
- I. Size main grounding system per NEC. Provide conduit to protect ground wire from damage to an area 6 feet above floor.
- J. Install ground conductor in all non-metallic conduits.

3.05 FIELD QUALITY CONTROL

- A. Comply with requirements in Section 260810.
- B. Inspect grounding and bonding system conductors and connections for tightness and proper installation.
- C. Testing agency, as defined in paragraph 1.4, F., this section and approved by the Owner and the A/E, shall perform ground resistance testing of system. Perform test by means of fall-of-potential method. Maximum acceptable value 5 ohms.
 - 1. Testing Instrument: Battery-powered or hand-cranked AC tester.
 - a. Indicates ground resistance in ohms from digital decade switches when unit's self-contained meter indicates null condition.
 - b. Range: 0.01 to 9990 ohms in 4 overlapping ranges.
 - c. Null condition occurs when no current flows through potential electrodes.
 - d. Instrument accuracy: Plus 2 percent or greater.
 - 2. Fall-of-Potential Test:
 - a. Connect instrument according to manufacturer's instruction.

- b. Place rod P2 at various locations in line between tested electrode and probe C2 and plot results on graph (distance vs. resistance). Take sufficient readings to yield portion of plotted curve as being constant (rate of resistance change becomes so small with respect to distance as to be insignificant).
 3. Conduct 2 separate tests on opposite sides of grounding grid.
 4. Report failure to obtain specified ground resistance to the A/E.
- D. Include field test reports of grounding system in the Operation and Maintenance Manual.

END OF SECTION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 and Sections 260500, and 260548 apply to Work in this section.
- B. Related Sections:
 - 1. 260500 – General Electrical Provisions
 - 2. 260548 – Vibration Isolation and Seismic Control for Electrical Systems
 - 3. 262200 – Low Voltage Transformers
 - 4. 265100 – Lighting

1.02 SUMMARY

- A. Work includes conduit and equipment supports, fastening hardware, and associated appurtenances.

1.03 SUBMITTALS

- A. Provide submittals in accordance with Division 01 and Section 260500.
- B. Submittal for this section shall be complete with all required information. Partial product submittals are not acceptable and will be returned unreviewed.
- C. Submittal shall be arranged under categories such as manufacturer warranty, products, and similar items. Include index with the submittals.
- D. Pre-construction Submittal:
 - 1. Product Data:
 - a. Organize by specification infrastructure components described in Part 2 of this section.
 - b. Submit Product Data information sheets for coordination with item and model number.
 - c. Where more than one product is shown on a page, mark product with arrow or by other means to identify exact product or products being submitted by specific part number.
- E. Closeout Submittal:
 - 1. Submit closeout documentation to the Owner's Representative and Architect under provisions of Division 01, Section 260500 and this section.
 - 2. Provide all project closeout documentation including but not limited to; test documentation, material transmittals, product data, manufacturer warranty and Operation and Maintenance Manuals.

1.04 QUALITY ASSURANCE

- A. Comply with applicable city, county, and state codes and ordinances.
- B. Products shall be new unless indicated otherwise in the Contract Documents.

PART 2 - PRODUCTS

2.01 MATERIAL

- A. General: Built-up framing for electrical raceway and equipment supporting systems, including but not limited to channel, rod, clamps, and hardware.
- B. Comply with requirements in Section 240548 for seismic restraints. Unless design is shown on the Contract Drawings, size for 400 percent of calculated load.
 - 1. Channel: 12 gage galvanized formed metal with or without pre-drilled holes, epoxy coated. Cooper B-Line Dura Green, Unistrut, Powerstrut, or approved.
 - 2. Beam Clamps, in Pairs, at each Supporting (Structural) Beam: B-line B441-22 and B441-22A; Superstrut U-501 and U-502; Unistrut P2785, P2786, and P1379S, or approved. Submit other manufacturers for approval with evidence proving clamp complies with IBC and ASCE 7-05 for seismic requirements. Submitted proof can consist of letter signed and stamped by a professional engineer licensed in engineering in the state in which the Work is performed.

3. Beam Clamps for Use with Rods: B-Line B751-J4, B751-J6, B751-J9, and B751-J12; Superstrut U-569; Unistrut P2824-6, P2824-9, and P2824-12, or approved. Submit other manufacturers for approval with evidence proving clamp complies with seismic requirements. Submitted proof can consist of letter signed and stamped by a professional engineer licensed in engineering in the state in which the Work is performed.
 4. Fittings for Attaching Channel-to-Channel for Built-Up Framing: Unistrut P6028, P6033, P6069, P6290, P6291, P6326, P6331, P6332, P6346, P6358A, P6359, P6381, P6382, P6726A, P6917, P6962, or approved.
 5. Connectors for Bracing: Unistrut P6186, P7097, P7098, P7100, P7101, P7108, P7109, P7110, P6546, or approved.
 6. Unless otherwise shown on the Contract Drawings, attach connectors to vertical framing members with 2 bolts.
- C. Hardware, including Nuts (Locking Type), Bolts, and Set Screws: Corrosion resistant, designed for intended use.

PART 3 - EXECUTION

3.01 INSPECTION

- A. General: Verify installation conditions as satisfactory to receive work of this section. Do not install until unsatisfactory conditions are corrected. Beginning work constitutes acceptance of conditions as satisfactory.

3.02 PREPARATION

- A. Field Measurements: Field verify locations of new and existing work prior to commencing work of this section.
- B. Protection: Protect surrounding areas and surfaces to preclude damage from work of this section.

3.03 INSTALLATION, APPLICATION, ERECTION, AND PERFORMANCE

- A. General: Install, apply, erect, and perform the work in accordance with Article "Quality Assurance" provisions, specifications, and manufacturer's installation instructions and directions. Where these may be in conflict, the more stringent requirements govern.

3.04 SUPPORTING DEVICES INSTALLATION

- A. Install diagonal bracing for trapeze support systems at 2 right angle planes to brace against:
1. Horizontal and torsional movement lateral seismic forces.
 2. Vertical (uplift) movement caused by vertical seismic forces.
 3. Horizontal distortions in conduit system caused by wire pulling.
- B. Fasten hanger rods, conduit clamps, and outlet and junction boxes to building structure using expansion anchors or beam clamps. Spring steel clips and clamps not acceptable.
- C. Install toggle bolts or hollow wall fasteners in hollow masonry, plaster, and gypsum board partitions and walls. Install expansion anchors or preset inserts in solid masonry walls, self-drilling anchors, and expansion anchors on concrete surfaces. Comply with requirements in Section 260548 for seismic anchors.
- D. Do not fasten supports to piping, ductwork, mechanical equipment, and conduit.
- E. Powder actuated fasteners not acceptable.
- F. Drilling and welding to structural steel members not acceptable except as indicated on the Contract Drawings.
- G. Fabricate supports from structural steel or steel channel, rigidly welded, or bolted to present a neat appearance. Use hexagon head bolts with spring lock washers under nuts.
- H. Free Standing Electrical Equipment: Bolt to concrete base with leveling channels. Comply with requirements in Section 260500 for concrete base and Section 260548 for seismic restraints.
- I. Bridge studs top and bottom with channels to support flush-mounted cabinets and panelboards in stud walls.

- J. Lighting Fixture Supports: Comply with requirements in Section 265100.
- K. Conduit:
 - 1. Perforated pipe straps, ceiling support wires, fixture support wire, and wires installed primarily to support single runs of conduit not acceptable.
 - 2. Install trapeze support systems for 2 or more parallel runs of conduit with 25 percent space (6 inches minimum) for future conduit runs.
 - 3. Welding conduit and conduit fittings to structure not acceptable.
 - 4. Space conduit so that conduit fittings are accessible to accommodate pulling or splicing.

END OF SECTION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 and Section 260500 apply to Work in this section.

1.02 SUMMARY

- A. Work includes outlet, junction, and pull boxes and associated appurtenances required to enclose devices, permit pulling conductors, and for wire splices and branches.

1.03 SUBMITTALS

- A. Provide submittals in accordance with Division 01 and Section 260500.
- B. Submittal for this section shall be complete with all required information. Partial product submittals are not acceptable and will be returned unreviewed.
- C. Submittal shall be arranged under categories such as manufacturer warranty, products, and similar items. Include index with the submittals.
- D. Pre-Construction Submittal:
 - 1. Product Data:
 - a. Organize by specification infrastructure components described in Part 2 of this section.
 - b. Submit Product Data information sheets for coordination with item and model number.
 - c. Where more than one product is shown on a page, mark product with arrow or by other means to identify exact product or products being submitted by specific part number.
- E. Closeout Submittal:
 - 1. Submit closeout documentation to the Owner's Representative and Architect under provisions of Division 01, Section 260500 and this section.
 - 2. Provide all project closeout documentation including but not limited to: test documentation, material transmittals, product data, manufacturer warranty and Operation and Maintenance Manuals.

1.04 QUALITY ASSURANCE

- A. Comply with applicable city, county, and state codes and ordinances.
- B. Codes and Standards:
 - 1. NEMA 250, Enclosures for Electrical Equipment (1000 Volts Maximum).
 - 2. NFPA 70, National Electrical Code (NEC).
 - 3. UL 514A, Metallic Outlet Boxes.
- C. Products shall be new unless indicated otherwise in the Contract Documents.

PART 2 - PRODUCTS

2.01 OUTLET BOXES FOR INTERIOR WIRING

- A. General: Outlet and pull boxes pressed steel, zinc coated with plaster ring where applicable, minimum 4-inch size.
- B. Surface Metal Raceway: Boxes of same manufacturer and to match raceway. Boxes shall accommodate standard devices and device plates.
- C. Concrete and Masonry: Boxes for casting in concrete and mounting in masonry walls of type specifically designed for that purpose.
- D. Ceiling Outlet Boxes: Galvanized octagonal 4 inch, 1-1/2 inches deep (without fixture stud) and 2-1/8 inch deep (with fixture stud).
- E. Sheet Metal Boxes Larger than 12 Inches in any Dimension: Include hinged enclosure.

2.02 OUTLET BOXES FOR EXTERIOR WIRING

- A. General: Weather resistant and rain tight, with appropriate covers, gaskets, and screws.
- B. Above Grade: Outlet and junction boxes cast or malleable iron or cast of corrosion resistant alloy compatible with raceway to which they are connected. Pull boxes fabricated of hot dipped galvanized heavy gage steel. Boxes with gasketed covers.

PART 3 - EXECUTION

3.01 INSPECTION

- A. General: Verify installation conditions as satisfactory to receive work of this section. Do not install until unsatisfactory conditions are corrected. Beginning work constitutes acceptance of conditions as satisfactory.

3.02 PREPARATION

- A. Field Measurements: Field verify locations of new and existing work prior to commencing work of this section.
- B. Protection: Protect surrounding areas and surfaces to preclude damage from work of this section.

3.03 INSTALLATION, APPLICATION, ERECTION, AND PERFORMANCE

- A. General: Install, apply, erect, and perform the work in accordance with Article "Quality Assurance" provisions, specifications, and manufacturer's installation instructions and directions. Where these may be in conflict, the more stringent requirements govern.

3.04 COORDINATION OF OUTLET BOX LOCATIONS

- A. Locate as shown on the Contract Drawings and as required to facilitate pulling. Limit number of bends per NEC.
- B. Electrical box locations shown on the Contract Drawings are approximate unless dimensioned. Verify location of floor boxes and outlets before roughing in.
- C. Locate outlet boxes to allow access. If inaccessible, furnish, arrange, and pay for installation of access doors.
- D. Coordinate Work of this section with the Work of other sections and trades to avoid conflicts. Check and verify door swings and locations of built-in cabinets, plumbing, heating, and ventilating equipment.
- E. Install outlet boxes of sizes and at locations necessary to serve equipment furnished under this or other divisions of the specifications. Make final connections thereto. Outlet boxes required if equipment is furnished with pigtail for external connection, does not have space to accommodate branch circuit wiring, or requires wire with insulation rating different from branch circuit wiring. Review equipment Shop Drawings for required outlet locations.
- F. Where more than one outlet box is shown on the Contract Drawings and indicated to be at same elevation or one above the other, align them exactly on center lines horizontally or vertically. Relocate outlet boxes which are not so installed (including lighting, receptacle, power, signal, and temperature control outlets) at no additional cost to the Owner.
- G. Centered on Built-In Work: In the case of doors, cabinets, recessed or similar features, or where outlet boxes are centered between such features, such as between door jamb and cabinet, make these outlet box locations exact. Relocate outlet boxes which are not centered.
- H. Flush mount boxes with front edge of box or plaster ring even with finished surface of wall and ceiling, except those mounted above accessible ceilings and where surface mounting is permitted.
- I. Locate to maintain headroom and to present a neat appearance.
- J. Route conduit from switch and receptacle boxes in walls vertically to space above ceiling. Install junction box before horizontal run.
- K. Offset outlet boxes minimum of one stud horizontal separation between flush boxes mounted on opposite sides of acoustic rated common wall.
- L. Install outlet boxes with minimum 6-inch horizontal separation between closest edges of flush boxes mounted on opposite sides of common wall.

- M. Ceiling Locations: Locate outlet either at corner joint or in center of a panel, whichever is closer to normal spacing. Locate outlet boxes in same room in same panel locations.
- N. Conceal outlet boxes for electric water coolers behind cooler unit housing.

3.05 OUTLET BOX INSTALLATION

- A. Anchor boxes so they will not shift or rock when devices are operated (including insertion and removal of cord caps).
- B. Firmly anchor flush outlet boxes directly or with concealed bracing to studs and joists.
- C. Close unused openings.
- D. Support boxes independently of conduit except for cast outlet boxes that are connected to 2 rigid metal conduits, both supported within 12 inches of outlet box.
- E. Use multiple-gang outlet boxes where 2 or more devices are mounted together. Do not use sectional boxes.
- F. Install blank covers or plates over outlet boxes that do not contain devices.
- G. In inaccessible ceiling areas, install outlet and junction boxes within 6 inches of recessed luminaire to be accessible through luminaire ceiling openings.
- H. Install recessed outlet boxes in finished areas. Secure outlet boxes to interior wall and partition studs, accurately positioning to allow for surface finish thickness. Use stamped steel stud bridges for flush outlets in hollow stud wall and adjustable steel channel fasteners for flush ceiling outlet boxes.
- I. Install outlet boxes in walls without damaging wall insulation.
- J. Seal conduit boxes, telephone boxes, and similar items air-tight with acoustical caulk where located in acoustical rated walls that are not fire rated.
- K. Install outlet boxes in masonry walls to require cutting of masonry unit corner only. Coordinate masonry cutting to achieve neat openings for outlet boxes. Use outlet boxes with sufficient depth to permit conduit hubs to be located in masonry void space.
- L. Install pull boxes to be accessible after completion of building construction.

3.06 ELECTRICAL WORK IN COUNTERBACKS, MILLWORK, AND CASEWORK

- A. Install as shown on the Contract Drawings. Furnish templates to other trades for drilling and cutting to ensure accurate location of electrical fixtures (outlets and devices) as verified with the A/E. Install wiring, devices, plates, and connections required by said fixtures.

END OF SECTION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 and Section 260500 apply to Work in this section.

1.02 SUMMARY

- A. Work includes conduit, electrical metallic tubing, wireway, surface metal raceway, and associated appurtenances.

1.03 SUBMITTALS

- A. Provide submittals in accordance with Division 01 and Section 260500.
- B. Submittal for this section shall be complete with all required information. Partial product submittals are not acceptable and will be returned unreviewed.
- C. Submittal shall be arranged under categories such as manufacturer warranty, products, and similar items. Include index with the submittals.
- D. Pre-construction Submittal:
 - 1. Product Data:
 - a. Organize by specification infrastructure components described in Part 2 of this section.
 - b. Submit Product Data information sheets for coordination with item and model number.
 - c. Where more than one product is shown on a page, mark product with arrow or by other means to identify exact product or products being submitted by specific part number.
- E. Closeout Submittal:
 - 1. Submit closeout documentation to the Owner's Representative and Architect under provisions of Division 01, Section 260500 and this section.
 - 2. Provide all project closeout documentation including but not limited to: test documentation, material transmittals, product data, manufacturer warranty and Operation and Maintenance Manuals.

1.04 QUALITY ASSURANCE

- A. Comply with applicable city, county, and state codes and ordinances.
- B. Codes and Standards:
 - 1. UL 1, Standard for Flexible Metal Conduit.
 - 2. UL 5, Standard for Surface Metal Raceways and Fittings.
 - 3. UL 6, Standard for Rigid Metal Conduit.
 - 4. UL 360, Standard for Liquid-Tight Flexible Steel Conduit.
 - 5. UL 514B, Standard for Conduit, Tubing, and Cable Fittings.
 - 6. UL 651, Standard for Schedule 40 and 80 Rigid PVC Conduit.
 - 7. UL 651A, Standard for Type EB and A Rigid PVC Conduit and HDPE Conduit.
 - 8. UL 797, Standard for Metallic Tubing – Steel.
 - 9. UL 870, Standard for Wireways, Auxiliary Gutters, and Associated Fittings.
 - 10. UL 1242, Standard for Intermediate Metal Conduit – Steel.
 - 11. UL 2420, Standard for RTRC Conduit and Fittings for underground – Fiberglass
 - 12. UL 2515, Standard for RTRC Conduit and Fittings for above ground - Fiberglass
 - 13. NFPA 70, National Electrical Code (NEC).
- C. Comply with applicable portions of NEC as to type of products used and installation of electrical power connections.
- D. Comply with applicable NEMA standards and refer to NEMA standards for definitions of terminology herein. Comply with NEC for workmanship and installation requirements of raceway systems.

- E. Products shall be new unless indicated otherwise in the Contract Documents.
- F. Manufacturers:
 - 1. Companies regularly engaged in manufacture of raceway systems of types and sizes specified and whose products have been in satisfactory use in similar service for not less than 3 years.

1.05 WARRANTY AND SERVICE

- A. Contractor shall provide a parts and labor guarantee on all Work. Contractor's guarantee shall be for a period of one (1) year from Date of Acceptance, except where warranty coverage from a supplier or equipment manufacturer extends for a longer period of time.
- B. Contractor's guarantee shall cover all costs associated with troubleshooting, repair, and replacement of defective Work, including but not limited to costs for labor, transportation, lodging, materials, and equipment.

PART 2 - PRODUCTS

2.01 RIGID METAL CONDUIT (RMC) AND FITTINGS

- A. Ferrous Metal Conduit: Steel, UL 6, hot dip galvanized.
- B. Fittings and Conduit Bodies: UL 514B, threaded galvanized.

2.02 INTERMEDIATE METAL CONDUIT (IMC) AND FITTINGS

- A. Ferrous Metal Conduit: Steel, UL 1242, hot dip galvanized.
- B. Fittings and Conduit Bodies: UL 514B, threaded galvanized.

2.03 ELECTRICAL METALLIC TUBING (EMT) AND FITTINGS

- A. Ferrous Metal Conduit: Steel, UL 797, hot dip galvanized.
- B. Fittings: UL 514B, galvanized steel, insulated throat, rain tight compression ring type through 1-1/4 inch, set screw type for 1-1/2 inch and larger. Drive-on type and cast fittings not acceptable.
- C. Use of aluminum EMT not permitted.

2.04 FLEXIBLE METAL CONDUIT AND FITTINGS

- A. Ferrous Metal Conduit: Steel, UL 1, galvanized. UL listed for grounding as available. Aluminum and flexible metallic tubing not acceptable.
- B. Fittings: Insulated throat, UL 514B, galvanized steel, UL listed for grounding as available.
- C. Use of aluminum Flexible Metal Conduit not permitted.

2.05 LIQUID-TIGHT FLEXIBLE METAL CONDUIT AND FITTINGS

- A. Ferrous Metal Conduit: Galvanized with PVC weatherproof cover, UL 360 listed for grounding as available.
- B. Fittings: Insulated throat, UL 514B, galvanized steel, UL listed for grounding as available.

2.06 RIGID NON-METALLIC CONDUIT

- A. PVC Conduit: Schedule 40, UL 651, rigid type unless noted otherwise. UL 651A Type A permitted for underground concrete duct banks.
- B. Fittings: UL 651 and UL 651A.
 - 1. For electric (power) duct, 90-degree elbows factory manufactured PVC coated rigid steel with minimum 48-inch radius or Fiberglass (RTRC) with min. 60-inch radius.
 - 2. For telephone and cable television duct, 90-degree elbows factory manufactured PVC coated rigid steel with minimum 60-inch radius or Fiberglass (RTRC) with min 60-inch radius.
- C. Conduit bodies cast malleable iron, zinc or cadmium plated with threaded connections. Covers gasketed, blank steel, or cast malleable iron, zinc or cadmium plated, and of same manufacturer as conduit body. Where conduit bodies are used as junction or splice boxes, comply with NEC.

2.07 EXPANSION FITTINGS

- A. Malleable iron, hot dip galvanized allowing 4 inches (plus or minus 2 inches) conduit movement. OZ/Gedney Type AX Series, Thomas and Betts Type EJK series or approved.

2.08 SEALING FITTINGS

- A. Wall Sealing Fittings: At each wall sealing fitting, include conduit seal fitting, OZ/Gedney FSK Series, Crouse Hinds EYS Series, or approved.
- B. Raceway Stub-ups and Stub-outs: Conduit seals together with wall sealing fittings. OZ/Gedney CSB Series or approved.
- C. For Exterior Wall Penetrations below Grade: Include sealing bushing at interior end of penetrating raceway. Only threaded fittings are permitted in entering raceways ahead of sealing bushing. OZ/Gedney Type CSB or approved.

2.09 CONDUIT SUPPORTS

- A. Conduit Clamps, Straps, and Supports: Steel or malleable iron. Comply with requirements in Section 260529.

2.10 FIRE RATED SEALING COMPOUND

- A. Dow Corning 3-6548 Silicone RTV Foam or approved.
- B. 3M Fire Barrier Moldable Putty Stix MP+ or approved.
- C. 3M Fire Barrier Moldable Putty Pads MPP+ or approved.
- D. 3M Fire Barrier Pillows and Self-Locking Pillows or approved.

PART 3 - EXECUTION

3.01 INSPECTION

- A. General: Verify installation conditions as satisfactory to receive work of this section. Do not install until unsatisfactory conditions are corrected. Beginning work constitutes acceptance of conditions as satisfactory.

3.02 PREPARATION

- A. Field Measurements: Field verify locations of new and existing work prior to commencing work of this section.
- B. Protection: Protect surrounding areas and surfaces to preclude damage from work of this section.

3.03 INSTALLATION, APPLICATION, ERECTION, AND PERFORMANCE

- A. General: Install, apply, erect, and perform the work in accordance with Article "Quality Assurance" provisions, specifications, and manufacturer's installation instructions and directions. Where these may be in conflict, the more stringent requirements govern.

3.04 RACEWAY SIZING, ARRANGEMENT, AND SUPPORT

- A. Unless otherwise shown on the Contract Drawings, size conduit for conductor type installed. Minimum size 3/4 inch.
- B. Install conduit to maintain headroom and present neat appearance in unfinished spaces. Install a minimum of 9'-6" above finished floor in spaces unless otherwise indicated on the Contract Drawings.
- C. Install conduit concealed in walls, below floors, and above ceiling in spaces, except conduit may be exposed in mechanical rooms, electrical rooms, and similar unfinished spaces.
- D. Horizontal conduit installation is not allowed in floor slab unless specifically noted on electrical and structural Contract Drawings.
- E. Route conduit parallel and perpendicular to building planes.
- F. Maintain minimum 6-inch clearance between conduit and piping. Maintain 12-inch clearance between conduit and heat sources such as flues, steam pipes, heating and hot water pipes, and heating appliances.
- G. Brace conduit or conduit supports to prevent distortion of alignment by wire-pulling operations.

- H. Where conduit is run in parallel, group on formed channel supports. Comply with requirements in Section 260529.
- I. Do not fasten or support with wire or perforated pipe straps. Remove temporary conduit supports used during construction before conductors are pulled.
- J. Raceway to be routed around structural members. Do not cut structural members for passage of raceway. Structural Engineer to approve proposed modifications of structural elements prior to commencement of work.

3.05 RACEWAY INSTALLATION

- A. Cut conduit square using a saw or pipe cutter. Deburr cut ends.
- B. Bring conduit to shoulder of fittings and couplings and tighten securely.
- C. Use conduit hubs for fastening conduit to cast boxes and for fastening conduit to sheet metal boxes in damp or wet locations.
- D. Do not use conduit bodies to make sharp changes in direction unless shown on the Contract Drawings.
- E. Use hydraulic one-shot conduit bender or factory elbows for bends in 2-inch conduit and larger.
- F. Provide plastic bushings on conduit stubs used for transition from conduit to open cable runs.
- G. During construction, use suitable conduit caps to protect installed conduit against entrance of dirt and moisture.
- H. Distance Between Supports:
 - 1. Threaded Rigid Metal Raceways: Maximum 8-foot centers and within 18 inches of each outlet, junction box, and bend.
 - 2. Electrical Metallic Tubing: Maximum 8-foot centers at each bend and within 12 inches of each outlet, junction box, and coupling.
 - 3. Surface Metal Raceway, Auxiliary Gutter, and Wireway: Maximum 5-foot centers or in accordance with manufacturer's instruction, whichever is less, unless otherwise shown on the Contract Drawings.
- I. Install nylon pull string with printed footage indicators secured at each end of each empty conduit, except sleeves and nipples. Identify with tags at each end origin and destination of each empty conduit.
- J. Route conduit through roof inside openings for ductwork where possible. Otherwise, install through roof jack and seal weather tight.
- K. Install no more than equivalent or four 90-degree bends between boxes.
- L. Avoid moisture traps where possible. Where unavoidable, install junction box with drain fitting at conduit low point.
- M. Sealing of Conduit Penetrations:
 - 1. Exterior Wall Surfaces above Grade: Seal around penetrations with caulking approved by the A/E. For concrete construction above ground level, cast conduit in wall or core drill wall and hard pack with mixture of equal parts of sand and cement.
 - 2. Exterior Wall Surfaces below Grade: Cast conduit into wall (and floor) or use manufactured seal assembly cast in place.
 - 3. Roofs: Install mopped and flashing roof jack and where conduit penetrates roof membrane.
 - 4. Fire Rated Construction: Seal penetrations with fire rated sealing compound to maintain fire rating of construction penetrated.
- N. Sealing of Raceways: Seal interior of raceways that pass-through building roof and through outside walls of building, above or below grade. Seal on end inside building. Use raceway sealing fittings manufactured for purpose sealed with non-hardening, compound-type mastic, specially designed for such service. Pack around wires in raceways.
- O. Do not install conduit on exterior surface of building, except as shown on the Contract Drawings and as approved by the A/E.
- P. Where flexible metal or liquid tight flexible metal conduit is installed, install bonding conductor to ensure electrical continuity of raceway. Route bonding jumper inside conduit and terminate at grounding

bushing or grounding locknut installed on inside of junction boxes at each side of flexible section. In instances where this method is not feasible (such as when cast boxes with hubs are used or where required by the NEC, route bonding jumper on outside of flexible conduit and terminate in accordance with methods acceptable to the AHJ.

- Q. Raceway shall not penetrate sheet metal ducts.
- R. Branch circuits shall be installed overhead, except circuits serving floor boxes, outdoor circuits or unless indicated otherwise on the Contract Documents.
- S. Support raceways below roof decking to provide minimum 1-1/2" separation from raceway surface to nearest surface of metal roof decking.
- T. Install 6 spare 3/4-inch conduits (capped) from each recessed/flush mounted branch panelboard into ceiling space or mechanical platform if one exists. Extend conduits required distance necessary to reach accessible ceiling space.
- U. In finished areas with exposed structure, subject to the approval of the A/E, raceways may be installed exposed. Install raceways as high as possible, tight to the ceiling deck, and neatly arranged. Submit shop drawing indicating routing of proposed surface raceways and boxes in finished areas.

3.06 SURFACE METAL RACEWAY INSTALLATION

- A. Use flat-head screws to fasten channel to surfaces. Mount plumb and level.
- B. Install insulating bushings and inserts at connections to outlets and corner fittings.
- C. Maintain grounding continuity between raceway components for continuous grounding path.
- D. Fastener Option: Use manufacturer's standard clips and straps for installed purpose.

3.07 AUXILIARY GUTTER INSTALLATION

- A. Bolt auxiliary gutter to steel channels fastened to wall or in self-supporting structure. Install level.
- B. Gasket each joint in oil-tight gutter.
- C. Mount raintight gutter in horizontal position only.

3.08 RACEWAY SCHEDULE

- A. Rigid Metal Conduit:
 - 1. Acceptable in all locations except as modified in this section.
 - 2. Where in contact with earth or concrete, install protective coating consisting of spirally wrapped 20 mil PVC tape with 1/2-inch minimum overlap of 3M Scotchrap Tape 51 or approved equal; or utilize PVC Coated Rigid Metal Conduit.
 - 3. Completely wrap and tape field joints.
 - 4. Required for exposed raceways in areas subject to physical damage.
- B. PVC Coated Rigid Metal Conduit:
 - 1. Required in corrosive environments or where indicated on the Contract Drawings.
- C. Intermediate Metal Conduit:
 - 1. May be used in lieu of rigid metal conduit unless otherwise prohibited by code or indicated on the Contract Drawings.
 - 2. Not acceptable for circuits over 600 Volts.
- D. Electrical Metallic Tubing:
 - 1. Acceptable for dry interior locations where not exposed to moisture or physical damage.
 - 2. Not acceptable for circuits over 600 Volts.
- E. Rigid Non-Metallic Conduit:
 - 1. Acceptable underground with minimum 24 inches of cover.
 - 2. Acceptable below concrete slab on grade installed a minimum of 2 inches below bottom of slab.
 - 3. Acceptable within masonry walls subject to approval by structural engineer.
 - 4. Not acceptable for raceways extending through concrete; utilize Rigid Metal Conduit.

5. Not acceptable for bends 45 degrees and greater unless concrete encased; utilize Rigid Metal Conduit as specified herein or PVC Coated Rigid Metal Conduit or Fiberglass (RTRC). Field bends not acceptable.
- F. Flexible Steel Conduit:
 1. For connections to recessed light fixtures and devices installed in suspended ceilings, maximum six-foot length.
 2. For connections to motors, transformers, and other equipment subject to vibration. Minimum of three foot and maximum of six-foot length with 90-degree loop.
- G. Liquid-Tight Flexible Metal Conduit.
 1. For pump motors and equipment subject to vibration in damp and wet locations, in areas subject to being washed down, and for machinery where cutting oil is used. Minimum of three foot and maximum of six-foot length with 90-degree loop.
- H. Surface Metal and Multi-Outlet Raceway:
 1. Install where indicated on the Contract Drawings.
- I. Auxiliary Gutters and Wireways:
 1. Install where indicated on the Contract Drawings and as required in unfinished spaces. Elsewhere as approved by the A/E.

END OF SECTION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 and Section 260500 apply to Work in this section.

1.02 SUMMARY

- A. Work includes isolation pads, spring isolators, restrained spring isolators, restraint cables, hanger rod stiffeners, anchorage bushings and washers, and associated appurtenances.

1.03 SUBMITTALS

- A. Provide submittals in accordance with Division 01 and Section 260500.
- B. Submittal for this section shall be complete with all required information. Partial product submittals are not acceptable and will be returned unreviewed.
- C. Submittal shall be arranged under categories such as manufacturer warranty, products, certifications, calculations, and similar items. Include index with the submittals.
- D. Closeout Submittal:
 - 1. Submit closeout documentation to the Owner's Representative and Architect under provisions of Division 01, Section 260500 and this section.
 - 2. Provide all project closeout documentation including but not limited to: test documentation, material transmittals, product data, manufacturer warranty and Operation and Maintenance Manuals.

1.04 QUALITY ASSURANCE

- A. Comply with applicable city, county, and state codes and ordinances.
- B. Products shall be new unless indicated otherwise in the Contract Documents.
- C. Codes and Standards:
 - 1. NFPA 70, National Electrical Code (NEC).

1.05 PERFORMANCE REQUIREMENTS

- A. General: A single supplier shall furnish isolation mounts, pads, seismic restraints, sway braces, related hardware, and fabricate isolation bases for the project unless otherwise specified.
- B. Responsibility: This supplier shall be responsible for selection and installation supervision of vibration isolators. Prepare engineering drawings and details and submit to the A/E. Perform installation supervision and provide adjustment instructions.
- C. Seismic Restraints:
 - 1. Design and select restraint devices for ducts, pipes, and equipment to meet seismic requirements defined in IBC and ASCE 7-05. Prepare calculations based on coefficients included on the structural Contract Drawings. Refer to the structural Contract Drawings for allowable methods and loads.
 - 2. Retain an engineer, specialty consultant, or seismic restraint device manufacturer to design and develop seismic restraint systems and perform calculations based on actual equipment data.
 - 3. Engineer, specialty consultant, or seismic restraint device manufacturer shall coordinate attachments to structure to verify that attachment points on equipment and structure can accept seismic, weight, and other loads imposed. Pay any additional structural engineering services fee.
 - 4. Shop Drawings, details, and calculations shall be stamped and signed by a professional engineer licensed in engineering in the state in which the Work is performed.

PART 2 - PRODUCTS

2.01 MANUFACTURER SUBSTITUTIONS

- A. Substitutions: The substitution of products shall adhere to the requirements defined in Division 01. Section 017700 – Substitutions.
 - 1. Vibration isolation and seismic control devices shall be from a manufacturer with at least 5 years of experience in the manufacturing of equipment.
 - a. Approved manufacturers:
 - 1) Vibration Isolators: Amber/Booth, California Dynamics Corporation, Kinetics Noise Control, Mason Industries, Vibro-Acoustics, Vibration Mountings & Controls, or approved.
 - 2) Seismic Restraint devices: Amber/Booth, California Dynamics Corporation, Cooper B-Line, Hilti, Mason Industries, TOLCO, Unistrut, or approved.

2.02 VIBRATION ISOLATORS

- A. Isolation Pads: Arrange in single or multiple layers of sufficient stiffness for uniform loading over pad area, molded with nonslip pattern and galvanized-steel baseplates, and factory cut to sizes that match requirements of supported equipment.
- B. Spring Isolators: Freestanding, laterally stable, open-spring isolators.
 - 1. Outside Spring Diameter: Not less than 80 percent of compressed height of spring at rated load.
 - 2. Minimum Additional Travel: 50 percent of required deflection at rated load.
 - 3. Lateral Stiffness: More than 80 percent of rated vertical stiffness.
 - 4. Overload Capacity: Support 200 percent of rated load, fully compressed, without deformation or failure.
 - 5. Baseplates: Factory drilled for bolting to structure and bonded to 1/4 inch thick, rubber isolator pad attached to baseplate underside. Baseplates shall limit floor load to 500 psig.
 - 6. Top Plate and Adjustment Bolt: Threaded top plate with adjustment bolt and cap screw to fasten and level equipment.
- C. Restrained Spring Isolators: Freestanding, steel, open-spring isolators with seismic or limit-stop restraint.
 - 1. Housing: Steel with resilient vertical limit stops to prevent spring extension due to weight being removed. Factory-drilled baseplate bonded to 1/4-inch-thick neoprene or rubber isolator pad attached to baseplate underside. Adjustable equipment mounting and leveling bolt that acts as blocking during installation.
 - 2. Restraint: Seismic or limit-stop as required for equipment and AHJ.
 - 3. Outside Spring Diameter: Not less than 80 percent of compressed height of spring at rated load.
 - 4. Minimum Additional Travel: 50 percent of required deflection at rated load.
 - 5. Lateral Stiffness: More than 80 percent of rated vertical stiffness.
 - 6. Overload Capacity: Support 200 percent of rated load, fully compressed, without deformation or failure.

2.03 SEISMIC RESTRAINT DEVICES

- A. General Requirements for Restraint Components: Rated strengths, features, and application requirements as defined in reports by an agency acceptable to AHJ.
 - 1. Structural Safety Factor: Allowable strength in tension, shear, and pullout force of components minimum 4 times maximum seismic forces to which they will be subjected.
- B. Restraint Cables: ASTM A 603 galvanized steel cables with end connections made of steel assemblies with thimbles, brackets, swivels, and bolts designed for restraining cable service. Include a minimum of 2 clamping bolts for cable engagement.

- C. Hanger Rod Stiffener: Reinforcing steel angle clamped to hanger rod.
- D. Bushings for Floor-Mounted Equipment Anchor: Neoprene bushings designed for rigid equipment mountings and matched to type and size of anchors and studs.
- E. Bushing Assemblies for Wall-Mounted Equipment Anchorage: Assemblies of neoprene elements and steel sleeves designed for rigid equipment mountings and matched to type and size of attachment devices.
- F. Resilient Isolation Washers and Bushings: One-piece, molded, oil- and water-resistant neoprene with a flat washer face.
- G. Mechanical Anchor: Drilled-in and stud-wedge or female-wedge type in zinc-coated steel for interior applications and stainless steel for exterior applications. Select anchors with strength required for anchor and as tested according to ASTM E 488. Minimum length of 8 times diameter.
- H. Adhesive Anchor: Drilled-in and capsule anchor system containing polyvinyl or urethane methacrylate-based resin and accelerator, or injected polymer or hybrid mortar adhesive. Zinc-coated steel for interior applications and stainless steel for exterior applications. Select anchor bolts with strength required for anchor and as tested according to ASTM E 488.

PART 3 - EXECUTION

3.01 INSPECTION

- A. General: Verify installation conditions as satisfactory to receive work of this section. Do not install until unsatisfactory conditions are corrected. Beginning work constitutes acceptance of conditions as satisfactory.

3.02 PREPARATION

- A. Field Measurements: Field verify locations of new and existing work prior to commencing work of this section.
- B. Protection: Protect surrounding areas and surfaces to preclude damage from work of this section.

3.03 INSTALLATION, APPLICATION, ERECTION, AND PERFORMANCE

- A. General: Install, apply, erect, and perform the work in accordance with Article "Quality Assurance" provisions, specifications, and manufacturer's installation instructions and directions. Where these may be in conflict, the more stringent requirements govern.

3.04 APPLICATIONS

- A. Multiple Raceways or Cables: Secure raceways and cables to trapeze member with clamps approved for application by an agency acceptable to the AHJ.
- B. Hanger Rod Stiffeners: Install hanger rod stiffeners where required to prevent buckling of hanger rods due to seismic forces. Welding stiffeners to rods not acceptable.
- C. Strength of Support and Seismic Restraint Assemblies: Select sizes of components so strength will be adequate to carry present and future static and seismic loads within specified loading limits.

3.05 SEISMIC RESTRAINT DEVICE INSTALLATION

- A. Equipment and Hanger Restraints:
 - 1. Install restrained isolators on electrical equipment.
 - 2. Install resilient, bolt-isolation washers on equipment anchor bolts where clearance between anchor and adjacent surface exceeds 0.125 inch.
 - 3. Install seismic restraint devices using methods approved by agency acceptable to AHJ providing required submittals for component.
- B. Install bushing assemblies for mounting bolts for wall mounted equipment, arranged to provide resilient media where equipment or equipment mounting channels are attached to wall.
- C. Attachment to Structure: If specific attachment is not indicated on the Contract Drawings, anchor bracing to structure at flanges of beams, at upper truss chords of bar joists, and at concrete members.

D. Drilled-in Anchors:

1. Identify position of reinforcing steel and other embedded items prior to drilling holes for anchors. Do not damage existing reinforcing or embedded items during coring or drilling. Notify the A/E if reinforcing steel or other embedded items are encountered during drilling. Locate and avoid prestressed tendons, electrical and telecommunications conduit, and gas lines.
2. Do not drill holes in concrete or masonry until concrete, mortar, and grout has achieved full design strength.
3. Mechanical Anchors: Protect threads from damage during anchor installation. Install sleeve anchors with sleeve fully engaged in structural element to which anchor is to be fastened.
4. Adhesive Anchors: Clean holes to remove loose material and drilling dust prior to installation of adhesive. Place adhesive in holes proceeding from bottom of hole and progressing toward surface in such a manner as to avoid introduction of air pockets in adhesive.
5. Set anchors to manufacturer's recommended torque using a torque wrench.

3.06 ACCOMMODATION OF DIFFERENTIAL SEISMIC MOTION

- A. Install flexible connections in runs of raceways, cables, wireways, cable trays, and busways where they cross seismic joints, where adjacent sections and branches are supported by different structural elements, and where they terminate with connection to equipment that is anchored to a different structural element from the one supporting them as they approach equipment.

3.07 FIELD QUALITY CONTROL

A. Tests and Inspections:

1. Obtain the A/E's approval before transmitting test loads to structure. Install temporary load-spreading members.
2. Test at least 4 of each type and size of installed anchors and fasteners selected by the A/E.
3. Test to 90 percent of rated proof load of device.
4. Measure isolator restraint clearance.
5. Measure isolator deflection.
6. Verify snubber minimum clearances.
7. If a device fails test, modify installations of same type and retest until satisfactory results are achieved.

B. Remove and replace malfunctioning units, provide new, and retest as specified above.

C. Prepare test and inspection reports. Include copy of reports in the Operation and Maintenance Manual.

3.08 ADJUSTING

- A. Adjust isolators after isolated equipment is at operating weight.
- B. Adjust limit stops on restrained spring isolators to mount equipment at normal operating height. After equipment installation is complete, adjust limit stops so they are out of contact during normal operation.
- C. Adjust active height of spring isolators.
- D. Adjust restraints to permit free movement of equipment within normal mode of operation.

END OF SECTION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 and Section 260500 apply to Work in this section.

1.02 SUMMARY

- A. Work includes nameplates, wire and cable markers, conduit color coding, buried duct marking tape, and associated appurtenances.

1.03 SUBMITTALS

- A. Comply with requirements in Division 01 and Section 260500.
- B. Submittal for this section shall be complete with all required information. Partial product submittals are not acceptable and will be returned unreviewed.
- C. Submittal shall be arranged under categories such as manufacturer warranty, products, and similar items. Include index with the submittals.
- D. Pre-construction Submittal:
 - 1. Product Data:
 - a. Organize by specification infrastructure components described in Part 2 of this section.
 - b. Submit Product Data information sheets for coordination with item and model number.
 - c. Where more than one product is shown on a page, mark product with arrow or by other means to identify exact product or products being submitted by specific part number.
 - d. Nameplate schedule.
- E. Closeout Submittal:
 - 1. Submit closeout documentation to the Owner's Representative and Architect under provisions of Division 01, Section 260500 and this section.
 - 2. Provide all project closeout documentation including but not limited to material transmittals, product data, manufacturer warranty and Operation and Maintenance Manuals.

1.04 QUALITY ASSURANCE

- A. Comply with applicable city, county, and state codes and ordinances.
- B. Codes and Standards:
 - 1. NFPA 70, National Electrical Code (NEC).
- C. Products shall be new unless indicated otherwise in the Contract Documents.

PART 2 - PRODUCTS

2.01 IDENTIFICATION MATERIAL

- A. Nameplates:
 - 1. Engraved three-layer laminated plastic.
 - a. Normal Power: White letters on black background.
 - 2. Panelboards and Switchboards:
 - a. 1/2-inch-high letters to identify equipment designation. 1/4-inch-high letters to identify voltage rating and source.
 - 3. Enclosed Circuit Breakers, Disconnect Switches, Motor Starters:
 - a. 1/4-inch-high letters to identify load served and source.
 - 4. Transformers:
 - a. 1/2-inch-high letters to identify equipment designation. 1/4-inch-high letters to identify primary and secondary voltages, primary source, and secondary load and location.
 - 5. Power Monitoring:

- a. 1/2-inch-high letters to identify meter designation. 1/4-inch-high letters to identify metering category.
6. Control Panels and Equipment (Lighting and Receptacle Control):
 - a. 1/2-inch-high letters to identify equipment designation. 1/4-inch-high letters to identify source.
- B. Adhesive Printed Labels:
 1. Laminated tape – Brother TZe Series 12mm width tape or equivalent.
 - a. Normal Power: Black letters on clear background.
 2. Switches:
 - a. 1/4-inch letters to identify load controlled.
 3. Receptacles:
 - a. 1/4-inch letters to identify panelboard and circuit number.
- C. All outlet boxes, junction boxes and pull boxes for fire alarm system devices and conductors shall be red in color, both inside and outside.
- D. Permanent felt marker for junction and pull box circuit notation.
 1. Normal Power: Black letters.
- E. Wire and Cable Markers:
 1. Split sleeve or tubing type. Vinyl impregnated cloth, vinyl, and Mylar self-adhesive types not acceptable.
- F. Phase Identification:
 1. Vinyl colored electrical tape.
- G. Electrical Hazard Marking Tape:
 1. Black and yellow striped vinyl 2” wide hazard tape, Identi-Tape #VH2BKY or equal.
- H. Printed Labels:
 1. Printed labels shall be clear polypropylene with adhesive back designed for exterior applications. Label text shall be 4.8 mm (3/16”) high, black and shall be applied to the label by a thermal transfer printer.
- I. Directory Cards:
 1. Directory cards shall consist of heavy cardstock, metallic mounting frames and plastic covers. Mounting frames shall be attached to the back side of panelboard doors. Directories shall contain typewritten text indicating the circuit breaker number, type of load served and room number in which each load is located. Unused circuit breakers shall be designated with “SPARE” written in pencil. Spaces for future circuit breakers shall be left blank. Circuit designations on directory cards shall match the installed conditions with respect to loads and physical arrangement within panelboards.
- J. Wiring Color Code Schedules:
 1. Color code schedules shall be prepared using a color printer and shall be laminated between two layers of clear plastic. Schedules shall show color designation for each phase, neutral and ground of each system voltage. Schedules shall be 130 mm by 180 mm (5 inch by 7 inch).
- K. Arc Flash Hazard Safety Signs:
 1. Product safety signs in accordance with ANSI Standard Z535.4 requirements. At the left of each sign shall be an electrical hazard (lightning) graphic surrounded by a yellow triangle. At the top of the right side of the sign, in an orange signal word block, the signal word “Warning” shall appear together with an exclamation mark surrounded by a triangle. Underneath the signal word block, the message “Arc Flash Hazard” shall be printed on the first line, followed by “Appropriate PPE Required” on the second line. The sign shall also indicate the flash protection boundary in inches and the incident energy at 460 mm (18”) in cal/cm², in accordance with the requirements of NFPA 70E.

PART 3 - EXECUTION

3.01 INSPECTION

- A. General: Verify installation conditions as satisfactory to receive work of this section. Do not install until unsatisfactory conditions are corrected. Beginning work constitutes acceptance of conditions as satisfactory.

3.02 PREPARATION

- A. Field Measurements: Field verify locations of new and existing work prior to commencing work of this section.
- B. Protection: Protect surrounding areas and surfaces to preclude damage from work of this section.

3.03 INSTALLATION, APPLICATION, ERECTION, AND PERFORMANCE

- A. Description: Install, apply, erect, and perform work in accordance with Article "Quality Assurance" provisions, specifications, and manufacturer's installation instructions and directions. Where these may be in conflict, more stringent requirements govern.
- B. Nameplates:
 - 1. Degrease and clean surfaces to receive nameplates.
 - 2. Install nameplates parallel to equipment lines.
 - 3. Secure nameplates to equipment fronts using screws or rivets. Adhesives are not acceptable.
- C. Wire Identification:
 - 1. Install wire markers on conductors in panelboard gutters, pull boxes, outlet and junction boxes, and at load connection. Identify with branch circuit or feeder number for power and lighting circuits and with control wire number as indicated on schematic and interconnection diagrams or equipment manufacturer's shop drawings for control wiring.
 - 2. Install solid-colored jackets for wire sizes smaller than number 8 AWG. Wire sizes larger than number 10 AWG may be taped at both ends and at pull and junction boxes with appropriate colored tape. Color coding tape to completely encircle conductor at least 3 inches wide.
- D. Decals: Install decal behind circuit breaker door where it can be easily seen when circuits are added.
- E. Felt Marker Identification: Apply on front of cover in non-finished areas, such as mechanical/electrical rooms, above ceilings, and similar locations, and on back of cover in finished areas.

3.04 INSTALLATION

- A. General:
 - 1. Provide identification for electrical equipment as specified herein.
 - 2. Attach identification in durable manner, suitable to each respective type of identification. Nameplates shall be securely fastened to equipment with two (2) rivets. Wiring color code schedules shall be fastened to equipment with permanent adhesive.
- B. Panelboards:
 - 1. Provide a nameplate for each panelboard. Nameplate text shall include the panelboard name as designated on the Contract Drawings.
 - 2. On panelboards located in mechanical and electrical rooms and other unfinished spaces, install nameplates on the outside of panelboard enclosures above doors. On all other panelboards, install nameplates on the dead fronts, above the circuit breakers so that nameplates are not visible when the panelboard doors are closed.
 - 3. Directory cards: Provide in each panelboard, place in holder behind panel cover.
 - a. Coordinate final room naming and numbering and update directories.
 - 4. Provide a reduced copy of each panel schedule contained in the Contract Documents, showing actual configuration. These schedules shall be provided in addition to the typewritten panelboard directories. Place schedules in directory frame.
 - 5. Provide a wiring color code schedule attached to each panelboard. Schedules shall be installed on the inside of panelboard doors.

6. Provide an arc flash hazard safety sign attached to each panelboard. Signs shall be located so as to be clearly visible to qualified persons before examination, adjustment, servicing or maintenance of the equipment. On panelboards located in mechanical and electrical rooms, attach the signs on the outside of panelboard enclosures. On all other panelboards, attach the signs on the dead fronts or the back side of the panel doors, so that signs are not visible when panelboard doors are closed.
- C. Control Panels/Equipment:
1. Provide a nameplate for each relay panel and/or control units. Nameplate text shall include the relay panel name or space and zone controlled as designated on the Contract Drawings.
- D. Provide an arc flash hazard safety sign attached to each panelboard. Signs shall be located so as to be clearly visible to qualified persons before examination, adjustment, servicing or maintenance of the equipment. On panelboards located in mechanical and electrical rooms, attach the signs on the outside of panelboard enclosures. On all other panelboards, attach the signs on the dead fronts or the back side of the panel doors, so that signs are not visible when panelboard doors are closed.
- E. Signaling and Communications Systems Cabinets:
1. Provide a nameplate on the outside of each cabinet above door. Nameplate text shall include the system name as designated on the Contract Drawings and the cabinet function.
- F. Disconnect Switches:
1. Provide a nameplate on the outside front of each disconnect switch enclosure. Nameplate text shall include the name of the load controlled as designated on the Contract Drawings, and also the designation of the equipment that serves as the power source for the circuit that supplies the disconnect.
- G. Relays and Time Switches:
1. Provide a nameplate on the outside front of each relay and time switch enclosure. Nameplate text shall include the name of the load controlled as designated on the Contract Drawings.
- H. Contactors:
1. Provide a nameplate on the outside front of each contactor enclosure. Nameplate text shall include the contactor name as designated on the Contract Drawings and the name of the load controlled.
- I. Control Switches:
1. Provide a nameplate for each equipment control switch with a device plate as specified in Section 262726. Nameplate text shall include the name of the load controlled as designated on the Contract Drawings.
 2. Provide a nameplate or printed label on each control switch that does not have a device plate as specified in Section 262726. Verify type with Architect's Consultant. Text shall include the name of the load controlled as designated on the Contract Drawings.
- J. Wiring Devices:
1. Receptacle Labels: Indicate panelboard and circuit number.
 2. Provide an engraved printed label for each switch that controls luminaires not within sight of the switch or that controls receptacles. Engraved printed label text shall include the type and location of the load controlled.
- K. Junction Boxes and Pull Boxes:
1. Provide nameplates on the outside of the front cover of junction boxes and pull boxes in finished areas and of junction boxes and pull boxes that are larger than 150 mm by 150 mm (6 inch by 6 inch). Nameplate text shall designate the system for which wiring is to be enclosed in the box. In the case of power system junction boxes or pull boxes, the nameplate text shall also include the panelboard name and circuit number. Nameplates for emergency power junction boxes or pull boxes shall be orange in color.
 2. Junction boxes and pull boxes 150 mm by 150 mm (6 inch by 6 inch) or smaller in unfinished areas and above accessible ceilings shall be color coded by spray painting the outside edges of the box and spray painting the cover with the following colors:

3.05 VAC Power: Unpainted

3.06 VAC Power: Tan
Fire Alarm & Detection: Red
Security and Video Surveillance: Light Blue
Telecommunications: White
Intercom/Paging & Clock: Green
Television: Black
Audio-video: Gold

1. After painting, mark the covers of power system junction boxes and pull boxes with the panelboard name and circuit numbers. Marking shall be done with a wide-tip, permanent-ink black marker.

B. Outlet Boxes:

1. Outlet boxes for fire alarm circuits shall be color coded by spray painting the box inside and outside with the following colors:
Fire Alarm & Detection: Red

3.07 COMMISSIONING

A. The equipment and systems referenced in this section are to be commissioned per Section 019113 – General Commissioning Requirements.

END OF SECTION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 and Section 260500 apply to Work in this section.
- B. Related Sections:
 - 1. 260500 – General Electrical Provisions
 - 2. 260548 – Vibration Isolation and Seismic Control for Electrical Systems
 - 3. 260553 – Identification for Electrical Systems
 - 4. 262813 – Overcurrent Protective Devices

1.02 SUMMARY

- A. Work includes panelboards for lighting and appliances, distribution circuits, and associated appurtenances.

1.03 SUBMITTALS

- A. Provide submittals in accordance with Division 01 and Section 260500.
- B. Submittal for this section shall be complete with all required information. Partial product submittals are not acceptable and will be returned unreviewed.
- C. Submit A/E approved submittal drawings to serving utility for approval prior to ordering. Comply with all serving utility requirements.
- D. Short Circuit Study: Obtain available fault current at point of connection from serving utility. Perform fault current study identifying available fault currents in excess of 14,000 Amps at distribution panelboards and branch circuit panelboards.
 - 1. Provide documentation to demonstrate that all submitted equipment and protective devices meet or exceed available fault current at point of application. Study to be performed by licensed professional electrical engineer with at least ten years applicable experience.
- E. Arc-Flash Study: Perform an Arc-Flash Study in accordance with the NEC and Authority Having Jurisdiction to determine the incident energy exposure, the flash protection boundary, shock hazard approach limits and required PPE levels.
 - 1. Study to provide required data for approved arc flash warning labels on all switchboards, panelboards, disconnect switches and transfer switch.
 - 2. Provide and adhere Arc Flash labels to equipment.
- F. Submittal shall be arranged under categories such as manufacturer warranty, short circuit and arc-flash studies, products, and similar items. Include index with the submittals.
- G. Pre-construction Submittal:
 - 1. Product Data:
 - a. Organize by specification infrastructure components described in Part 2 of this section.
 - b. Submit Product Data information sheets for coordination with item and model number, installation instructions, maintenance data, and general recommendations for each type of panelboard and appurtenance.
 - c. Where more than one product is shown on a page, mark product with arrow or by other means to identify exact product or products being submitted by specific part number.
 - 2. Shop Drawings:
 - a. Provide dimensioned drawings of panelboards and enclosures showing scaled layouts of enclosures and required individual panelboard devices, including circuit breakers, fusible switches, fuses, ground-fault circuit interrupters, accessories, and similar items.
 - b. Prepare panelboard shop drawings using AutoCAD/ Revit software or as approved by the Owner and or A/E. Shop drawings shall be submitted as full size, in PDF format.
- H. Test Report Submittal:

1. Field test reports.
 2. Factory test reports.
 3. Submit completed copy of reports and include copy in the Operation and Maintenance Manual.
- I. Record Drawing Submittal:
1. Keep complete set of panelboard drawings in job-site office to show actual installation during construction for recording as-built conditions.
 2. Record drawings set shall indicate where material and system component are installed differently than indicated on the Contract Drawings, clearly and neatly using red ink or indelible red pencil during construction.
 3. Prepare electronic set of Record Drawings, incorporating changes during construction.
 4. Submit Record Drawings to the Owner's Representative for review and acceptance.
 5. Submit Record Drawings saved as AutoCAD version 2018 (.dwg) format and in PDF format. The contractor shall request final architectural AutoCAD background drawing files that incorporate all project floor plan modifications and numbering of spaces.
 - a. AutoCAD drawings shall utilize the e-transmit capability to include all drawing backgrounds, title block and other associated files.
 6. Submit electronic copy of Record Drawings in full-size PDF and AutoCAD format, on CD-ROM or USB thumb drive where requested by the Owner's Representative.
- J. Closeout Submittal:
1. Submit closeout documentation to the Owner's Representative and Architect under provisions of Division 01, Section 260500 and this section.
 2. Provide all project closeout documentation including but not limited to; test results, Record Drawings, product data, manufacturer warranty and Operation and Maintenance Manuals.

1.04 QUALITY ASSURANCE

- A. Comply with applicable city, county, and state codes and ordinances.
- B. Codes and Standards:
1. NEMA PB-1, Instructions for Safe Installation, Operation and Maintenance of Panelboards Rated 600 Volts or Less.
 2. NEMA 250, Enclosures for Electrical Equipment (1000 Volts Maximum).
 3. NFPA 70, National Electrical Code (NEC).
 4. UL 90 – Enclosed and Dead-front Switches.
 5. UL 248 – Low Voltage Fuses.
- C. Units UL listed and labeled. Comply with NEC as applicable to panelboards and cabinets. Comply with requirements in NEMA 1 and NEMA 250.
- D. Products shall be new unless indicated otherwise in the Contract Documents.

1.05 WARRANTY AND SERVICE

- A. Contractor shall provide a parts and labor guarantee on all Work. Contractor's guarantee shall be for a period of 1 year from Date of Acceptance, except where warranty coverage from a supplier or equipment manufacturer extends for a longer period of time.
- B. Contractor's guarantee shall cover all costs associated with troubleshooting, repair, and replacement of defective Work, including but not limited to costs for labor, transportation, lodging, materials, and equipment.

1.06 MATERIALS PROVISIONS

- A. Materials shall be provided to the Owner as specified herein. Deliver to the Owner Representative or General Contractor, as coordinated, 14 days prior to Substantial Completion. Include a signed transmittal to the Owner or Owner's Representative and General Contractor for each item type provided. Transmittal shall be included as part of the O&M manuals.
- B. Provide additional materials as follows:

1. (6) keys for panelboard enclosures to the Owner.

PART 2 - PRODUCTS

2.01 MANUFACTURER SUBSTITUTIONS

- A. Substitutions: The substitution of products shall adhere to the requirements defined in Division 01. Section 017700 – Substitutions.
 1. Panelboards shall be from a manufacturer with at least 5 years of experience in the manufacturing of equipment.
 - a. Approved manufacturers:
 - 1) Panelboards: Square D, Siemens, Eaton or prior approved.

2.02 PANELBOARDS

- A. General:
 1. Except as otherwise indicated on the Contract Drawings, panelboards, enclosures and ancillary components of types, sizes, and ratings indicated. Include number of unit panelboard devices for complete installation. Include "spaces" with hardware to receive breaker or switch of size indicated. Include CU/AL rated lugs of size to accommodate conductors shown on the Contract Drawings and specified in Section 260519.
 2. Include separate ground busbar for panels supplying isolated ground circuits.
 3. Include feed through or double lugs with amperage equal to incoming feeder amperage unless indicated larger on the Contract Drawings.
- B. Short Circuit Interrupting Rating: Fully rated for available fault current indicated on Contract Drawings. Refer to Section 262813 for additional requirements.
- C. Lighting and Appliance Panelboards: Dead-front safety type with switching and protective devices in quantities, ratings, types, and arrangement indicated on the Contract Drawings. Include bolt-on thermal magnetic type branch breakers. For multiple breakers, include common trip handle. Include copper bus bars, full-sized neutral bus, ground bus, and isolated ground bus as required.
 1. Fusible Branch Circuit Panelboards: Fusible Branch Circuit Panelboards shall be Eaton/ Bussmann™ Quik-Spec™ Coordination Panelboards type QSCP, Mersen type MFCP or approved.
 - a. Branch Fused Disconnects:
 - 1) Open fuse indication via permanently installed indicating light.
 - 2) No special tools shall be required for fuse removal.]
- D. Service and Power Distribution Panelboards: Dead-front safety type with switching and protective devices in quantities, ratings, types and with arrangement indicated on the Contract Drawings. Include copper bus bars, full-sized neutral bus, and ground bus. Include fusible or circuit breaker branch and main devices indicated on the Contract Drawings. Comply with requirements in Section 262813 for overcurrent protective devices.
- E. Load Centers: Dead-front safety type with switching and protective devices in quantities, ratings, types, and arrangement indicated on the Drawings. Include plug-in thermal magnetic type branch breakers. For multiple breakers, include common trip handle. Include copper bus bars, full-sized neutral bus, and ground bus.
- F. Panelboard Enclosures:
 1. Flush or surface as indicated on the Contract Drawings. Tight closing doors without play when latched. Where 2 cabinets are located adjacent to each other in finished areas, include matching trim of same height.
 2. Include lock for each cabinet door. Electrical distribution equipment locks common keyed.
 3. Front hinged to box – Fasten panelboard front with machine screws. Provide continuous piano hinge on right side of outer door and fasten left side of outer door with machine screws. Provide second door over dead front with continuous piano hinge on right side with door latches/locks on left side.

4. Factory prime coat finish for cabinets located in finished areas. Where cabinets are located in unfinished areas, standard lacquer or enamel finish, gray or blue-gray color acceptable for factory finish coat.
- G. Identification: Comply with requirements in Section 260553.

PART 3 - EXECUTION

3.01 INSPECTION

- A. General: Verify installation conditions as satisfactory to receive work of this section. Do not install until unsatisfactory conditions are corrected. Beginning work constitutes acceptance of conditions as satisfactory.

3.02 PREPARATION

- A. Field Measurements: Field verify locations of new and existing work prior to commencing work of this section.
- B. Protection: Protect surrounding areas and surfaces to preclude damage from work of this section.

3.03 INSTALLATION, APPLICATION, ERECTION, AND PERFORMANCE

- A. General: Install, apply, erect, and perform the work in accordance with Article "Quality Assurance" provisions, specifications, and manufacturer's installation instructions and directions. Where these may be in conflict, the more stringent requirements govern.

3.04 PANELBOARD INSTALLATION

- A. Install panelboards and enclosures where indicated on the Contract Drawings in accordance with manufacturer's written instructions, applicable requirements of NEC and NECA's "Standard of Installation", and in compliance with recognized industry practices to ensure products fulfill requirements.
- B. Secure in place with top of cabinet at 6'-0", unless otherwise noted on the Contract Drawings. Top of cabinet and trim level. Anchor cabinets directly or with concealed bracing to building structure. When panels are not located in or directly on a wall, provide support frame of formed steel channel anchored to floor and ceiling structure. Interior components not installed until structure is totally enclosed. Where panels are mounted adjacent to each other, top edges at same height.

3.05 CIRCUIT INDEX

- A. For each branch circuit panelboard, prepare typewritten index listing each circuit in panelboard by number with load designation. Install within a transparent protective cover inside cabinet door. Listing shall match circuit breaker arrangements, typically with odd numbers on left and even numbers on right. Room numbers used shall be final room numbers used in building as verified with the Owner and not room numbers indicated on the Contract Drawings.

3.06 FIELD QUALITY CONTROL

- A. Comply with requirements in Section 260810. Include copy of field test reports in the Operation and Maintenance Manual.

END OF SECTION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01, and Section 260500 apply to Work in this section.

1.02 SUMMARY

- A. Work includes wall switches, receptacles, device plates, box covers, and associated appurtenances.

1.03 SUBMITTALS

- A. Provide submittals in accordance with Division 01 and Section 260500.
- B. Submittal for this section shall be complete with all required information. Partial product submittals are not acceptable and will be returned unreviewed.
- C. Submittal shall be arranged under categories such as manufacturer warranty, products, and similar items. Include index with the submittals.
- D. Pre-construction Submittal:
 - 1. Product Data:
 - a. Organize by specification infrastructure components described in Part 2 of this section.
 - b. Submit Product Data information sheets for coordination with item and model number.
 - c. Where more than one product is shown on a page, mark product with arrow or by other means to identify exact product or products being submitted by specific part number.
 - 2. Provide plate engraving schedule for device plates.
- E. Test Report Submittal:
 - 1. Field test reports.
 - 2. Submit completed copy of reports and include copy in the Operation and Maintenance Manual.
- F. Closeout Submittal:
 - 1. Submit closeout documentation to the Owner's Representative and Architect under provisions of Division 01, Section 260500 and this section.
 - 2. Provide all project closeout documentation including but not limited to; test results, schedules, product data, manufacturer warranty and Operation and Maintenance Manuals.

1.04 QUALITY ASSURANCE

- A. Comply with applicable city, county, and state codes and ordinances.
- B. Codes and Standards:
 - 1. Federal Specification W-C-596, Electrical Power Connector, Plug, Receptacle, and Cable Outlet.
 - 2. Federal Specification W-S-896, Switch, Toggle.
 - 3. NEMA WD 1, General Color Requirements for Wiring Devices.
 - 4. NFPA 70, National Electrical Code (NEC).
 - 5. UL 498, Standard for Attachment Plugs and Receptacles.
- C. Products shall be new unless indicated otherwise in the Contract Documents.

1.05 WARRANTY AND SERVICE

- A. Contractor shall provide a parts and labor guarantee on all Work. Contractor's guarantee shall be for a period of one (1) year from Date of Acceptance, except where warranty coverage from a supplier or equipment manufacturer extends for a longer period of time.
- B. Contractor's guarantee shall cover all costs associated with troubleshooting, repair, and replacement of defective Work, including but not limited to costs for labor, transportation, lodging, materials, and equipment.

PART 2 - PRODUCTS

2.01 MANUFACTURER SUBSTITUTIONS

- A. Substitutions: The substitution of products shall adhere to the requirements defined in Division 01, Section 017700 – Substitutions.
 - 1. Wiring devices shall be from a manufacturer with at least 5 years of experience in the manufacturing of equipment.
 - a. Approved manufacturers:
 - 1) Wall switches: Leviton, Bryant Electric, General Electric, Hubbell, Pass and Seymour or approved.
 - 2) Push Button Wall switches: Safety Technology International, Inc. or approved.
 - 3) Incandescent Wall Dimmers: Leviton, Lutron, Bryant Electric, Hubbell, Pass and Seymour, or approved.
 - 4) Fluorescent Wall Dimmers: Leviton, Lutron, Bryant Electric, Hubbell, Pass and Seymour, or approved.
 - 5) LED Wall Dimmers: Leviton, Lutron, Bryant Electric, Hubbell, Pass and Seymour, or approved.
 - 6) Low Voltage Control: General Electric, Square-D, Cutler Hammer, Siemens, or approved.
 - 7) Receptacles: Leviton, Bryant Electric, Crouse Hinds, Hubbell, Pass and Seymour, or approved.
 - 8) Device Plates: Bryant Electric, Hubbell, Leviton, Pass and Seymour, or approved.

2.02 WALL SWITCHES

- A. Wall Switches for Lighting Circuits: NEMA WD 1. General use snap switch with ivory colored toggle handle rated 20 Amps and 120/277 Volts AC. Switch with back and side wired screw type terminals. Units specification grade.
 - 1. Manufacturer Leviton:
 - a. Single-Pole Toggle Switch, Part No. 1221-2.
 - b. Double-Pole Toggle Switch, Part No.1222-2.
 - c. Three-Way Toggle Switch, Part No.1223-2.
 - d. Four-Way Toggle Switch, Part No.1224-2.
- B. Key Type Switches: (Rating same as for wall switches)
 - 1. Manufacturer Leviton:
 - a. Single-Pole Key Switch, Part No. 1221-2L.
 - b. Double-Pole Key Switch, Part No.1222-2L.
 - c. Three-Way Key Switch, Part No.1223-2L.
 - d. Four-Way Key Switch, Part No.1224-2L.
- C. Pilot Light Type: Red pilot handle, which shall be illuminated when switch is ON. (Rating same as for wall switches)
 - 1. Manufacturer Leviton, Part No. 1221-PLR (120V)/1221-7PR (277V).
- D. Lighted Handle Type: White pilot handle which shall be illuminated when switch is OFF. (Rating same as for wall switches)
 - 1. Manufacturer Leviton, Part No.1221-LHW (120V)/1221-7LW (277V).
- E. Momentary Contact Line Voltage Switches: Single pole, double throw, 3-wire, normally open. (Rating same as for wall switches)
 - 1. Manufacturer Leviton, Part No. 1257.
- F. Modular Wall Switches for Lighting Circuits: General use snap switch with colored toggle handle rated 20 Amps and 120/277 Volts AC.

1. Manufacturer Leviton:
 - a. Single-Pole Toggle Switch, Part No. M1221 with MSPSW-ST wiring module for 120V and MSPSW-7ST wiring module for 277V.]
 - G. Weatherproof: Switches mounted in a cast metal box with gasketed, weatherproof device plate.
 - H. Finish: Confirm Color and finish with Architect.
- 2.03 Push Button Switches
- A. Multipurpose Push Button Switches shall be comprised of a molded Polycarbonate housing, in color yellow with stainless steel back plate and Stopper Station Shield and feature push button operation. Rotation of button shall reset device. Device shall be ADA compliant and.
 1. Manufacturer Safety Technology International, Inc.
 - a. Emergency Power Off, Part No. SS-2221PO
 - 1) Shell label: "EMERGENCY POWER OFF"
 - b. Emergency Gas Shut-off, Part No. SS-2221
 - 1) Shell label: "EMERGENCY GAS SHUT-OFF"
- 2.04 LED WALL DIMMERS
- A. LED dimmers shall be provided as a minimum rated at 1200W (@ 120V), 1500 (@ 277V), Single-Pole and/ or 3-Way, Preset Electro-Mechanical Incandescent Slide Dimmer for use with LED or Fluorescent ballasts and power supplies with LED locator light. Accessory wall switch shall match the dimmer appearance. Load shall match as indicated in the Contract Drawings.
 1. Manufacturer Leviton, Part No. IP710-DLZ
 - B. Finish: Confirm Color and finish with Architect.
- 2.05 LOW VOLTAGE CONTROL
- A. Relays:
 1. Manufacturer General Electric, Type RR-7.
 - B. Switches:
 1. Manufacturer General Electric, Type RTS-5.
 - C. Transformers:
 1. Manufacturer General Electric, Type RT1 and RT2.
 - D. Rectifiers:
 1. Manufacturer General Electric Type RA16.
 - E. Device Plates: As specified in Article "Device Plates."
 - F. Finish: Confirm Color and finish with Architect.
 - G. Copper conductor for low voltage control purpose furnished by supplier of low voltage relays and switches.
- 2.06 RECEPTACLES
- A. Convenience and Straight-Blade Receptacles: NEMA WD 1. Units specification grade.
 - B. Convenience Receptacle Configuration:
 1. 20A-125V, NEMA 5-20R, straight blade with grounding type with, back and side wired screw type terminals.
 2. Manufacturer Leviton:
 - a. Duplex Receptacle, Part No. 5362.
 - b. Single Receptacle, Part No. 5361.
 - c. Isolated Ground Duplex Receptacles, Part No. 5362-IG.
 - d. USB Charger/Duplex Receptacle, Part No. T5832.

- e. GFCI Receptacles Duplex, convenience receptacle with integral ground fault circuit interrupter. Units feed-through type for downstream device protection, Part No. GFNT2.
 - f. Controlled Receptacle, Part No. 5362-S2.
- C. Tamper Resistant Receptacle Configuration:
- 1. 20A-125V, NEMA 5-20R, straight blade with grounding type with, back and side wired screw type terminals.
 - 2. Manufacturer Leviton:
 - a. Duplex Receptacle, Part No. 5362-SG.
 - b. USB Charger/Duplex Receptacle, Part No. T5832.
 - c. GFCI Receptacles: Duplex convenience receptacle with integral ground fault circuit interrupter. Units feed-through type for downstream device protection, Part No. G5362-WT.
 - d. Controlled Receptacle, Part No. 5362-2P.
 - 3. Manufacturer Leviton:
 - a. Single Receptacle, Part No. 8310.
 - b. Duplex Receptacle, Part No. 8300-SG.
 - c. Isolated Ground Duplex Receptacles: Leviton Model 8300-OIG.
 - d. USB Charger/Duplex Receptacle: Leviton Model T5832-HG.
 - e. GFCI Receptacles: Duplex convenience receptacle with integral ground fault circuit interrupter. Units feed-through type for downstream device protection, Part No. GFNT2-HG for non-tamper resistant and Part No. GFTR2-HG for tamper resistant.
- D. Modular Wiring Devices:
- 1. 20A-125V, NEMA 5-20R, straight blade with grounding type.
 - 2. Manufacturer Leviton:
 - a. Duplex Receptacle, Part No. M5362-S with MSTWL-A wiring module.
 - b. Tamper Resistant Duplex Receptacle, Part No. MT563-S with MSTWL-A wiring module.
 - c. GFCI Receptacles: Duplex convenience receptacle with integral ground fault circuit interrupter. Units feed-through type for downstream device protection, Part No. MGFN2 with MSTWL-A wiring module.
 - d. GFCI Tamper Resistant Receptacles: Duplex convenience receptacle with integral ground fault circuit interrupter. Units feed-through type for downstream device protection, Part No. MGFT2 with MSTWL-A wiring module.
- E. Weatherproof Receptacles: Receptacles mounted in a cast steel box with gasketed, weatherproof device plate. Leviton W7899-TRW.
- F. Specific Receptacle Configuration: NEMA WD 1. Type as indicated on the Contract Drawings, with black plastic face.
- G. Finish: Confirm Color with Architect.

2.07 DEVICE PLATES

- A. Plates in Finished Areas: Confirm Color with Architect, smooth plastic, except as noted below:
- 1. Wall plates for isolated ground receptacles to be provided with 1/4 inch specially engraved black letters "COMPUTER ONLY".
 - 2. Wall plates for emergency receptacles to be provided with 1/4 inch specially engraved red letters "EMERGENCY".
 - 3. Wall plates for dedicated receptacles to be provided with 1/4 inch specially engraved black letters "DEDICATED".
 - 4. Wall plates for receptacles protected by GFCI circuit breaker or feed-through GFCI receptacle to be provided with 1/4 inch specially engraved black letters "GFCI PROTECTED".

- a. Manufacturer Leviton, Part No. 80401-GFW.
- 5. Wall plates for receptacles other than NEMA 5-20R to be provided with 1/4 inch specially engraved black letters which show ampere rating, voltage, and phase.
- B. Plates on Surface Mounted Boxes: Sized to fit box without extending over sides of box.
- C. Cast Metal Plates: Cast metal box. Steel plates with steel boxes and copper-free aluminum with aluminum boxes. Stainless steel screws.
- D. Raised Sheet Steel Plates: 1/2-inch-high zinc or cad-plated covers with surface mounted sheet steel boxes.
- E. Weatherproof Cover Plate:
 - 1. Cast metal with hinged gasketed device covers.
 - 2. Manufacturer Leviton,
 - a. While In-Use Cover: Part No. IUM1V-GY unless otherwise noted on the Contract Drawings.
 - b. Not In-Use Cover: Part No. WM1V-GY only where noted on the Contract Drawings.
- F. Finish of Attachment Screws: Match that of its respective device plate.

PART 3 - EXECUTION

3.01 INSPECTION

- A. General: Verify installation conditions as satisfactory to receive work of this section. Do not install until unsatisfactory conditions are corrected. Beginning work constitutes acceptance of conditions as satisfactory.

3.02 PREPARATION

- A. Field Measurements: Field verify locations of new and existing work prior to commencing work of this section.
- B. Protection: Protect surrounding areas and surfaces to preclude damage from work of this section.

3.03 INSTALLATION, APPLICATION, ERECTION, AND PERFORMANCE

- A. General: Install, apply, erect, and perform the work in accordance with Article "Quality Assurance" provisions, specifications, and manufacturer's installation instructions and directions. Where these may be in conflict, the more stringent requirements govern.

3.04 WIRING DEVICE INSTALLATION

- A. Install wiring devices in clean electrical boxes, free from excess building materials, dirt, and debris.
- B. Install jumbo size plates for outlets in masonry walls.
- C. Install galvanized steel plates on outlet boxes and junction boxes in unfinished areas, above accessible ceilings, and on surface mounted outlets.
- D. Install devices and wall plates flush and level.
- E. Fasten each device to outlet box at wall surface to bring receptacle flush with plate or for switch handle the proper distance through plate.

3.05 ORIENTATION

- A. Install switches vertical with handle operating vertically, up position "ON". Install center at 44 inches above finished floor unless noted otherwise on the Drawings.
- B. Install receptacles vertical with ground slot down centered at 18 inches above finished floor and 6 inches above counters.
- C. Install exterior receptacles horizontal at 18 inches above finished grade.

3.06 RECEPTACLE GROUNDING

- A. Install bare bonding wire between receptacle grounding terminal and box. Plaster ear screws connecting frame to box are not acceptable for grounding.

3.07 HANDICAPPED ACCESS

- A. Comply with requirements of Washington State Handicapped Access Code.

3.08 FIELD QUALITY CONTROL

- A. Comply with requirements in Section 260810. Include copy of field test reports in the Operation and Maintenance Manual.
- B. Prior to energizing circuitry, test wiring devices for electrical continuity and polarity connections. After energizing circuitry, test wiring devices to demonstrate compliance with requirements.

END OF SECTION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01, and Section 260500 apply to Work in this section.

1.02 SUMMARY

- A. Work includes overcurrent protective devices for operation at 600 Volts and below, including circuit breakers and fuses as individual components in separate enclosures and for installation as integral components of switchboards and panelboards and associated appurtenances.

1.03 SUBMITTALS

- A. Provide submittals in accordance with Division 01 and Section 260500.
- B. Submittal for this section shall be complete with all required information. Partial product submittals are not acceptable and will be returned unreviewed.
- C. Submittal shall be arranged under categories such as manufacturer warranty, products, and similar items. Include index with the submittals.
- D. Pre-construction Submittal:
 - 1. Product Data:
 - a. Organize by specification infrastructure components described in Part 2 of this section.
 - b. Submit Product Data information sheets for coordination with item and model number of overcurrent protective devices, including catalog cuts, time-current trip characteristic curves, and mounting requirements.
 - c. Where more than one product is shown on a page, mark product with arrow or by other means to identify exact product or products being submitted by specific part number.
 - 2. Shop Drawings:
 - a. Provide dimensioned drawings of overcurrent protective devices to include layouts of circuit breakers with spatial relationships to proximate equipment.
 - b. Prepare overcurrent protective device shop drawings using AutoCAD/ Revit software or as approved by the Owner and or A/E. Shop drawings shall be submitted as full size, in PDF format.
- E. Test Report Submittal:
 - 1. Field test reports.
 - 2. Submit completed copy of reports and include copy in the Operation and Maintenance Manual.
- F. Record Drawing Submittal:
 - 1. Keep complete set of overcurrent protective device drawings in job-site office to show actual installation of cabling and equipment during construction for recording as-built conditions.
 - 2. Record drawings set shall indicate where material, equipment, and system component are installed differently than indicated on the Contract Drawings, clearly and neatly using red ink or indelible red pencil during construction.
 - 3. Prepare electronic set of Record Drawings, incorporating changes during construction.
 - 4. Submit Record Drawings to the Owner's Representative for review and acceptance.
 - 5. Submit Record Drawings saved as AutoCAD version 2018 (.dwg) format and in PDF format. The contractor shall request final architectural AutoCAD background drawing files that incorporate all project floor plan modifications and numbering of spaces.
 - a. AutoCAD drawings shall utilize the e-transmit capability to include all drawing backgrounds, title block and other associated files.
 - 6. Submit electronic copy of Record Drawings in full-size PDF and AutoCAD format, on CD-ROM or USB thumb drive where requested by the Owner's Representative.
- G. Closeout Submittal:

1. Submit closeout documentation to the Owner's Representative and Architect under provisions of Division 01, Section 260500 and this section.
2. Provide all project closeout documentation including but not limited to; test results, Record Drawings, product data, manufacturer warranty and Operation and Maintenance Manuals.
3. Provide signed documentation confirming all circuit breaker settings were adjusted to match the power studies final report.

1.04 QUALITY ASSURANCE

- A. Comply with applicable city, county, and state codes and ordinances.
- B. Codes and Standards:
 1. NFPA 70, National Electrical Code (NEC).
 2. UL 489, Molded-Case Circuit Breakers, Molded-Case Switches and Circuit-Breaker Enclosures.
- C. Comply with NEMA and ANSI standards as applicable to construction and installation of overcurrent protective devices.
- D. Products shall be new unless indicated otherwise in the Contract Documents.

1.05 WARRANTY AND SERVICE

- A. Contractor shall provide a parts and labor guarantee on all Work. Contractor's guarantee shall be for a period of one (1) year from Date of Acceptance, except where warranty coverage from a supplier or equipment manufacturer extends for a longer period of time.
- B. Contractor's guarantee shall cover all costs associated with troubleshooting, repair, and replacement of defective Work, including but not limited to costs for labor, transportation, lodging, materials, and equipment.

1.06 MATERIALS PROVISIONS

- A. Materials shall be provided to the Owner as specified herein. Deliver to the Owner Representative or General Contractor, as coordinated, 14 days prior to Substantial Completion. Include a signed transmittal to the Owner or Owner's Representative and General Contractor for each item type provided with an itemized summary of each fuse type. Transmittal shall be included as part of the O&M manuals.
- B. Provide additional materials as follows:
 1. Fuses: For each type and rating, furnish additional fuses amounting to 1 unit for every 5 units installed, but not less than 2 units of each size and type.
 2. Spare Fuse Cabinet: Provide one, sized to house spare fuses provided under this contract plus 25% additional space for future.
 3. Electronic Trip Unit Test Set: Furnish one set, including associated software, capable of testing all circuit breakers.

PART 2 - PRODUCTS

2.01 MANUFACTURER SUBSTITUTIONS

- A. Substitutions: The substitution of products shall adhere to the requirements defined in Division 01, Section 017700 – Substitutions.
 1. Overcurrent protective devices shall be from a manufacturer with at least 5 years of experience in the manufacturing of equipment.
 - a. Approved manufacturers:
 - 1) Circuit Breakers: Circuit breaker manufacturer shall be same as panelboard and switchboard manufacturer when installed therein.
 - 2) Fusible Circuit Breakers: Bussmann Mfg. Co.
 - 3) Fuses: Bussmann Mfg. Co., Mersen Electrical Power or Ferraz Shawmut. Fuses shall be by one manufacturer.

2.02 CIRCUIT BREAKERS

A. General:

1. UL 489 fixed mounted molded case type with unless indicated otherwise.
2. Overcenter, trip-free, toggle type operating mechanisms with quick-make, quick-break action and positive handle indication.
3. Common trip for two and three pole Circuit breakers. Handles permitted on approval of samples.
4. Trip ratings imprinted on handle or visible through deadfront cover.
5. Constructed for mounting and operating in any physical position and calibrated for operation in ambient temperature up to 40° C.
6. Mechanical screw type removable connector lugs, AL/CU rated, to accommodate conductors specified. Rated for 75° C conductors for 60 Amp and larger circuit breakers.
7. Amperage and Voltage as indicated.
8. Short circuit rating:
 - a. RMS interrupting rating as indicated.
 - b. Minimum 10,000 AIC rating at 120, 208 and 240 Volts.
 - c. Minimum 14,000 AIC rating at 277 and 480 Volts.
9. Ground Fault Interrupter (GFI) circuit breakers:
 - a. Equipped with integral Class B ground fault interrupter set to trip on ground fault of thirty milliamps or greater.
 - b. Adjustable settings shall not exceed 1200 amperes.
10. Ground Fault Circuit Interrupter (GFCI) circuit breakers:
 - a. Equipped with integral Class A ground fault circuit interrupter set to trip on ground fault of six milliamps or greater.
11. Arc Fault Circuit Interrupter (AFCI) where indicated.
12. Switching rated for 120 Volt and 277 Volt lighting branch circuits.
13. HACR rating where serving air conditioning and refrigeration equipment.
14. Current limiting, utilizing non-fuse type current limiting, where indicated.
15. Tandem-mounted circuit breakers not acceptable.
16. Minimum Frame Size:
 - a. To match trip rating, unless indicated otherwise.
17. Keyed Interlocks:
 - a. Externally mounted to prohibit circuit breaker operation.
 - b. Provide nameplates at each keyed interlock indicating interlocked circuit breaker and sequence of operation.
18. Zone-Selective Interlocking:
 - a. Integral with ground fault trip unit for interlocking ground fault protection function.
19. Arc Energy Reduction:
 - a. Provide energy-reducing maintenance switch with local status indicator for use as a temporary arc-flash incident energy-reduction device during maintenance activities.
 - b. Provide for each circuit breaker with a frame size 1200 Amps and larger and as indicated.
 - c. Provide a manual switch on the compartment door to switch the circuit-breaker short-time tripping characteristics to instantaneous with minimum pickup setting, to reduce the danger from potential arc-flash at downstream equipment.
 - d. Provide a lock feature for the switch so that it may be locked in either the off or on maintenance-mode position.
 - e. Provide a blue LED indicating light to indicate that the switch is in maintenance mode.

- f. Provide dry relay contacts on each switch for annunciation of the switch position.

2.03 TRIP UNITS

- A. General:
 - 1. Thermal magnetic unless indicated otherwise.
- B. Thermal Magnetic Trip Unit:
 - 1. Adjustable magnetic trip setting for sizes 250 Amps and larger.
- C. Electronic Trip Unit: Field-replaceable rating plug. RMS sensing, microprocessor-based, programmable, time-current shaping adjustments; complete with current transformers and sensors and the following features:
 - 1. Programmable functions independent of each other in both action and adjustment.
 - 2. Adjustable settings:
 - a. Instantaneous trip; long and short-time time adjustments; long and short-time pickup adjustments.
 - b. Where ground fault protection indicated, ground fault pickup level, time delay and I2t response.
 - c. Built-in test points for testing the long time, short time, delay, instantaneous, and ground fault functions of the circuit breaker.
 - 3. Trip Indication:
 - a. Labeled, battery-powered lights or mechanical targets on trip device to indicate type of fault.

2.04 FUSES

- A. General:
 - 1. Fuses of type, sizes, ratings, and electrical characteristics of single manufacturer.
 - 2. Fuses labeled UL Class L, UL Class R, current limiting, rated for up to 200,000 Amps.
- B. Where fuses are shown on the Drawings feeding individual or groups of equipment items, comply with manufacturer's recommendation for fusing. Adjust fuse size and type to comply with manufacturer's recommendation.
- C. Main Service, Feeder and Branch Circuit Fuses:
 - 1. For fuse ratings over 600 Amps: UL Class L (KRP-C or A4BY).
 - 2. For fuse ratings up to 600 Amps: UL Class RK1 (KTN-R, KTS-R or A2K-R, A6K-R).
 - 3. Feeder or branch circuit directly feeding motors, transformers, and other inductive load: UL RK5 time delay (FRN-R, FRS-R or TR-R or TRS-R).
 - 4. Other Branch Circuits: UL Class RK1, (KTN-R, KTS-R or A2K-R, A6K-R).

PART 3 - EXECUTION

3.01 INSPECTION

- A. General: Verify installation conditions as satisfactory to receive work of this section. Do not install until unsatisfactory conditions are corrected. Beginning work constitutes acceptance of conditions as satisfactory.

3.02 PREPARATION

- A. Field Measurements: Field verify locations of new and existing work prior to commencing work of this section.
- B. Protection: Protect surrounding areas and surfaces to preclude damage from work of this section.

3.03 INSTALLATION, APPLICATION, ERECTION, AND PERFORMANCE

- A. General: Install, apply, erect, and perform the work in accordance with Article "Quality Assurance" provisions, specifications, and manufacturer's installation instructions and directions. Where these may be in conflict, the more stringent requirements govern.

3.04 CIRCUIT BREAKERS

- A. Install in panelboards, switchboards and enclosures, in accordance with the manufacturer's recognized industry practices to ensure that protective devices comply with requirements. Comply with NEC and NEMA standards.
- B. Install handle ties for multiwire branch circuits per Section 260519.

3.05 FUSES

- A. Install fuses in switches, panelboards, switchboards and enclosures. Install fuses so current rating is visible from front when cover is open.
- B. Do not install until equipment is ready to be energized.
- C. Coordinate with equipment furnished by others for proper fuse type and size.
- D. For motor and equipment circuits, fuse sizes shown on the Contract Drawings are for general guidance only. Size fuses in accordance with fuse manufacturer's recommendation for given motor nameplate ampere rating. Test operation. If nuisance tripping occurs, increase fuse size and disconnect device (if necessary) for nuisance free tripping. Adjust fuse size for ambient temperature, frequent starting and stopping of motor loads, and for loads with long start times.

3.06 FIELD QUALITY CONTROL

- A. Test circuit breakers as specified in Section 260810.

END OF SECTION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 and Section 260500 apply to Work in this section.

1.02 SUMMARY

- A. Work includes disconnect switches, enclosed circuit breakers, and associated appurtenances.

1.03 SUBMITTALS

- A. Provide submittals in accordance with Division 01 and Section 260500.
- B. Submittal for this section shall be complete with all required information. Partial product submittals are not acceptable and will be returned unreviewed.
- C. Submittal shall be arranged under categories such as manufacturer warranty, products, and similar items. Include index with the submittals.
- D. Pre-construction Submittal:
 - 1. Product Data:
 - a. Organize by specification infrastructure components described in Part 2 of this section.
 - b. Submit Product Data information sheets and manufacturer's maintenance data for each type of item and model number. Include equipment characteristics such as ratings, enclosure type, dimensions and weight.
 - c. Where more than one product is shown on a page, mark product with arrow or by other means to identify exact product or products being submitted by specific part number.
- E. Arc-Flash Study: Perform an Arc-Flash Study in accordance with the NEC and Authority Having Jurisdiction to determine the incident energy exposure, the flash protection boundary, shock hazard approach limits and required PPE levels.
 - 1. Study to provide required data for approved arc flash warning labels on all disconnect switches.
 - 2. Provide and adhere Arc Flash labels to equipment.
- F. Closeout Submittal:
 - 1. Submit closeout documentation to the Owner's Representative and Architect under provisions of Division 01, Section 260500 and this section.
 - 2. Provide all project closeout documentation including but not limited to; test documentation, material transmittals, product data, manufacturer warranty and Operation and Maintenance Manuals.

1.04 QUALITY ASSURANCE

- A. Comply with applicable city, county, and state codes and ordinances.
- B. Codes and Standards:
 - 1. NFPA 70, National Electrical Code (NEC).
 - 2. UL 98, Enclosed and Dead-Front Switches.
 - 3. UL 489, Molded-Case Circuit Breakers, Molded-Case Switches and Circuit-Breaker Enclosures.
- C. Products shall be new unless indicated otherwise in the Contract Documents.

1.05 WARRANTY AND SERVICE

- A. Contractor shall provide a parts and labor guarantee on all Work. Contractor's guarantee shall be for a period of one (1) year from Date of Acceptance, except where warranty coverage from a supplier or equipment manufacturer extends for a longer period of time.
- B. Contractor's guarantee shall cover all costs associated with troubleshooting, repair, and replacement of defective Work, including but not limited to costs for labor, transportation, lodging, materials, and equipment.

PART 2 - PRODUCTS

2.01 MANUFACTURER SUBSTITUTIONS

- A. Substitutions: The substitution of products shall adhere to the requirements defined in Division 01. Section 017700 – Substitutions.
 - 1. Disconnect switches and circuit breakers shall be same as panelboard and switchboard manufacturer, unless prior approved.
- B. Disconnect Switches and Enclosed Circuit Breakers: Manufacturer shall be same as panelboard and switchboard manufacturer, unless prior approved.

2.02 GENERAL

- A. Ratings: Voltage, Amperage and horsepower rating suitable for circuit and equipment controlled. Service entrance rated where indicated or required.
- B. Enclosures: (Surface-mounted)
 - 1. NEMA Type 1, in general.
 - 2. NEMA Type 3R where exposed to moisture and where shown on the Contract Drawings.
- C. Accessories:
 - 1. Padlockable in “OFF” position.
 - 2. Labeled “ON”/”OFF” position.
 - 3. Ground lug.
 - 4. Neutral lug where applicable.
 - 5. Other accessories as indicated.
- D. Nameplates: Per Section 260553.

2.03 DISCONNECT SWITCHES

- A. General: Heavy duty, UL 98, horsepower rated with external handle.
- B. Interlock: Defeatable door interlock that prevent door from opening when operating handle is in “ON” position.
- C. Fusible or non-fusible as indicated. Provide fuse rejection clips where Class R fuses are specified.
- D. Quick-make, quick-break mechanism. Visible blades.

2.04 ENCLOSED CIRCUIT BREAKERS

- A. Circuit Breaker: Thermal magnetic circuit breaker per Section 262813. One form “C” auxiliary contact activated when circuit breaker open.
- B. Short Circuit Interrupting Rating: Fully rated for available fault current as noted in Contract Documents.

PART 3 - EXECUTION

3.01 INSPECTION

- A. General: Verify installation conditions as satisfactory to receive work of this section. Do not install until unsatisfactory conditions are corrected. Beginning work constitutes acceptance of conditions as satisfactory.

3.02 PREPARATION

- A. Field Measurements: Field verify locations of new and existing work prior to commencing work of this section.
- B. Protection: Protect surrounding areas and surfaces to preclude damage from work of this section.

3.03 INSTALLATION, APPLICATION, ERECTION, AND PERFORMANCE

- A. General: Install, apply, erect, and perform the work in accordance with Article “Quality Assurance” provisions, specifications, and manufacturer’s installation instructions and directions. Comply with applicable requirements of NEC, NEMA and NECA standards, and with recognized industry practice. Where these may be in conflict, the more stringent requirements govern.

- B. Install where indicated on the Contract Drawings and where required. Mount independent of equipment served; do not attach to equipment served.
- C. Coordinate installation work with electrical raceway, wire, and cable work as necessary for proper interface. Comply with requirements in Section 260533.
- D. Install within sight of equipment or controller served.
- E. Where locations are not shown on Contract Drawings, locate on wall adjacent to equipment being served or on formed steel channel frame at face of equipment. Coordinate location to maintain equipment clearances.

3.04 FIELD QUALITY CONTROL

- A. Comply with requirements in Section 260810. Include copy of field test reports in the Operation and Maintenance Manual.

END OF SECTION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 and Section 260500 apply to Work in this section.
- B. Comply with requirements in other specification sections for concrete for embedding poles, pole foundations, and footings for exterior area lighting poles, standards, and foundations. Pole bases included in this section.
- C. Where conflict occurs in the Contract Documents, the Lighting Fixture Schedule shall take precedence.

1.02 SUMMARY

- A. Work includes interior and exterior light fixtures, drivers, LED's and associated appurtenances.

1.03 DEFINITIONS

- A. **Average Life:** The time after which 50 percent will have failed and 50 percent will have survived under normal conditions.
- B. **BF:** Ballast factor.
- C. **cd:** Candela. The measure of luminous intensity of a source in a given direction.
- D. **CCT:** Correlated color temperature.
- E. **CRI:** Color-rendering index.
- F. **CU:** Coefficient of utilization.
- G. **fc:** Foot candle. A unit of illuminance or light falling onto a surface.
- H. **Fixture:** A complete lighting unit or exit sign. Fixtures include lamps and parts required to distribute the light, position and protect lamps, and connect lamps to the power supply.
- I. **HID:** High-intensity discharge.
- J. **HO:** High output.
- K. **IC:** Insulation contact.
- L. **K:** Kelvin.
- M. **Lamp:** The complete light source package, including all associated components (base, pins, filament, outer bulb, solid state components, etc.) that make up a single unit.
- N. **LER:** Luminaire efficacy rating.
- O. **Lumen:** Measured output of lamp and luminaire, or both.
- P. **Luminaire:** Fixture, Light Fixture or Lighting Fixture. See Fixture.
- Q. **PCB:** Polychlorinated Biphenyl.
- R. **PF:** Power factor.
- S. **Rated Lamp Life:**
 - 1. Incandescent, Fluorescent and HID lamps: The time after which half of the tested sample of lamps have extinguished.
 - 2. Solid State lamps: L-70, the time after which 70% of the initial lumen output is maintained out of the respective light fixture.
- T. **THD:** Total harmonic distortion.

1.04 SUBMITTALS

- A. Comply with requirements in Division 01 and Section 260500.
- B. Submittal for this section shall be complete with all required information. Partial product submittals are not acceptable and will be returned unreviewed.
- C. Submittal shall be arranged under categories such as manufacturer warranty, products, certifications, and similar items. Include index with the submittals.
- D. Pre-construction Submittal:

1. Product Data:
 - a. Organize by specification infrastructure components described in Part 2 of this section.
 - b. Submit Product Data information sheets and maintenance data for each type of lighting fixture including but not limited to lamp, ballast (or driver) and appurtenances.
 - c. Create a schedule for all light fixture types with ballast and lamp type, including manufacturer name and part number(s).
 - d. Submit copy of individual and/or tandem warranties for light fixture, lamp and ballast (or driver), as applicable.
 - e. Where more than one product is shown on a page, mark product with arrow or by other means to identify exact product or products being submitted by specific part number.
 - f. For solid state lamps:
 - 1) Provide IES LM-79 report.
 - 2) Provide IES TM-21 report.
 - 3) Provide Bin Coding System Chart, with appropriate target CCT reference line, identifying which bin corresponds to the lamps supplied to each light fixture. For light fixtures with multiple solid-state lamps, identify which bins shall be included for color mixing.
2. Shop Drawings:
 - a. Submit dimensioned drawings of each type of lighting fixtures. Submit in booklet form with separate sheet for each fixture, assembled in light fixture "type" in alphabetical order with proposed fixture and appurtenance clearly indicated on each sheet.
 - b. Drawings shall include support and hanging details for lighting fixtures weighing more than 56 pounds and pendant hung lighting fixtures requiring support design approved by the AHJ.
 - c. Prepare lighting shop drawings using AutoCAD/ Revit software or as approved by the Owner and or A/E. Shop drawings shall be submitted as full size, in PDF format.
- E. Test Report Submittal:
 1. Field test reports.
 2. Submit completed copy of reports and include copy in the Operation and Maintenance Manual.
- F. Record Drawing Submittal:
 1. Keep complete set of lighting drawings in job-site office to show actual installation during construction for recording as-built conditions.
 2. Record drawings set shall indicate where material and system component are installed differently than indicated on the Contract Drawings, clearly and neatly using red ink or indelible red pencil during construction.
 3. Prepare electronic set of Record Drawings, incorporating changes during construction.
 4. Submit Record Drawings to the Owner's Representative for review and acceptance.
 5. Submit Record Drawings saved as AutoCAD version 2018 (.dwg) format and in PDF format. The contractor shall request final architectural AutoCAD background drawing files that incorporate all project floor plan modifications and numbering of spaces.
 - a. AutoCAD drawings shall utilize the e-transmit capability to include all drawing backgrounds, title block and other associated files.
 6. Submit electronic copy of Record Drawings in full-size PDF and AutoCAD format, on CD-ROM or USB thumb drive where requested by the Owner's Representative.
- G. Closeout Submittal:
 1. Submit closeout documentation to the Owner's Representative and Architect under provisions of Division 01, Section 260500 and this section.
 2. Provide all project closeout documentation including but not limited to; Record Drawings, product data, manufacturer warranty and Operation and Maintenance Manuals.

1.05 QUALITY ASSURANCE

- A. Comply with applicable city, county, and state codes and ordinances.
- B. Codes and Standards:
 - 1. NFPA 70, National Electrical Code (NEC).
- C. Comply with NEC and NEMA for installation and construction of lighting fixtures.
- D. Components, Devices and Accessories shall be listed and labeled for intended use as defined in NEC, by a qualified testing agency and acceptable to the AHJ.
- E. Lighting fixtures shall be UL listed and labeled.
- F. Each lamp and ballast type shall be of the same manufacturer.
- G. Lighting fixtures for hazardous locations shall be listed and labeled for indicated class and division of hazard by FM Global.
- H. Lighting fixtures in damp or wet locations shall be listed for such use and labeled as either "Suitable for Damp Locations" or "Suitable for Wet Locations".
- I. Products shall be new unless indicated otherwise in the Contract Documents.

1.06 COORDINATION

- A. Review light fixture types with respective ceiling type prior to ordering. Initiate a meeting with the ceiling installer and issue meeting minutes to the A/E. Inform A/E where mounting method conflict occurs.
- B. Review light fixture types with location of building insulation prior to ordering. Initiate a meeting with the insulation installer and issue meeting minutes to the A/E. Inform A/E where non-IC rated light fixture are in conflict with the building insulation.
- C. Review light fixture types with final millwork shop drawings. Initiate a meeting with the casework installer and issue meeting minutes to the A/E. Verify light fixtures will fit where specified in or adjacent millwork prior to rough-in.
- D. Coordinate layout and installation of light fixtures and associated support methods with all trades.
- E. Where required by the Owner or Contractor provide coordination meetings once a month (throughout construction) with the general contractor, ceiling installer, sprinkler installer, HVAC installer, plumber, telecommunications installer and all other applicable trades.

1.07 WARRANTY AND SERVICE

- A. Contractor shall provide a parts and labor guarantee on all Work. Contractor's guarantee shall be for a period of one (1) year from Date of Acceptance, except where warranty coverage from a supplier or equipment manufacturer extends for a longer period of time.
- B. Contractor's guarantee shall cover all costs associated with troubleshooting, repair, and replacement of defective Work, including but not limited to costs for labor, transportation, lodging, materials, and equipment.
- C. Occupancy/ Vacancy Sensors: 5 years.
- D. Solid State Lamps and Drivers: 5 years.
- E. Batteries (in light fixture or unit equipment): Manufacturer's standard form in which manufacturer shall repair or replace components of rechargeable batteries that do not comply with minimum Code required life, within 5 years..

1.08 MATERIAL PROVISIONS

- A. Materials shall be provided to the Owner as specified herein. Deliver to the Owner Representative or General Contractor, as coordinated, 14 days prior to Substantial Completion. Include a signed transmittal to the Owner or Owner's Representative and General Contractor for each item type provided. Transmittal shall be included as part of the O&M manuals.
- B. Provide additional materials as follows:
 - a. Furnish five [ten] percent (but not less than one lamp) of each type and size used on the project. This does not include solid state lamps.

- b. Furnish [five] percent (but not less than one solid state lamp) of solid-state lamps for each type used on the project that has replaceable components.
2. Ballasts/Drivers:
 - a. Furnish five [ten] percent (but not less than one ballast) of ballasts for each type used on the project. (This does not include solid state drivers/power supplies.)
 - b. Furnish [two] percent (but not less than one driver) of solid-state drivers/power supplies for each type used on the project.
3. Exit Signs:
 - a. Furnish and install [ten] percent (but not less than one exit sign) of each type used on the project. For each exit sign, include rough-in and fifty feet of branch circuit raceway and wiring connected to a local circuit. Location of spare exit signs as required by authority having jurisdiction. Turn over any unused spare exit signs to the Owner and obtain signed receipt.

PART 2 - PRODUCTS

2.01 MANUFACTURER SUBSTITUTIONS

- A. Substitutions: The substitution of products shall adhere to the requirements defined in Division 01.
 1. Light fixtures and associated appurtenances shall be from a manufacturer with at least 5 years of experience in the manufacturing of equipment and light fixtures.
 - a. Approved manufacturers:
 - 1) Lighting Fixtures: Refer to Light Fixture Schedule on Contract Drawings.
 - 2) Solid State LED Lamps: Philips/Lumileds, Osram/Sylvania, General Electric, Cree, Nichia, Samsung, or prior approved.
 - 3) Solid State Drivers: Philips/Advance, Osram Sylvania, General Electric, Universal, Thomas Research, or prior approved.
 - 4) Battery Pack Emergency Ballast: Philips/Bodine, Iota Engineering, or prior approved.
- B. Comply with manufacturer's written recommendations for lamp and ballast combinations.

2.02 LIGHT FIXTURES

- A. Housings and metal parts:
 1. Sheet metal components shall be formed and shall not warp or sag.
 2. Light fixtures shall be free of light leaks while also providing the required ventilation so as not to degrade the rated photometric performance and rated life of lamps and/or ballasts.
 3. Adjustable light fixtures shall utilize positive locking devices to set aiming angle; fixtures shall be able to be relamped without affecting aiming angle.
 4. Metal parts shall be free from burrs, sharp corners and edges.
- B. Lenses, Diffusers, Covers, and Globes:
 1. Acrylic plastic shall be 100% virgin acrylic plastic or water white, annealed crystal glass except as indicated, highly resistant to yellowing and other changes due to aging, exposure to heat and ultraviolet radiation.
 2. Minimum thickness of 0.125 inches.
- C. Hardware:
 1. Finish ferrous mounting hardware and accessories to prevent corrosion and/or discoloration to any and all adjacent materials.
 2. Hardware for steel or aluminum light fixtures shall be cadmium, or approved, plated.
 3. Hardware for stainless steel light fixtures shall be stainless steel.
 4. Hardware for bronze light fixtures shall be stainless steel or bronze.
- D. Latches:

1. Latches for light fixture doors/louvers, where applicable, shall be spring type and shall operate freely and easily without excessive force.

2.03 DRIVERS

- A. Refer to Lighting Fixture Schedule in the Contract Documents for additional information.
- B. Notify and send A/E manufacturer's recommendations for lamp/ballast combination if different from products specified.
- C. Solid State Drivers/ Power Supplies:
 1. When not in the light fixture, the housing shall be plenum rated.
 2. Poke-in wire trap connectors or integral leads color coded per ANSI C82.11.
 3. Withstand +/- 10% voltage fluctuation with no compromise of performance or life cycle.
 4. 5% output across published load range.
 5. 120-277 Volt rating.
 6. PF greater than 0.9, at specified voltage.
 7. Minimum efficiency of 70% at rated full load.
 8. Maximum case temperature rating of 70°C.
 9. THD less than 20%.
 10. Class A sound rating.
 11. Minimum operating temperature of -20°F.
 12. Shall tolerate sustained open circuit and short circuit output conditions without damage and without need for external overcurrent protection.
 13. No PCB allowed.
 14. Comply with ANSI/IEEE C62.41.1 & C62.41.2, Category A for transient protection.
 15. Dimmable, as specified in the Lighting Fixture Schedule.

2.04 INTERIOR AND EXTERIOR LIGHT FIXTURES

- A. General:
 1. Light fixtures of sizes, types, and ratings indicated on the Contract Drawings complete with, but not necessarily limited to, housings, lamps, reflectors, starters, and wiring.
 2. Label each fixture with manufacturer's name and catalog number.
 3. Include positive latch mechanisms for enclosed fixtures. Spring tension clips are not acceptable.
 4. Include exterior fixtures with damp or wet location label as required by application.
- B. Reflecting Surfaces:
 1. White Surfaces: 85%.
 2. Specular Surfaces: 90%.
 3. Anodized Aluminum Surfaces: 93%.

2.05 EGRESS

- A. UL 924 Listed.
- B. Battery Packs (Emergency Ballasts) in General Light Fixtures:
 1. Must fit inside light fixture's ballast compartment. In case of remote ballast installation, battery pack shall be installed adjacent ballast and marked accordingly on the record drawings.
 2. Must initiate within 3-10 seconds of power failure and allow for 90 minutes of operation.
 3. 120/277 Volt rating.
 4. End-of-lamp-life compatible.
 5. Damp listed.
 6. High temperature, maintenance-free nickel-cadmium sealed battery, minimum 7 years of operation.
 7. Must automatically switch back to normal power once available.

8. Test switch, located inside the light fixture if possible; if not possible, notify A/E and locate switch and indicator light per A/E direction prior to rough-in.
- C. Unit Equipment:
1. Must initiate within 3-10 seconds of power failure and allow for 90 minutes of operation.
 2. Maintenance-free lead-calcium sealed battery, minimum 7 years of operation.
 3. Must contain visual indicator status of normal power.
 4. Automatic self-diagnostic monitoring and testing of unit operation. Self-test every 28 days.
 - a. Must contain visual indicator status of service alerts for 'battery fault', 'charger fault', 'transfer fault' and 'lamp fault'.
 - b. Manual test switch.
 5. Must automatically switch 'off' once normal power is available.
 6. Automatic low voltage disconnect battery protection.
 7. Automatic normal power lockout circuit.

PART 3 - EXECUTION

3.01 INSPECTION

- A. General: Verify installation conditions as satisfactory to receive work of this section. Do not install until unsatisfactory conditions are corrected. Beginning work constitutes acceptance of conditions as satisfactory. Work that requires modification due to unsatisfactory conditions, deemed by the A/E, shall be corrected and completed to the satisfaction of the A/E at no additional cost to the contract.

3.02 PREPARATION

- A. Field Measurements: Field verify locations of new and existing work prior to commencing work of this section.
- B. Protection: Protect surrounding areas and surfaces to preclude damage from work of this section.

3.03 INSTALLATION, APPLICATION, ERECTION, AND PERFORMANCE

- A. General: Install, apply, erect, and perform the work in accordance with Article "Quality Assurance" provisions, specifications, and manufacturer's installation instructions and directions. Where these may be in conflict, the more stringent requirements govern.
- B. Temporary Lighting for Construction Use: Contractor shall provide lighting used during the construction period for construction tasks. Permanent light fixtures that are part of the project may not be utilized for this use.
- C. Remote Mounting of Drivers (where indicated on the drawings and/or approved by the A/E): Distance between the remote driver and respective light fixture shall not exceed distance recommended by the driver manufacturer. If recommended distance conflicts with the drawings, notify the A/E prior to rough-in.
- D. Wiring:
1. No internal wiring shall be visible from normal viewing angles.
 2. Cords/cables to pendant fixtures shall match color of respective canopy.
 3. Cords/cables between fixture components shall have a minimum temperature rating of 105°C.
 4. Cords/cables shall be fitted with appropriate strain relief connectors and/or weathertight entries, where required by application.
 5. Internal and/or factory wiring shall be a minimum size of 18 AWG.

3.04 INTERIOR LIGHTING FIXTURE INSTALLATION

- A. Install lighting fixtures at locations and heights as indicated on the Contract Drawings, in accordance with fixture manufacturer's written instructions, applicable requirements of NEC, NESC, NECA's "Standards of Installation", NEMA standards, and recognized industry practices to ensure that lighting fixtures fulfill requirements.

- B. Lighting fixtures shall be installed exactly level, secure and plumb with respective building lines.
- C. Wall mount and ceiling mount light fixtures shall be securely and tightly attached to their respective mounting surface. Provide backing in wall cavity to reinforce support for wall mounted light fixtures.
- D. Lay-in light fixtures shall sit flush with grid ceiling system, doors shall swing completely open in the designed direction.
- E. Coordinate with other work as appropriate to properly interface installation of lighting fixtures with other work. Consult architectural reflected ceiling plan and interior elevations for location of lighting fixtures.
- F. Lighting Fixture Supports:
 - 1. General: Comply with NEC as interpreted by AHJ or IBC, whichever is more stringent, for fixtures mounted in suspended ceilings. Lay-in and pendant light fixtures shall not be supported by lay-in suspended grid ceiling system and must be attached to structure.
 - 2. Support Requirements:
 - a. Include flexible ball joint hangers for pendant and stem hung fixtures at designated points of support.
 - b. Equip hooks used to hang light fixtures with safety latches. Include supports, brackets, clips, screws and miscellaneous items for mounting fixtures.
 - c. Include locking catches, screws, safety chain(s) or safety cable(s) for detachable light fixture parts, luminous ceiling accessories, louvers, diffusers, lenses and reflectors.
 - 3. Seismic Restraints:
 - a. For Lighting Fixtures Weighing Less than 10 Pounds: Install 1 slack No. 12 gauge hanger wire from fixture to structure above.
 - b. For Lighting Fixtures Weighing 10 to 56 Pounds: Install 2 slack No. 12 gauge hanger wires from fixture to structure above.
 - c. For Lighting Fixtures Weighing More than 56 Pounds: Support directly from the structure above by hangers approved by the AHJ. Comply with requirements in Section 260548 for seismic restraints.
 - d. For Pendant Hung Lighting Fixtures: Support directly from structure with No. 9 gauge hanger wire or alternate support without using ceiling suspension system for direct support approved by the AHJ. Comply with requirements in Section 260548 for seismic restraints.
- G. Provide gypsum board protection acceptable to the AHJ to ensure fire rating of ceiling in which fixtures are installed. Maintain manufacturer's recommended ventilation requirements.
- H. Light Fixture Contact with Building Insulation:
 - 1. When building insulation is installed at a location where contact with light fixtures is unavoidable, IC-Rated light fixtures shall be utilized.
 - 2. Where insulation is present and an approved IC-Rated light fixture is not available, provide a gypsum board assembly around the light fixture, maintaining all recommended ventilation requirements, to separate light fixture from adjacent insulation.
- I. Protect installed light fixtures from damage during construction period through date of substantial completion. Damaged light fixtures, including associated components, shall be replaced in their entirety.
- J. Wet Location:
 - 1. If light fixtures have exposed metal parts that are grounded, respective circuit breakers shall be GFCI.
 - 2. If light fixtures have exposed metal parts that are not grounded, they shall not be utilized and an approved light fixture without exposed metal parts shall be provided. Inform A/E prior to ordering light fixtures.
- K. Coordination Meetings:
 - 1. Meet at least twice with ceiling installer. Hold first meeting before submittal of Shop Drawings to coordinate each light fixture mounting condition with ceiling type. During second meeting, coordinate fixture layout in each area.

2. Meet at least once with the mechanical installer prior to fabrication and installation of duct work. Coordinate depth and location of fixtures and duct work in areas.

L. Verify color of lettering for Exit Signs with AHJ prior to ordering.

3.05 EXTERIOR LIGHTING FIXTURE INSTALLATION

- A. Coordinate with other work as necessary to properly interface installation of roadway and parking area lighting.
- B. Install lighting poles and standards plumb on concrete pole bases as indicated on the Drawings with anchor bolts and reinforcing bars. Coordinate anchor bolt size, pattern and orientation prior to base installation. Coordinate size and location of bases prior to installation. Hand rub exposed concrete to uniform, smooth finish. Support during backfilling and anchoring to foundations. Comply with requirements in Section 260510 for excavation and backfilling. Refer to Contract Drawings for additional information.
- C. Install with sufficient space for hand access and cable entrance holes for installation of underground cabling. Make splices in pole or pole base using Scotchcast 400 Resin for watertight connections.
- D. Fuses for Exterior Parking Area Fixtures:
 1. Include fuses in each phase conductor, sized for 1-1/2 times maximum full load ballast current served by each conductor, Bussman KTK or approved. Do not exceed circuit overcurrent protective device rating.
 2. Include fuse holder at handhole or in base junction box with “breakaway” receptacles for conductors running to top of poles, Bussman HEB or approved.
 3. Include fuse blanks in neutral conductors.
- E. Wall Mount: Exterior building mount light fixtures shall coordinate/align with building elements. Light fixtures and respective mounting and rough-in means shall align in the center of building elements and shall not split unevenly across multiple elements. Notify A/E of conflicts prior to rough-in.

3.06 FIELD QUALITY CONTROL

- A. Upon completion of installation of lighting fixtures and electrical circuitry, energize circuitry and demonstrate capability and compliance with requirements. Repair malfunctioning units on site, then retest to demonstrate compliance. If not possible to repair on site, remove and provide new units and retest. Include copy of test reports in the Operation and Maintenance Manual.
- B. Clean lighting fixtures in their entirety of dirt and debris upon completion of installation within 7 days of substantial completion.
- C. At Substantial Completion, remove and provide new lamps in interior lighting fixtures which are observed to be noticeably dimmed due to Contractor's use and testing as judged by the A/E.

3.07 COMMISSIONING

- A. The equipment and systems referenced in this section are to be commissioned per Section 019113 – General Commissioning Requirements and Section 260800 – Commissioning of Electrical Systems. The contractor has specific responsibilities for scheduling, coordination, startup, test development, testing and documentation. Coordinate all commissioning activities with the Commissioning Authority.

END OF SECTION

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Description: Work includes an integrated, energy saving lighting control system including lighting control panels, emergency lighting transfer devices, and associated appurtenances.
- B. General Requirements: Drawings and general provisions of the Contract, including General and Supplementary Conditions, Division 01, and Sections 26 05 00 apply to Work in this section.
- C. The contractor shall provide all related conduit, wire, boxes, and mounting hardware to provide a complete and functional installation.

1.02 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with applicable city, county, and state codes and ordinances.
- B. Codes and Standards:
 - 1. NEMA 410, Performance Testing for Lighting Controls and Switching Devices with Electronic Fluorescent Ballasts.
 - 2. NFPA 70, National Electrical Code (NEC).
 - 3. UL 508, Standard for Industrial Control Panels.
 - 4. UL 916, Standard for Energy Management Equipment.
 - 5. UL 924, Standard for Emergency Lighting and Power Equipment.
- C. Manufacturers: Firms regularly engaged in the manufacture of lighting control equipment and ancillary equipment, of types and capacities required, whose products have been in satisfactory use in similar service for not less than 5 years.
- D. Factory Assembly: All relays, touch tablet graphic user interfaces, controllers, enclosures, switch stations, photo sensors, occupancy sensors and miscellaneous components shall be factory assembled and tested. All system components shall arrive at the job site completely pre-wired and ready for installation, requiring only the connection of lighting circuits and network terminations. All connections shall be made to clearly and permanently labeled termination points. Systems that require field assembly shall not be acceptable.
- E. All system components shall comply with all applicable sections of NEC, NEMA, and FCC.
- F. UL Approvals: All applicable equipment shall be tested to and listed under UL standard 508 and shall bare labels to indicate compliance. Lighting control relays shall be tested to UL standard 508 for both safety and endurance. System listed other ETL or other UL sections shall provide documentation proving compliance with UL standard 508.
- G. Contractor responsible for confirming panels and sensor interoperate as a single system.
- H. Contractor must schedule two pre-construction meetings with controls specialist from firm representing the control system to review requirements for a successful install of all the lighting controls. One meeting must be at the beginning of construction to plan cable paths and installation requirements.
- I. Certification: Manufacturer shall certify that products will meet product specifications and local energy codes. If any additional equipment is required to meet coverage patterns and local energy codes, provide additional equipment at no additional cost to the Owner.

1.03 SUBMITTALS

- A. Comply with requirements in Division 01 and Section 260500.
- B. Product Data: Submit manufacturer's technical product data and maintenance data for each type of lighting control system and components prior to fabrication and shipment.
- C. Specifications Compliance: Submit a line-by-line comparison that describes the differences between each specifications requirement and the equipment / systems being proposed. Comparison shall include a complete listing of how the proposed equipment / systems differ from that specified with regard to size, quantity, quality, method of control, features and functions, control software functions and installation requirements.

- D. Bill of Materials: Provide as part of the submittal package a detailed itemized listing of all proposed equipment, including quantities and capacities for all major system components.
- E. It shall be the responsibility of the contractor to verify all control wire requirements with the lighting controls manufacturer prior to rough in.
- F. Shop Drawings:
 - 1. Floor plans and reflected ceiling plans showing occupancy and daylight sensor locations. Include typical mounting details for occupancy and daylight sensors.
 - 2. Detailed point to point wiring diagrams.
 - 3. System one-line diagram showing panels, number and type of switches and sensors, low voltage switches, and building energy management system computer.
 - 4. Drawings for each panel showing hardware configuration and numbering.
 - 5. Panel wiring schedules.
 - 6. Typical wiring diagrams for each component.
 - 7. Project was created in AutoCAD files shall be used by the contractor to create control plans.
- G. Test Reports:
 - 1. Field test reports.
 - 2. Submit completed copy of reports and include copy in the Operation and Maintenance Manual.
- H. It shall be the responsibility of the contractor to verify all control wire requirements with the lighting controls manufacturer prior to rough in.

1.04 PROJECT CONDITIONS

- A. The contractor shall not install lighting control system components in spaces where the ambient temperature cannot be maintained between 0 degrees to 40 degrees C (32 degrees to 104 degrees F) with a maximum humidity of 90%, noncondensing.
- B. All stored and installed lighting control components shall be adequately protected from dust and dirt.

1.05 WARRANTY

- A. The lighting control manufacturer shall warrant the system to be free from manufacturing defects for a period of 5 years from shipment.
- B. The warranty shall include replacement parts deemed necessary to restore the system to normal operation.
- C. The manufacturer shall provide telephone technical support and remote diagnostics where applicable during normal business hours excluding manufacturer holidays.
- D. Upon request, the manufacturer shall make available for purchase service contract option(s) which include on-site technician visits for service and repair.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Provide lighting control system hardware that is designed, tested, manufactured, and warranted by a single manufacturer.
- B. System components shall be UL listed under the UL916 Energy Management Equipment standard.

2.02 DIGITAL ROOM CONTROLLER

- A. As indicated and where shown on the plans, install room controller(s) to control the quantity of lighting and plug loads required.
- B. Where indicated, the room controller shall provide 0 - 10 volt dimming capability for the required number of dimmable lighting loads.
- C. The room controller shall integrate the functionality of connected control components including wall switch stations, occupancy sensors and daylight sensors to provide the required sequence of operation for the space.

- D. Room controllers and associated room control components shall operate in a totally stand-alone mode and not require the use of a network, software, computer or server for local control functions.
- E. Mechanical:
 - 1. The room controller housing shall be approved for use in a return air plenum.
 - 2. The housing and shall include an integral 1/2" chase nipple for external mounting to standard junction box knockout.
 - 3. Four RJ45 Smart Port connectors shall be accessible on the side of the enclosure for connection of room control devices.
- F. Electrical:
 - 1. The room controller shall have a single power feed and shall be capable of operation at voltages between 120- and 347-volts AC, 50/60 Hz.
 - 2. One or two output relays (model specific) shall provide a total combined power switching capacity of 20 amps per unit.
 - 3. Where indicated provide one or two independent 0 - 10 volt dimming channels (model specific) for full range dimming control of fixtures equipped with compatible dimmable ballast or driver.
 - 4. Each dimming output shall have a current sinking capacity of at least 30 mA.
 - 5. The room controller shall be capable of supplying 250 mA of Class 2 auxiliary DC power for use by wall switch stations, occupancy sensors, and daylight sensors connected to the room controller's four RJ45 Smart Port connectors.
- G. Functional:
 - 1. Provide an integral pushbutton and LED indicator for each load for status and to allow operation of the relays and dimmers for testing and verification without requiring other control devices to be connected.
 - 2. The room controller shall have a default operation providing an automatic logical sequence of operation for each load as the room control devices are plugged into the Smart Port connectors.
 - 3. Default operation for occupancy sensors shall be automatic on, automatic off for all loads.
 - 4. Upon connection of a switch, the operation shall automatically change to manual on, automatic off (vacancy) mode for all loads.
 - 5. Provide capability to convert each load independently to automatic on or vacancy mode using only the integral push buttons and LED indicators on the room controller.
 - 6. When in vacancy mode, provide a 30 second grace period after an off during which automatic on shall be temporarily enabled.
 - 7. Provide the following set up and configuration functions without the need for additional devices or software:
 - a. Assign/reassign relays for control by wall switch station buttons.
 - b. Configure relays for occupancy or vacancy operation.
 - c. Assign/reassign dimmers to raise/lower switches.
 - d. Assign dimming channels for response to daylight sensor control.
 - e. Auto calibrate default daylight sensor sequence of operation
 - f. Save preset scenes.
 - g. Include or exclude loads from occupancy sensor control.
 - h. Configure up to 16 load groups per room.
 - i. Configure up to 16 preset scenes per room with independent fade times.
 - j. Set independent power up conditions for relays and dimmers.
 - k. Set independent occupied and unoccupied conditions for each relay and dimmer.
 - l. Adjust dimmer high and low trim points.
 - m. Manually control loads allowing use of the phone or tablet as a personal control for the room

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2.03 NETWORK BRIDGE MODULE

- A. The network bridge module allows multiple room controller zones to be networked with other system devices for whole building administration of lighting control functions.
- B. The network bridge approved for use in a return air plenum.
- C. The bridge shall connect to the room controllers smart port via a standard Cat5 cable.
- D. The network bridge module shall provide a communication link between the room control devices and the area controller via an Ethernet based network. At a minimum, the network link shall provide the following functionality through a web browser user interface:
 - 1. Report the current occupancy status for each lighting control zone
 - 2. Indicate the status of each relay and dimming channel
 - 3. Allow reconfiguration of system device input and output parameters
 - 4. Report the real time power consumption for each Room Controller
 - 5. Set up daylight harvesting for zones equipped with photocells
 - 6. Configure and download schedules to panels and Room Controllers

2.04 LOW VOLTAGE SWITCH STATIONS

- A. Low voltage digital wall switch stations shall be of the programmable type using standard Cat5 cabling for connection to system smart port.
- B. Stations shall have one to six buttons and provide lighting control functions as called out and shown on the plans.
- C. All switches shall be single gang and be of the generic decorator style allowing easy ganging and use of a wide array of standard wall switch plate options.
- D. Provide two RJ-45 ports per switch to allow for daisy chain connection of up to eight switches to each smart port.
- E. Switch station color shall be white, ivory, light almond, grey, or black as indicated.

2.05 OCCUPANCY SENSORS

- A. Occupancy sensors shall be ceiling or wall mounted and use dual technology (ultrasonic and passive infrared), ultrasonic and/or passive infrared (model specific) sensing technology as indicated.
- B. Sensors shall be Class 2 and connect to any room controller smart port using a wiring adaptor and standard Cat5 patch cable.
- C. Occupancy sensors shall be self adaptive and not require manual calibration after installation. Digital circuitry and logic shall automatically adjust the sensitivity and time delay based on learned occupancy patterns and the environment in which the sensor is installed.
- D. Sensors using both ultrasonic and passive infrared (dual technology) shall operate such that detection by both technologies is required to initiate occupancy and continued detection by either technology will maintain occupancy.
- E. Up to four occupancy sensors may be connected to one room controller.

2.06 DAYLIGHT SENSORS

- A. The daylight sensor shall provide ambient light level information to the room controller allowing daylight responsive lighting control.
- B. The system shall operate in an open loop sequence of operation reducing the amount of electric light as the quantity of daylight entering the room increases.
- C. It shall be possible to configure up to six daylight zones in a room. Each zone shall be programmable to proportionally respond to the light level provided by the daylight sensor.
- D. The daylight sensor shall be mounted and positioned to provide an unobstructed view of the windows per the manufacturer's directions.

2.07 MASTER CONTROLLER

- A. Web browser-based system programming, monitoring and administration shall be provided by the master controller.
- B. The Master Controller shall have the ability to communicate by means of TCP/IP over Ethernet allowing enterprise connectivity between the Distributed Lighting Control System and external LAN or WAN networks.
- C. Provide integral capability to communicate with the Building Automation System via BACnet IP protocol.
- D. Mechanical:
 - 1. The Area Controller electronics shall be housed in a NEMA 1 industrial grade enclosure suitable for surface wall mounting in an electrical/mechanical room.
 - 2. The enclosure shall a screw on cover with a hinged locking door.
 - 3. Provide standard knock outs eliminating the need for field drilling or cutting of the enclosure which could damage the electronics.
- E. Electrical:
 - 1. Then Area Controller shall have a 120VAC, 60Hz hard wired supply connection. Servers or controllers using plug-in type power sources shall not be acceptable.
- F. Functional:
 - 1. The Area Controller shall function as a web server allowing the user interface to be accessible through a standard web browser.
 - 2. The installation of software shall not be required. At a minimum, the user interface shall provide the following functions:
 - a. Automatic discovery of system devices
 - b. Commissioning of devices into logical areas and zones as shown on project documents.
 - c. Display the entire system in a logical navigation tree view.
 - d. Allow the user to name Zones, Groups, Presets, Schedules and individual loads.
 - e. Set up control functions for system inputs and outputs.
 - f. Monitor status and override individual relays and dimmers.
 - g. Set up and download schedules to panels and room controllers.
 - h. Monitor real-time power use at each room controller.

2.08 EMERGENCY LIGHTING INTERFACE

- A. Where emergency lighting is to be controlled by the lighting control system, provide UL924 listed load control relays as necessary to ensure that emergency lights are automatically turned full on upon loss of normal power to the area.

2.09 SOFTWARE

- A. The system shall be capable of automatically modifying the sequence of operation for selected devices in response to any of the following: a time-of-day schedule, contact closure input state, RS-232/RS-485 command, BACnet input command, and/or demand response signal. Global profiles may be scheduled with the following capabilities:
 - 1. Global Profiles shall be stored within and executed from the system controller (via internal timeclock) such that a dedicated software host or server is not required to be online to support automatic scheduling and/or operation of Global Profiles.
 - 2. Global Profile time of day schedules shall be capable of being given the following recurrence settings: daily, specific days of week, every “n” number of days, weekly, monthly, and yearly. Lighting control profile schedules shall support definition of start date, end date, end after “n” recurrences, or never ending. Daylight savings time adjustments shall be capable of being performed automatically, if desired.

3. Global Profiles shall be capable of being scheduled to run according to timed offsets relative to sunrise or sunset. Sunrise/sunset times shall be automatically derived from location information using an astronomical clock.
4. Blink warning and timed extension capabilities. At the end of a scheduled period, the system shall be capable of providing a visible “blink warning” 5 minutes prior to the end of the schedule. Wall stations may be programmed to provide timed overrides that turn the lights on for an additional period of time. Timed override duration shall be programmable for each individual device, zone of devices, or customized group of devices, ranging from 5 minutes to 12 hours.
5. Software management interface shall be capable of displaying a graphic calendar view of profile schedules for each control zone.
6. System Global Profiles shall have the following additional capabilities:
7. Global Profiles shall be capable of being manually activated directly from the system controller, specially programmed input devices, and software management interface.
8. Global Profiles shall be selectable to apply to a single device, zone of devices, or customized group of devices.
9. Parameters that shall be configurable and assigned to a Global Profile include light level, response to occupancy sensors (including enabling/disabling response), response to daylight sensors (including enabling/disabling response), and enabling/disabling of wall stations.
10. A backup of Local and Global Profiles shall be stored on the software’s host server such that the Profile backup can be applied to a replacement system controller or wall station.
11. Automated demand response capabilities. Profiles created for automated demand response events shall support automatic reduction of light level to programmable values. At least four levels of demand response profiles shall be supported by the system.

2.10 SOFTWARE INTERFACES

A. Management Interface

1. System shall provide a web-based management interface that provides remote system control, live status monitoring, and configuration capabilities of lighting control settings and schedules. Be password protectable.
2. Management interface shall be able to read the live status of a networked luminaire or intelligent control device and shall be capable of displaying luminaire on/off status, dim level, power measurement, device temperature, PIR occupancy sensor status, microphonic occupancy sensor status, remaining occupancy time delay, photocell reading, and active Scenes or Profiles.

PART 3 - EXECUTION

3.01 INSPECTION

- A. General: Verify installation conditions as satisfactory to receive work of this section. Do not install until unsatisfactory conditions are corrected. Beginning work constitutes acceptance of conditions as satisfactory.

3.02 PREPARATION

- A. Field Measurements: Field verify locations of new and existing work prior to commencing work of this section.
- B. Protection: Protect surrounding areas and surfaces to preclude damage from work of this section.

3.03 PRE-INSTALLATION MEETINGS

- A. Prior to commencing work of this section, contractor shall arrange a pre-installation meeting to be attended by authorized manufactures representative, contractor and owner's representative.
- B. Review installation procedures and coordination required with related work and the following:
 - 1. Confirm location and mounting of all devices with attention to placement of switches, dimmers and any sensors.
 - 2. Review the specifications for low voltage control wiring and termination procedure.
 - 3. Discuss the sequence of operation while reviewing lighting control plans and manufactures wring schematics. Insure project requirements are met.
 - 4. Discuss requirement for integration with other trades.

3.04 INSTALLATION

- A. Install all equipment in accordance with manufacturer's installation instructions.
- B. The lighting controls shall be installed in accordance with specifications and specific guidelines and submittal documents provided by the lighting control manufacturer. Where these conflict, the more stringent requirements govern.
- C. Where variations from the general specifications or drawings exist, the contractor shall request a clarification prior to rough in or installation.
- D. The contractor shall verify all wire type and routing requirements with the lighting controls manufacturer prior to installation. Not part of this section are requirements for work including, but not limited to, raceways, electrical boxes, junction boxes, circuit protection, wiring, and fittings required for installation of the lighting control equipment.
- E. Installation Assistance: During the installation process, the manufacturer shall provide, at no cost, technical support via a toll-free telephone line to the installing contractor or owner's representative to answer questions and supply additional information when required.

3.05 STARTUP AND PROGRAMMING

- A. The system manufacturer shall provide a factory authorized field engineer to the project site after installation has been completed and prior to system energization for the purpose of testing and adjustment of the system. Factory field engineer shall test and verify all system functions and ensure proper operation of the system components in accordance with the specifications and on-site conditions. The installing contractor shall notify the system manufacturer in writing that the system is completely wired and ready to be energized and tested 2 weeks prior to scheduling a field engineer for start-up of the system. Should the field engineer arrive on the job site and find the installation incomplete, the installing contractor shall pay the cost of any future visits by the field engineer required to complete the system start-up.
- B. During the start-up procedure, the factory field engineer shall provide programming assistance and guidance to the building operating personnel in order to program the systems for initial operation.
- C. Allow for up to 4 hours of on-site training on the use and maintenance of the lighting control system to be scheduled at the completion of startup and programming of the system.

3.06 FIELD QUALITY CONTROL

- A. System Startup: Manufacturer's authorized technician shall confirm proper installation and operation of system components. Start-up requirement shall verify:
 - 1. Occupancy and daylighting sensors are located, installed, and adjusted as required by the factory, the Contract Documents and the Washington State Energy Code.
 - 2. Occupancy sensors and daylighting sensors are operating within manufacturers specifications.
 - 3. Sensors, room controllers and relay panels interact as a complete and operational system to meet requirements of the Contract Documents.

- B. Manufacturer shall submit written statement verifying that system meets above requirements. Include copy of test reports in the Operation and Maintenance Manual.
- C. Commission photocells with no daylight component present. Adjust photocells as required to set initial footcandle level to 40fc average throughout the respective daylight zone.

3.07 TECHNICAL SUPPORT

- A. The lighting controls manufacturer shall provide reasonable access to factory direct telephone technical support during normal business hours.

3.08 COMMISSIONING

- A. The equipment and systems referenced in this section are to be commissioned per Section 019113 – General Commissioning Requirements and Section 260800 – Commissioning of Electrical Systems. The contractor has specific responsibilities for scheduling, coordination, startup, test development, testing and documentation. Coordinate all commissioning activities with the Commissioning Authority.

END OF SECTION

PART 1 - GENERAL

1.01 WORK INCLUDES

- A. Description: Work includes an automatic, non-coded, Class 'B', addressable type fire alarm and detection system. This is a Bidder Designed system. See System Design Criteria, this section, for information.
- B. General Requirements: Drawings and general provisions of the Contract, including General and Supplementary Conditions, Division 1, and Sections 26 05 00 apply to Work in this section.

1.02 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with applicable city, county, state and national codes and ordinances.
- B. Codes and Standards:
 - 1. NFPA 70, National Electrical Code (NEC).
 - 2. NFPA 72, National Fire Alarm Code.
 - 3. NFPA 101, Life Safety Code
 - 4. UL 268, Standard for Smoke Detectors for Fire Alarm Signaling Systems.
 - 5. Underwriters Laboratories, Inc.
 - 6. Americans with Disabilities Act (ADA)
- C. Comply with NEC as applicable to construction and installation of fire alarm and detection system components and accessories. Components and systems UL listed and labeled for fire alarm systems and fire alarm and detection systems and accessories and FM approved. Comply with applicable State and local requirements.
- D. Comply with applicable provisions of current NFPA 72, local building codes, and requirements of AHJs.
- E. Fire Alarm and Detection System Support:
 - 1. Contractor's factory trained technical representative shall respond to job site within 4 hour period for emergencies relating to system.
 - 2. Emergency response is defined as having a technician actively troubleshoot and correct problem at job site.

1.03 SUBMITTALS

- A. Comply with requirements in Division 1 and Section 260500.
- B. Product Data: Submit manufacturer's technical product data for fire alarm and detection systems components including, but not limited to, roughing-in diagrams and instructions for installation, operation, and maintenance, suitable for inclusion in the Maintenance and Operation Manuals. Include riser and wiring diagrams for panel and system components.
- C. Shop Drawings: Indicate equipment and device locations and connecting wiring of entire fire alarm and detection system. Include layout wiring and riser diagrams, point-to-point diagrams, floor plans with device addresses and strobe candela ratings shown, battery calculations and notification appliance circuit calculations.
- D. Coordinate all submittal requirements with each AHJ and provide complete.
 - 1. Submit to A/E after approval from AHJ has been completed.
- E. Test Reports:
 - 1. Field test reports.
 - 2. Submit completed copy of reports and include copy in the Operation and Maintenance Manual.
- F. Obtain from each AHJ written certification that the permanent installation has been inspected and that it complies with AHJs' published regulations and requirements. Submit prior to Substantial Completion.
- G. Operation and Maintenance Data: Comply with requirements in Section 260500. In addition, include the following:

1. Prepare complete, simple, understandable, step-by-step, testing instructions with recommended and required testing frequency of equipment with methods for testing equipment. Include trouble-shooting manual.
2. Prepare complete, easy-to-read, understandable maintenance instructions including the following information:
 - a. Instruction on replacing components of system including inspection, periodic preventative maintenance, fault diagnosis, and repair or replacement of defective components.
 - b. List of equipment and components with address and phone number of both manufacturer and local supplier of each item.
3. Submit a minimum of one week prior to system training.

1.04 SYSTEM DESIGN CRITERIA

- A. Design, furnish, and install complete operable fire alarm and detection systems in accordance with the latest adopted editions of IBC, IFC, NFPA 72, and applicable city, county, and state laws, codes, and standards.
- B. The Contractor's scope of work shall include but not limited to the following:
 1. Complete fire alarm system based on the available architectural, civil, structural, mechanical, and electrical drawings. Devices shown on drawings do not reflect complete system. Provide additional devices, conduit, wire, and programming for a complete and operable system as required by AHJ.
 2. Wiring systems associated with fire alarm system.
 3. Providing additional smoke detectors, heat detectors, manual alarm stations, speakers, horns, visual evacuation alarm devices, voice evacuation alarm devices, bells, door closers and holder controls, panels, power supplies, batteries, built in dual line Digital Communicator and control graphic annunciators associated with fire alarm system.
 4. Providing auxiliary controls and switches including interposing control, monitor relays, and interconnection coordination for monitoring of fire sprinkler system, tamper, flow and air pressure switches mechanical equipment shutdown and smoke and combination fire/smoke damper controls.
 5. Power circuits required for all fire alarm equipment including, but not limited to, the main control panel, annunciator panels and power supplies.
- C. Owner's Minimum Requirements:
 1. In addition to Code requirements, provide complete smoke detection coverage in the following room:
 - a. Mech Room

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Fire Alarm and Detection System: Subject to compliance with requirements, Silent Knight IFP Series or similar Silent Knight panel which meets all requirements of Owner and AHJ. No substitutions.

2.02 FIRE ALARM AND DETECTION SYSTEMS

- A. General: Electrically operated, electrically supervised, fire alarm and detection system as described herein. Include control units, power supplies, alarm initiating and indicating devices, conduit, wire, fittings, and accessories required for a complete operating system.
- B. Comply with requirements in Section 260533 for raceways, Section 260519 for conductors, Section 262726 for outlet boxes, and Section 260529 for supports. Minimum wire size No. 16 AWG for initiating circuits and No. 14 AWG for indicating circuits.
- C. Enclose entire fire alarm system wiring in raceway.

2.03 SYSTEM TYPE

- A. Low voltage, point identification fire management system. Fire alarm and detection system shall monitor intelligent (analog) and addressable (digital) devices, traditional initiating devices, point identify alarm location, and transmit signals to monitoring agency.
- B. Fire alarm control panel shall allow for loading or editing special instructions and operating sequences. System capable of on-site programming to accommodate and facilitate expansion, building parameter changes, and changes as required by AHJs. Software operations stored in non-volatile programmable memory within fire alarm control panel. Loss of primary and secondary power shall not erase instructions stored in memory.

2.04 SYSTEM OPERATION

- A. Alarm displayed on an 80-character alphanumeric display and on remote printer. Top line of characters shall be point label and second line shall be device type identifier. System alarm red LED shall flash on control panel and remote annunciator shall indicate specific device in alarm. Subsequent alarm received from another zone after being acknowledged shall flash system alarm LED on control panel and remote annunciator. LCD display and printer shall show new alarm information. Alarm tone shall occur within control panel and remote annunciator until acknowledged.
- B. Alarm indicating devices silenced by entering locked control cabinet and operating alarm silence switch. Subsequent alarm condition shall reactivate signals.
- C. Activation of any system smoke detector shall initiate an alarm verification operation whereby control panel shall reset activated detector and wait for second alarm activation. If, within 1 minute after resetting, second alarm is reported from same or any other smoke detector, system shall process alarm as described previously. Time period for alarm verification reset programmable from 0 to 60 seconds. If no second alarm occurs within alarm verification time window, system shall resume normal operation. Alarm verification shall operate only on smoke detector alarms. Other activated initiating devices processed immediately. Alarm verification operation selectable by device, not just by zone. Control panel with capability to display number of times zone or detector has gone into verification mode. Information displayed on control panel and transmitted to remote printer and remote annunciator.
- D. Control panel shall have a dedicated supervisory trouble condition indicator and acknowledge switch.
 - 1. Activation of any standpipe or sprinkler valve tamper switch shall activate system supervisory service audible signal and illuminate LED at control panel and remote annunciator. Include differentiation between valve tamper activation and open circuits or ground conditions.
 - 2. Activating acknowledge switch shall silence audible signal while supervisory service LED.
 - 3. Restoring valve to normal position shall cause supervisory service LED to extinguish thus indicating restoration to normal position.
- E. Control panel capable of supplying minimum 6 Amps at 24 VDC, filtered and regulated. Power supply expandable to total ampacity required by system. Initial system shall include a minimum of 25% spare capacity.
- F. Functions of control panel field programmable.

2.05 POWER REQUIREMENTS

- A. Include 120 VAC power from dedicated optional standby generator circuit for control panel.
- B. Include sufficient battery capacity to operate entire system upon loss of normal 120 VAC power in normal supervisory mode for a period of 24 hours with 5 minutes of alarm operation at end of this period. System shall automatically transfer to standby batteries upon power failure. Battery charging and recharging operations shall be automatic.
- C. Circuits requiring system operating power shall be 24 VDC. Include individual fuses at control panel.

2.06 EQUIPMENT

- A. Fire Alarm Control Panel: Modular construction with solid state microprocessor-based electronics with a minimum of 25 percent spare point capacity. Include minimum 80-character minimum alphanumeric display to indicate alarms, supervisory service conditions, and troubles.

2.07 PERIPHERAL DEVICES

- A. Manual Stations: Constructed of red die cast metal with raised white lettering. When station is operated, handle shall lock in protruding manner to facilitate quick visual identification of activated station. Station capable of being reset using a key. Stations which require only a screwdriver for operation not acceptable
- B. Manual Station Guards: Plastic guards with built-in independent local alarm. Stopper Two or approved. Provide on all manual pull stations unless otherwise noted.
- C. Smoke Detectors: UL 268 listed and documented compatible with control equipment to which it is connected. Photoelectric type with a plug-in base and LEDI indication of detector actuation. Detectors addressable and with capability of alarm verification, sensitivity adjustment by detector, and "maintenance alert" circuitry. Model IDP-Photo with IDP-6AB base.
- D. Heat Detectors: Addressable, analog thermal detectors. Rate of rise feature accomplished with electronic, dual thermistors. Include built-in test switch and LEDs to indicate alarm condition and polling. Thermal head shall plug-in to base. Heat detector rated for the environment in which it is to be installed (135° typical).
- E. Primary Notification Appliances: Provide flush mounted combination horn/strobe Audio/Visual signaling appliances where required. Specific audible and visual characteristics shall be as follows:
 - 1. Visual Signals: Furnish and install xenon strobes, synchronized in accordance with NFPA 72 chapter 4 and rated to UL 1971 standards. Strobes shall have a fixed candela rating, as follows: provide 15 candela in corridors and other areas up to 20' x 20', 75 candela in areas up to 40' x 40', and 110 candela in areas up to 50' x 50'.
 - 2. Audible Signals: Provide audible signal appliances designed to produce a minimum sound output of 85dbA at 10', or 15dbA above ambient; whichever is greater.
- F. Multiple strobes visible in a single room coordinated to flash simultaneously.

PART 3 - EXECUTION

3.01 INSPECTION

- A. General: Verify installation conditions as satisfactory to receive work of this section. Do not install until unsatisfactory conditions are corrected. Beginning work constitutes acceptance of conditions as satisfactory.

3.02 PREPARATION

- A. Field Measurements: Field verify locations of new and existing work prior to commencing work of this section.
- B. Protection: Protect surrounding areas and surfaces to preclude damage from work of this section.

3.03 INSTALLATION, APPLICATION, ERECTION, AND PERFORMANCE

- A. General: Install, apply, erect, and perform the work in accordance with Article "Quality Assurance" provisions, specifications, and manufacturer's installation instructions and directions. Where these may be in conflict, the more stringent requirements govern.

3.04 FIRE ALARM AND DETECTION SYSTEM INSTALLATION

- A. Smoke- or Heat-Detector Spacing:
 - 1. Comply with NFPA 72, "Smoke-Sensing Fire Detectors" Section in the "Initiating Devices" Chapter, for smoke-detector spacing.
 - 2. Comply with NFPA 72, "Heat-Sensing Fire Detectors" Section in the "Initiating Devices" Chapter, for heat-detector spacing.
 - 3. Smooth ceiling spacing shall not exceed 30 feet.
 - 4. Spacing of detectors for irregular areas, for irregular ceiling construction, and for high ceiling areas shall be determined according to Appendix A in NFPA 72.
 - 5. HVAC: Locate detectors not closer than 3 feet from air-supply diffusers or return-air opening.
 - 6. Lighting Fixtures: Locate detectors not closer than 12 inches from any part of a lighting fixture.

- B. Audible Alarm-Indicating Devices: Install not less than 6 inches below the ceiling. Install bells and horns on flush-mounted back boxes with the device-operating mechanism concealed behind a grille.
- C. Mounting Heights:
 - 1. Manual Station: Operating handle approximately 48 inches above floor.
 - 2. Alarm Signal Devices: Approximately 80 inches above floor to centerline.
 - 3. Magnetic Door Holders: 78 inches to center line except as noted.
- D. Wire:
 - 1. Per manufacturer's recommendations and as per NEC. Comply with requirements in Section 260519.
 - 2. Where required, provide wiring in metallic conduit. Comply with requirements in Section 260533.
- E. Make conduit and wiring connections to sprinkler flow switches, sprinkler valve tamper switches, and appropriate air handling equipment.
- F. Label junction boxes for fire alarm with minimum 1/4 inch letters: "FIRE ALARM."
- G. Test conductors for ground conditions before making final wiring connections. Comply with requirements in Section 260526.
- H. Maintain wiring color code throughout installation. Include color code identification in the Operation and Maintenance Manual.
- I. Coordinate with appropriate subcontractors for installation of equipment and devices that pertain to other work in the contract.
- J. Clean dirt and debris from inside and outside of the fire alarm equipment after completion of installation.
- K. Coordinate installation of duct smoke detectors with Division 23 work.
- L. Install remote annunciators as indicated on the Drawings and as required by AHJ.

3.05 CONNECTIONS

- A. For fire-protection systems related to doors in fire-rated walls and partitions and to doors in smoke partitions, comply with requirements in Division 08 Section "Door Hardware." Connect hardware and devices to fire-alarm system.
- B. Make addressable connections with a supervised interface device to the following devices and systems. Install the interface device less than 3 feet from the device controlled. Make an addressable confirmation connection when such feedback is available at the device or system being controlled.
 - 1. Smoke dampers in air ducts of designated air-conditioning duct systems.
 - 2. Alarm-initiating connection to elevator recall system and components.
 - 3. Supervisory connections at valve supervisory switches.
 - 4. Supervisory connections at low-air-pressure switch of each dry-pipe sprinkler system.
 - 5. Supervisory connections at elevator shunt trip breaker.

3.06 WARRANTY

- A. Warranty all materials, installation and workmanship for a period of 1 year from Substantial Completion. A copy of the manufacturer warranty shall be provided with the close out documentation for inclusion in the O&M manual.

3.07 MANUFACTURER'S FIELD SERVICES

- A. Include services of certified technician to supervise installation, adjustments, final connections, and system testing.
- B. Include operations and maintenance instructions for the Owner's representative of devices including trouble shooting procedures.

3.08 FIELD QUALITY CONTROL

- A. Check out of and final connections to fire alarm control panel by factory trained technicians in employ of factory authorized franchised dealer for products installed.

- B. System, upon completion of installation, checked out, final connections made, and tested to initiating and indicating devices by factory trained technicians in employ of factory franchised dealer for products installed.
- C. Comply with requirements of Section 240800 for field inspection and testing.
- D. Test completed fire alarm and detection system in accordance with NFPA 72 in presence of the Owner's representative and the AHJ. Upon completion of successful test, certify in writing to the Owner and general contractor that system has been successfully tested and accepted by the AHJ. Include field test results in the Operation and Maintenance Manual.

3.09 TRAINING

- A. In addition, factory trained technicians shall demonstrate operation of the complete system and each major component to the Owner, including location of all equipment. Provide hardware, software, and training to allow Owner to view and change panel programming on site and to view programming remotely.
- B. A factory trained representative shall provide one 2-hour session to fully instruct the Owner's personnel as to correct operating testing, maintenance and troubleshooting procedures. Video tape this training session and provide copy to Owner for future reference. Schedule training with Owner in writing as least 7 working days in advance of the training date.

3.10 RECORD DRAWINGS

- A. See Section 260510 for record drawing information. Accurately identify the final location, addresses and type of each device on drawings. Division 26, 27, and 28 Subcontractor shall keep a set of record drawings on site during construction and programming and shall mark-up changes made on these drawings. Transfer the mark-up information to an AutoCAD format CAD file at the close of the project. Provide the Owner with the mark-up drawings, a CAD plot and CAD file on disk.
- B. Provide a complete printout hard copy of the system program and an electronic backup copy or the site specific software for all future programming needs by authorized manufacturer/distributor per NFPA 72 4,5,2,3.(3).

END OF SECTION

PART 1 - GENERAL

1.01 WORK INCLUDES

- A. Description: Work includes an automatic, non-coded, Class `B', addressable type fire alarm and detection system. This is a Bidder Designed system. See System Design Criteria, this section, for information.
- B. General Requirements: Drawings and general provisions of the Contract, including General and Supplementary Conditions, Division 1, and Sections 26 05 00 apply to Work in this section.

1.02 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with applicable city, county, state and national codes and ordinances.
- B. Codes and Standards:
 - 1. NFPA 70, National Electrical Code (NEC).
 - 2. NFPA 72, National Fire Alarm Code.
 - 3. NFPA 101, Life Safety Code
 - 4. UL 268, Standard for Smoke Detectors for Fire Alarm Signaling Systems.
 - 5. Underwriters Laboratories, Inc.
 - 6. Americans with Disabilities Act (ADA)
- C. Comply with NEC as applicable to construction and installation of fire alarm and detection system components and accessories. Components and systems UL listed and labeled for fire alarm systems and fire alarm and detection systems and accessories and FM approved. Comply with applicable State and local requirements.
- D. Comply with applicable provisions of current NFPA 72, local building codes, and requirements of AHJs.
- E. Fire Alarm and Detection System Support:
 - 1. Contractor's factory trained technical representative shall respond to job site within 4 hour period for emergencies relating to system.
 - 2. Emergency response is defined as having a technician actively troubleshoot and correct problem at job site.

1.03 SUBMITTALS

- A. Comply with requirements in Division 1 and Section 260500.
- B. Product Data: Submit manufacturer's technical product data for fire alarm and detection systems components including, but not limited to, roughing-in diagrams and instructions for installation, operation, and maintenance, suitable for inclusion in the Maintenance and Operation Manuals. Include riser and wiring diagrams for panel and system components.
- C. Shop Drawings: Indicate equipment and device locations and connecting wiring of entire fire alarm and detection system. Include layout wiring and riser diagrams, point-to-point diagrams, floor plans with device addresses and strobe candela ratings shown, battery calculations and notification appliance circuit calculations.
- D. Coordinate all submittal requirements with each AHJ and provide complete.
 - 1. Submit to A/E after approval from AHJ has been completed.
- E. Test Reports:
 - 1. Field test reports.
 - 2. Submit completed copy of reports and include copy in the Operation and Maintenance Manual.
- F. Obtain from each AHJ written certification that the permanent installation has been inspected and that it complies with AHJs' published regulations and requirements. Submit prior to Substantial Completion.
- G. Operation and Maintenance Data: Comply with requirements in Section 260500. In addition, include the following:

1. Prepare complete, simple, understandable, step-by-step, testing instructions with recommended and required testing frequency of equipment with methods for testing equipment. Include trouble-shooting manual.
2. Prepare complete, easy-to-read, understandable maintenance instructions including the following information:
 - a. Instruction on replacing components of system including inspection, periodic preventative maintenance, fault diagnosis, and repair or replacement of defective components.
 - b. List of equipment and components with address and phone number of both manufacturer and local supplier of each item.
3. Submit a minimum of one week prior to system training.

1.04 SYSTEM DESIGN CRITERIA

- A. Design, furnish, and install complete operable fire alarm and detection systems in accordance with the latest adopted editions of IBC, IFC, NFPA 72, and applicable city, county, and state laws, codes, and standards.
- B. The Contractor's scope of work shall include but not limited to the following:
 1. Complete fire alarm system based on the available architectural, civil, structural, mechanical, and electrical drawings. Devices shown on drawings do not reflect complete system. Provide additional devices, conduit, wire, and programming for a complete and operable system as required by AHJ.
 2. Wiring systems associated with fire alarm system.
 3. Providing additional smoke detectors, heat detectors, manual alarm stations, speakers, horns, visual evacuation alarm devices, voice evacuation alarm devices, bells, door closers and holder controls, panels, power supplies, batteries, built in dual line Digital Communicator and control graphic annunciators associated with fire alarm system.
 4. Providing auxiliary controls and switches including interposing control, monitor relays, and interconnection coordination for monitoring of fire sprinkler system, tamper, flow and air pressure switches mechanical equipment shutdown and smoke and combination fire/smoke damper controls.
 5. Power circuits required for all fire alarm equipment including, but not limited to, the main control panel, annunciator panels and power supplies.
- C. Owner's Minimum Requirements:
 1. In addition to Code requirements, provide complete smoke detection coverage in the following room:
 - a. Mech Room

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Fire Alarm and Detection System: Subject to compliance with requirements, Silent Knight IFP Series or similar Silent Knight panel which meets all requirements of Owner and AHJ. No substitutions.

2.02 FIRE ALARM AND DETECTION SYSTEMS

- A. General: Electrically operated, electrically supervised, fire alarm and detection system as described herein. Include control units, power supplies, alarm initiating and indicating devices, conduit, wire, fittings, and accessories required for a complete operating system.
- B. Comply with requirements in Section 260533 for raceways, Section 260519 for conductors, Section 262726 for outlet boxes, and Section 260529 for supports. Minimum wire size No. 16 AWG for initiating circuits and No. 14 AWG for indicating circuits.
- C. Enclose entire fire alarm system wiring in raceway.

2.03 SYSTEM TYPE

- A. Low voltage, point identification fire management system. Fire alarm and detection system shall monitor intelligent (analog) and addressable (digital) devices, traditional initiating devices, point identify alarm location, and transmit signals to monitoring agency.
- B. Fire alarm control panel shall allow for loading or editing special instructions and operating sequences. System capable of on-site programming to accommodate and facilitate expansion, building parameter changes, and changes as required by AHJs. Software operations stored in non-volatile programmable memory within fire alarm control panel. Loss of primary and secondary power shall not erase instructions stored in memory.

2.04 SYSTEM OPERATION

- A. Alarm displayed on an 80-character alphanumeric display and on remote printer. Top line of characters shall be point label and second line shall be device type identifier. System alarm red LED shall flash on control panel and remote annunciator shall indicate specific device in alarm. Subsequent alarm received from another zone after being acknowledged shall flash system alarm LED on control panel and remote annunciator. LCD display and printer shall show new alarm information. Alarm tone shall occur within control panel and remote annunciator until acknowledged.
- B. Alarm indicating devices silenced by entering locked control cabinet and operating alarm silence switch. Subsequent alarm condition shall reactivate signals.
- C. Activation of any system smoke detector shall initiate an alarm verification operation whereby control panel shall reset activated detector and wait for second alarm activation. If, within 1 minute after resetting, second alarm is reported from same or any other smoke detector, system shall process alarm as described previously. Time period for alarm verification reset programmable from 0 to 60 seconds. If no second alarm occurs within alarm verification time window, system shall resume normal operation. Alarm verification shall operate only on smoke detector alarms. Other activated initiating devices processed immediately. Alarm verification operation selectable by device, not just by zone. Control panel with capability to display number of times zone or detector has gone into verification mode. Information displayed on control panel and transmitted to remote printer and remote annunciator.
- D. Control panel shall have a dedicated supervisory trouble condition indicator and acknowledge switch.
 - 1. Activation of any standpipe or sprinkler valve tamper switch shall activate system supervisory service audible signal and illuminate LED at control panel and remote annunciator. Include differentiation between valve tamper activation and open circuits or ground conditions.
 - 2. Activating acknowledge switch shall silence audible signal while supervisory service LED.
 - 3. Restoring valve to normal position shall cause supervisory service LED to extinguish thus indicating restoration to normal position.
- E. Control panel capable of supplying minimum 6 Amps at 24 VDC, filtered and regulated. Power supply expandable to total ampacity required by system. Initial system shall include a minimum of 25% spare capacity.
- F. Functions of control panel field programmable.

2.05 POWER REQUIREMENTS

- A. Include 120 VAC power from dedicated optional standby generator circuit for control panel.
- B. Include sufficient battery capacity to operate entire system upon loss of normal 120 VAC power in normal supervisory mode for a period of 24 hours with 5 minutes of alarm operation at end of this period. System shall automatically transfer to standby batteries upon power failure. Battery charging and recharging operations shall be automatic.
- C. Circuits requiring system operating power shall be 24 VDC. Include individual fuses at control panel.

2.06 EQUIPMENT

- A. Fire Alarm Control Panel: Modular construction with solid state microprocessor-based electronics with a minimum of 25 percent spare point capacity. Include minimum 80-character minimum alphanumeric display to indicate alarms, supervisory service conditions, and troubles.

2.07 PERIPHERAL DEVICES

- A. Manual Stations: Constructed of red die cast metal with raised white lettering. When station is operated, handle shall lock in protruding manner to facilitate quick visual identification of activated station. Station capable of being reset using a key. Stations which require only a screwdriver for operation not acceptable
- B. Manual Station Guards: Plastic guards with built-in independent local alarm. Stopper Two or approved. Provide on all manual pull stations unless otherwise noted.
- C. Smoke Detectors: UL 268 listed and documented compatible with control equipment to which it is connected. Photoelectric type with a plug-in base and LED1 indication of detector actuation. Detectors addressable and with capability of alarm verification, sensitivity adjustment by detector, and "maintenance alert" circuitry. Model IDP-Photo with IDP-6AB base.
- D. Heat Detectors: Addressable, analog thermal detectors. Rate of rise feature accomplished with electronic, dual thermistors. Include built-in test switch and LEDs to indicate alarm condition and polling. Thermal head shall plug-in to base. Heat detector rated for the environment in which it is to be installed (135° typical).
- E. Primary Notification Appliances: Provide flush mounted combination horn/strobe Audio/Visual signaling appliances where required. Specific audible and visual characteristics shall be as follows:
 - 1. Visual Signals: Furnish and install xenon strobes, synchronized in accordance with NFPA 72 chapter 4 and rated to UL 1971 standards. Strobes shall have a fixed candela rating, as follows: provide 15 candela in corridors and other areas up to 20' x 20', 75 candela in areas up to 40' x 40', and 110 candela in areas up to 50' x 50'.
 - 2. Audible Signals: Provide audible signal appliances designed to produce a minimum sound output of 85dbA at 10', or 15dbA above ambient; whichever is greater.
- F. Multiple strobes visible in a single room coordinated to flash simultaneously.

PART 3 - EXECUTION

3.01 INSPECTION

- A. General: Verify installation conditions as satisfactory to receive work of this section. Do not install until unsatisfactory conditions are corrected. Beginning work constitutes acceptance of conditions as satisfactory.

3.02 PREPARATION

- A. Field Measurements: Field verify locations of new and existing work prior to commencing work of this section.
- B. Protection: Protect surrounding areas and surfaces to preclude damage from work of this section.

3.03 INSTALLATION, APPLICATION, ERECTION, AND PERFORMANCE

- A. General: Install, apply, erect, and perform the work in accordance with Article "Quality Assurance" provisions, specifications, and manufacturer's installation instructions and directions. Where these may be in conflict, the more stringent requirements govern.

3.04 FIRE ALARM AND DETECTION SYSTEM INSTALLATION

- A. Smoke- or Heat-Detector Spacing:
 - 1. Comply with NFPA 72, "Smoke-Sensing Fire Detectors" Section in the "Initiating Devices" Chapter, for smoke-detector spacing.
 - 2. Comply with NFPA 72, "Heat-Sensing Fire Detectors" Section in the "Initiating Devices" Chapter, for heat-detector spacing.
 - 3. Smooth ceiling spacing shall not exceed 30 feet.
 - 4. Spacing of detectors for irregular areas, for irregular ceiling construction, and for high ceiling areas shall be determined according to Appendix A in NFPA 72.
 - 5. HVAC: Locate detectors not closer than 3 feet from air-supply diffusers or return-air opening.
 - 6. Lighting Fixtures: Locate detectors not closer than 12 inches from any part of a lighting fixture.

- B. Audible Alarm-Indicating Devices: Install not less than 6 inches below the ceiling. Install bells and horns on flush-mounted back boxes with the device-operating mechanism concealed behind a grille.
- C. Mounting Heights:
 - 1. Manual Station: Operating handle approximately 48 inches above floor.
 - 2. Alarm Signal Devices: Approximately 80 inches above floor to centerline.
 - 3. Magnetic Door Holders: 78 inches to center line except as noted.
- D. Wire:
 - 1. Per manufacturer's recommendations and as per NEC. Comply with requirements in Section 260519.
 - 2. Where required, provide wiring in metallic conduit. Comply with requirements in Section 260533.
- E. Make conduit and wiring connections to sprinkler flow switches, sprinkler valve tamper switches, and appropriate air handling equipment.
- F. Label junction boxes for fire alarm with minimum 1/4 inch letters: "FIRE ALARM."
- G. Test conductors for ground conditions before making final wiring connections. Comply with requirements in Section 260526.
- H. Maintain wiring color code throughout installation. Include color code identification in the Operation and Maintenance Manual.
- I. Coordinate with appropriate subcontractors for installation of equipment and devices that pertain to other work in the contract.
- J. Clean dirt and debris from inside and outside of the fire alarm equipment after completion of installation.
- K. Coordinate installation of duct smoke detectors with Division 23 work.
- L. Install remote annunciators as indicated on the Drawings and as required by AHJ.

3.05 CONNECTIONS

- A. For fire-protection systems related to doors in fire-rated walls and partitions and to doors in smoke partitions, comply with requirements in Division 08 Section "Door Hardware." Connect hardware and devices to fire-alarm system.
- B. Make addressable connections with a supervised interface device to the following devices and systems. Install the interface device less than 3 feet from the device controlled. Make an addressable confirmation connection when such feedback is available at the device or system being controlled.
 - 1. Smoke dampers in air ducts of designated air-conditioning duct systems.
 - 2. Alarm-initiating connection to elevator recall system and components.
 - 3. Supervisory connections at valve supervisory switches.
 - 4. Supervisory connections at low-air-pressure switch of each dry-pipe sprinkler system.
 - 5. Supervisory connections at elevator shunt trip breaker.

3.06 WARRANTY

- A. Warranty all materials, installation and workmanship for a period of 1 year from Substantial Completion. A copy of the manufacturer warranty shall be provided with the close out documentation for inclusion in the O&M manual.

3.07 MANUFACTURER'S FIELD SERVICES

- A. Include services of certified technician to supervise installation, adjustments, final connections, and system testing.
- B. Include operations and maintenance instructions for the Owner's representative of devices including trouble shooting procedures.

3.08 FIELD QUALITY CONTROL

- A. Check out of and final connections to fire alarm control panel by factory trained technicians in employ of factory authorized franchised dealer for products installed.

- B. System, upon completion of installation, checked out, final connections made, and tested to initiating and indicating devices by factory trained technicians in employ of factory franchised dealer for products installed.
- C. Comply with requirements of Section 240800 for field inspection and testing.
- D. Test completed fire alarm and detection system in accordance with NFPA 72 in presence of the Owner's representative and the AHJ. Upon completion of successful test, certify in writing to the Owner and general contractor that system has been successfully tested and accepted by the AHJ. Include field test results in the Operation and Maintenance Manual.

3.09 TRAINING

- A. In addition, factory trained technicians shall demonstrate operation of the complete system and each major component to the Owner, including location of all equipment. Provide hardware, software, and training to allow Owner to view and change panel programming on site and to view programming remotely.
- B. A factory trained representative shall provide one 2-hour session to fully instruct the Owner's personnel as to correct operating testing, maintenance and troubleshooting procedures. Video tape this training session and provide copy to Owner for future reference. Schedule training with Owner in writing as least 7 working days in advance of the training date.

3.10 RECORD DRAWINGS

- A. See Section 260510 for record drawing information. Accurately identify the final location, addresses and type of each device on drawings. Division 26, 27, and 28 Subcontractor shall keep a set of record drawings on site during construction and programming and shall mark-up changes made on these drawings. Transfer the mark-up information to an AutoCAD format CAD file at the close of the project. Provide the Owner with the mark-up drawings, a CAD plot and CAD file on disk.
- B. Provide a complete printout hard copy of the system program and an electronic backup copy or the site specific software for all future programming needs by authorized manufacturer/distributor per NFPA 72 4,5,2,3.(3).

END OF SECTION