

PROJECT MANUAL

PROJECT NAME AND LOCATION:

**Electrical Panel Replacement
Meadowbrook Apartments**

Contract Number: DW2403031

TABLE OF CONTENTS

- 02 Invitation to Bid (1 Page)
- 03 Specifications (64 Pages)
- 04 Plans (15 Sheets)
- 05 Instruction to Bidders (7 Pages)
- 06 General Conditions (15 Pages)
- 07 Bid Form & Bidder Information (4 Pages) – ***Return with Bid***
- 08 Sample Contract Form (1 Page)
- 09 Sample Certificate of Insurance (2 Pages)
- 10 Hazardous Material Report dated November 2011 (49 Pages)

INVITATION TO BID

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: Work includes, but is not limited to, replacement of 81 electrical panels, and other work described in project manual.

PROJECT MANUAL DISTRIBUTION:

Address: King County Housing Authority, 600 Andover Park, Seattle, WA 98188
Distribution: * **Documents are available for download on KCHA's website at <http://www.kcha.org/business/construction/open/>**

PRE-BID CONFERENCE:

Date and Time: September 16, 2024 at 10:00 A.M.
Jobsite Address: Meadowbrook Apartments, 1408 NW Richmond Beach Road, Shoreline, WA 98177.
In Addition: Contractors are strongly encouraged to attend the Pre-Bid Conference. Failure to attend the Conference will not relieve the Contractor of any responsibility for information provided at that time.
For Questions: Questions pertaining to the bid are to be sent via email to MichelleJ@kcha.org no later than seven (7) calendar days prior to bid due date. All responses shall be in the form of Addenda.
Posting: Addenda notifications will be emailed to all members of the Plan Holders List and will be posted on KCHA's website.

BIDS ARE DUE:

Time: **2:00 P.M.**
Date: **October 3, 2024**
Address: King County Housing Authority
600 Andover Park West, Tukwila, WA 98188
Submittal Process: * **Sealed Envelope marked as "Bid Documents: Meadowbrook Electrical Panel Replacement"**
(Mailing / Shipping Package or Wrapping must also be marked with this information).
Process: All Bids must be received and time and date stamped at KCHA no later than the above due date and time. No Bids will be accepted after that date and time.
**No Fax or Email Bids will be accepted.

BID GUARANTEE:

Amount: Five (5%) Percent of the Total bid must accompany Each Bid
Payable to: King County Housing Authority

PERFORMANCE AND PAYMENT BONDS: As a condition of award payment and performance bonds for 100% of the Contract Award Amount shall be furnished for the Work.

KCHA 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 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 60 calendar days subsequent to the opening of the bids without the written consent of KCHA.

CONTACT PERSON: Michelle Jackson at MichelleJ@kcha.org

SPECIFICATIONS

**Meadowbrook Apartments
Electrical Panel Replacements**

Contract Number: DW2403031
Page 1 of 9

SECTION 01100 - SUMMARY

PART 1 - GENERAL

1.1 WORK COVERED BY CONTRACT DOCUMENTS

- A. Project Identification: Electrical Panel Replacements
- B. Work consists of replacement of 81 electrical panels in units listed below.
- C. Project Location
 - 1. Meadowbrook Apartments, 1408 NW Richmond Beach Road, Shoreline, WA 98177
 - a. Building 1404 – 20 units
 - b. Building 1406 – 21 units
 - c. Building 1408 – 19 units
 - d. Building 1410 - 21 units
 - e. See *04-Meadowbrook Elec Panel Plans* for details.
- D. Work includes:
 - 1. Electrical Panels
 - a. Disconnect power to existing panels.
 - b. Remove existing panels.
 - c. Enlarge wall opening for new panels.
 - d. Install new 125 amp load center.
 - e. Connect all circuits to existing feeders and label panel.
 - f. Patch GWB, tape, sand & paint to match.
 - g. Note: In 1408, Unit 26, there are 2 panels to be replaced. 1 of the replacement panels serves Unit 25. Convert existing Unit 25 replacement panel in Unit 26 into a junction box to serve Unit 25, and install a new panel in Unit 25 with jumper conductors from the Unit 26 junction box to new panel in Unit 25.
 - h. See *03-Specifications Meadowbrook Elec Panel Spec* for details.
 - i. All units to be back on line with electrical service restored at the end of each work day.

1.2 WORK SEQUENCE

- A. The Work shall be completed in 90 calendar days from the date of Notice to Proceed.

SPECIFICATIONS

**Meadowbrook Apartments
Electrical Panel Replacements**

Contract Number: DW2403031
Page 2 of 9

1.3 LIQUIDATED DAMAGES

- A. Liquidated damages will be assessed for each calendar day that the Contractor exceeds the time for completion in the amount of \$250.

1.4 WORK RESTRICTIONS

A. Use of the Premises

- 1. Use of Site: Limit use of premises to work areas. Do not disturb portions of site beyond areas in which the Work is indicated.
 - a. Owner Occupancy: Allow for resident occupancy of site. Owner will occupy site and existing building during entire construction period. Cooperate with Owner during construction operations to minimize conflicts and facilitate resident usage.
 - b. Driveways and Entrances: Keep driveways and entrances serving premises clear and available to residents and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
- 2. Use of Existing Building: Maintain existing building in a weathertight condition throughout construction period. Repair damage caused by construction operations. Protect property, the buildings and occupants during construction period.

B. Occupancy Requirements

- 1. Full Owner Occupancy: Owner and tenants will occupy site and existing building during entire construction period. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner and tenant usage. Perform the Work so as not to interfere with Owner's operations.

1.5 PAYMENT PROCEDURES

- A. Coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule.
- B. Each Application for Payment shall be consistent with previous applications and payments.
- C. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions were made.
- D. Waivers of Lien: With each Application for Payment, submit conditional waivers lien from every entity that is lawfully entitled to file a lien arising out of the Contract and related to the Work covered by the payment.
 - 1. Submit partial waivers on each item for amount requested, before deduction for retainage, on each item.
 - 2. When an application shows completion of an item, submit final or full waivers.

SPECIFICATIONS

**Meadowbrook Apartments
Electrical Panel Replacements**

Contract Number: DW2403031
Page 3 of 9

3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
 - a. Submit final Application for Payment with or preceded by final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
- E. Final Payment Application: Submit final Application for Payment with releases and close out supporting documentation.

1.6 PROJECT MEETINGS

- A. Preconstruction Conference: Schedule a preconstruction conference before starting construction, at a time convenient to Owner, but no later than seven days after execution of the Agreement.

1.7 SUBMITTALS

- A. Provide product data for each element of construction and type of product or equipment for approval by Owner.
- B. Subcontract list. Prepare written information that demonstrates capabilities and experience of firm or persons.
- C. Contractors project manager and/or supervisors. Prepare written information that demonstrates capabilities and experience of firm or persons.
 1. The Owner will review subcontractors and assigned staff and will accept or reject based on experience or qualifications.
- D. The Contractor shall submit a site-specific safety plan to the Owner's representative prior to the initial scheduled construction meeting.

1.8 TEMPORARY FACILITIES

- A. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking-water fixtures. Comply with regulations and health codes for type, number, location, operation, and maintenance of fixtures and facilities.
- B. Barricades, Warning Signs and Lights: Comply with standards and code requirements for erection of structurally adequate barricades. Paint with appropriate colors, graphics and warning signs to inform personnel and the public of the hazard being protected against.
- C. Use of Owner's existing electric power service will be permitted, as long as equipment is maintained in a condition acceptable to Owner.
- D. Four parking spaces shall be available to the contractor for storage containers and parking.

SPECIFICATIONS

**Meadowbrook Apartments
Electrical Panel Replacements**

Contract Number: DW2403031
Page 4 of 9

1.9 EXECUTION REQUIREMENTS

- 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.

1.10 CUTTING AND PATCHING

A. Quality Assurance

- 1. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio.
- 2. Visual Requirements: 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.

B. Performance

- 1. Cutting: Cut existing construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
- 2. 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 of these Specifications.
 - a. 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.
 - b. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition.

1.11 DEMOLITION

- A. Hazardous Materials: Materials containing hazardous materials are included in the Limited Asbestos Survey Report prepared by PBS and dated November 2011 which is included.
- B. All material disturbed as part of the renovation shall be removed and disposed of in accordance with Washington State regulations.
- C. If other materials not included in the report are suspected of containing hazardous materials are encountered, do not disturb and immediately notify Owner.

SPECIFICATIONS

**Meadowbrook Apartments
Electrical Panel Replacements**

Contract Number: DW2403031
Page 5 of 9

- D. All hazardous materials shall be removed and disposed off site in accordance with state and local requirements.

1.12 CLOSEOUT PROCEDURES

- A. General: Provide daily and final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations. All waste materials are to be removed and disposed of off site.
 - 1. Prior to acceptance of the work at each building, 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. At final completion and prior to final payment submit written warranties indicated in other sections.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 0110

SPECIFICATIONS

**Meadowbrook Apartments
Electrical Panel Replacements**

Contract Number: DW2403031
Page 6 of 9

SECTION 09260 - GYPSUM BOARD ASSEMBLIES

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes interior gypsum wallboard to repair damaged gypsum wall board (GWB) during installation of Electrical Panels.

PART 2 - PRODUCTS

2.1 PANEL PRODUCTS

- A. Gypsum Wallboard: ASTM C 36.

2.2 TRIM ACCESSORIES

- A. Interior Trim: ASTM C 1047.

2.3 JOINT TREATMENT MATERIALS

- A. General: Comply with ASTM C 475.
- B. Joint Tape: Interior Gypsum Wallboard: Paper.
- C. Joint Compound for Interior Gypsum Wallboard: For each coat use fire resistant compound formulation that is compatible with other compounds applied on previous or for successive coats.

2.4 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written recommendations.

2.5 TEXTURE FINISHES

- A. Primer: As recommended by textured finish manufacturer.
- B. Aggregate Finish: Water-based, job-mixed, aggregated, drying-type texture finish for spray application.
 - 1. Texture: Match existing.

SPECIFICATIONS

**Meadowbrook Apartments
Electrical Panel Replacements**

Contract Number: DW2403031
Page 7 of 9

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Gypsum Board: Comply with ASTM C 840 and GA-216.
- B. Water-Resistant Gypsum Backing Board: Install with 1/4-inch gap where panels abut other construction or penetrations.
- C. Provide texture to match existing.

END OF SECTION 09260

SPECIFICATIONS

**Meadowbrook Apartments
Electrical Panel Replacements**

Contract Number: DW2403031
Page 8 of 9

SECTION 09911 - PAINTING

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes surface preparation and field painting areas impacted by the installation of electrical panels.

PART 2 - PRODUCTS

2.1 GENERAL

- A. All colors used shall be selected by the Owner, from chips shown on color cards and/or fan deck selectors provided by manufacturer unless otherwise specified herein.
- B. Catalysts/Activators, solvent or paint additives are generally prohibited and may only be used with written approved from and authorized agent of and only if specifically approved by the manufacturer's printed literature or letter of acceptance.
- C. Products shall be provided as specified and no substitution or changes shall be allowed unless authorized in writing by the Owner. Contractor may submit a substitution request with supporting evidence that the product is equal in quality to the specified product. The Owner shall make the final determination as to whether a substitution shall be allowed.
- D. Where the manufacturer offers options on primers for a particular substrate, use primer categorized as "best" by the manufacturer.

2.2 CAULK & PATCHING

- A. Caulking: WL001360A - Sher-MAX Ultra Urethanized Elastomeric Sealant White.

2.3 PRIMER

- A. Exterior Primer: Exterior primer of finish coat manufacturer and recommended in writing by manufacturer for use with finish coat and on substrate indicated.
 - 1. B28W08111 - Premium Wall and Wood Primer

2.4 INTERIOR FINISH

- A. A86W00151 SuperPaint® Interior Acrylic Latex

SPECIFICATIONS

**Meadowbrook Apartments
Electrical Panel Replacements**

Contract Number: DW2403031
Page 9 of 9

1. Walls and Ceilings: Match existing
2. Kitchens, Baths, Laundry Rooms: Satin

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Do not begin application of coatings until substrates have been properly prepared. Notify Owner of unsatisfactory conditions before proceeding.
- B. Proceed with work only after conditions have been corrected and approved by the Owner and the manufacturer.

3.2 SURFACE PREPARATION

- A. Proper product selection, surface preparation, and application affect coating performance. Coating integrity and service life will be reduced because of improperly prepared surfaces. Selection and implementation of proper surface preparation ensures coating adhesion to the substrate and prolongs the service life of the coating system.
- B. Selection of the proper method of surface preparation depends on the substrate, the environment, and the expected service life of the coating system. Economics, surface contamination, and the effect on the substrate will also influence the selection of surface preparation methods.

3.3 APPLICATION

- A. Paint complete plane in areas affected by construction, i.e. complete surface from corner to corner and floor to ceiling with no breaks.
 1. Include painting of access door and trim.
- B. Comply with procedures specified in PDCA P4 for inspection and acceptance of surfaces to be painted.

END OF SECTION 09911

SECTION 26 00 00
ELECTRICAL GENERAL CONDITIONS

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- A. Conform to General Conditions, Supplementary Conditions, the modifications thereto and Division 01 - General Requirements for all work in Divisions 26 and 27

1.2 SUMMARY

- A. Design Intent: The project includes renovation of the Electrical systems for the Meadowbrook apartment complex, in Shoreline, Washington.
1. The Electrical Contractor shall provide complete and fully operational and coordinated Electrical systems that meet all requirements of the Owner, local AHJ and as per the Project Contract Documents.
 2. Work includes replacement of existing unit load centers with new 125 amp, 20 breaker panels.

- B. The Electrical Contractor shall provide all labor, materials, equipment and devices, supports, etc necessary for satisfactory installation of electrical work ready to operate in strict accordance with Code requirements and these specifications and drawings. Work includes, but is not limited to, that as delineated in the following specification sections:

26 00 00	ELECTRICAL GENERAL CONDITIONS.
26 05 00	COMMON WORK RESULTS FOR ELECTRICAL.
26 05 19	LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES.
26 05 26	GROUNDING AND BONDING.
26 05 33	RACEWAYS AND BOXES FOR ELECTRICAL AND LOW VOLTAGE SYSTEMS.
26 24 16	LOAD CENTERS.
26 27 26	WIRING DEVICES.
26 28 13	FUSES AND ENCLOSED SWITCHES AND CIRCUIT BREAKERS.
26 51 19	INTERIOR AND EXTERIOR LIGHTING
27 00 00	LOWVOLTAGE GENERAL CONDITIONS FOR THE DESIGN BUILO CONTRACTOR

28 46 00 FIRE ALARM GENERAL CONDITIONS

1.3 CODES AND STANDARD

A. All work shall meet or exceed the requirements of the current versions of all applicable Federal, State, and Local Codes and Standards including but not limited to:

1. National Electrical Code (NEC).
2. Washington State Energy Code.
3. International Fire Code (IFC) with Local Amendments.
4. International Building Code (IBC) with Local Amendments.
5. International Mechanical Code (IMC) with Local Amendments.
6. Uniform Plumbing Code (UPC) with Local Amendments.
7. The Americans with Disabilities Act (ADA).
8. Illuminating Engineering Society of North America (IESNA) Standards and Recommended Practices.
9. National Fire Protection Association (NFPA) Standards and Recommended Practices.
10. Applicable Standards of the following organizations (see subsequent Division 26 and 27 sections for additional information):
 - a. American National Standards Institute (ANSI).
 - b. American Society for Testing Materials (ASTM).
 - c. Building Industry Consulting Services International (BICSI)
 - d. Institute of Electrical and Electronics Engineers (IEEE)
 - e. National Electrical Manufacturer's Association (NEMA)
 - f. Underwriter's Laboratories (UL) standards.

1.4 PERFORMANCE REQUIREMENTS

A. Firestopping: Conform to international Building Code, Fire Marshal, and UL for fire resistance ratings and surface burning characteristics.

1.5 PRODUCT SUBSTITUTIONS

A. Manufacturers and models of equipment and material indicated in Divisions 26 and 27 Specifications and on drawings are those upon which the electrical design is based and upon which the intercom system's design is to be based; other manufacturers with products considered equal in general quality may also be listed without specific model designation. Manufacturers not listed shall be submitted for approval prior to

- submission of Bid by the Contractor, see Division 01.
- B. Any equipment other than the basis of design is considered a substitution; this includes equipment from any alternate manufacturers listed without specific model designation in the Contract Specifications and / or Drawings.
 - C. Pre-Bid Substitutions will be evaluated based on product manufacturer only. Specific product model, specifications, options and accessories will be evaluated during submittals. Approval of a manufacturer substitution does not constitute approval of the submitted product.
 - D. In selecting substitute equipment, the Contractor is responsible for and shall guarantee equal performance and fit. Cost of redesign and all additional costs incurred to accommodate the substituted equipment shall be borne by the Contractor.
 - E. Approval of proposed substitution does not grant the Contractor approval for deviation from the contract requirements.
 - F. Unless indicated otherwise, "or approved equal" may be assumed for all products in Divisions 26 and 27.

1.6 SUBMITTALS

- A. Provide one electronic copy of product data submittals for all products listed under "Part 2 Products" of Divisions 26 and 27 Specification Sections and all additional products noted on drawings or required for completion of sequence of operations.
- B. Provide the Submittals so as not to delay the construction schedule; allow at least two weeks for review of each submittal and re-submittal.
- C. Electronic: Submittals shall be complete in one PDF file for each Division with bookmarks for each Specification Section and Principal Category. Multi-file submittals will be returned without review.
 - 1. First Page: Name of Project, Owner, Location & Contracting Company.
 - 2. Index Page: List of specification sections and principal categories with contents by Tag or item.
 - 3. Bookmarks: Electronic bookmark of each specification section and principal category corresponding to listing in index.
- D. Clearly indicate on each page the equipment schedule designation (Tag or Mark) and/or specification section, as applicable. Indicate selected model and all accessories intended for use.

- E. Equipment vendor cover page with contact information shall precede submittal by that vendor.
- F. Submitted product information shall include but not be limited to the following information (as applicable):
 - 1. Product description.
 - 2. Manufacturer and model.
 - 3. Dimensions.
 - 4. Performance Ratings.
 - 5. Construction Materials.
 - 6. Finish.
 - 7. Ratings (i.e. UL, ASTM, NEMA, etc).
 - 8. Electrical characteristics (Voltage, Phase, Wattage, Breakers, etc).
 - 9. Engineering technical data.
 - 10. Sound level data.
 - 11. Vibration isolation.
 - 12. Strength and fastening provisions.
 - 13. Seismic qualification data.
 - 14. Controls and wiring diagrams.
 - 15. Accessories.
- G. Where a third party structural engineer has been engaged by the Contractor to provide support, anchoring and seismic calculations, the Contractor shall include these calculations and designs in their Submittal Package.
- H. If requested in subsequent Specification Sections or by the Architect or Engineer, submit Manufacturer's Installation Instructions on any equipment, procedures, or certifications so requested.
- I. Do no ordering, fabrication or manufacturing of products until return of approved submittals.
- J. The Contractor agrees to pay for the Engineer's review cost of the Division 26 and 27 Submittals beyond one resubmittal where resubmittals are required due to deficiencies in the Contractor's Submitted material.

1.7 SHOP DRAWINGS

- 1. For Electrical Gear (switchboards, panelboards, etc).
- 2. Slab plans marked up with all penetrations required for electrical and intercom systems. Sizes of penetrations shall be indicated on the plans and penetration

locations shall be dimensioned from major building lines. The Contractor shall submit these slab plans to the Architect for review.

3. As requested in subsequent Division 26 and 27 Specification Sections.
4. For all special or custom-built items or equipment.
5. In all cases where deviation from the Contract Drawings are contemplated because of job conditions, interference or substitution of equipment, or when requested by the Engineer for purposes of clarification of the Contractor's intent.

a. By submission of revised design shop drawings, the Contractor acknowledges that coordination has been done with all other trades to ensure that all equipment fits and remains accessible with all Code required clearances and that no conflicts exist.

- B. The Architect's review of shop drawings shall not relieve the Contractor of the responsibility for deviations from the Contract drawings or specifications, unless he has, in writing, called the attention of the Architect to such deviations at the time of the submission, nor shall it relieve him from responsibility for errors or omission in such shop drawings.

1.8 COMMISSIONING

- A. See the Commissioning notes in the Drawing Set and Division 01 for requirements.
- B. Perform corrective actions needed to resolve deficiencies identified during commissioning. Record action taken on commissioning deficiency log.

1.9 PERMITS

- A. In addition to the requirements in other Specification Sections, the Electrical Contractor shall make all required submissions to the Authorities Having Jurisdiction (AHJ) for Permits and approval. The Contractor shall pay all fees related to said submissions and shall submit all comments received from the AHJ to the Architect and Engineer.
- B. The Contractor shall not commence work until a permit (or "get started" permit where allowed by the AHJ) is obtained. The Contractor is solely responsible for ensuring that the permit application and any revisions are submitted in a timely manner so as not to impact the project schedule.
- C. The Contractor shall retain the services of a third party structural engineer to provide support, anchoring and seismic calculations for all applicable equipment where required by the AHJ.

1.10 QUALITY ASSURANCE

- A. The Contractors shall perform all work per current versions of all applicable Codes and Standards with state and local amendments - see "Codes and Standards" paragraph above.
- B. All equipment and devices shall be UL-Listed and Labeled and shall be acceptable to the Authority Having Jurisdiction as suitable for the use and location for which they are intended.
- C. Provide all like items (receptacles, circuit breakers, electrical gear, etc) from one manufacturer.

1.11 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in Divisions 26 and 27 Specification Sections with a minimum of three years' experience.
- B. Installer: Company specializing in performing Work included in Divisions 26 and 27 on projects of similar type and scale with a minimum of three years' experience.

1.12 SCHEDULING

- A. The Scope of the project is to be completed in Phases. Coordinate phasing of construction with Owner and Architect.
- B. The building is intended to remain completely occupied during construction. Coordinate the scheduling of access with the Owner.

1.13 DELIVERY, STORAGE AND HANDLING

- A. Accept materials on site in original factory packaging, labeled with manufacturer's identification.
- B. The Contractor shall keep all equipment, devices, conduit, etc in a dry, secured, protected area. The location shall be coordinated with the Architect and Owner prior to the start of Construction. See Division 01 for additional delivery, storage and handling requirements.
- C. Where original packaging is insufficient, provide additional protection. Maintain protection in place until installation.
- D. Inspect all products and materials for damage prior to installation.
- E. Protect conduit from all entry of foreign materials by providing temporary end caps or closures on conduit and fittings.
- F. Protect materials and finishes during handling and installation to prevent damage.

- G. Comply with manufacturer's installation instruction for rigging, unloading and transporting equipment.

1.14 ENVIRONMENTAL REQUIREMENTS

- A. Do not apply fire stopping materials when temperature of substrate material and ambient air is below 60 degrees F. Maintain this minimum temperature before, during, and for minimum 3 days after installation of fire stopping materials.
- B. Coordinate with Owner to have ventilation provided in areas to receive solvent cured materials.

1.15 FIELD MEASUREMENTS

- A. The Contractor shall visit the site and become familiar with existing conditions affecting work. The Contractor shall include in their Bid the costs for all work and / or materials required to comply with the requirements of the Contract Documents based on the actual existing conditions. Failure to visit the Site and verify actual existing conditions does not relieve the Contractor of these requirements; no change orders will be paid due to lack of verification of existing conditions whether they are specifically noted in the Contract Documents or not.
- B. Existing systems and utility lines indicated on drawings are in accordance with information furnished to the Architect and may not be complete and completely accurate. Contractor is responsible for locating, uncovering, disposing of or maintaining and documenting exact locations of existing systems.
- C. Verify field measurements prior to ordering gear.
- D. Verify by field measurements that equipment sizes and configurations are compatible with wall construction and layout.

1.16 COORDINATION

- A. Where the word 'verify' is used on the documents, the contractor shall field verify the existing conditions and modify the scope of the installation as required to meet the verified conditions without additional cost to the Owner.
- B. Electrical drawings are diagrammatic and do not indicate all possible site conditions. The contractor shall verify all measurements, dimensions and connections on site and coordinate between trades to preclude interferences. The contractor shall provide adjustments as necessary to fit actual conditions.
- C. The scale of each drawing is relatively accurate, but the Contractor is warned to obtain the necessary dimensions for any exact takeoffs from the Architect. No additional cost to the Owner will be considered for failure to obtain exact dimensions where not clear

or in error on the drawings. Any device or equipment roughed in improperly and not positioned on implied centerlines or as required by good practice shall be repositioned at no cost to the Owner.

- D. In the event of a conflict with other trades of work, the following priority from highest to lowest shall be followed: Structural, lighting, HVAC, plumbing/piping and sprinklers. Starting with the lowest priority, the Electrical, HVAC, and low voltage contractors shall provide whatever materials, offsets, labor etc. is required to resolve the conflict.
- E. Advise the Architect of any modifications required to suit the equipment furnished. Costs for modifications due to equipment substitution will be borne by the contractor.
- F. When discrepancies occur between plans and specifications, the Architect will determine which takes precedence and the Contractor shall perform the selected requirement at no additional cost.
- G. Wherever conflicts occur between different parts of the Contract Documents the greater quantity, the better quality, or larger size shall prevail unless the Architect informs the Contractor otherwise in writing.
- H. Coordinate wall openings, rough-in locations, concrete housekeeping pads, and conduit rough-in locations to accommodate Work of Divisions 26 and 27.
- I. The Contractor shall coordinate with the Architectural plans and Project structure when locating equipment and devices and routing conduit and cabling.

The Contractor shall coordinate with the Owner and provide slab plans marked up with all penetrations required for electrical and intercom systems. Sizes of penetrations shall be indicated on the plans and penetration locations shall be dimensioned from major building lines. The Contractor shall submit these slab plans to the Architect for review.
- J. The Contractor shall coordinate conduit and cabling routing and equipment and device locations with all other trades to ensure all Code required clearances are maintained and equipment and devices remain accessible after the work of all trades is complete.
- K. The Contractor shall consult the approved shop drawings of all other trades and crafts to ensure coordination with final locations of cabinetry, counters, appliances, equipment, structural members, etc. Conflicts are to be resolved with the Architect and General Contractor prior to rough-in. The Contractor shall not be paid for relocation work (including cutting, patching, and finishing) required due to a lack of coordination prior to installation.

- L. See the Architectural drawings for the exact locations of electrical and low voltage devices. The Contractor shall make minor changes (less than 6-feet in any direction) in the location of conduit, boxes, devices, etc from the locations shown in the drawings without extra charge to the Owner where required by coordination or if directed by the Architect or Owner.
- M. Motor Starters: By mechanical equipment manufacturer where factory mounted controls are provided. Variable frequency drives by Division 23. All other starters are to be provided by Electrical Contractor; coordinate with Mechanical and Plumbing Contractors to ensure compatibility with their equipment.
- O. Wiring for HVAC Equipment:
 - 1. Power Wiring for HVAC equipment: By Electrical Contractor.
 - 2. Control Wiring for HVAC equipment: Responsibility of Division 23.
 - 3. Owner will not entertain additional cost due to lack of coordination between HVAC Contractor and Electrical Contractor.

1.17 PROJECT CLOSEOUT

- A. Completion, submission and approval of the following is required for final project closeout:
 - 1. Walk through the Project with the Owner and Architect to make note of deficiencies.
 - 2. Execution of Owner's, Architect's and Engineer's final observation reports (punchlist).
 - 3. Operating and Maintenance Instructions.
 - 4. Operating and Maintenance Manual.
 - 5. Equipment Cleaning.
 - 6. Record Drawings.
 - 7. Testing.
 - 8. Commissioning and Commissioning Report.
 - 9. Warranty.
- B. See other Divisions 26 and 27 Specification Sections for additional requirements.
- C. See Division 01 for additional requirements.

1.18 OPERATING AND MAINTENANCE INSTRUCTIONAL TRAINING

- A. General: In addition to requirements of Division 01, following initial operation of Electrical systems and prior to acceptance by the Architect, perform the following services:

1. At least two weeks prior to each instruction period, give written notification of readiness to proceed to the Architect and Owner, and obtain mutually acceptable dates.
2. Conduct demonstrations and instructions for the Owner's representatives, pointing out requirements for operating, servicing and maintaining equipment and systems. Describe general system operation and specific equipment functions. Cover all equipment calibration, lighting controls setpoint and system adjustment, and safeties and alarms.
3. Furnish qualifications of Contractor's personnel in charge of the instruction; foreman position is minimum acceptable. Where equipment startup is performed by supplier's or manufacturer's personnel, those personnel should also provide training on that equipment.
4. During demonstrations and instructions include and reference information from maintenance manuals and contract drawings.
 - a. Provide documentation of all instruction which includes:
 - 1) Date and time of instruction.
 - 2) Name, affiliation and qualifications of the instructor.
 - 3) Name and affiliation of the attendees.
 - 4) Topics, systems, and equipment covered.
 - 5) Length of instruction.
5. Minimum duration of instruction periods:
 - a. Electrical Power Systems 6 hours
 - b. Intercom Systems See Section 27 00 00

1.19 OPERATING AND MAINTENANCE MANUALS

A. Contents: Furnish, in accord with Division 01, one PDF and one bound copy of operating and maintenance manuals to include the following:

1. The Job name and address.
2. Names, addresses and telephone numbers of the Contractor, sub-contractors and local companies responsible for maintenance of each system or piece of equipment.
3. Manufacturers, suppliers, contractor names, addresses and phone numbers.
4. Written guarantees.

5. Warranty service contractors' names, address and phone numbers (if different from above).
 6. Copies of approved brochures and Shop Drawings as applicable for all submittal items.
 7. Manufacturer's printed operating procedures to include start-up and routine and normal operating instructions; and control, shutdown, and emergency instructions.
 8. Maintenance procedures for routine preventative maintenance and troubleshooting; disassembly, repair, and reassembly; and adjusting instructions.
 9. Part numbers of all replaceable items.
 10. Control diagrams and operation sequence.
 11. Record drawings corrected and completed.
 12. Completed systems start-up forms and checklists.
 13. Final copy of testing reports.
- B. Operation and Maintenance Data:
1. Include spare parts lists for all equipment as applicable.
 2. Submit installation instructions, adjustment instructions, and spare parts lists for all equipment.
 3. Submit inspection period, cleaning methods, recommended cleaning materials, and calibration tolerances.
 4. Submit manufacturer's descriptive literature, operating instructions, and maintenance and repair data.
- C. Binders:
1. Furnish typewritten or printed index and tabbed dividers between Specification Sections and principal categories.
 2. Bind each manual in a hard-backed loose-leaf binder.
 3. Imprint on Cover:
 - a. Name of Project.
 - b. Owner.
 - c. Location of project.
 - d. Architect.
 - e. Contractor.
 - f. Year of Completion.
 4. Imprint on backing:
 - a. Name of Project.
 - b. Year of completion.
- D. PDFs:
1. Provide PDF with bookmarks for each Specification Section and Principal Category.

- a. First Page: Name of Project, Owner, Location & Contracting Company.
 - b. Index Page: List of specification sections with contents by Tag or item.
 - c. Bookmarks: Electronic bookmark of each specification section corresponding to listing in index.
- E. Submittal:
1. Preliminary Copies: Prior to scheduled completion of the project, submit one PDF copy for review by the Architect.
 2. Final Copies: After approval of the preliminary copy, submit one PDF and one bound copy to the Owner.

1.20 RECORD DRAWINGS

- F. Prepare record documents in accordance with the requirements of Division 01 Specification Section "Contract Closeout."
- G. Label each drawing as "Record Drawing" with Electrical Contractors' name and date.
- H. During construction, maintain an accurate record set of the drawings of the installation on project site at all times; keep this set in a safe location, protected from the environment.
- I. Submit one digital file with all drawings in PDF format.
- J. Make all notes and revisions on PDF set in red.
- K. In addition to the requirements specified in Division 01 and in other Divisions 26 and 27 Specification Sections, indicate installed conditions (locations, sizes, arrangements, etc) for:
1. Major raceway systems dimensioned from prominent building lines.
 2. Control devices, equipment disconnects, distribution and branch electrical circuitry, and fuse and circuit breakers.
 3. Equipment locations (exposed and concealed) shown to scale and dimensioned from prominent building lines.
 4. Final schedules for panelboards, lighting controls, etc.
 5. Approved substitutions, Contract Modifications, and actual equipment and materials installed.

1.21 TESTING

- A. Provide completed start-up forms and checklists.
- B. Written verification of testing to be signed by Owner's Representative.

1.22 WARRANTY AND CONTRACTOR'S GUARANTEE

- A. All work, material and equipment shall be free of defect, complete and in perfect operating order at time of delivery to Owner.

- B. The Contractor shall, without cost to the Owner, correct all defects and failures discovered within one year from date of final acceptance for all electrical and intercom systems, except when in the opinion of the Architect a failure is due to neglect or carelessness of the Owner.
 - 1. See individual Specification Sections for additional requirements.
- C. The guarantee of the Contractor is independent of shorter time limits by any manufacturer of equipment furnished. Submit with Operation and Maintenance Manual all guarantees which exceed one year.
- D. The presence of any inspector or observer at any point during construction does not relieve the Contractor from responsibility for defects discovered after completion of the work.
- E. Refer to Division 01, 26 and 27 Specification Sections for additional Warranty requirements.

PART2 NOT USED

PART3 EXECUTION

3.1 DOCUMENTATION

- A. Additional plan submittals to reviewing authority: If additional drawing submittals are required at any time during construction the Contractor shall submit drawings, review with authority, and pick up subsequent approved drawings. The Engineer will revise and/or prepare drawings for submittal.

3.2 INSTALLATION

- A. The Contractor shall conceal all conduit, cabling and boxes in finished areas unless indicated otherwise or granted specific permission by the Architect. Install all conduit and cabling perpendicular to or parallel with building lines wherever possible.
- B. In open ceiling areas, all cabling shall be installed in conduit. In front of house (public) areas, conduit shall be painted; color as selected by the Architect.
- C. Coordinate the locations of electrical conduit and cabling, equipment and devices with all other trades.

3.3 INSPECTION

- A. Do not allow any work to be covered up or enclosed until inspected, tested and approved by the Architect and all authorities having jurisdiction over the work.
- B. Should any work be enclosed or covered up before such inspection and testing, the Contractor shall at his own expense uncover said work, and after it has been inspected,

tested and approved, make all repairs as necessary to restore all work disturbed by him to its original condition including paying other trades to repair work under their scope that was disturbed.

3.4 FIELD QUALITY CONTROL

- A. Conducts tests of equipment, devices, and systems as required by NFPA, BICSI, local Codes and the local AHJ.
 - 1. Provide a Journeyman Electrician with all tools, instruments, etc required to complete required tests.
 - 2. Coordinate with the Owner and Architect; tests should be performed in the presence of the Owner and Architect unless given specific permission otherwise in writing.
- B. Refer to individual Divisions 26 and 27 Specification Sections for additional requirements.

3.5 CLEANING

- A. Clean adjacent surfaces of fire stopping materials.
- B. Clean interior and exterior of all equipment. Equipment shall be free of dirt, construction debris, corrosion, etc.
- C. Adequate provisions shall be made during construction to eliminate dirt, debris or other material from entering and collecting inside of conduit and equipment. Any collection of material shall be thoroughly cleaned before owner occupancy.
- D. Clean exterior of all exposed conduit.
- E. Use ESDS Compliant Products: Materials intended for use inside the building envelope, including those used for patching, painting, touch-up, and cleaning, must contain acceptable levels of VOC's per ESDS requirements and contain no added urea-formaldehyde.

3.6 CUTTING, FITTING, REPAIRING AND PATCHING

- A. The Owner shall arrange and pay for all cutting, fitting, repairing, patching and finishing of work necessary for installation of electrical work.
- B. Avoid cutting where possible by setting sleeves, frames, etc., and by coordinating for openings in advance. Assist other trades in securing correct location and placement of rough-frames, sleeves, openings, etc. for electrical installations.
- C. Drill holes required to be cut in floors without breaking out around holes.

3.7 SALVAGE

- . Remove excess conduit and conductors. Remove scrap and all other excess materials from the site.
- .
 - A. Comply with Owners' Construction Waste Management Plan. Retain and submit all trip and tip tickets for all construction debris and waste hauling, indicating material content,

tonnage, date hauled and facility to where materials were hauled.

3.8 MANUFACTURERS' FIELD SERVICES

- A. Refer to individual Divisions 26 and 27 Specification Sections for requirements.

3.9 PROTECTION OF FINISHED WORK

- A. Protect adjacent surfaces from damage by material installation.

END OF SECTION 26 00 00

SECTION 26 05 19
LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Copper building wire rated 600 V or less.
 - 2. Aluminum building wire rated 600 V or less.
 - 3. Metal-clad cable, Type MC, rated 600 V or less.
 - 4. Armored cable, Type AC, rated 600 V or less.
 - 5. Connectors, splices, and terminations rated 600 V and less.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Product Schedule: Indicate type, use, location, and termination locations.

PART 2 - PRODUCTS

2.1 MANUFACTURERS: Subject to compliance with requirements, provide products by one of the following:

- A. Cerro Wire LLC.
- B. General Cable Corporation.
- C. Southwire Company.

2.2 COPPER BUILDING WIRE

- A. Description: Flexible, insulated and uninsulated, drawn copper current-carrying conductor with an overall insulation layer or jacket, or both, rated 600 V or less.
- B. Standards:

1. Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and use.
 2. RoHS compliant.
- C. Conductors: Copper, complying with ASTM B 3 for bare annealed copper and with ASTM B 8 for stranded conductors.
- D. Conductor Insulation:
1. Type USE-2 and Type SE: Comply with UL 854.
 2. Type THHN and Type THWN-2: Comply with UL 83.
 3. Type UF: Comply with UL 83 and UL 493.
 4. Type XHHW-2: Comply with UL 44.

2.3 ALUMINUM BUILDING WIRE

- A. Description: Flexible, insulated and uninsulated, drawn aluminum current-carrying conductor with an overall insulation layer or jacket, or both, rated 600 V or less.
- B. Standards:
1. Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and use.
 2. RoHS compliant.
- C. Conductors: Aluminum, complying with ASTM B800 and ASTM B801.
- D. Conductor Insulation:
1. Type USE-2 and Type SE: Comply with UL 854.
 2. Type THHN and Type THWN-2: Comply with UL 83.
 3. Type XHHW-2: Comply with UL 44.

2.4 METAL-CLAD CABLE, TYPE MC

- A. Description: A factory assembly of one or more current-carrying insulated conductors in an overall metallic sheath.
- B. Standards:
1. Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and use.
 2. Comply with UL 1569.
 3. RoHS compliant.
- C. Circuits:
1. Single circuit.
 2. Power-Limited Fire-Alarm Circuits: Comply with UL 1424.
- D. Conductors:

1. Feeders and branch circuits smaller than #4 AWG: Copper, complying with ASTM B 3 for bare annealed copper and with ASTM B 8 for stranded conductors.
 2. Feeders #4 AWG and Larger: Aluminum, complying with ASTM B 800 and ASTM B 801.
- E. Ground Conductor: Bare or insulated.
- F. Conductor Insulation:
1. For Copper MC Cable: Type THHN/THWN-2: Comply with UL 83.
 2. For Aluminum MC Cable: Type XHHW-2: Comply with UL 44.
- G. Armor: Aluminum, interlocked.
- H. Jacket: PVC applied over armor.

2.5 ARMORED CABLE, TYPE AC

- A. Description: A factory assembly of insulated current-carrying conductors with or without an equipment grounding conductor in an overall metallic sheath.
- B. Standards:
1. Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and use.
 2. RoHS compliant.
 3. Comply with UL 4.
- C. Circuits:
1. Single circuit.
 2. Power-Limited Fire-Alarm Circuits: Comply with UL 1424.
- D. Conductors:
1. Feeders and branch circuits smaller than #4 AWG: Copper, complying with ASTM B 3 for bare annealed copper and with ASTM B 8 for stranded conductors.
 2. Feeders #4 AWG and Larger: Aluminum, complying with ASTM B 800 and ASTM B 801.
- E. Ground Conductor: Bare or insulated.
- F. Conductor Insulation:
1. Type THHN/THWN-2. Comply with UL 83.
 2. Type XHHW-2: Comply with UL 44.
- G. Armor: Aluminum, interlocked.

2.6 CONNECTORS AND SPLICES

- A. Description: Factory-fabricated connectors, splices, and lugs of size, ampacity rating, material, type, and class for application and service indicated; listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and use.
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. 3M; Electrical Products Division.
 - 2. AFC Cable Systems, Inc.
 - 3. Hubbell Power Systems, Inc.
 - 4. O-Z/Gedney; EGS Electrical Group LLC.
 - 5. Thomas & Betts Corporation
- C. Jacketed Cable Connectors: For steel and aluminum jacketed cables, zinc die-cast with set screws, designed to connect conductors specified in this Section.
- D. Lugs: One piece, seamless, designed to terminate conductors specified in this Section.

PART 3 – EXECUTION

3.1 CONDUCTOR MATERIAL APPLICATIONS

- A. Feeders: Copper; solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.
- B. Feeders: Copper for feeders smaller than No. 4 AWG; copper or aluminum for feeders No. 4 AWG and larger. Conductors shall be solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.
- C. Branch Circuits: Copper. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.
- D. Branch Circuits: Copper. Solid for No. 12 AWG and smaller; stranded for No. 10 AWG and larger.
- E. Control: Solid for No. 12 AWG and smaller.

3.2 CONDUCTOR INSULATION AND MULTICONDUCTOR CABLE APPLICATIONS AND WIRING METHODS

- A. Exposed Feeders: Type THHN/THWN-2 or Type XHHW-2, single conductors in metallic raceway. For exposed feeders that do not leave the Electrical Rooms and that are not subject to physical damage, the Electrical Contractor may also use Metal-clad cable, Type MC as allowed by Code.

- B. Feeders Concealed in Ceilings, Walls, Partitions, and Crawlspace: Type THHN/THWN-2 or Type XHHW-2, single conductors in raceway or Metal-clad cable, Type MC as allowed by Code.
- C. Exposed Branch Circuits: Type THHN/THWN-2, single conductors in metallic raceway.
- D. Branch Circuits Concealed in Ceilings, Walls, and Partitions: Type THHN/THWN-2, single conductors in raceway or Metal-clad cable, Type MC as allowed by Code.

3.3 INSTALLATION OF CONDUCTORS AND CABLES

- A. Conceal cables in finished walls, ceilings, and floors unless otherwise indicated.
- B. Complete raceway installation between conductor and cable termination points according to Section 260533 "Raceways and Boxes for Electrical Systems" prior to pulling conductors and cables.
- C. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.
- D. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.
- E. Install exposed cables parallel and perpendicular to surfaces of exposed structural members, and follow surface contours where possible.
- F. Support cables according to Section 260529 "Hangers and Supports for Electrical Systems."

3.4 CONNECTIONS

- A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A-486B.
- B. Make splices, terminations, and taps that are compatible with conductor material.
 - 1. Use oxide inhibitor in each splice, termination, and tap for aluminum conductors.
- C. Wiring at Outlets: Install conductor at each outlet, with at least 6 inches (150 mm) of slack.

3.5 IDENTIFICATION

- A. Identify and color-code conductors and cables according to Section 260553 "Identification for Electrical Systems."

- B. Identify each spare conductor at each end with identity number and location of other end of conductor, and identify as spare conductor.

3.6 FIRESTOPPING

- A. Apply firestopping to electrical penetrations of fire-rated floor and wall assemblies to restore original fire-resistance rating of assembly according to Section 078413 "Penetration Firestopping."

3.7 FIELD QUALITY CONTROL

- A. Perform tests and inspections:
 - 1. After installing conductors and cables and before electrical circuitry has been energized, test feeder conductors for compliance with requirements.
 - 2. Perform each of the following visual and electrical tests:
 - a. Inspect exposed sections of conductor and cable for physical damage and correct connection according to the single-line diagram.
 - b. Inspect compression-applied connectors for correct cable match and indentation.
 - c. Inspect for correct identification.
 - d. Inspect cable jacket and condition.
- B. Cables will be considered defective if they do not pass tests and inspections.

END OF SECTION 26 05 19

**SECTION 26 05 26
GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS**

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes grounding and bonding systems and equipment.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.

1.4 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For grounding to include in emergency, operation, and maintenance manuals.

PART 2 - PRODUCTS

2.1 SYSTEM DESCRIPTION

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Comply with UL 467 for grounding and bonding materials and equipment.

2.2 MANUFACTURERS:

Subject to Code requirements, provide products by one of the following:

1. Burndy, Part of Hubbell Electrical Systems.
2. ERICO International Corporation.
3. O-Z Gedney.
4. Siemens Industry, Inc.
5. Thomas & Betts Corporation.

2.3 CONDUCTORS

- A. Insulated Conductors: Copper wire or cable insulated for 600 V unless otherwise required by applicable Code or authorities having jurisdiction.
- B. Bare Copper Conductors:
 - 1. Solid Conductors: ASTM B3.
 - 2. Stranded Conductors: ASTM B8.
 - 3. Bonding Cable: 28 kcmil, 14 strands of No. 17 AWG conductor, 1/4 inch (6 mm) in diameter.
 - 4. Bonding Conductor: No. 4 or No. 6 AWG, stranded conductor.
 - 5. Bonding Jumper: Copper tape, braided conductors terminated with copper ferrules; 1-5/8 inches (41 mm) wide and 1/16 inch (1.6 mm) thick.

2.4 CONNECTORS

- A. Listed and labeled by an NRTL acceptable to authorities having jurisdiction for applications in which used and for specific types, sizes, and combinations of conductors and other items connected.
- B. Welded Connectors: Exothermic-welding kits of types recommended by kit manufacturer for materials being joined and installation conditions.
- C. Bus-Bar Connectors: Mechanical type, cast silicon bronze, solderless compression- type wire terminals, and long-barrel, two-bolt connection to ground bus bar.
- D. Beam Clamps: Mechanical type, terminal, ground wire access from four directions, with dual, tin-plated or silicon bronze bolts.
- E. Cable-to-Cable Connectors: Compression type, copper or copper alloy.
- F. Cable Tray Ground Clamp: Mechanical type, zinc-plated malleable iron.
- G. Conduit Hubs: Mechanical type, terminal with threaded hub.
- H. Straps: Solid copper, copper lugs. Rated for 600 A.
- I. U-Bolt Clamps: Mechanical type, copper or copper alloy, terminal listed for direct burial.

PART 3 - EXECUTION

3.1 APPLICATIONS

- A. Conductors: Install solid conductor for No. 8 AWG and smaller, and stranded conductors for No. 6 AWG and larger unless otherwise indicated.
- B. Grounding Conductors: Green-colored insulation with continuous yellow stripe.

- C. Conductor Terminations and Connections:
 - 1. Pipe and Equipment Grounding Conductor Terminations: Bolted connectors.
 - 2. Connections to Structural Steel: Welded connectors.

3.2 EQUIPMENT GROUNDING

- A. Install insulated equipment grounding conductors with all feeders and branch circuits.
- B. Install insulated equipment grounding conductors with the following items, in addition to those required by NFPA 70:
 - 1. Feeders and branch circuits.
 - 2. Receptacle circuits.
 - 3. Single-phase motor and appliance branch circuits.
 - 4. Three-phase motor and appliance branch circuits.
 - 5. Flexible raceway runs.
 - 6. Armored and metal-clad cable runs.
 - 7. Busway Supply Circuits: Install insulated equipment grounding conductor from grounding bus in the switchgear, switchboard, or distribution panel to equipment grounding bar terminal on busway.
- C. Air-Duct Equipment Circuits: Install insulated equipment grounding conductor to duct-mounted electrical devices operating at 120 V and more, including air cleaners, heaters, dampers, humidifiers, and other duct electrical equipment. Bond conductor to each unit and to air duct and connected metallic piping.

3.3 INSTALLATION

- A. Grounding Conductors: Route along shortest and straightest paths possible unless otherwise indicated or required by Code. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.
- B. Bonding Straps and Jumpers: Install in locations accessible for inspection and maintenance except where routed through short lengths of conduit.
 - 1. Bonding to Structure: Bond straps directly to basic structure, taking care not to penetrate any adjacent parts.
 - 2. Bonding to Equipment Mounted on Vibration Isolation Hangers and Supports: Install bonding so vibration is not transmitted to rigidly mounted equipment.
- C. Bonding Interior Metal Ducts: Bond metal air ducts to equipment grounding conductors of associated fans, blowers, electric heaters, and air cleaners. Install bonding jumper to bond across flexible duct connections to achieve continuity.
- D. Connections: Make connections so possibility of galvanic action or electrolysis is minimized. Select connectors, connection hardware, conductors, and connection methods so metals in direct contact are galvanically compatible.

1. Use electroplated or hot-tin-coated materials to ensure high conductivity and to make contact points closer in order of galvanic series.
2. Make connections with clean, bare metal at points of contact.
3. Make aluminum-to-steel connections with stainless-steel separators and mechanical clamps.
4. Make aluminum-to-galvanized-steel connections with tin-plated copper jumpers and mechanical clamps.
5. Coat and seal connections having dissimilar metals with inert material to prevent future penetration of moisture to contact surfaces.

3.4 FIELD QUALITY CONTROL

- A. Perform tests and inspections.
- B. Tests and Inspections:
 1. After installing grounding system but before permanent electrical circuits have been energized, test for compliance with requirements.
 2. Inspect physical and mechanical condition. Verify tightness of accessible, bolted, electrical connections with a calibrated torque wrench according to manufacturer's written instructions.
- C. Grounding system will be considered defective if it does not pass tests and inspections.

END OF SECTION 26 05 26

**SECTION 26 05 33
RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS**

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, Section. apply to this

1.2 SUMMARY

- A. Section Includes:
 - 1. Metal conduits and fittings.
 - 2. Surface raceways.
 - 3. Boxes, enclosures, and cabinets.
- B. Related Requirements:
 - 1. Section 078413 "Penetration Firestopping" for firestopping at conduit and box entrances.

1.3 DEFINITIONS

- A. GRC: Galvanized rigid steel conduit.
- B. EMT: Electrical metallic tubing
- C. IMC: Intermediate metal conduit.

1.4 ACTION SUBMITTALS

- A. Product Data: For surface raceways, wireways and fittings, floor boxes, hinged-cover enclosures, and cabinets.

PART 2 - PRODUCTS

2.1 METAL CONDUITS AND FITTINGS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. AFC Cable Systems, Inc.
 - 2. Allied Tube & Conduit; a Tyco International Ltd. Co.
 - 3. O-Z/Gedney; a brand of EGS Electrical Group.
 - 4. Republic Conduit.

5. Southwire Company
 6. Thomas & Betts Corporation.
 7. Western Tube and Conduit Corporation.
 8. Wheatland Tube Company; a division of John Maneely Company.
- B. Metal Conduit:
1. Listing and Labeling: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
 2. GRC: Comply with ANSI C80.1 and UL 6.
 3. IMC: Comply with ANSI C80.6 and UL 1242.
 4. EMT: Comply with ANSI C80.3 and UL 797.
 5. LFMC: Flexible steel conduit with PVC jacket and complying with UL 360.
- C. Metal Fittings:
1. Comply with NEMA FB 1 and UL 514B.
 2. Listing and Labeling: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
 3. Fittings, General: Listed and labeled for type of conduit, location, and use.
 4. Conduit Fittings for Hazardous (Classified) Locations: Comply with UL 1203 and NFPA 70.
 5. Fittings for EMT:
 - a. Material: Steel.
 - b. Type: Setscrew.
 6. Expansion Fittings: Match conduit type, complying with UL 651, rated for environmental conditions where installed, and including flexible external bonding jumper.
- D. Joint Compound for IMC, GRC, or ARC: Approved, as defined in NFPA 70, by authorities having jurisdiction for use in conduit assemblies, and compounded for use to lubricate and protect threaded conduit joints from corrosion and to enhance their conductivity.

2.2 METAL WIREWAYS AND AUXILIARY GUTTERS

- A. Manufacturers: Subject to compliance with requirements provide products by one of the following:
1. Cooper B-Line, Inc.
 2. Hoffman; a Pentair company.
 3. Mono-Systems, Inc.
 4. Square D; a brand of Schneider Electric.
- B. Description: Sheet metal, complying with UL 870 and NEMA 250, Type 1 unless otherwise required by Code or AHJ, and sized according to NFPA 70.
- C. Fittings and Accessories: Include covers, couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings to match and mate with wireways as required for complete system.

- D. Wlreway Covers: Screw-cover type with tamper resistant screws unless otherwise indicated.
- E. Finish: Manufacturer's standard enamel finish.

2.3 SURFACE RACEWAYS

- A. Listing and Labeling: Surface raceways and tele-power poles shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Manufacturers: Subject to compliance with requirements provide products by one of the following:
 - 1. Hubbell Incorporated.
 - 2. MonoSystems, Ins.
 - 3. Wlremold/ Legrand.
- C. Surface Metal Raceways: Galvanized steel with snap-on covers complying with UL 5. Manufacturer's standard enamel finish in color selected by Architect. Where noted on drawings, provided barred raceways for line- and low- voltage wiring.

2.4 BOXES, ENCLOSURES, AND CABINETS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Cooper Technologies Company; Cooper Crouse-Hinds.
 - 2. EGS/Appleton Electric.
 - 3. Hoffman; a Pentair company.
 - 4. Hubbell Incorporated; Killark Division.
 - 5. Milbank Manufacturing Co.
 - 6. Mono-Systems, Inc.
 - 7. O-Z/Gedney; a brand of EGS Electrical Group.
 - 8. RACO; a Hubbell Company.
 - 9. Thomas & Betts Corporation.
 - 10. Wlremold / Legrand.
- B. General Requirements for Boxes, Enclosures, and Cabinets: Boxes, enclosures, and cabinets installed in wet locations shall be listed for use in wet locations.
- C. Sheet Metal Outlet and Device Boxes: Comply with NEMA OS 1 and UL 514A.
- D. Nonmetallic Outlet and Device Boxes: Comply with NEMA OS 2 and UL 514C.
- E. Small Sheet Metal Pull and Junction Boxes: NEMA OS 1.
- F. Box extensions used to accommodate new building finishes shall be of same material as recessed box.
- G. Gangable boxes are allowed.

- H. Hinged-Cover Enclosures: Comply with UL 50 and NEMA 250, Type 1 with continuous- hinge cover with flush latch unless otherwise required by Code/ AHJ.
 - 1. Metal Enclosures: Steel, finished inside and out with manufacturer's standard enamel.
 - 2. Interior Panels: Steel; all sides finished with manufacturer's standard enamel.

- I. Cabinets:
 - 1. NEMA 250, Type 1 galvanized-steel box with removable interior panel and removable front, finished inside and out with manufacturer's standard enamel.
 - 2. Hinged door in front cover with flush latch and concealed hinge.
 - 3. Key latch to match panelboards.
 - 4. Metal barriers to separate wiring of different systems and voltage.
 - 5. Accessory feet where required for freestanding equipment.
 - 6. Nonmetallic cabinets shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

PART 3 - EXECUTION

3.1 RACEWAY APPLICATION

- A. Indoors: Apply raceway products as specified below unless otherwise indicated:
 - 1. Exposed, Not Subject to Physical Damage: EMT.
 - 2. Exposed, Not Subject to Severe Physical Damage: EMT.
 - 3. Exposed and Subject to Severe Physical Damage: GRC. Raceway locations include the following:
 - a. Loading dock.
 - b. Parking garage.
 - c. Mechanical rooms.
 - 4. Concealed in Ceilings and Interior Walls and Partitions: EMT.
 - 5. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): FMC, except use LFMC in damp or wet locations.
 - 6. Damp or Wet Locations: GRC.
 - 7. Boxes and Enclosures: NEMA 250, Type 1, except use NEMA 250, Type 4 stainless steel in damp or wet locations.

- B. Minimum Raceway Size: 1/2-inch (16-mm) trade size.

- C. Raceway Fittings: Compatible with raceways and suitable for use and location.
 - 1. Rigid and Intermediate Steel Conduit: Use threaded rigid steel conduit fittings unless otherwise indicated. Comply with NEMA FB 2.10.
 - 2. EMT: Use setscrew steel fittings. Comply with NEMA FB 2.10.

3. Flexible Conduit: Use only fittings listed for use with flexible conduit. Comply with NEMA FB 2.20.
- D. Install nonferrous conduit or tubing for circuits operating above 60 Hz. Where aluminum raceways are installed for such circuits and pass through concrete, install in nonmetallic sleeve.
- E. Do not install aluminum conduits, boxes, or fittings in contact with concrete or earth.
- F. Install surface raceways only where indicated on Drawings.

3.2 INSTALLATION

- A. Comply with requirements in Section 260000 for hangers and supports.
- B. Comply with NECA 1 and NECA 101 for installation requirements except where requirements on Drawings or in this article are stricter. Comply with NECA 102 for aluminum conduits. Comply with NFPA 70 limitations for types of raceways allowed in specific occupancies and number of floors.
- C. Do not install raceways or electrical items on any "explosion-relief" walls or rotating equipment.
- D. Do not fasten conduits onto the bottom side of a metal deck roof.
- E. Keep raceways at least 6 inches (150 mm) away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.
- F. Complete raceway installation before starting conductor installation.
- G. Arrange stub-ups so curved portions of bends are not visible above finished slab.
- H. Install no more than the equivalent of three 90-degree bends in any conduit run except for control wiring conduits, for which fewer bends are allowed. Support within 12 inches (300 mm) of changes in direction.
- I. Make bends in raceway using large-radius preformed ells. Field bending shall be according to NFPA 70 minimum radii requirements. Use only equipment specifically designed for material and size involved.
- J. Conceal conduit within finished walls, ceilings, and floors unless otherwise indicated. Install conduits parallel or perpendicular to building lines.
- K. Support conduit within 12 inches (300 mm) of enclosures to which attached.
- L. Stub-Ups to Above Recessed Ceilings:
 1. Use EMT for raceways.
 2. Use a conduit bushing or insulated fitting to terminate stub-ups not terminated in hubs or in an enclosure.

- M. Threaded Conduit Joints, Exposed to Wet or Damp Conditions: Apply listed compound to threads of raceway and fittings before making up joints. Follow compound manufacturer's written instructions.
- N. Raceway Terminations at Locations Subject to Moisture or Vibration: Use insulating bushings to protect conductors including conductors smaller than No. 4 AWG.
- O. Terminate threaded conduits into threaded hubs or with locknuts on inside and outside of boxes or cabinets. Install bushings on conduits up to 1-1/4-inch (35mm) trade size and insulated throat metal bushings on 1-1/2-inch (41-mm) trade size and larger conduits terminated with locknuts. Install insulated throat metal grounding bushings on service conduits.
- P. Install raceways square to the enclosure and terminate at enclosures with locknuts. Install locknuts hand tight plus 1/4 turn more.
- Q. Do not rely on locknuts to penetrate nonconductive coatings on enclosures. Remove coatings in the locknut area prior to assembling conduit to enclosure to assure a continuous ground path.
- R. Cut conduit perpendicular to the length. For conduits 2-inch (53-mm) trade size and larger, use roll cutter or a guide to make cut straight and perpendicular to the length.
- S. Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lb (90-kg) tensile strength. Leave at least 12 inches (300 mm) of slack at each end of pull wire. Cap underground raceways designated as spare above grade alongside raceways in use.
- T. Surface Raceways:
 - 1. Install surface raceway with a minimum 2-inch (50-mm) radius control at bend points.
 - 2. Secure surface raceway with screws or other anchor-type devices at intervals not exceeding 48 inches (1200 mm) and with no less than two supports per straight raceway section. Support surface raceway according to manufacturer's written instructions. Tape and glue are not acceptable support methods.
- U. Install raceway sealing fittings at accessible locations according to NFPA 70 and fill them with listed sealing compound. For concealed raceways, install each fitting in a flush steel box with a blank cover plate having a finish similar to that of adjacent plates or surfaces. Install raceway sealing fittings according to NFPA 70.
- V. Install devices to seal raceway interiors at accessible locations. Locate seals so no fittings or boxes are between the seal and the following changes of environments. Seal the interior of all raceways at the following points:
 - 1. Where conduits pass from warm to cold locations, such as boundaries of refrigerated spaces.
 - 2. Conduit extending from interior to exterior of building.
 - 3. Conduit extending into pressurized duct and equipment.

4. Conduit extending into pressurized zones that are automatically controlled to maintain different pressure set points.
 5. Where otherwise required by NFPA 70.
- W. Comply with manufacturer's written instructions for solvent welding RNC and fittings.
- X. Expansion-Joint Fittings:
1. Install in each run of aboveground RNC that is located where environmental temperature change may exceed 30 deg F (17 deg C) and that has straight-run length that exceeds 25 feet (7.6 m). Install in each run of aboveground RNC and EMT conduit that is located where environmental temperature change may exceed 100 deg F (55 deg C) and that has straight-run length that exceeds 100 feet (30 m).
 2. Install type and quantity of fittings that accommodate temperature change listed for each of the following locations:
 - a. Indoor Spaces Connected with Outdoors without Physical Separation: 125 deg F (70 deg C) temperature change.
 3. Install fitting(s) that provide expansion and contraction for at least 0.00041 inch per foot of length of straight run per deg F (0.06 mm per meter of length of straight run per deg C) of temperature change for PVC conduits. Install fitting(s) that provide expansion and contraction for at least 0.000078 inch per foot of length of straight run per deg F (0.0115 mm per meter of length of straight run per deg C) of temperature change for metal conduits.
 4. Install expansion fittings at all locations where conduits cross building or structure expansion joints.
 5. Install each expansion-joint fitting with position, mounting, and piston setting selected according to manufacturer's written instructions for conditions at specific location at time of installation. Install conduit supports to allow for expansion movement.
- Y. Flexible Conduit Connections: Comply with NEMA RV 3. Use a maximum of 72 inches (1830 mm) of flexible conduit for equipment subject to vibration, noise transmission, or movement; and for transformers and motors.
1. Use LFMC in damp or wet locations subject to severe physical damage.
 2. Use LFMC in damp or wet locations not subject to severe physical damage.
- Z. Mount boxes at heights indicated on Drawings. If mounting heights of boxes are not individually indicated, give priority to ADA requirements. Install boxes with height measured to bottom of box unless otherwise indicated.
- AA. Recessed Boxes in Masonry Walls: Saw-cut opening for box in center of cell of masonry block, and install box flush with surface of wall. Prepare block surfaces to provide a flat surface for a raintight connection between box and cover plate or supported equipment and box.
- BB. Horizontally separate boxes mounted on opposite sides of walls so they are not in the same vertical channel.

- CC. Locate boxes so that cover or plate will not span different building finishes.
- DD. Support boxes of three gangs or more from more than one side by spanning two framing members or mounting on brackets specifically designed for the purpose.
- EE. Fasten junction and pull boxes to or support from building structure. Do not support boxes by conduits.

3.3 FIRESTOPPING

- A. Install firestopping at penetrations of fire-rated floor and wall assemblies. Comply with requirements in Section 078413 "Penetration Firestopping."¹¹

3.4 PROTECTION

- A. Protect coatings, finishes, and cabinets from damage and deterioration.
 - 1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.

END OF SECTION 26 05 33

**SECTION 26 05 53
IDENTIFICATION FOR ELECTRICAL SYSTEMS**

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Color and legend requirements for raceways, conductors, and warning labels and signs.
 - 2. Labels.
 - 3. Bands and tubes.
 - 4. Tapes and stencils.
 - 5. Tags.
 - 6. Signs.
 - 7. Cable ties.
 - 8. Paint for identification.
 - 9. Fasteners for labels and signs.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for electrical identification products.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Comply with ASME A13.1.
- B. Comply with NFPA 70.
- C. Comply with 29 CFR 1910.144 and 29 CFR 1910.145.
- D. Comply with ANSI Z535.4 for safety signs and labels.
- E. Comply with NFPA ?OE requirements for arc-flash warning labels.

- F. Adhesive-attached labeling materials, including label stocks, laminating adhesives, and inks used by label printers, shall comply with UL 969.

2.2 COLOR AND LEGEND REQUIREMENTS

- A. Raceways and Cables Carrying Circuits at 600 V or Less:
 - 1. Match existing color scheme being used in building.
 - 2. Legend: Indicate voltage and circuit(s).
- B. Color-Coding for Phase- and Voltage-Level Identification, 600 V or Less: Match existing color scheme being used in building.
 - 1. Color shall be factory applied.
- C. Warning Label Colors:
 - 1. Identify system voltage with black letters on an orange background.
- D. Warning labels and signs shall include, but are not limited to, the following legends:
 - 1. Workspace Clearance Warning: "WARNING - AREA IN FRONT OF ELECTRICAL EQUIPMENT MUST BE KEPT CLEAR FOR XX INCHES." Where XX is the Code required clearance for the specific piece of electrical equipment.
- E. Equipment Identification Labels:
 - 1. Black letters on a white field.

2.3 LABELS

- A. Self-Adhesive Wraparound Labels: Preprinted or Write-on, 3-mil- (0.08-mm-) thick, vinyl flexible label with acrylic pressure-sensitive adhesive.
 - 1. Self-Lamination: Clear; UV-, weather- and chemical-resistant; self-laminating, protective shield over the legend. Labels sized such that the clear shield overlaps the entire printed legend.
 - 2. Marker for Labels: Permanent, waterproof, black ink marker recommended by tag manufacturer.
 - 3. Marker for Labels: Machine-printed, permanent, waterproof, black ink recommended by printer manufacturer.
- B. Self-Adhesive Labels: Vinyl, thermal, transfer-printed, 3-mil- (0.08-mm-) thick, multicolor, weather- and UV-resistant, pressure-sensitive adhesive labels, configured for intended use and location.
 - 1. Minimum Nominal Size:
 - a. 1-1/2 by 6 inches (37 by 150 mm) for raceway and conductors.
 - b. 3-1/2 by 5 inches (76 by 127 mm) for equipment.
 - c. As required by authorities having jurisdiction.

2.4 BANDS AND TUBES

- A. Snap-around, Color-Coding Bands: Slit, pretensioned, flexible, solid-colored acrylic sleeves, 2 inches (50 mm) long, with diameters sized to suit diameters and that stay in place by gripping action.

2.5 SIGNS

- A. Laminated Acrylic or Melamine Plastic Signs:
 - 1. Engraved legend.
 - 2. Thickness:
 - a. For signs up to 20 sq. in. (129 sq. cm), minimum 1/16 inch (1.6 mm) thick.
 - b. For signs larger than 20 sq. in. (129 sq. cm), 1/8 inch (3.2 mm) thick.
 - c. Engraved legend with white letters on a black background.
 - d. Self-adhesive.
 - e. Minimum letter height shall be 3/8 inch (10 mm).

2.6 CABLE TIES

- A. General-Purpose Cable Ties: Fungus inert, self-extinguishing, one piece, self-locking, and Type 6/6 nylon.
 - 1. Minimum Width: 3/16 inch (5 mm).
 - 2. Tensile Strength at 73 Deg F (23 Deg C) according to ASTM D638: 12,000 psi (82.7 MPa).
 - 3. Temperature Range: Minus 40 to plus 185 deg F (Minus 40 to plus 85 deg C).
 - 4. Color: Black, except where used for color-coding.
- B. UV-Stabilized Cable Ties: Fungus inert, designed for continuous exposure to exterior sunlight, self-extinguishing, one piece, self-locking, and Type 6/6 nylon.
 - 1. Minimum Width: 3/16 inch (5 mm).
 - 2. Tensile Strength at 73 Deg F (23 Deg C) according to ASTM D638: 12,000 psi (82.7 MPa).
 - 3. Temperature Range: Minus 40 to plus 185 deg F (Minus 40 to plus 85 deg C).
 - 4. Color: Black.
- C. Plenum-Rated Cable Ties: Self-extinguishing, UV stabilized, one piece, and self-locking.
 - 1. Minimum Width: 3/16 inch (5 mm).
 - 2. Tensile Strength at 73 Deg F (23 Deg C) according to ASTM D638: 7000 psi (48.2 MPa).
 - 3. UL 94 Flame Rating: 94V-0.
 - 4. Temperature Range: Minus 50 to plus 284 deg F (Minus 46 to plus 140 deg C).
 - 5. Color: Black.

2.7 MISCELLANEOUS IDENTIFICATION PRODUCTS

- A. Paint: Comply with requirements in painting Sections for paint materials and application requirements. Retain paint system applicable for surface material and location (exterior or interior).
- B. Fasteners for Labels and Signs: Self-tapping, stainless-steel screws or stainless-steel machine screws with nuts and flat and lock washers.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Self-Adhesive Identification Products: Before applying electrical identification products, clean substrates of substances that could impair bond, using materials and methods recommended by manufacturer of identification product.

3.2 INSTALLATION

- A. Verify and coordinate identification names, abbreviations, colors, and other features with requirements in other Sections requiring identification applications, Drawings, Shop Drawings, manufacturer's wiring diagrams, and operation and maintenance manual. Use consistent designations throughout Project.
- B. Install identifying devices before installing acoustical ceilings and similar concealment.
- C. Verify identity of each item before installing identification products.
- D. Coordinate identification with Project Drawings, manufacturer's wiring diagrams, and operation and maintenance manual.
- E. Apply identification devices to surfaces that require finish after completing finish work.
- F. Install signs with approved legend to facilitate proper identification, operation, and maintenance of electrical systems and connected items.
- G. System Identification for Raceways and Cables under 600 V: Identification shall completely encircle cable or conduit. Place identification of two-color markings in contact, side by side.
 - 1. Secure tight to surface of conductor, cable, or raceway.
- H. Auxiliary Electrical Systems Conductor Identification: Identify field-installed alarm, control, and signal connections.
- I. Elevated Components: Increase sizes of labels, signs, and letters to those appropriate for viewing from the floor.
- J. Vinyl Wraparound Labels:

1. Secure tight to surface of raceway or cable at a location with high visibility and accessibility.
 2. Attach labels that are not self-adhesive type with clear vinyl tape, with adhesive appropriate to the location and substrate.
- K. Snap-around Labels: Secure tight to surface at a location with high visibility and accessibility.
- L. Self-Adhesive Wraparound Labels: Secure tight to surface at a location with high visibility and accessibility.
- M. Self-Adhesive Labels:
1. On each item, install unique designation label that is consistent with wiring diagrams, schedules, and operation and maintenance manual.
 2. Unless otherwise indicated, provide a single line of text with 1/2-inch- (13-mm-) high letters on 1-1/2-inch- (38-mm-) high label; where two lines of text are required, use labels 2 inches (50 mm) high.
- N. Laminated Acrylic or Melamine Plastic Signs:
1. Attach signs that are not self-adhesive type with mechanical fasteners appropriate to the location and substrate.
 2. Unless otherwise indicated, provide a single line of text with 1/2-inch- (13-mm-) high letters on 1-1/2-inch- (38-mm-) high sign; where two lines of text are required, use labels 2 inches (50 mm) high.
- O. Cable Ties: General purpose, for attaching tags, except as listed below:
1. Outdoors: UV-stabilized nylon.
 2. In Spaces Handling Environmental Air: Plenum rated.

3.3 IDENTIFICATION SCHEDULE

- A. Install identification materials and devices at locations for most convenient viewing without interference with operation and maintenance of equipment. Install access doors or panels to provide view of identifying devices.
- B. Identify conductors, cables, and terminals in enclosures and at junctions, terminals, pull points, and locations of high visibility. Identify by system and circuit designation.
- C. Power-Circuit Conductor Identification, 600 V or Less: For conductors in pull and junction boxes use vinyl wraparound labels to identify the phase.
1. Locate identification at changes in direction, at penetrations of walls and floors, at 50-foot (15-m) maximum intervals in straight runs, and at 25-foot (7.6-m) maximum intervals in congested areas.
- D. Warning Labels for Indoor Cabinets, Boxes, and Enclosures for Power and Lighting: Self-adhesive labels.

1. Apply to exterior of door, cover, or other access.
- E. Arc Flash Warning Labeling: Self-adhesive labels.
- F. Operating Instruction Signs: Self-adhesive labels.
- G. Equipment Identification Labels:
 1. Indoor Equipment: Self-Adhesive label or laminated acrylic or melamine plastic sign.
 2. Equipment to Be Labeled:
 - a. Panelboards: Typewritten directory of circuits in the location provided by panelboard manufacturer. Panelboard identification shall be in the form of a self-adhesive, engraved laminated acrylic or melamine label.
 - b. Enclosures and electrical cabinets.
 - c. Access doors and panels for concealed electrical items.
 - d. Transformers: Label that includes tag designation indicated on Drawings for the transformer, feeder, and panelboards or equipment supplied by the secondary.
 - e. Enclosed switches.
 - f. Enclosed circuit breakers.
 - g. Enclosed controllers.
 - h. Variable-speed controllers.
 - i. Contactors.

END OF SECTION 26 05 53

**SECTION 26 24 16
LOAD CENTERS**

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Distribution load centers; 20 breaker, 125 A panel, fully recessed
 - 2. Lighting and appliance branch-circuit load centers.

1.3 DEFINITIONS

- A. ATS: Acceptance testing specification.
- B. GFCI: Ground-fault circuit interrupter.
- C. GFEP: Ground-fault equipment protection.
- D. MCCB: Molded-case circuit breaker.
- E. VPR: Voltage protection rating.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of load center.
 - 1. Include materials, switching and overcurrent protective devices, accessories, and components indicated.
 - 2. Include dimensions and manufacturers' technical data on features, performance, electrical characteristics, ratings, and finishes.
- B. Shop Drawings: For each load center and related equipment.
 - 1. Include dimensioned plans, elevations, sections, and details.
 - 2. Show tabulations of installed devices with nameplates, conductor termination sizes, equipment features, and ratings.
 - 3. Detail enclosure types including mounting and anchorage, covers and doors, gaskets, hinges, and locks.
 - 4. Detail bus configuration, current, and voltage ratings.

5. Short-circuit current rating of load centers and overcurrent protective devices.
6. Include evidence of NRTL listing for series rating of installed devices.
7. Detail features, characteristics, ratings, and factory settings of individual overcurrent protective devices and auxiliary components.

1.5 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For load centers and components to include in emergency, operation, and maintenance manuals. In addition to items specified in Section 017823 "Operation and Maintenance Data," include the following:
 1. Manufacturer's written instructions for testing and adjusting overcurrent protective devices.

1.6 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 1. Keys: Two spares for each type of load center cabinet lock.

1.7 QUALITY ASSURANCE

- A. Source Limitations: Obtain load centers, overcurrent protective devices, components, and accessories through one source from a single manufacturer.
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- C. Comply with NEMA PB 1 and NFPA 70.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Remove loose packing and flammable materials from inside load centers; install temporary electric heating (250 W per load center) to prevent condensation.

1.9 FIELD CONDITIONS

- A. Environmental Limitations:
 1. Do not deliver or install load centers until spaces are enclosed and weathertight, wet work in spaces is complete and dry, work above load centers is complete, and HVAC system is operating and maintaining ambient temperature and humidity conditions at occupancy levels during the remainder of the construction period.

2. Rate equipment for continuous operation under the following conditions unless otherwise indicated:
 - a. Ambient Temperature: Not exceeding 104 deg F (plus 40 deg C).
 - b. Altitude: Not exceeding 6600 feet (2000 m).
- B. Service Conditions: NEMA PB 1, usual service conditions, as follows:
 1. Ambient temperatures within limits specified.
 2. Altitude not exceeding 6600 feet (2000 m).
- C. Interruption of Existing Electric Service: Do not interrupt electric service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary electric service according to requirements indicated:
 1. Notify Owner no fewer than fifteen working days in advance of proposed interruption of electric service.
 2. Do not proceed with interruption of electric service without Owner's written permission.
 3. Comply with NFPA 70E.

1.10 WARRANTY

- A. Manufacturer's Warranty: Manufacturer agrees to repair or replace load centers that fail in materials or workmanship within specified warranty period.
 1. Load center Warranty Period: 18 months from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 DISTRIBUTION PANELS AND LOAD CENTERS COMMON REQUIREMENTS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following or approved equal:
 1. Eaton Corporation; Cutler-Hammer Products.
 2. Siemens Energy & Automation, Inc.
 3. Square D.
- B. Fabricate and test load centers according to IEEE 344 to withstand seismic forces defined in Section 260548.16 "Seismic Controls for Electrical Systems."
- C. Product Selection for Restricted Space: Drawings indicate maximum dimensions for load centers including clearances between load centers and adjacent surfaces and other items. Comply with indicated maximum dimensions.

- D. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- E. Comply with NEMA PB 1.
- F. Comply with NFPA 70.
- G. Enclosures: Surface-mounted, dead-front cabinets.
 - 1. Rated for environmental conditions at installed location.
 - a. Indoor Dry and Clean Locations: NEMA 250, Type 1.
 - 2. Hinged Front Cover: Entire front trim hinged to box and with standard door within hinged trim cover. Trims shall cover all live parts and shall have no exposed hardware.
 - 3. Finishes:
 - a. Panels and Trim: Factory finished immediately after cleaning and pretreating with manufacturer's standard two-coat, baked-on finish consisting of prime coat and thermosetting topcoat.
- H. Phase, Neutral, and Ground Buses:
 - 1. Material: Tin-plated aluminum or hard-drawn copper, 98 percent conductivity.
 - a. Plating shall run entire length of bus.
 - b. Bus shall be fully rated the entire length.
 - 2. Interiors shall be factory assembled into a unit. Replacing switching and protective devices shall not disturb adjacent units or require removing the main bus connectors.
 - 3. Equipment Ground Bus: Adequate for feeder and branch-circuit equipment grounding conductors; bonded to box.
 - 4. Full-Sized Neutral: Equipped with full-capacity bonding strap for service entrance applications. Mount electrically isolated from enclosure. Do not mount neutral bus in gutter.
- I. Conductor Connectors: Suitable for use with conductor material and sizes.
 - 1. Material: Tin-plated aluminum or hard-drawn copper, 98 percent conductivity.
 - 2. Terminations shall allow use of 75 deg Crated conductors without derating.
 - 3. Size: Lugs suitable for indicated conductor sizes, with additional gutter space, if required, for larger conductors.
 - 4. Main and Neutral Lugs: Mechanical type, with a lug on the neutral bar for each pole in the load center.
 - 5. Ground Lugs and Bus-Configured Terminators: Mechanical type, with a lug on the bar for each pole in the load center.

- 6. Feed-Through Lugs: Mechanical type, suitable for use with conductor material. Locate at opposite end of bus from incoming lugs or main device.

- J. Future Devices: Load centers or load centers shall have mounting brackets, bus connections, filler plates, and necessary appurtenances required for future installation of devices. See drawings for quantities.

- K. Load center Short-Circuit Current Rating: Match existing system. See single-line diagram and field verify.

- L. Seismic Performance: Load centers shall withstand the effects of earthquake motions determined according to local Code requirements.
 - 1. The term "withstand" means "the unit will remain in place and remain in operation without separation of any parts from the device when subjected to the seismic forces specified."

2.2 DISTRIBUTION PANELS

- A. Load centers: NEMA PB 1, distribution type.

- B. Mains: As indicated on drawings.

- C. For Circuit-Breaker Frame Sizes 125 A and Smaller: Bolt-on circuit breakers.

- D. For Circuit-Breaker Frame Sizes Larger Than 125 A: Bolt-on circuit breakers; plug-in circuit breakers where individual positive-locking device requires mechanical release for removal.

- E. Doors: Secured with vault-type latch with tumbler lock; keyed alike.
 - 1. For doors more than 36 inches (914 mm) high, provide two latches, keyed alike.

2.3 LIGHTING AND APPLIANCE BRANCH-CIRCUIT LOAD CENTERS

- A. Load centers: NEMA PB 1, lighting and appliance branch-circuit type.

- B. Mains: As indicated on drawings.

- C. Branch Overcurrent Protective Devices: Bolt-on circuit breakers, replaceable without disturbing adjacent units.

- D. Doors: Door-in-door construction with concealed hinges; secured with multipoint latch with tumbler lock; keyed alike. Outer door shall permit full access to the panel interior. Inner door shall permit access to breaker operating handles and labeling, but current carrying terminals and bus shall remain concealed.

2.4 DISCONNECTING AND OVERCURRENT PROTECTIVE DEVICES

- A. Molded-Case Circuit Breaker: UL 489, with series-connected rating to meet available fault currents.
1. Thermal-Magnetic Circuit Breakers:
 - a. Inverse time-current element for low-level overloads.
 - b. Instantaneous magnetic trip element for short circuits.
 - c. Adjustable magnetic trip setting for circuit-breaker frame sizes 250 A and larger.
 2. Adjustable Instantaneous-Trip Circuit Breakers: Magnetic trip element with front-mounted, field-adjustable trip setting.
 3. Electronic Trip Circuit Breakers:
 - a. RMS sensing.
 - b. Field-replaceable rating plug or electronic trip.
 - c. Field-Adjustable Settings:
 - 1) Instantaneous trip.
 - 2) Long- and short-time pickup levels.
 - 3) Long and short time adjustments.
 - 4) Ground-fault pickup level, time delay, and I squared T response.
 4. Current-Limiting Circuit Breakers: Frame sizes 400 A and smaller; let-through ratings less than NEMA FU 1, RK-5.
 5. GFCI Circuit Breakers: Single- and double-pole configurations with Class A ground-fault protection (6-mA trip).
 6. GFEP Circuit Breakers: Class B ground-fault protection (30-mA trip).
 7. Subfeed Circuit Breakers: Vertically mounted.
 8. MCCB Features and Accessories:
 - a. Standard frame sizes, trip ratings, and number of poles.
 - b. Breaker handle indicates tripped status.
 - c. UL listed for reverse connection without restrictive line or load ratings.
 - d. Lugs: Mechanical style, suitable for number, size, trip ratings, and conductor materials.
 - e. Application Listing: Appropriate for application.
 - f. Multipole units enclosed in a single housing with a single handle or factory assembled to operate as a single unit.
 - g. Handle Padlocking Device: Fixed attachment, for locking circuit-breaker handle in on or off position.
 - h. Handle Clamp: Loose attachment, for holding circuit-breaker handle in on position.

2.5 IDENTIFICATION

- A. Load center Label: Manufacturer's name and trademark, voltage, amperage, number of phases, and number of poles shall be located on the interior of the load center door.

- B. Circuit Directory: Computer-generated circuit directory mounted inside load center door with transparent plastic protective cover.
 - 1. Circuit directory shall identify specific purpose with detail sufficient to distinguish it from all other circuits.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify actual conditions with field measurements prior to ordering load centers to verify that equipment fits in allocated space in, and comply with, minimum required clearances specified in NFPA 70.
- B. Examine load centers before installation. Reject load centers that are damaged, rusted, or have been subjected to water saturation.
- C. Examine elements and surfaces to receive load centers for compliance with installation tolerances and other conditions affecting performance of the Work.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Coordinate layout and installation of load centers and components with other construction that penetrates walls or is supported by them, including electrical and other types of equipment, raceways, piping, encumbrances to workspace clearance requirements, and adjacent surfaces. Maintain required workspace clearances and required clearances for equipment access doors and panels.
- B. Comply with NECA 1.
- C. Install load centers and accessories according to Code requirements.
- D. Equipment Mounting:
 - 1. Attach load center to the vertical finished or structural surface behind the load center.
- E. Temporary Lifting Provisions: Remove temporary lifting eyes, channels, and brackets and temporary blocking of moving parts from load centers.
- F. Mount top of trim at same height as panel being replaced
- G. Mount load center cabinet plumb and rigid without distortion of box.
- H. Mount recessed load centers with fronts uniformly flush with wall finish and mating with back box.
- I. Install filler plates in unused spaces.

3.3 IDENTIFICATION

- A. Identify field-installed conductors, interconnecting wiring, and components; install warning signs complying with requirements in Section 260553 "Identification for Electrical Systems."
- B. Create a directory to indicate installed circuit loads; incorporate Owner's final room designations. Obtain approval before installing. Handwritten directories are not acceptable. Install directory inside load center door.
- C. Load center Nameplates: Label each load center with a nameplate complying with requirements for identification specified in Section 260553 "Identification for Electrical Systems."
- D. Device Nameplates: Label each branch circuit device in distribution panels with a nameplate complying with requirements for identification specified in Section 260553 "Identification for Electrical Systems."
- E. Install warning signs complying with requirements in Section 260553 "Identification for Electrical Systems" identifying source of remote circuit.

3.4 FIELD QUALITY CONTROL

- A. Perform tests and inspections.
- B. Acceptance Testing Preparation:
 - 1. Test insulation resistance for each load center bus, component, connecting supply, feeder, and control circuit.
 - 2. Test continuity of each circuit.
 - 3. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.
- C. Load centers will be considered defective if they do not pass tests and inspections.

END OF SECTION 26 24 16

**SECTION 26 28 13
FUSES AND ENCLOSED SWITCHES AND CIRCUIT BREAKERS**

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:
 - 1. Fusible switches.
 - 2. Cartridge Fuses.
 - 3. Nonfusible switches.
 - 4. Molded-case circuit breakers (MCCBs).
 - 5. Enclosures.

1.3 DEFINITIONS

- A. NC: Normally closed.
- B. NO: Normally open.
- C. SPOT: Single pole, double throw.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of enclosed switch, circuit breaker, accessory, and component indicated. Include nameplate ratings, dimensioned elevations, sections, weights, and manufacturers' technical data on features, performance, electrical characteristics, ratings, accessories, and finishes.
 - 1. Enclosure types and details for types other than NEMA 250, Type 1.
 - 2. Current and voltage ratings.
 - 3. Short-circuit current ratings (interrupting and withstand, as appropriate).
 - 4. Include evidence of a nationally recognized testing laboratory (NRTL) listing for series rating of installed devices.
 - 5. Detail features, characteristics, ratings, and factory settings of individual overcurrent protective devices, accessories, and auxiliary components.
- B. Shop Drawings: For enclosed switches and circuit breakers.
 - 1. Include plans, elevations, sections, details, and attachments to other work.

2. Include wiring diagrams for power, signal, and control wiring.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For qualified testing agency.
- B. Seismic Qualification Data: Certificates, for enclosed switches and circuit breakers, accessories, and components, from manufacturer.
 1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.
 2. Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions.
 3. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.
- C. Field quality-control reports.

1.6 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For enclosed switches and circuit breakers to include in emergency, operation, and maintenance manuals.
 1. In addition to items specified in Section 017823 "Operation and Maintenance Data," include the following:
 - a. Manufacturer's written instructions for testing and adjusting enclosed switches and circuit breakers.

1.7 FIELD CONDITIONS

- A. Environmental Limitations: Rate equipment for continuous operation under the following conditions unless otherwise indicated:
 1. Ambient Temperature: Not less than minus 22 deg F (minus 30 deg C) and not exceeding 104 deg F (40 deg C).
 2. Altitude: Not exceeding 6600 feet (2010 m).

1.8 WARRANTY

- A. Manufacturer's Warranty: Manufacturer and Installer agree to repair or replace components that fail in materials or workmanship within specified warranty period.
 1. Warranty Period: One year(s) from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Seismic Performance: Enclosed switches and circuit breakers shall withstand the effects of earthquake motions determined according to Code.
 - 1. The term "withstand" means "the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified and the unit will be fully operational after the seismic event."

2.2 GENERAL REQUIREMENTS

- A. Source Limitations: Obtain enclosed switches and circuit breakers, overcurrent protective devices, components, and accessories, within same product category, from single manufacturer.
- B. Product Selection for Restricted Space: Drawings indicate maximum dimensions for enclosed switches and circuit breakers, including clearances between enclosures, and adjacent surfaces and other items. Comply with indicated maximum dimensions.
- C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by an NRTL, and marked for intended location and application.
- D. Comply with NFPA 70.

2.3 FUSIBLE SWITCHES

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. ABB.
 - 2. Eaton Electrical Inc.; Cutler-Hammer Business Unit.
 - 3. Siemens Energy & Automation, Inc.
 - 4. Square D; a brand of Schneider Electric.
- B. Type GD, General Duty, Single Throw, 240-Vac, 800 A and Smaller: UL 98 and NEMA KS 1, horsepower rated, lockable handle with capability to accept two padlocks, and interlocked with cover in closed position.
- C. Type HD, Heavy Duty, Single Throw, 240-Vac, 1200 A and Smaller: UL 98 and NEMA KS 1, horsepower rated, with clips or bolt pads to accommodate fuses, lockable handle with capability to accept three padlocks, and interlocked with cover in closed position.
- D. Type HD, Heavy Duty, Six Pole, Single Throw, 240-V ac, 200 A and Smaller: UL 98 and NEMA KS 1, horsepower rated, with clips or bolt pads to accommodate fuses, lockable handle with capability to accept three padlocks, and interlocked with cover in closed position.
- E. Type HD, Heavy Duty, Double Throw, 240-Vac, 1200 A and Smaller: UL 98 and NEMA KS 1, horsepower rated, with clips or bolt pads to accommodate fuses, lockable handle with capability to accept three padlocks, and interlocked with cover in closed position.
- F. Accessories: Provide accessories as required for specific installation/usage.

2.4 CARTRIDGE FUSES

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Cooper Bussmann, Inc.
 - 2. Edison Fuse, Inc.
 - 3. Ferraz Shawmut, Inc.
- B. Characteristics: NEMA FU 1, nonrenewable cartridge fuses with voltage ratings consistent with circuit voltages.

2.5 NONFUSIBLE SWITCHES

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. ABB.
 - 2. Eaton Electrical Inc.; Cutler-Hammer Business Unit.
 - 3. Siemens Energy & Automation, Inc.
 - 4. Square D; a brand of Schneider Electric.
- B. Type GD, General Duty, Three Pole, Single Throw, 240-Vac, 600 A and Smaller: UL 98 and NEMA KS 1, horsepower rated, lockable handle with capability to accept two padlocks, and interlocked with cover in closed position.
- C. Type HD, Heavy Duty, Three Pole, Single Throw, 600-Vac, 1200 A and Smaller: UL 98 and NEMA KS 1, horsepower rated, lockable handle with capability to accept three padlocks, and interlocked with cover in closed position.
- D. Type HD, Heavy Duty, Six Pole, Single Throw, 600-V ac, 200 A and Smaller: UL 98 and NEMA KS 1, horsepower rated, lockable handle with capability to accept three padlocks, and interlocked with cover in closed position.
- E. Type HD, Heavy Duty, Three Pole, Double Throw, 600-Vac, 1200 A and Smaller: UL 98 and NEMA KS 1, horsepower rated, lockable handle with capability to accept three padlocks, and interlocked with cover in closed position.
- F. Accessories: Provide accessories as required for specific installation/usage.

2.6 MOLDED-CASE CIRCUIT BREAKERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. ABB.
 - 2. Eaton Electrical Inc.; Cutler-Hammer Business Unit.
 - 3. Siemens Energy & Automation, Inc.
 - 4. Square D; a brand of Schneider Electric.
- B. General Requirements: Comply with UL 489, NEMA AB 1, and NEMA AB 3, with interrupting

capacity to comply with available fault currents.

- C. The maximum ampere rating and UL, IEC, or other certification standards with applicable voltage systems and corresponding interrupting ratings shall be clearly marked on face of circuit breaker. Any series rated combination used shall be marked on the end-use equipment along with the statement "Caution - Series Rated System.
— Amps Available. Identical Replacement Component Required."
- D. MCCBs shall be equipped with a device for locking in the isolated position.
- E. Standard: Comply with UL 489 with interrupting capacity to comply with available fault currents.
- F. Thermal-Magnetic Circuit Breakers: Inverse time-current thermal element for low-level overloads and instantaneous magnetic trip element for short circuits. Adjustable magnetic trip setting for circuit-breaker frame sizes 250 A and larger.
- G. Adjustable, Instantaneous-Trip Circuit Breakers: Magnetic trip element with front-mounted, field-adjustable trip setting.
- H. Electronic Trip Circuit Breakers: Field-replaceable rating plug, rms sensing, with the following field-adjustable settings:
 - 1. Instantaneous trip.
 - 2. Long- and short-time pickup levels.
 - 3. Long- and short-time time adjustments.
 - 4. Ground-fault pickup level, time delay, and I-squared t response.
- I. Current-Limiting Circuit Breakers: Frame sizes 400 A and smaller, and let-through ratings less than NEMA FU 1, RK-5.
- J. Integrally Fused Circuit Breakers: Thermal-magnetic trip element with integral limiter-style fuse listed for use with circuit breaker and trip activation on fuse opening or on opening of fuse compartment door.
- K. Ground-Fault Circuit-Interrupter (GFCI) Circuit Breakers: Single- and two-pole configurations with Class A ground-fault protection (6-mA trip).
- L. Ground-Fault Equipment-Protection (GFEP) Circuit Breakers: With Class B ground-fault protection (30-mA trip).
- M. Features and Accessories: Provide features/accessories as required for specific installation/usage. Including but not limited to:
 - 1. Standard frame sizes, trip ratings, and number of poles.
 - 2. Lugs: Mechanical type, suitable for number, size, trip ratings, and conductor material.
 - 3. Application Listing: Appropriate for application; Type SWD for switching fluorescent lighting loads; Type HID for feeding fluorescent and high-intensity discharge lighting circuits.

4. Ground-Fault Protection: Comply with UL 1053; integrally mounted, self- powered type with mechanical ground-fault indicator; relay with adjustable pickup and time-delay settings, push-to-test feature, internal memory, and shunt trip unit; and three-phase, zero-sequence current transformer/sensor.
5. Undervoltage Trip: Set to operate at 35 to 75 percent of rated voltage without intentional time delay.
6. Electrical Operator: Provide remote control for on, off, and reset operations.

2.7 ENCLOSURES

- A. Enclosed Switches and Circuit Breakers: UL 489, NEMA KS 1, NEMA 250, and UL 50, to comply with environmental conditions at installed location.
 1. Indoor, Dry and Clean Locations: NEMA 250, Type 1.
 2. Wet or Damp, Indoor Locations: NEMA 250, Type 4.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine elements and surfaces to receive enclosed switches and circuit breakers for compliance with installation tolerances and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
 1. Commencement of work shall indicate Installer's acceptance of the areas and conditions as satisfactory.

3.2 PREPARATION

- A. Interruption of Existing Electric Service: Do not interrupt electric service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary electric service according to requirements indicated:
 1. Notify Owner no fewer than fifteen working days in advance of proposed interruption of electric service.
 2. Indicate method of providing temporary electric service.
 3. Do not proceed with interruption of electric service without Owner's written permission.
 4. Comply with NFPA 70E.

3.3 INSTALLATION

- A. Coordinate layout and installation of switches, circuit breakers, and components with equipment served and adjacent surfaces. Maintain required workspace clearances and required clearances for equipment access doors and panels.

- B. Install individual wall-mounted switches and circuit breakers with tops at uniform height unless otherwise indicated.
- C. Temporary Lifting Provisions: Remove temporary lifting of eyes, channels, and brackets and temporary blocking of moving parts from enclosures and components.
- D. Install fuses in fusible devices.
- E. Comply with NFPA 70 and NECA 1.

3.4 IDENTIFICATION

- A. Comply with requirements in Section 26 05 53 "Identification for Electrical Systems."
 - 1. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs.
 - 2. Label each enclosure with engraved metal or laminated-plastic nameplate.

3.5 FIELD QUALITY CONTROL

- A. Perform tests and inspections.
- B. Tests and Inspections for Switches:
 - 1. Visual and Mechanical Inspection:
 - a. Inspect physical and mechanical condition.
 - b. Inspect anchorage, alignment, grounding, and clearances.
 - c. Verify that the unit is clean.
 - d. Verify blade alignment, blade penetration, travel stops, and mechanical operation.
 - e. Verify that fuse sizes and types match the Specifications and Drawings.
 - f. Verify that each fuse has adequate mechanical support and contact integrity.
 - g. Verify correct phase barrier installation.
 - h. Verify lubrication of moving current-carrying parts and moving and sliding surfaces.
- C. Tests and Inspections for Molded Case Circuit Breakers:
 - 1. Visual and Mechanical Inspection:
 - a. Verify that equipment nameplate data are as described in the Specifications and shown on the Drawings.
 - b. Inspect physical and mechanical condition.
 - c. Inspect anchorage, alignment, grounding, and clearances.

- d. Verify that the unit is clean.
 - e. Operate the circuit breaker to ensure smooth operation.
 - f. Inspect operating mechanism, contacts, and chutes in unsealed units.
2. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.
- D. Enclosed switches and circuit breakers will be considered defective if they do not pass tests and inspections.

3.6 ADJUSTING

- A. Adjust moving parts and operable components to function smoothly, and lubricate as recommended by manufacturer.
- B. Set field-adjustable circuit-breaker trip ranges.

END OF SECTION 26 28 13

KING COUNTY HOUSING AUTHORITY

MEADOWBROOK APARTMENTS ELECTRICAL PANEL UPGRADES

ADDRESS: 1408 NW RICHMOND BEACH RD, SHORELINE, WA 98177

MEADOWBROOK APARTMENTS



PROJECT DIRECTORY

OWNER
KING COUNTY HOUSING AUTHORITY
DARRELL WESTLAKE

600 ANDOVER PARK W
SEATTLE, WA 98134
TEL: 206-693-6415
EMAIL: DARRELLW@KCHA.ORG

ARCHITECT
OSBORN ARCHITECTS, INC
JERRY OSBORN, AIA

1011 SW KLUCKITAT WAY, SUITE 208
SEATTLE, WA 98134
TEL: 206-920-6348
EMAIL: JOSBORN@OAI.COM

JURISDICTION
CITY OF SHORELINE

DRAWING LIST

T1.1	TITLE SHEET
T1.2	SITE PLAN
P1.1	PHOTO SHEET
A1.1	BDG 1404 - LEVEL 1 ELECTRICAL PANEL LAYOUT PLAN
A1.2	BDG 1404 - LEVEL 2 ELECTRICAL PANEL LAYOUT PLAN
A1.3	BDG 1404 - LEVEL 3 ELECTRICAL PANEL LAYOUT PLAN
A2.1	BDG 1406 - LEVEL 1 ELECTRICAL PANEL LAYOUT PLAN
A2.2	BDG 1406 - LEVEL 2 ELECTRICAL PANEL LAYOUT PLAN
A2.3	BDG 1406 - LEVEL 3 ELECTRICAL PANEL LAYOUT PLAN
A3.1	BDG 1408 - LEVEL 1 ELECTRICAL PANEL LAYOUT PLAN
A3.2	BDG 1408 - LEVEL 2 ELECTRICAL PANEL LAYOUT PLAN
A3.3	BDG 1408 - LEVEL 3 ELECTRICAL PANEL LAYOUT PLAN
A4.1	BDG 1410 - LEVEL 1 ELECTRICAL PANEL LAYOUT PLAN
A4.2	BDG 1410 - LEVEL 2 ELECTRICAL PANEL LAYOUT PLAN
A4.3	BDG 1410 - LEVEL 3 ELECTRICAL PANEL LAYOUT PLAN

GENERAL NOTES

- DRAWINGS LISTED AS N.T.S. (INDICATES "NOT TO SCALE") SHOULD NOT BE SCALED. THE LISTED DIMENSIONS SHALL GOVERN UNLESS NOTED OTHERWISE.
- THE CONTRACTOR SHALL COORDINATE ALL PORTIONS OF WORK DESCRIBED IN THE CONTRACT DRAWINGS AND SPECIFICATIONS. THE CONTRACTOR SHALL VERIFY AND CONFIRM ALL DIMENSIONS AND CONDITIONS SHOWN OR IMPLIED ON THE DRAWINGS AND SPECIFICATIONS AS WELL AS THE EXISTING WORK AND PHYSICAL CONDITIONS OF THE SITE. IN THE EVENT OF DISCREPANCIES BETWEEN THE DRAWINGS AND SPECIFICATIONS IN THE PACKAGE, PLEASE NOTIFY ARCHITECT IMMEDIATELY.
- CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL REQUIRED SAFETY PRECAUTIONS AND THE METHODS, TECHNIQUES OR PROCEDURES REQUIRED TO PERFORM THE WORK.
- CONTRACTOR SHALL PROTECT ALL EXISTING ITEMS AND FACILITIES TO REMAIN THROUGHOUT CONSTRUCTION. CONTRACTOR SHALL REPAIR AND/OR REPLACE AT CONTRACTORS EXPENSE ANY EXISTING ITEMS AND FACILITIES TO REMAIN THAT ARE DAMAGED BY CONTRACTORS OPERATIONS TO THE SATISFACTION OF THE OWNER.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING APPROPRIATE JURISDICTIONS FOR REQUIRED INSPECTIONS AND SHALL PAY ALL FEES ASSOCIATED WITH THE WORK.
- THE CONTRACTOR SHALL CLEAN-UP DEBRIS AND HALL AWAY AND PROPERLY DISPOSE OF ALL DEBRIS ON A CONTINUOUS BASIS.
- EACH CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIR OF DAMAGE TO THE WORK OF OTHER TRADES CAUSED BY HIS OPERATIONS. THE NATURE OF SUCH REPAIR WORK MUST RECEIVE THE PRIOR APPROVAL OF THE APPROPRIATE CONTRACTORS REPRESENTATIVE.
- UNLESS STATED OTHERWISE IN THE SPECIFICATIONS, ALL PROCEDURES, TESTING, MATERIALS AND EQUIPMENT SHOWN ON THE PLANS SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR.
- UPON COMPLETION OF THE PROJECT, THE CONTRACTOR SHALL PROVIDE THE OWNER WITH A SET OF PRINTS OF THE FINAL CONSTRUCTION DOCUMENTS. ALL "AS-BUILT" MODIFICATIONS, INCLUDING MODIFICATIONS TO THE WORK OF ALL SUB-CONTRACTORS, SHOULD BE CLEARLY NOTED ON THESE PLANS.
- OVERLAPPING CONFLICTING REQUIREMENTS: MOST STRINGENT (GENERALLY MOST COSTLY) APPLIES AND WILL BE ENFORCED, UNLESS MORE DETAILS LANGUAGE WRITTEN DIRECTLY INTO CONTRACT DOCUMENTS CLEARLY INDICATED THAT A LESS STRINGENT REQUIREMENT IS ACCEPTABLE. REFER UNCERTAINTIES TO ARCHITECT FOR DECISION BEFORE PROCEEDING.
- WHERE OPTIONAL REQUIREMENTS ARE SPECIFIED IN A PARALLEL MANNER, OPTIONS ARE INTENDED TO BE CONTRACTORS UNLESS OTHERWISE NOTED.
- BUILDING TO REMAIN OCCUPIED DURING CONSTRUCTION. COORDINATE ACCESS AND STAGING W/ PROPERTY MANAGER. MAINTAIN FIRE SIGNAL COVERAGE FOR OCCUPIED AREAS THROUGHOUT PROJECT.

SCOPE OF WORK

MEADOWBROOK APARTMENTS ELEC. PANEL UPGRADES

KING COUNTY HOUSING AUTHORITY
1408 NW RICHMOND BEACH RD,
SHORELINE, WA 98177

DRAWN BY: **MD** REVIEWED BY: **JDO**

PROJECT STATUS:

ISSUE DATE:

SHEET SIZE:
ARCH D (24" x 36")

DRAWING SCALE:

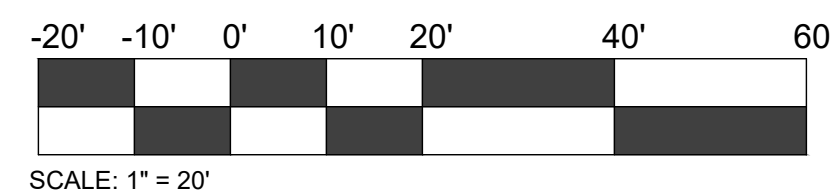
SHEET NO. / TITLE:

T1.1
TITLE SHEET

PROJECT NUMBER: KCH2401



1 MEADOWBROOK APARTMENTS SITE PLAN
SCALE: 1" = 20'-0"



MEADOWBROOK APARTMENTS ELEC. PANEL UPGRADES

KING COUNTY HOUSING AUTHORITY
1408 NW RICHMOND BEACH RD,
SHORELINE, WA 98177

DRAWN BY: **MD** REVIEWED BY: **JDO**

PROJECT STATUS:

ISSUE DATE:

SHEET SIZE:
ARCH D (24" x 36")

DRAWING SCALE:

SHEET NO. / TITLE:

**T1.2
SITE PLAN**

PROJECT NUMBER: KCH2401

MEADOWBROOK APARTMENTS ELEC. PANEL UPGRADES

KING COUNTY HOUSING AUTHORITY
1408 NW RICHMOND BEACH RD,
SHORELINE, WA 98177



- INSTALL NEW 125 AMP LOAD CENTER
- CONNECT CIRCUITS TO (E) FEEDERS LABEC PANEL
- PATCH GWB, TAPE SAND AND PAINT

2 PHOTO 2 - TYPICAL REPLACEMENT LOAD CENTER
NTS



- DISCONNECT POWER TO PANEL
- REMOVE PANEL
- ENLARGE WALL OPENING FOR NEW PANEL

1 PHOTO 1 - (E) LOAD CENTER
NTS

DRAWN BY: **MD** REVIEWED BY: **JDO**

PROJECT STATUS:

ISSUE DATE:

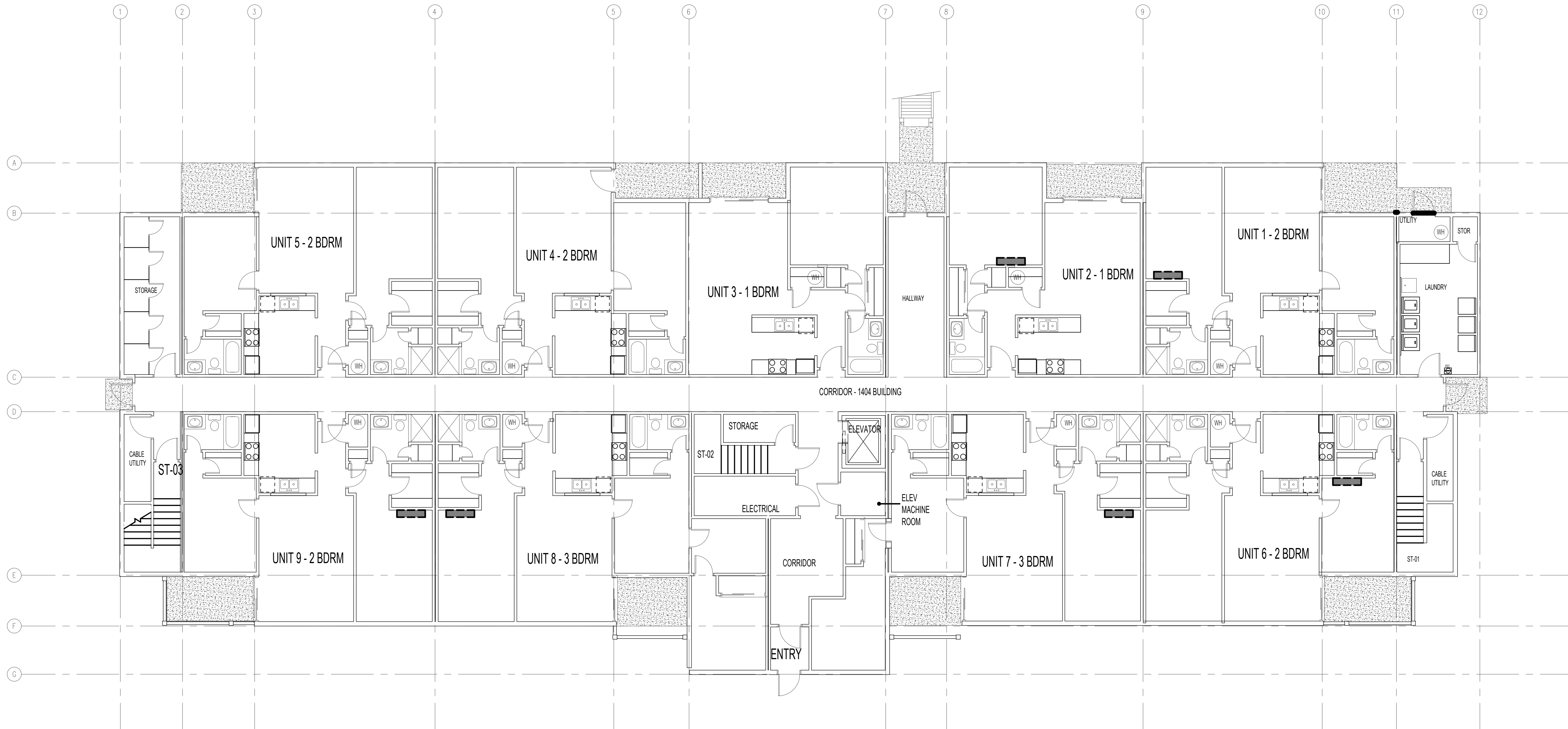
SHEET SIZE:
ARCH D (24" x 36")

DRAWING SCALE:

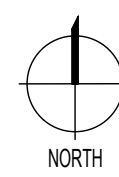
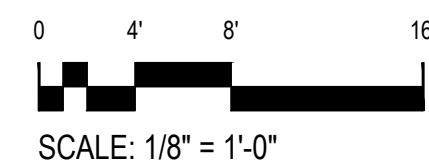
SHEET NO. / TITLE:

P1.1
PHOTO DETAIL
SHEET

PROJECT NUMBER: KCH2401



1 BDG 1404 - LEVEL 1 - ELECTRICAL PANEL LAYOUT PLAN
SCALE: 1/8" = 1'-0"



LEGEND:

- REMOVE (E) ELECTRICAL PANEL AND INSTALL NEW**
 1. REMOVE (E) 100 AMP LOAD CENTER; AND RETAIN (E) FEEDER.
 2. INSTALL NEW 125 AMP LOAD CENTER; CONNECT TO (E) FEEDER.
 3. INSTALL NEW CIRCUIT BREAKER PER CODE.
 4. PATCH GWB AND PAINT TO MATCH (E) PAINTED WALL FINISH
 5. PROVIDE EMERGENCY GENERATOR TO MAINTAIN POWER TO TENANT REFRIGERATORS.

BUILDING 1404 GENERAL NOTES:

1. PROVIDE MINIMUM OF 48 HOURS WORKING DAYS NOTICE PRIOR TO COMMENCING WORK IN UNITS.
2. WORK IN EACH UNIT TO BE COMPLETED IN MAXIMUM OF (2) MOBILIZATIONS:
 - * ELECTRICAL WORK
 - * PATCHING AND REFINISHING
3. EACH MOBILIZATION TO OCCUR BETWEEN 9:00 AM AND 4:30 PM W/ MAXIMUM POWER OUTAGE OF 6 HOURS.

MEADOWBROOK APARTMENTS ELEC. PANEL UPGRADES

KING COUNTY HOUSING AUTHORITY
1408 NW RICHMOND BEACH RD,
SHORELINE, WA 98177

DRAWN BY: **MD** REVIEWED BY: **JDO**

PROJECT STATUS:

ISSUE DATE:

SHEET SIZE:
ARCH D (24" x 36")

DRAWING SCALE:

SHEET NO. / TITLE:

A1.1
BDG 1404 - LEVEL 1
ELECTRICAL PANEL
LAYOUT PLAN

PROJECT NUMBER: KCH2401

MEADOWBROOK APARTMENTS ELEC. PANEL UPGRADES

KING COUNTY HOUSING AUTHORITY
 1408 NW RICHMOND BEACH RD,
 SHORELINE, WA 98177

DRAWN BY: **MD** REVIEWED BY: **JDO**

PROJECT STATUS:

ISSUE DATE:

SHEET SIZE:
ARCH D (24" x 36")

DRAWING SCALE:

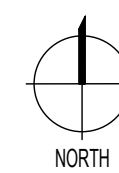
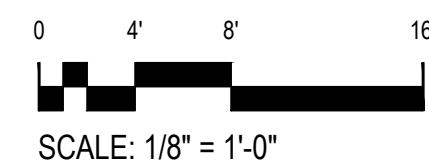
SHEET NO. / TITLE:

A1.2
BDG 1404 - LEVEL 2
ELECTRICAL PANEL
LAYOUT PLAN


PROJECT NUMBER: KCH2401



1 **BDG 1404 - LEVEL 2 - ELECTRICAL PANEL LAYOUT PLAN**
 SCALE: 1/8" = 1'-0"



LEGEND:

-  **REMOVE (E) ELECTRICAL PANEL AND INSTALL NEW**
1. REMOVE (E) 100 AMP LOAD CENTER; AND RETAIN (E) FEEDER.
 2. INSTALL NEW 125 AMP LOAD CENTER; CONNECT TO (E) FEEDER.
 3. INSTALL NEW CIRCUIT BREAKER PER CODE.
 4. PATCH GWB AND PAINT TO MATCH (E) PAINTED WALL FINISH
 5. PROVIDE EMERGENCY GENERATOR TO MAINTAIN POWER TO TENANT REFRIGERATORS.


BUILDING 1404 GENERAL NOTES:

1. PROVIDE MINIMUM OF 48 HOURS WORKING DAYS NOTICE PRIOR TO COMMENCING WORK IN UNITS.
2. WORK IN EACH UNIT TO BE COMPLETED IN MAXIMUM OF (2) MOBILIZATIONS:
 - * ELECTRICAL WORK
 - * PATCHING AND REFINISHING
3. EACH MOBILIZATION TO OCCUR BETWEEN 9:00 AM AND 4:30 PM W/ MAXIMUM POWER OUTAGE OF 6 HOURS.



1 BDG 1404 - LEVEL 3 - ELECTRICAL PANEL LAYOUT PLAN
SCALE: 1/8" = 1'-0"
SCALE: 1/8" = 1'-0"
NORTH

LEGEND:

-  **REMOVE (E) ELECTRICAL PANEL AND INSTALL NEW**
1. REMOVE (E) 100 AMP LOAD CENTER; AND RETAIN (E) FEEDER.
 2. INSTALL NEW 125 AMP LOAD CENTER; CONNECT TO (E) FEEDER.
 3. INSTALL NEW CIRCUIT BREAKER PER CODE.
 4. PATCH GWB AND PAINT TO MATCH (E) PAINTED WALL FINISH
 5. PROVIDE EMERGENCY GENERATOR TO MAINTAIN POWER TO TENANT REFRIGERATORS.

BUILDING 1404 GENERAL NOTES:

1. PROVIDE MINIMUM OF 48 HOURS WORKING DAYS NOTICE PRIOR TO COMMENCING WORK IN UNITS.
2. WORK IN EACH UNIT TO BE COMPLETED IN MAXIMUM OF (2) MOBILIZATIONS:
 - * ELECTRICAL WORK
 - * PATCHING AND REFINISHING
3. EACH MOBILIZATION TO OCCUR BETWEEN 9:00 AM AND 4:30 PM W/ MAXIMUM POWER OUTAGE OF 6 HOURS.

MEADOWBROOK APARTMENTS ELEC. PANEL UPGRADES

KING COUNTY HOUSING AUTHORITY
1408 NW RICHMOND BEACH RD,
SHORELINE, WA 98177

DRAWN BY: MD	REVIEWED BY: JDO
PROJECT STATUS:	
ISSUE DATE:	
SHEET SIZE: ARCH D (24" x 36")	
DRAWING SCALE:	
SHEET NO. / TITLE: A1.3 BDG 1404 - LEVEL 3 ELECTRICAL PANEL LAYOUT PLAN	
PROJECT NUMBER: KCH2401	

MEADOWBROOK APARTMENTS ELEC. PANEL UPGRADES

KING COUNTY HOUSING AUTHORITY
1408 NW RICHMOND BEACH RD,
SHORELINE, WA 98177



1 BDG 1406 - LEVEL 1 - ELECTRICAL PANEL LAYOUT PLAN
SCALE: 1/8" = 1'-0"
0 4' 8' 16'
SCALE: 1/8" = 1'-0"



LEGEND:

- REMOVE (E) ELECTRICAL PANEL AND INSTALL NEW**
 1. REMOVE (E) 100 AMP LOAD CENTER; AND RETAIN (E) FEEDER.
 2. INSTALL NEW 125 AMP LOAD CENTER; CONNECT TO (E) FEEDER.
 3. INSTALL NEW CIRCUIT BREAKER PER CODE.
 4. PATCH GWB AND PAINT TO MATCH (E) PAINTED WALL FINISH
 5. PROVIDE EMERGENCY GENERATOR TO MAINTAIN POWER TO TENANT REFRIGERATORS.

BUILDING 1406 GENERAL NOTES:

1. PROVIDE MINIMUM OF 48 HOURS WORKING DAYS NOTICE PRIOR TO COMMENCING WORK IN UNITS.
2. WORK IN EACH UNIT TO BE COMPLETED IN MAXIMUM OF (2) MOBILIZATIONS:
 - * ELECTRICAL WORK
 - * PATCHING AND REFINISHING
3. EACH MOBILIZATION TO OCCUR BETWEEN 9:00 AM AND 4:30 PM W/ MAXIMUM POWER OUTAGE OF 6 HOURS.

DRAWN BY: **MD** REVIEWED BY: **JDO**

PROJECT STATUS:

ISSUE DATE:

SHEET SIZE:
ARCH D (24" x 36")

DRAWING SCALE:

SHEET NO. / TITLE:

A2.1
BDG 1406 - LEVEL 1
ELECTRICAL PANEL
LAYOUT PLAN


PROJECT NUMBER: KCH2401

MEADOWBROOK APARTMENTS ELEC. PANEL UPGRADES
 KING COUNTY HOUSING AUTHORITY
 1408 NW RICHMOND BEACH RD,
 SHORELINE, WA 98177



1 BDG 1406 - LEVEL 2 - ELECTRICAL PANEL LAYOUT PLAN
 SCALE: 1/8" = 1'-0"
 0 4' 8' 16'
 SCALE: 1/8" = 1'-0"
 NORTH

LEGEND:

-  **REMOVE (E) ELECTRICAL PANEL AND INSTALL NEW**
 1. REMOVE (E) 100 AMP LOAD CENTER; AND RETAIN (E) FEEDER.
 2. INSTALL NEW 125 AMP LOAD CENTER; CONNECT TO (E) FEEDER.
 3. INSTALL NEW CIRCUIT BREAKER PER CODE.
 4. PATCH GWB AND PAINT TO MATCH (E) PAINTED WALL FINISH
 5. PROVIDE EMERGENCY GENERATOR TO MAINTAIN POWER TO TENANT REFRIGERATORS.

BUILDING 1406 GENERAL NOTES:

1. PROVIDE MINIMUM OF 48 HOURS WORKING DAYS NOTICE PRIOR TO COMMENCING WORK IN UNITS.
2. WORK IN EACH UNIT TO BE COMPLETED IN MAXIMUM OF (2) MOBILIZATIONS:
 - * ELECTRICAL WORK
 - * PATCHING AND REFINISHING
3. EACH MOBILIZATION TO OCCUR BETWEEN 9:00 AM AND 4:30 PM W/ MAXIMUM POWER OUTAGE OF 6 HOURS.

DRAWN BY: **MD** REVIEWED BY: **JDO**

PROJECT STATUS:

ISSUE DATE:

SHEET SIZE:
ARCH D (24" x 36")

DRAWING SCALE:

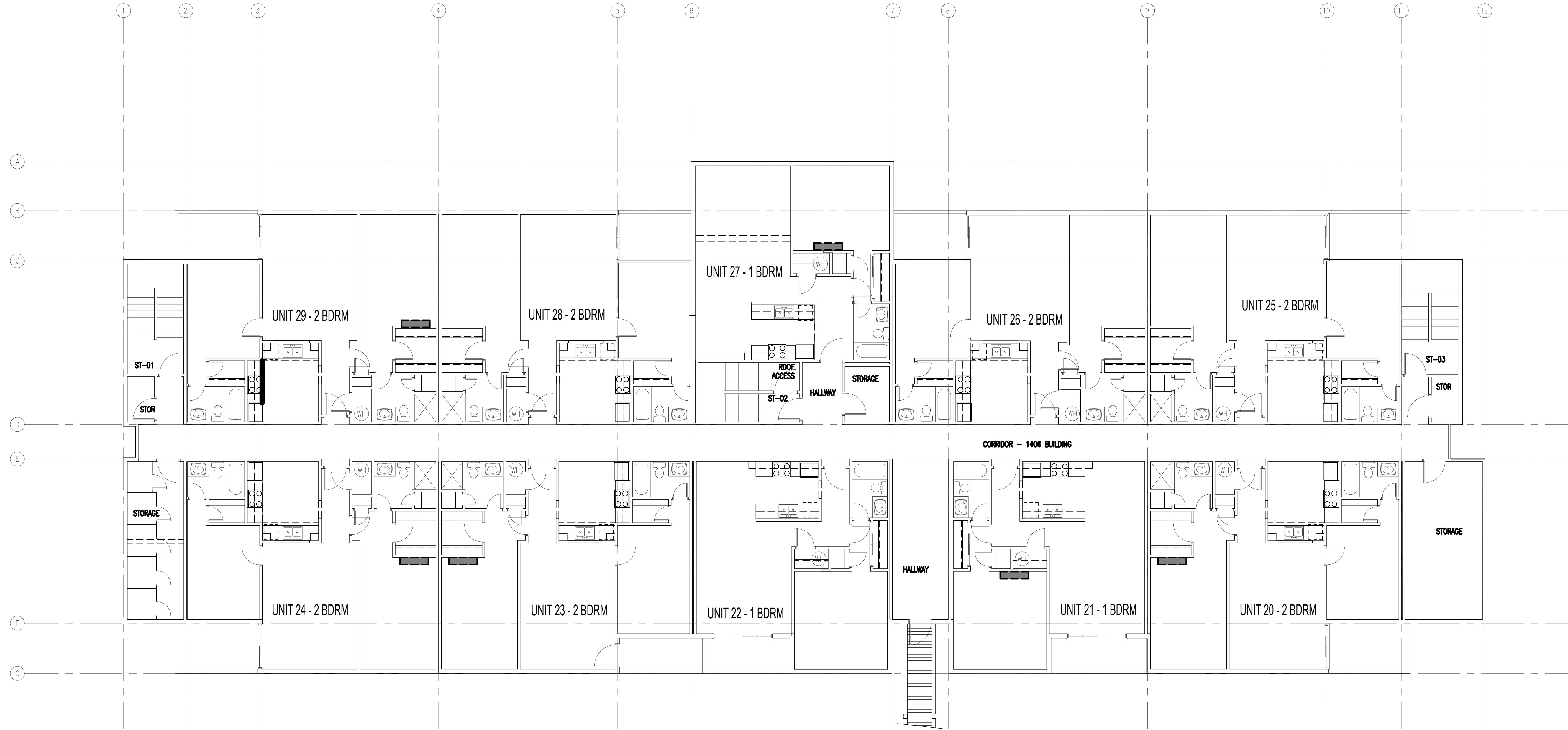
SHEET NO. / TITLE:

A2.2
 BDG 1406 - LEVEL 2
 ELECTRICAL PANEL
 LAYOUT PLAN

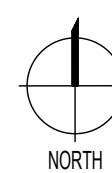
PROJECT NUMBER: KCH2401

MEADOWBROOK APARTMENTS ELEC. PANEL UPGRADES

KING COUNTY HOUSING AUTHORITY
1408 NW RICHMOND BEACH RD,
SHORELINE, WA 98177



1 BDG 1406 - LEVEL 3 - ELECTRICAL PANEL LAYOUT PLAN
SCALE: 1/8" = 1'-0"
0 4' 8' 16'
SCALE: 1/8" = 1'-0"



LEGEND:

- REMOVE (E) ELECTRICAL PANEL AND INSTALL NEW**
 1. REMOVE (E) 100 AMP LOAD CENTER; AND RETAIN (E) FEEDER.
 2. INSTALL NEW 125 AMP LOAD CENTER; CONNECT TO (E) FEEDER.
 3. INSTALL NEW CIRCUIT BREAKER PER CODE.
 4. PATCH GWB AND PAINT TO MATCH (E) PAINTED WALL FINISH
 5. PROVIDE EMERGENCY GENERATOR TO MAINTAIN POWER TO TENANT REFRIGERATORS.

BUILDING 1406 GENERAL NOTES:

1. PROVIDE MINIMUM OF 48 HOURS WORKING DAYS NOTICE PRIOR TO COMMENCING WORK IN UNITS.
2. WORK IN EACH UNIT TO BE COMPLETED IN MAXIMUM OF (2) MOBILIZATIONS:
 - * ELECTRICAL WORK
 - * PATCHING AND REFINISHING
3. EACH MOBILIZATION TO OCCUR BETWEEN 9:00 AM AND 4:30 PM W/ MAXIMUM POWER OUTAGE OF 6 HOURS.

DRAWN BY: **MD** REVIEWED BY: **JDO**

PROJECT STATUS:

ISSUE DATE:

SHEET SIZE:
ARCH D (24" x 36")

DRAWING SCALE:

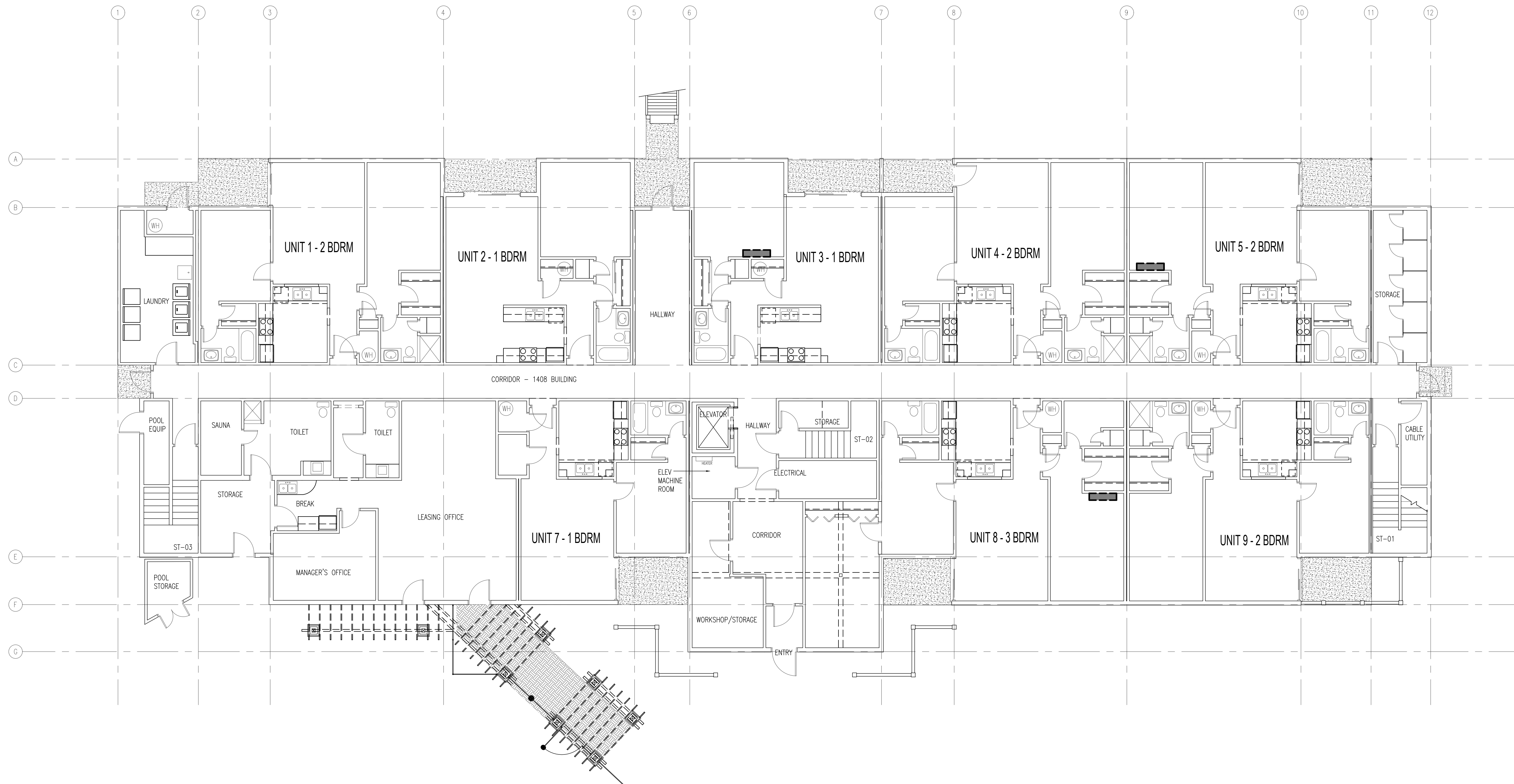
SHEET NO. / TITLE:

A2.3
BDG 1406 - LEVEL 3
ELECTRICAL PANEL
LAYOUT PLAN

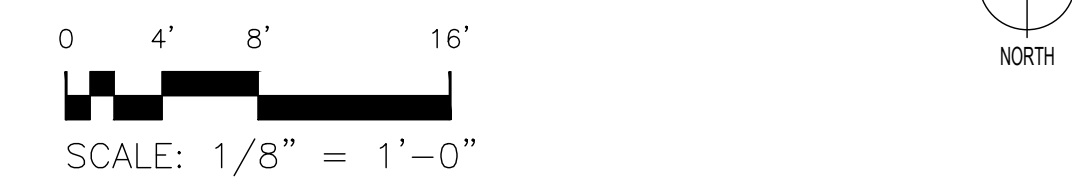
PROJECT NUMBER: KCH2401

MEADOWBROOK APARTMENTS ELEC. PANEL UPGRADES

KING COUNTY HOUSING AUTHORITY
1408 NW RICHMOND BEACH RD,
SHORELINE, WA 98177



1 BDG 1408 - LEVEL 1 ELECTRICAL PANEL LAYOUT PLAN
SCALE: 1/8" = 1'-0"



LEGEND:

- REMOVE (E) ELECTRICAL PANEL AND INSTALL NEW**
 1. REMOVE (E) 100 AMP LOAD CENTER; AND RETAIN (E) FEEDER.
 2. INSTALL NEW 125 AMP LOAD CENTER; CONNECT TO (E) FEEDER.
 3. INSTALL NEW CIRCUIT BREAKER PER CODE.
 4. PATCH GWB AND PAINT TO MATCH (E) PAINTED WALL FINISH
 5. PROVIDE EMERGENCY GENERATOR TO MAINTAIN POWER TO TENANT REFRIGERATORS.

BUILDING 1408 GENERAL NOTES:

1. PROVIDE MINIMUM OF 48 HOURS WORKING DAYS NOTICE PRIOR TO COMMENCING WORK IN UNITS.
2. WORK IN EACH UNIT TO BE COMPLETED IN MAXIMUM OF (2) MOBILIZATIONS:
 - * ELECTRICAL WORK
 - * PATCHING AND REFINISHING
3. EACH MOBILIZATION TO OCCUR BETWEEN 9:00 AM AND 4:30 PM W/ MAXIMUM POWER OUTAGE OF 6 HOURS.

DRAWN BY: **MD** REVIEWED BY: **JDO**

PROJECT STATUS:

ISSUE DATE:

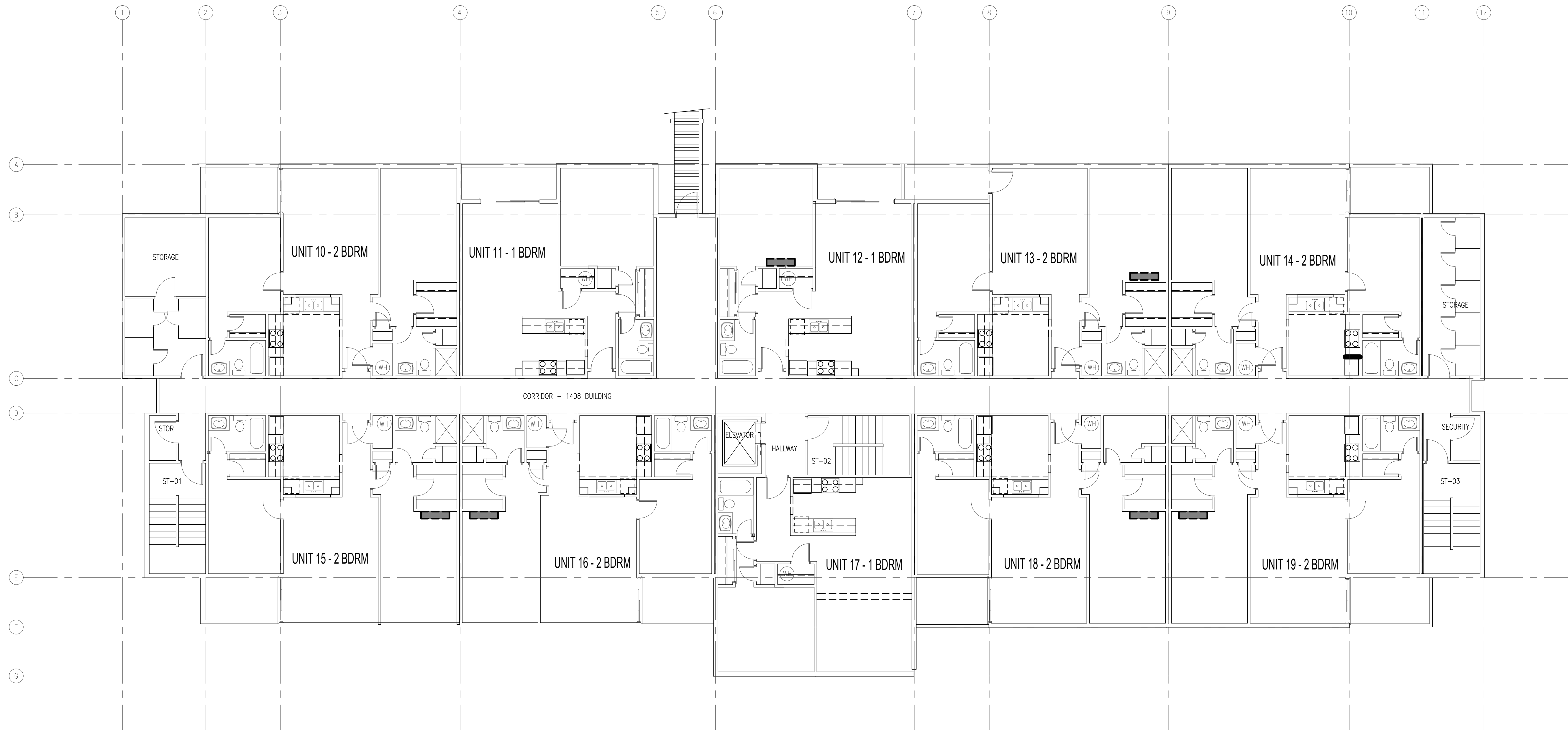
SHEET SIZE:
ARCH D (24" x 36")

DRAWING SCALE:

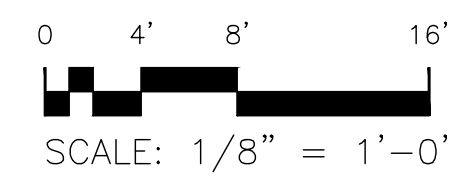
SHEET NO. / TITLE:

A3.1
BDG 1408 - LEVEL 1
ELECTRICAL PANEL
LAYOUT PLAN

PROJECT NUMBER: KCH2401



1 BDG 1408 - LEVEL 2 - ELECTRICAL PANEL LAYOUT PLAN
SCALE: 1/8" = 1'-0"



LEGEND:

- REMOVE (E) ELECTRICAL PANEL AND INSTALL NEW**
- 1. REMOVE (E) 100 AMP LOAD CENTER; AND RETAIN (E) FEEDER.
- 2. INSTALL NEW 125 AMP LOAD CENTER; CONNECT TO (E) FEEDER.
- 3. INSTALL NEW CIRCUIT BREAKER PER CODE.
- 4. PATCH GWB AND PAINT TO MATCH (E) PAINTED WALL FINISH
- 5. PROVIDE EMERGENCY GENERATOR TO MAINTAIN POWER TO TENANT REFRIGERATORS.

BUILDING 1408 GENERAL NOTES:

1. PROVIDE MINIMUM OF 48 HOURS WORKING DAYS NOTICE PRIOR TO COMMENCING WORK IN UNITS.
2. WORK IN EACH UNIT TO BE COMPLETED IN MAXIMUM OF (2) MOBILIZATIONS:
 - * ELECTRICAL WORK
 - * PATCHING AND REFINISHING
3. EACH MOBILIZATION TO OCCUR BETWEEN 9:00 AM AND 4:30 PM W/ MAXIMUM POWER OUTAGE OF 6 HOURS.

MEADOWBROOK APARTMENTS ELEC. PANEL UPGRADES

KING COUNTY HOUSING AUTHORITY
1408 NW RICHMOND BEACH RD,
SHORELINE, WA 98177

DRAWN BY: **MD** REVIEWED BY: **JDO**

PROJECT STATUS:

ISSUE DATE:

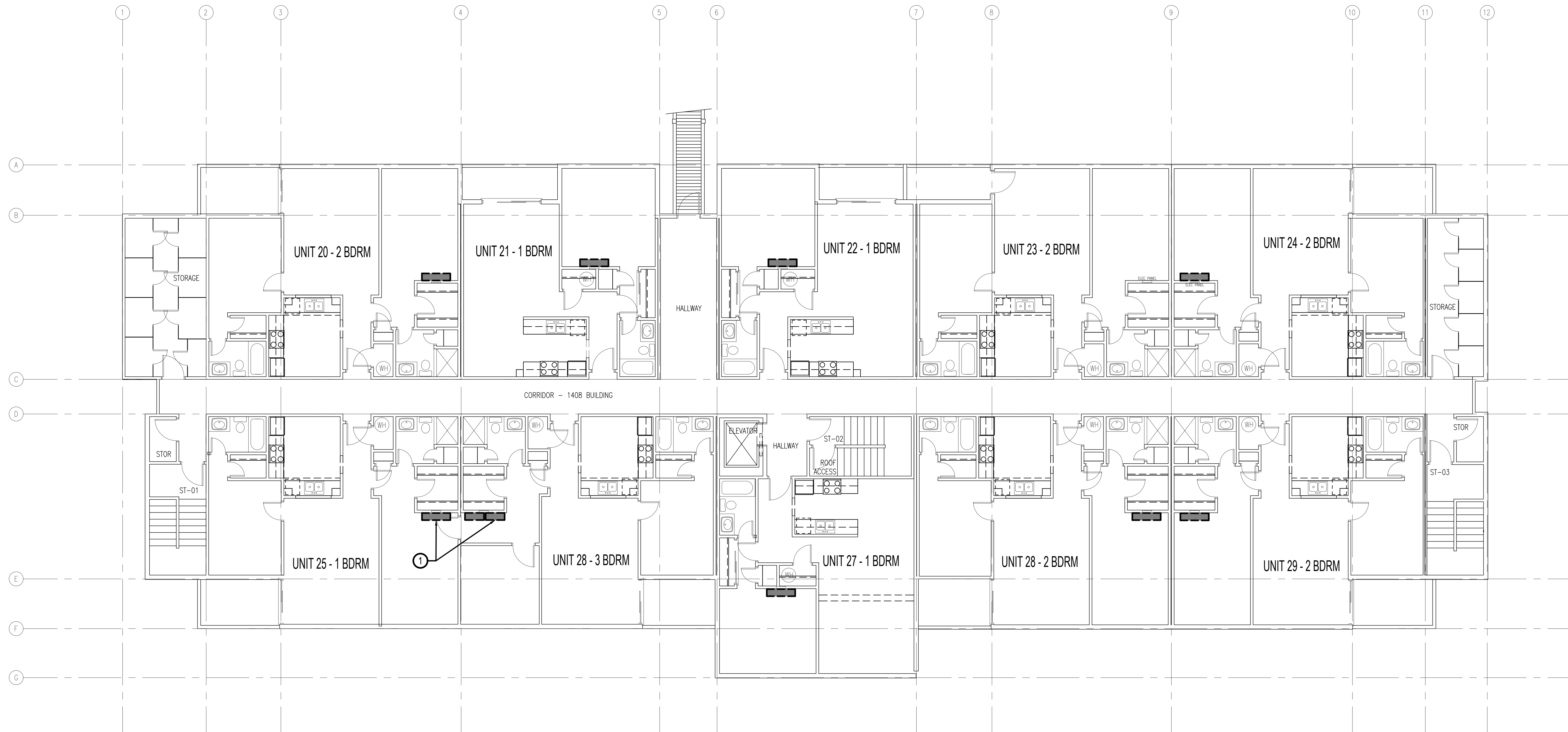
SHEET SIZE:
ARCH D (24" x 36")

DRAWING SCALE:

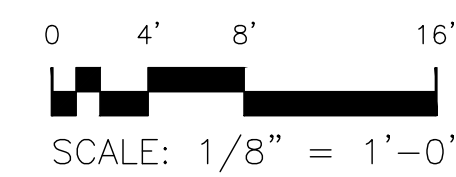
SHEET NO. / TITLE:

A3.2
BDG 1408 - LEVEL 2
ELECTRICAL PANEL
LAYOUT PLAN


PROJECT NUMBER: KCH2401



1 BDG 1408 - LEVEL 3 - ELECTRICAL PANEL LAYOUT PLAN
SCALE: 1/8" = 1'-0"



LEGEND:

-  **REMOVE (E) ELECTRICAL PANEL AND INSTALL NEW**
 1. REMOVE (E) 100 AMP LOAD CENTER; AND RETAIN (E) FEEDER.
 2. INSTALL NEW 125 AMP LOAD CENTER; CONNECT TO (E) FEEDER.
 3. INSTALL NEW CIRCUIT BREAKER PER CODE.
 4. PATCH GWB AND PAINT TO MATCH (E) PAINTED WALL FINISH
 5. PROVIDE EMERGENCY GENERATOR TO MAINTAIN POWER TO TENANT REFRIGERATORS.

BUILDING 1408 GENERAL NOTES:

1. PROVIDE MINIMUM OF 48 HOURS WORKING DAYS NOTICE PRIOR TO COMMENCING WORK IN UNITS.
2. WORK IN EACH UNIT TO BE COMPLETED IN MAXIMUM OF (2) MOBILIZATIONS:
 - * ELECTRICAL WORK
 - * PATCHING AND REFINISHING
3. EACH MOBILIZATION TO OCCUR BETWEEN 9:00 AM AND 4:30 PM W/ MAXIMUM POWER OUTAGE OF 6 HOURS.

KEY NOTES:

- ① THERE ARE (2) REPLACEMENT PANELS IN UNIT 26. ONE OF THE REPLACEMENT PANELS SERVES UNIT 25. CONVERT REPLACEMENT PANEL IN UNIT 26, SERVING UNIT 25, INTO A JUNCTION BOX. INSTALL NEW PANEL IN UNIT 25 AND JUMPER CONDUCTORS FROM UNIT 26 JUNCTION BOX TO NEW PANEL IN UNIT 25.

MEADOWBROOK APARTMENTS ELEC. PANEL UPGRADES

KING COUNTY HOUSING AUTHORITY
1408 NW RICHMOND BEACH RD,
SHORELINE, WA 98177

DRAWN BY: **MD** REVIEWED BY: **JDO**

PROJECT STATUS:

ISSUE DATE:

SHEET SIZE:
ARCH D (24" x 36")

DRAWING SCALE:

SHEET NO. / TITLE:

A3.3
BDG 1408 - LEVEL 3
ELECTRICAL PANEL
LAYOUT PLAN

PROJECT NUMBER: KCH2401

MEADOWBROOK APARTMENTS ELEC. PANEL UPGRADES

KING COUNTY HOUSING AUTHORITY
1408 NW RICHMOND BEACH RD,
SHORELINE, WA 98177

DRAWN BY: **MD** REVIEWED BY: **JDO**

PROJECT STATUS:

ISSUE DATE:

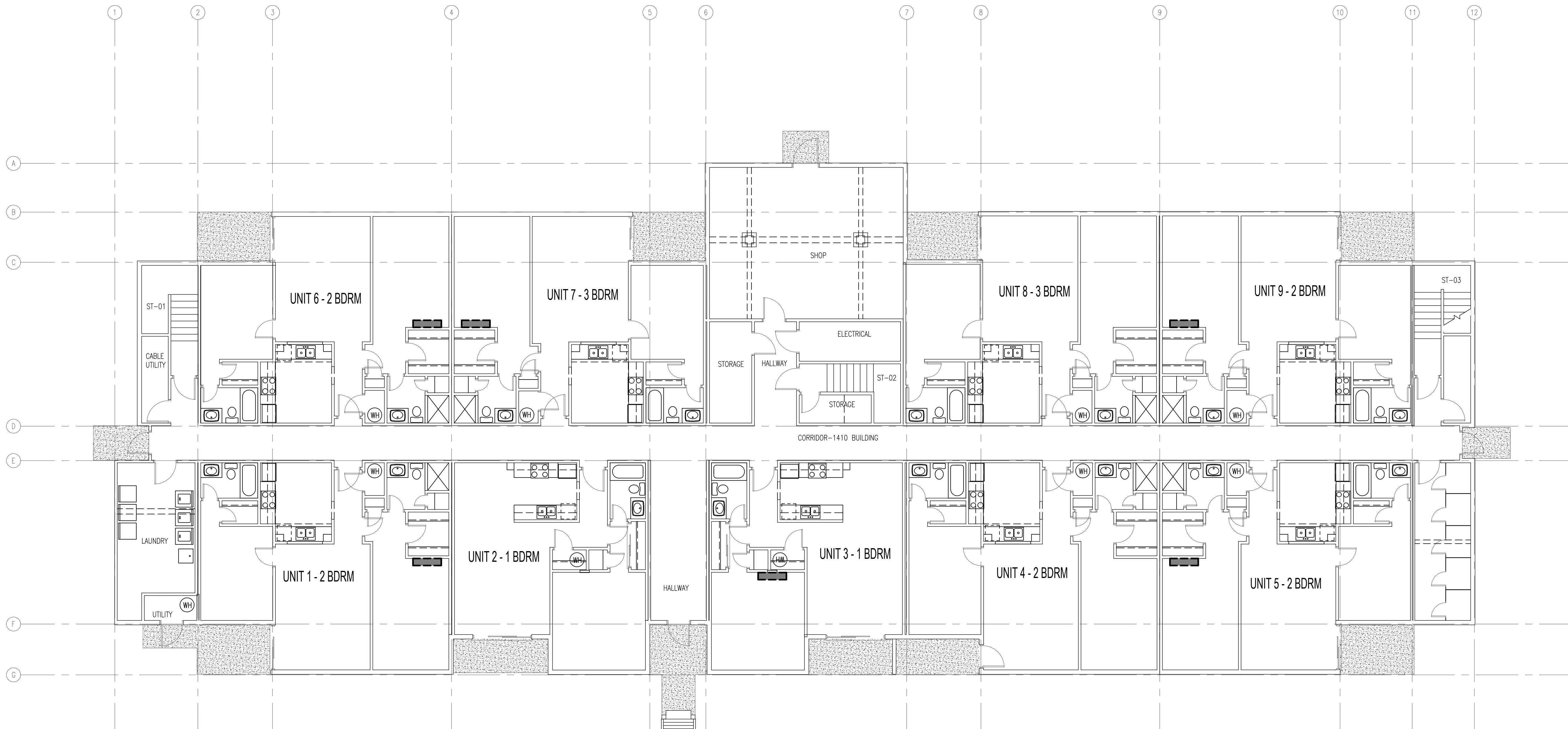
SHEET SIZE:
ARCH D (24" x 36")

DRAWING SCALE:

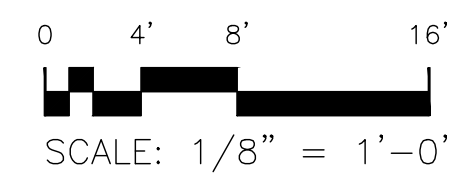
SHEET NO. / TITLE:

A4.1
BDG 1410 - LEVEL 1
ELECTRICAL PANEL
LAYOUT PLAN

PROJECT NUMBER: KCH2401



1 **BDG 1410 - LEVEL 1 - ELECTRICAL PANEL LAYOUT PLAN**
SCALE: 1/8" = 1'-0"



LEGEND:

- REMOVE (E) ELECTRICAL PANEL AND INSTALL NEW**
 - 1. REMOVE (E) 100 AMP LOAD CENTER; AND RETAIN (E) FEEDER.**
 - 2. INSTALL NEW 125 AMP LOAD CENTER; CONNECT TO (E) FEEDER.**
 - 3. INSTALL NEW CIRCUIT BREAKER PER CODE.**
 - 4. PATCH GWB AND PAINT TO MATCH (E) PAINTED WALL FINISH**
 - 5. PROVIDE EMERGENCY GENERATOR TO MAINTAIN POWER TO TENANT REFRIGERATORS.**

BUILDING 1410 GENERAL NOTES:

1. PROVIDE MINIMUM OF 48 HOURS WORKING DAYS NOTICE PRIOR TO COMMENCING WORK IN UNITS.
2. WORK IN EACH UNIT TO BE COMPLETED IN MAXIMUM OF (2) MOBILIZATIONS:
 - * ELECTRICAL WORK
 - * PATCHING AND REFINISHING
3. EACH MOBILIZATION TO OCCUR BETWEEN 9:00 AM AND 4:30 PM W/ MAXIMUM POWER OUTAGE OF 6 HOURS.

MEADOWBROOK APARTMENTS ELEC. PANEL UPGRADES

KING COUNTY HOUSING AUTHORITY
1408 NW RICHMOND BEACH RD,
SHORELINE, WA 98177

DRAWN BY: **MD** REVIEWED BY: **JDO**

PROJECT STATUS:

ISSUE DATE:

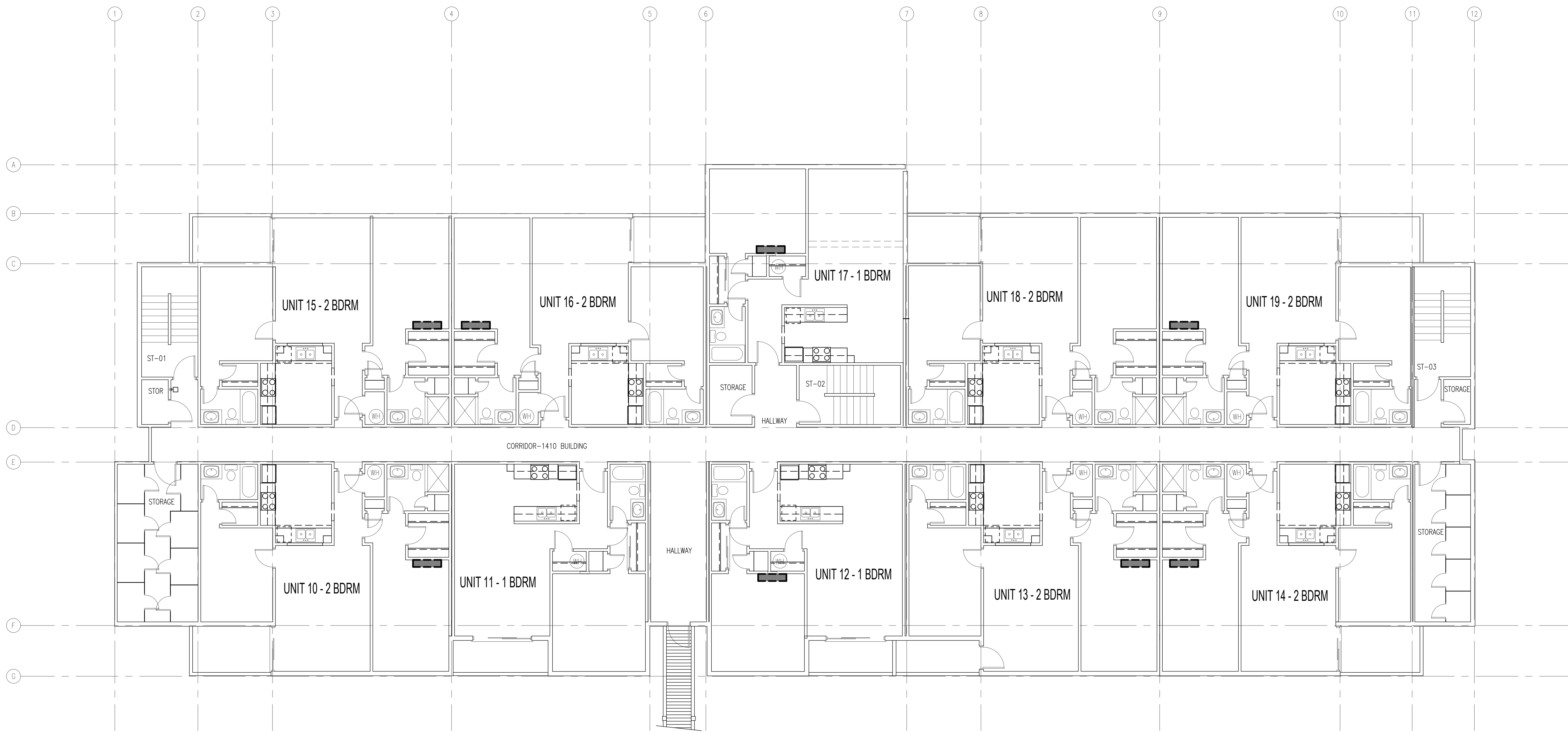
SHEET SIZE:
ARCH D (24" x 36")

DRAWING SCALE:

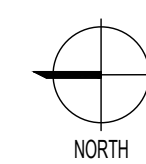
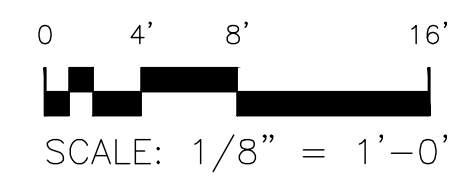
SHEET NO. / TITLE:

A4.2
BDG 1410 - LEVEL 2
ELECTRICAL PANEL
LAYOUT PLAN


PROJECT NUMBER: KCH2401



1 **BDG 1410 - LEVEL 2 - ELECTRICAL PANEL LAYOUT PLAN**
SCALE: 1/8" = 1'-0"



LEGEND:

-  **REMOVE (E) ELECTRICAL PANEL AND INSTALL NEW**
1. REMOVE (E) 100 AMP LOAD CENTER; AND RETAIN (E) FEEDER.
 2. INSTALL NEW 125 AMP LOAD CENTER; CONNECT TO (E) FEEDER.
 3. INSTALL NEW CIRCUIT BREAKER PER CODE.
 4. PATCH GWB AND PAINT TO MATCH (E) PAINTED WALL FINISH
 5. PROVIDE EMERGENCY GENERATOR TO MAINTAIN POWER TO TENANT REFRIGERATORS.

BUILDING 1410 GENERAL NOTES:

1. PROVIDE MINIMUM OF 48 HOURS WORKING DAYS NOTICE PRIOR TO COMMENCING WORK IN UNITS.
2. WORK IN EACH UNIT TO BE COMPLETED IN MAXIMUM OF (2) MOBILIZATIONS:
 - * ELECTRICAL WORK
 - * PATCHING AND REFINISHING
3. EACH MOBILIZATION TO OCCUR BETWEEN 9:00 AM AND 4:30 PM W/ MAXIMUM POWER OUTAGE OF 6 HOURS.

MEADOWBROOK APARTMENTS ELEC. PANEL UPGRADES

KING COUNTY HOUSING AUTHORITY
1408 NW RICHMOND BEACH RD,
SHORELINE, WA 98177

DRAWN BY: **MD** REVIEWED BY: **JDO**

PROJECT STATUS:

ISSUE DATE:

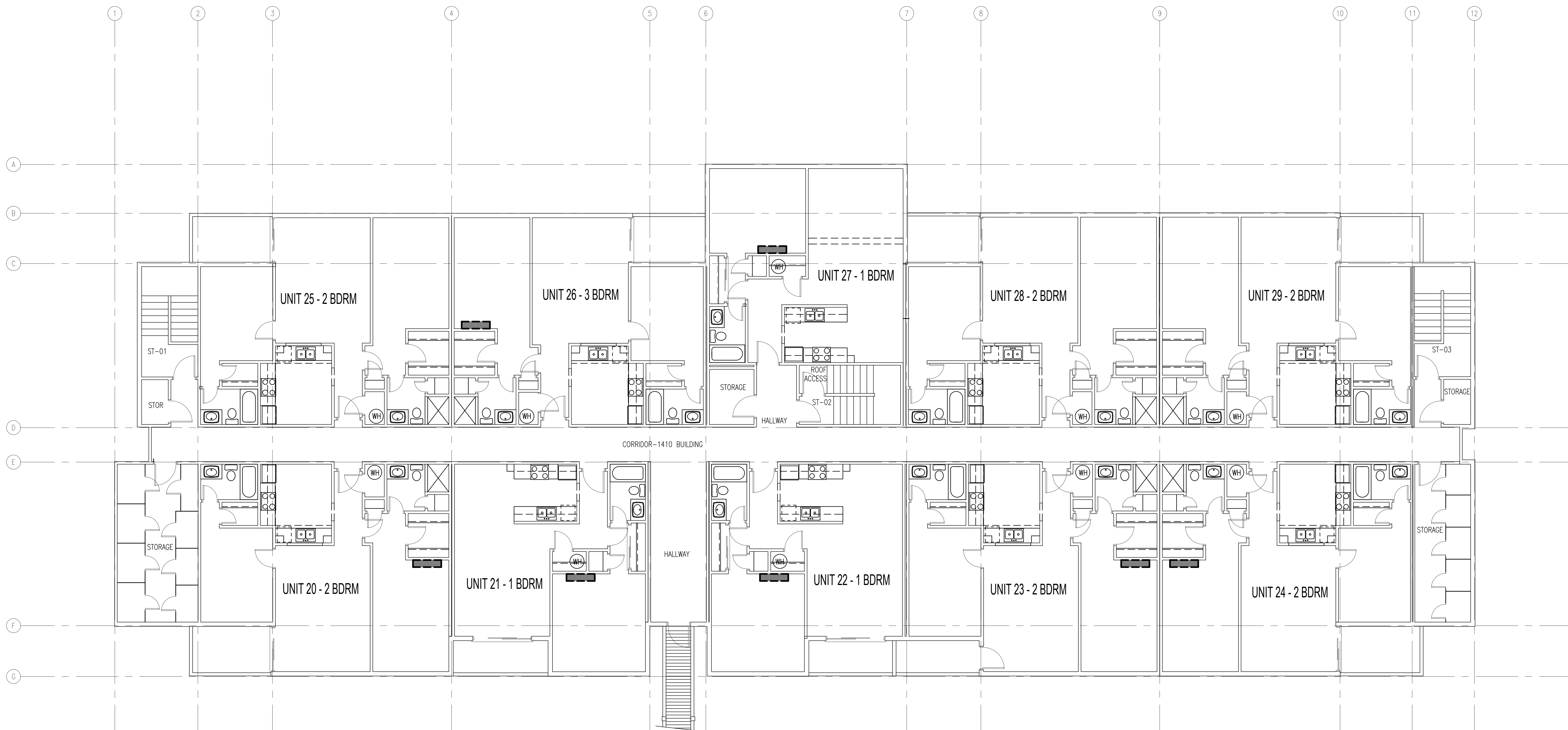
SHEET SIZE:
ARCH D (24" x 36")

DRAWING SCALE:

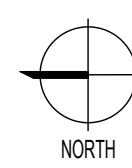
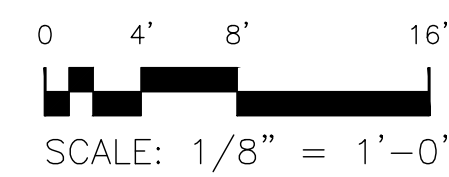
SHEET NO. / TITLE:

A4.3
BDG 1410 - LEVEL 3
ELECTRICAL PANEL
LAYOUT PLAN

PROJECT NUMBER: KCH2401



1 **BDG 1410 - LEVEL 3 - ELECTRICAL PANEL LAYOUT PLAN**
SCALE: 1/8" = 1'-0"



LEGEND:

- REMOVE (E) ELECTRICAL PANEL AND INSTALL NEW
1. REMOVE (E) 100 AMP LOAD CENTER; AND RETAIN (E) FEEDER.
 2. INSTALL NEW 125 AMP LOAD CENTER; CONNECT TO (E) FEEDER.
 3. INSTALL NEW CIRCUIT BREAKER PER CODE.
 4. PATCH GWB AND PAINT TO MATCH (E) PAINTED WALL FINISH
 5. PROVIDE EMERGENCY GENERATOR TO MAINTAIN POWER TO TENANT REFRIGERATORS.

BUILDING 1410 GENERAL NOTES:

1. PROVIDE MINIMUM OF 48 HOURS WORKING DAYS NOTICE PRIOR TO COMMENCING WORK IN UNITS.
2. WORK IN EACH UNIT TO BE COMPLETED IN MAXIMUM OF (2) MOBILIZATIONS:
 - * ELECTRICAL WORK
 - * PATCHING AND REFINISHING
3. EACH MOBILIZATION TO OCCUR BETWEEN 9:00 AM AND 4:30 PM W/ MAXIMUM POWER OUTAGE OF 6 HOURS.

INSTRUCTIONS TO BIDDERS

1.0 BIDDER RESPONSIBILITY CRITERIA

- A. It is the intent of Owner to award a contract to a responsible bidder submitting the lowest responsive bid. Before award, the bidder must meet the following bidder responsibility criteria to be considered a responsible bidder. The bidder may be required by the Owner to submit documentation demonstrating compliance with the criteria. The bidder must:
1. Have a current certificate of registration as a contractor in compliance with chapter 18.27 RCW, which must have been in effect at the time of bid submittal;
 2. Have a current Washington Unified Business Identifier (UBI) number;
 3. If applicable, have industrial insurance coverage for the bidder's employees working in Washington as required in Title 51 RCW; an employment security department number as required in Title 50 RCW; and a state excise tax registration number as required in Title 82 RCW;
 4. Not be disqualified from bidding on any public works contract under RCW 39.06.010 or 39.12.065(3);
 5. Have received training on the requirements related to public works and prevailing wage under chapter 39.04.350 RCW and chapter 39.12 RCW or be listed as exempt by the department of labor and industries on its website; and
 6. Within the three-year period immediately preceding the date of the bid solicitation, not have been determined by a final and binding citation and notice of assessment issued by the department of labor and industries or through a civil judgment entered by a court of limited or general jurisdiction to have willfully violated, as defined in RCW 49.48.082, any provision of chapter 49.46, 49.48, or 49.52 RCW;
 7. Before award of a public works contract, a bidder shall submit to the contracting agency a signed statement in accordance with RCW 9A.72.085 verifying under penalty of perjury that the bidder is in compliance with the responsible bidder criteria requirement of subsection A, 6 of this section.

1.1 SUBCONTRACTOR RESPONSIBILITY

- A. The Contractor shall include the language of this section in each of its first tier subcontracts, and shall require each of its subcontractors to include the same language of this section in each of their subcontracts, adjusting only as necessary the terms used for the contracting parties. Upon request of the Owner, the Contractor shall promptly provide documentation to the Owner demonstrating that the subcontractor meets the subcontractor responsibility criteria below. The requirements of this section apply to all subcontractors regardless of tier.
- B. At the time of subcontract execution, the Contractor shall verify that each of its first tier subcontractors meets the following bidder responsibility criteria:
1. Have a current certificate of registration in compliance with chapter 18.27 RCW, which must have been in effect at the time of subcontract bid submittal;
 2. Have a current Washington Unified Business Identifier (UBI) number;
 3. If applicable, have:
 - a. Have Industrial Insurance (workers' compensation) coverage for the subcontractor's employees working in Washington, as required in Title 51 RCW;
 - b. A Washington Employment Security Department number, as required in Title 50 RCW;

INSTRUCTIONS TO BIDDERS

- c. A Washington Department of Revenue state excise tax registration number, as required in Title 82 RCW;
 - d. An electrical contractor license, if required by Chapter 19.28 RCW;
 - e. An elevator contractor license, if required by Chapter 70.87 RCW.
4. Not be disqualified from bidding on any public works contract under RCW 39.06.010 or 39.12.065 (3);
 5. Have received training on the requirements related to public works and prevailing wage under chapter 39.04.350 RCW and chapter 39.12 RCW or be listed as exempt by the department of labor and industries on its website; and
 6. Within the three-year period immediately preceding the date of the bid solicitation, not have been determined by a final and binding citation and notice of assessment issued by the department of labor and industries or through a civil judgment entered by a court of limited or general jurisdiction to have willfully violated, as defined in RCW 49.48.082, any provision of chapter 49.46, 49.48, or 49.52 RCW.

1.2 SUPPLEMENTAL BIDDER RESPONSIBILITY CRITERIA

- A. RCW 39.04.350(2) specifically authorizes municipalities to adopt relevant supplement criteria for determining bidder responsibility applicable to a particular project which the bidder must meet.
- B. For the work in this project a responsible/qualified Bidder must meet the following standards:
 1. Have a current certificate of registration as a contractor, in compliance with chapter 18.27 RCW, for the last three years under the same business name;
 2. Have a good record of past performance that includes, but is not limited to, high quality work, ability to complete projects on time, contractor's integrity, compliance with public policy, financial, contractual and tax obligations, as well as Federal and State rules and regulations in performing construction contracts.
 3. Have a current Experience Modification Rate (EMR) of 1.0 or less, or an average EMR rate of 1.0 or less over the last three years. The requirement may, at the Owner's sole discretion, be waived on review of a written explanation that includes details of accidents, L&I records, a Loss Ratio Report for the last five years, costs, dates of events, and changes that have been made by the contractor to reduce accidents. A current company Safety Plan shall also be reviewed.
 4. Bidder shall provide evidence of previous successful completion of electrical panel projects, of similar scope and complexity. Poor performance, lack of response, or failure to complete projects successfully within the contract time may be grounds for the rejection of bidder.
- C. Subcontractors shall have had three years minimum experience licensed in Washington State in the specific specialty contracting business.

1.3 PREPARATION OF BIDS – CONSTRUCTION

- A. Bids must be submitted on the Bid Form furnished by the Owner.
- B. All fields and questions on required forms must be fully answered and complete. Failure to do so may result in the bid being declared non-responsive.

INSTRUCTIONS TO BIDDERS

- C. Bidders shall acknowledge receipt of all addenda to this solicitation by inserting the addenda numbers in the space provided on the Bid Form. Failure to do so may result in the bid being declared non-responsive.
 - 1. Bidder is responsible for checking KCHA's website for addenda prior to submitting bid.
- D. In order for a bid to be considered responsive, bidders must submit the following signed documents with their bid package:
 - 1. Bid Form
 - 2. Bidder's Information Form
 - 3. Bid Guarantee
- E. The Bidder agrees to hold the base bid prices for sixty (60) days from date of bid opening.

1.4 BID GUARANTEE

- A. A bid guarantee in the amount of 5% of the base bid amount is required. Failure of the bidder to provide bid guarantee shall render the bid non-responsive.
- B. Acceptable forms of bid guarantee are: A bid bond or postal money order, or certified check or cashier's check made payable to King County Housing Authority.
- C. The Owner will return bid guarantees (other than bid bonds) to unsuccessful bidders as soon as practicable, but not sooner than the execution of a contract with the successful bidder. The successful bidder's bid guarantee will be returned to the successful bidder with its official notice to proceed with the work of the contract.

1.5 AMENDMENTS TO INVITATION TO BID

- A. If this solicitation is amended, then all terms and conditions which are not modified remain unchanged.
- B. Bidders shall acknowledge receipt of all addenda to this solicitation by inserting the addenda numbers in the space provided on the Bid Form. Failure to do so may result in the bid being declared non-responsive.
 - 1. Bidder is responsible for checking KCHA's website for addenda prior to submitting bid.
 - 2. Addenda will not be issued later than three (3) calendar days before the deadline for receipt of Bids except Addendum withdrawing the request for Bids or extending the deadline for receipt of Bids.

1.6 PRE-BID MEETING

- A. All potential bidders are strongly encouraged to attend. Oral statements may not be relied upon and will not be binding or legally effective.

1.7 EXAMINATION OF PLANS, SPECIFICATIONS, AND SITE

INSTRUCTIONS TO BIDDERS

- A. Before submitting a bid, the Bidder shall carefully examine each component of the Contract Documents prepared for the Work and any other available supporting data so as to be thoroughly familiar with all the requirements.
- B. The Bidder shall obtain copies of all agencies and associations guidelines and standards cited in the Contract Documents and necessary to perform the Work, including full size reproductions of material provided by Owner, at their own expense.
- C. The Bidder shall make a thorough and reasonable examination of the project site, facility and conditions under which the Work is to be performed, including but not limited to: Building access; resident occupancy; fire lanes; landscaping; obstacles and character of materials which may be encountered; traffic conditions; public and private utilities; the availability and cost of labor; and available facilities for transportation, handling, and storage of materials and equipment.

1.8 EXPLANATION TO PROSPECTIVE BIDDERS

- A. Any prospective bidder desiring an explanation or interpretation of the solicitation, drawings, specifications, etc., must submit a request in writing to the Owner seven (7) calendar days before the bid due date. Oral explanations or instructions given before the award of a contract will not be binding. Questions shall be submitted to:

Michelle Jackson
King County Housing Authority
600 Andover Park W
Seattle, WA 98188
Email: MichelleJ@kcha.org

1.9 PREVAILING WAGES

- A. Contractor shall pay no less than the Washington State Department of Labor and Industries (L&I) prevailing rate of wages to all workers, laborers, or mechanics employed in the performance of any part of the Work in accordance with RCW 39.12 and the rules and regulations of L&I. The schedule of prevailing wage rates for the locality or localities of the Work is determined by the Industrial Statistician of L&I. It is the Contractor's responsibility to verify the applicable prevailing wage rate.
 - 1. L&I prevailing wage rates may be found at <https://lni.wa.gov/licensing-permits/public-works-projects/prevailing-wage-rates/>
 - 2. The Owner has determined that the work meets the definition of residential construction.
 - 3. The prevailing wage rates publication date is determined by the bid due date.
 - 4. The work is to be performed in King County.
 - 5. A copy of the prevailing wage rates is available at KCHA.
 - 6. A copy of the prevailing wage rates may be mailed on request.

1.10 TAXES

- A. All taxes imposed by law shall be included in the bid amount. The Contractor shall pay the WSST to the Department of Revenue and shall furnish proof of payment to the Owner if requested.

INSTRUCTIONS TO BIDDERS

- B. The retail sales tax does not apply to the gross contract price.
- C. Prime and subcontractors are required to pay retail sales tax upon all purchases of materials, including prefabricated and precast items, equipment, leases or rentals of tools, consumables, and other tangible personal property which is installed, applied, attached, or otherwise incorporated in their work.

1.11 INSURANCE

Must, for the duration of the contract, procure and maintain Builders Risk insurance as stated in Part 2 of the General Conditions. This shall be in addition to General Liability and Automobile Liability Coverage.

1.12 ASSURANCE OF COMPLETION

- A. Payment and performance bonds for 100% of the Contract Sum, including all Change Orders and taxes imposed by law, shall be furnished for the Work, and shall be in a form acceptable to the Owner.

1.13 BID ERROR

- A. In the event Bidder discovers an error in its bid, the Bidder may, under certain conditions and if before the date and time that bids are due, modify, their bid, as detailed below:
 - 1. Prior to Date and Time Bids are Due:
 - a. A Bidder may withdraw its bid at any time prior to the date and time bids are due upon written request.
 - b. After withdrawing an original submitted bid, a Bidder may modify and resubmit its bid at any time prior to the date and time bids are due.
 - 2. After the Date and Time Bids are Due:
 - a. A bidder who submits an erroneous low bid may withdraw the bid. 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.
 - b. Notification: Provide to the Owner, within 24 hours of bid opening, written notification of the bidder's intent to withdraw the bid due to error.
 - c. Documentation: Provide to the Owner within 48 hours of bid opening, documentation sufficient in content to justify bid withdrawal to the satisfaction of the Owner. Include description and evidence of the error.
 - d. Approval: the Owner will approve or reject the request for withdrawal in writing.
 - e. Any low bidder who withdraws its bid is prohibited from bidding on the same project if it is subsequently re-solicited.

1.14 ADDITIVE OR DEDUCTIVE BID ITEMS

INSTRUCTIONS TO BIDDERS

- A. The low bid, for purposes of award, shall be the lowest responsive bid from a qualified responsible bidder offering the low aggregate amount for the base bid, plus additive or deductive bid alternates selected by the Owner.

1.15 BID EVALUATION

- A. Responsive Bids: A bid will be considered responsive if it meets the conditions of the solicitation, in addition to but not limited to the following requirements:
 - 1. Bid is received not later than the time and date specified.
 - 2. Bid is submitted in the proper format on the form(s) provided.
 - 3. Bid includes the complete scope of work as defined in bid package.
 - 4. Bid does not include any exclusions or qualifications.
 - 5. Bid includes Unit and Lump Sum Costs as listed in Proposal Form.
 - 6. Forms are complete.
- B. After bid opening, bids will be checked for correctness of bid item prices, extensions and the total bid price. Discrepancies shall be resolved by accepting the bid item prices and the corrected extensions and total bid price.
- C. Responsible Bidders: the Owner will award contracts only to responsible bidders who demonstrate the ability to successfully perform under the terms and conditions as set forth in the Contract Documents and have successfully completed projects similar in scope and complexity.
 - 1. Bidders must demonstrate relevant experience on similar types of projects and submit detailed information as required on the Bidder Information Form.
- D. The Owner reserves the right to contact references and investigate past performance and qualifications of the Bidder, subcontractor, and project team members, including contacting third parties and/or the references provided by the Bidder.
 - 1. The Owner may contact references for other projects including those the Bidder did not identify and/or provided references.
 - 2. References may be asked to rate the performance of and describe their experience with project team members and subcontractors. Bidder Information may be solicited and evaluated on the following subjects: type and features of work; overall quality of project performance and quality of work; experience and technical knowledge and competence of the Bidder and Project Team Members; ability, capacity and skill to perform the Work; ability to manage submittals, requests for information, prevailing wage filings, and other paperwork; compliance with laws, ordinances, and contract provisions; and other information as deemed necessary.
 - 3. Poor reference(s) may be justification to determine a Bidder is not responsible.
- E. At the Owner's request, provide any additional explanation or information, which would assist in evaluating the qualifications of the Bidder, subcontractors, project team members, and bid price.
- F. The Owner will verify information submitted and if the lowest bidder is determined to be “not responsible,” the Owner will issue, in writing, the specific reasons for this determination. The bidder may appeal this decision. The appeal must be in writing and shall be delivered to the Owner within two business days. The appeal may include additional information that was not

INSTRUCTIONS TO BIDDERS

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.

1.16 CONTRACT AWARD

- A. Bonding and Insurance: Contract award will be contingent on ability to secure payment/performance bonding, and Contractor's ability to meet the Owner insurance requirements as detailed in the Bid Documents.
- B. Must, for the duration of the contract, procure and maintain Builders Risk insurance as stated in Part 2 of the General Conditions. This shall be in addition to General Liability, Automobile Liability, and Professional Liability/Errors and Omissions (if applicable) Coverage.
- C. Bonding, insurance certificate with endorsements, and an approved Statement of Intent to Pay Prevailing Wages shall be submitted to the Owner within 14 days of contract award. A Notice to Proceed shall be issued immediately after receipt.
- D. Right to Reject Bids/Waiver: The Owner reserves the right to reject any or all bids or to waive any informalities or irregularities in the bidding.
- E. Retainage Funds: The Owner will not pay interest to the Contractor for accounts where retainage funds are maintained by the Owner. As part of the procurement by which the Contractor was selected for this work, the Contractor agrees to waive any other options and has made allowances for this waiver.

GENERAL CONDITIONS

PART 1 - GENERAL PROVISIONS

1.1 DEFINITIONS

- A. "Authority Having Jurisdiction (AHJ)": A federal, state, local, or other regional department, or an individual such as a fire official, labor department, health department, building official, or other individual having statutory authority.
- B. "Contract Documents" means the Instructions to Bidders, Specifications, Plans, General Conditions, Prevailing Wage Rates, Bid Form, Contract Form, other Special Forms, Drawings and Specifications, and all Addenda and modifications thereof.
- C. "Contract Sum" is the total amount payable by Owner to Contractor for performance of the Work in accordance with the Contract Documents.
- D. "Contract Time" is the number of consecutive Days allotted in the Contract Documents for achieving completion of the Work.
- E. "Contracting Officer" means the person delegated the authority by King County Housing Authority to enter into, and/or terminate this Contract. The term includes any successor Contracting Officer and any duly authorized representative of the Contracting Officer.
- F. "Contractor" means the person or other entity entering into the Contract with King County Housing Authority to perform all of the services or work required under the Contract.
- G. "Day" means calendar day, unless otherwise specified.
- H. "Final Acceptance" means the acceptance by Owner that the Contractor has completed the requirements of the Contract Documents.
- I. "Force Majeure" means those acts entitling Contractor to request an equitable adjustment in the Contract Time, including, but not limited to, unusually severe weather conditions which could not have been reasonably anticipated.
- J. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
- K. "Install": Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.
- L. "Liquidated Damages" means the amount prescribed in the Contract Documents to be deducted from any payments due or to become due Contractor, for each day's delay in completion of the Work beyond the time allowed in the Contract Documents as stated in the Notice to Proceed, plus any extensions of such time.
- M. "Manager" means the person who is an authorized agent of the King County Housing Authority to administer the Contract.
- N. "Notice to Proceed" means a notice from Owner to Contractor that defines the date on which the Contract Time begins to run.
- O. "Owner" means the King County Housing Authority or its authorized representative with the authority to enter into, administer, and/or terminate the Work in accordance with the Contract Documents and make related determinations and findings.
- P. "Property Manager" means the property management company, its officers and employees.
- Q. "Provide": Furnish and install, complete and ready for the intended use.

GENERAL CONDITIONS

- R. "Subcontract" means any contract, purchase order, or other purchase agreement, including modifications and change orders to the foregoing, entered into by a Subcontractor to furnish supplies, materials, equipment, and services for the performance of the prime Contract or a subcontract.
- S. "Subcontractor" means any supplier, vendor, or firm that furnishes supplies, materials, equipment, or services to or for the Contractor or another Subcontractor.
- T. "Work" means the construction and services required by the Contract Documents, and includes, but is not limited to, labor, materials, supplies, equipment, services, permits, and the manufacture and fabrication of components, performed, furnished, or provided in accordance with the Contract Documents.

1.2 EXECUTION AND INTENT

- A. The intent of the Specifications and Drawings is to describe a complete Project to be constructed in accordance with the Contract Documents. Contractor shall furnish all labor, materials, equipment, tools, transportation, permits, and supplies, and perform the Work required in accordance with the Contract Documents.
- B. All work is to be executed in accordance with the Building Codes, as adopted by the Authority Having Jurisdiction, and other applicable codes and generally accepted industry standards. All products and materials are to be new and handled and applied in accordance with the manufacturer's recommendations.
- C. Contractor makes the following representations to Owner:
 - 1. The Contract Sum is reasonable compensation for the Work and the Contract Time is adequate for the performance of the Work, as represented by the Contract Documents;
 - 2. Contractor has carefully reviewed the Contract Documents, had an opportunity to visit and examine the Project site, has become familiar with the local conditions in which the Work is to be performed, and has satisfied itself as to the nature, location, character, quality and quantity of the Work, the labor, materials, equipment, goods, supplies, work, permits, services and other items to be furnished and all other requirements of the Contract Documents, as well as the surface and subsurface conditions and other matters that may be encountered at the Project site or affect performance of the Work or the cost or difficulty thereof.
- D. The Contract Documents are complementary. What is required by one part of the Contract Documents shall be binding as if required by all. Anything mentioned in the Specifications and not shown on the Drawings, or shown on the Drawings and not mentioned in the Specifications, shall be of like effect as if shown or mentioned in both.

PART 2 - INSURANCE AND BONDS

2.1 INSURANCE REQUIREMENTS FOR BUILDING TRADES CONTRACTORS

- A. Contractor shall procure and maintain for the duration of the contract insurance against claims for injuries to persons or damages to property that may arise from or in connection with the performance of the work hereunder by the Contractor, his agents, representatives, employees or Subcontractors.

2.2 MINIMUM SCOPE OF INSURANCE

- A. Contractors shall maintain coverages no less than:
 - 1. Insurance Services Office Commercial General Liability coverage including Products/Completed Operations.
 - 2. Insurance Services Office covering Automobile Liability, code 1 (any auto).
 - 3. Workers' Compensation insurance as required by State law and Employer's Liability Insurance.
 - 4. Builders Risk (Property / Course of Construction insurance covering for all risks of loss for all projects in excess of \$250,000.00).

GENERAL CONDITIONS

2.3 MINIMUM LIMITS OF INSURANCE

- A. Contractor shall maintain limits no less than:
1. General Liability: \$1,000,000 per occurrence 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 of \$2,000,000.
 2. Automobile Liability: \$1,000,000 per accident for bodily injury and property damage.
 3. Employer's Liability: \$1,000,000 per accident for bodily injury/sickness or disease.
 4. Builders Risk (Property) / Course of Construction: Completed value of project.

2.4 DEDUCTIBLES AND SELF INSURED RETENTION

- A. Any deductibles or self-insured retentions must be declared to and approved by the Owner. At the option of the Owner, either: the insurer shall reduce or eliminate such deductibles or self-insured retentions as respects the Owner, its officers, officials, employees and volunteers; or the Contractor shall provide a financial guarantee satisfactory to the Owner 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 Owner's interests.**

2.5 OTHER INSURANCE PROVISIONS

- A. The policies are to contain, or be endorsed to contain, the following provisions:
1. The Owner, the Property Manager, its officers, officials, employees, partners, agents and volunteers are to be covered as additional insureds under a "completed operations" type of additional insured endorsement with respect to general liability arising out of work or operations performed by or on behalf of the Contractor including materials, parts or equipment furnished in connection with 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 equivalent as long as it provides additional insured coverage, without limitation, 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 precede, 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.
 2. King County will not accept Certificates of Insurance Alone. Improperly Completed Endorsements will be returned to your insured for correction by an authorized representative of the insurance company.
 3. For any claims related to this project, the Contractor's insurance coverage shall be primary insurance as respects the Owner, its officers, officials, agents, partners, employees, and volunteers. Any insurance or self-insurance maintained or expired by the Owner, its officers, officials, agents, partners, employees, volunteers, or shall be excess of the Contractor's insurance and shall not contribute with it. King County Housing Authority's Insurance is Non-Contributory in Claims Settlement Funding.
 4. The "General description of agreement(s) and/or activity(s) insured" shall include reference to the activity and/or to either specific King County Housing Authority's; project of site name, contract number, lease number, permit number or construction approval number.
 5. 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] prior written notice by certified mail, return receipt requested, has been given to the Owner.
 6. 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.
 7. Builders Risk / Course of Construction policies shall contain the following provisions:
 - a. The King County Housing Authority shall be named as loss payee.
 - b. The insurer shall waive all rights of subrogation against the Owner and the Property Manager, its officers, officials, employees and volunteers.

GENERAL CONDITIONS

2.6 ACCEPTABILITY OF INSURERS

- A. Insurance is to be placed with insurers with a current A.M. Best's rating of no less than A-:VII. The name of the Insurance Company underwriting the coverage and its address shall be noted on the endorsement form. Contractors must provide written verification of their insurer's rating.

2.7 VERIFICATION OF COVERAGE

- A. Contractor shall furnish the Owner with original certificates and amendatory endorsements effecting coverage required by this clause. All certificates and endorsements are to be received and approved by the Owner before work commences in sufficient time to permit contractor to remedy any deficiencies. The Owner 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.

2.8 SUBCONTRACTORS

- A. Subcontractors shall include the Contractor as additional insured under their policies. All coverage's for subcontractors shall be subject to all of the requirements stated herein. Contractor shall be responsible for the adequacy of required coverages for subcontractors, and compile related certificates of insurance and endorsements evidencing subcontractors' compliance.

2.9 PAYMENT AND PERFORMANCE BONDS

- A. Payment and performance bonds for 100% of the Contract Award Amount shall be furnished for the Work, using the Payment Bond and Performance Bond form AIA – form A312. Change order increases of cumulative 15% increments require revisions to the bond to match the new Contract Sum.

PART 3 - PERFORMANCE

3.1 CONTRACTOR CONTROL AND SUPERVISION

- A. 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, and shall be responsible to Owner for acts and omissions of Contractor, Subcontractors, and their employees and agents.
- B. Contractor shall enforce strict discipline and good order among Contractor's employees and other persons performing the Work. Contractor shall not permit employment of persons not skilled in tasks assigned to them. Owner may, by Notice, request Contractor to remove from the Work or Project site any employee Owner reasonably deems incompetent, careless, or otherwise objectionable.
- C. The Contractor shall perform on the site, and with its own organization, work equivalent to at least 12% of the total amount of work to be performed under the contract.
- D. Work Hours: The Contractor's allowable hours of operation shall be limited to those hours between 8:00 A.M. and 6:00 P.M. Monday to Friday excluding public holidays.

3.2 PERMITS, FEES, AND NOTICES

- A. Unless otherwise provided in the Contract Documents, Contractor shall pay for and obtain all permits, licenses, and coordinate inspections necessary for proper execution and completion of the Work. Prior to final payment, the approved, signed permits shall be delivered to Owner.

3.3 PREVAILING WAGES

- A. Statutes of the State of Washington RCW 39.12 as amended shall apply to this contract. Requirements, in brief, are stated below:

GENERAL CONDITIONS

1. There shall be paid each laborer or mechanic of the Contractor or sub-Contractor engaged in work on the project under this contract in the trade or occupation listed in the schedule of Wage Rates, as determined by the Department of Labor and Industries, not less than the hourly wage rate listed therein, regardless of any contractual relationship which may be alleged to exist between the Contractor and any sub-contractor and such laborers and mechanics.
2. The "prevailing rate or wage" contained in the wage determination include health and welfare fund contributions and other fringe benefits collectively bargained for by the various management and labor organizations. Prevailing wages shall be paid based on the most recent semi-annual list as required by the Department of Labor and Industries (L&I).
3. In case any dispute arises as to what are the prevailing rates for wages of work of a similar nature, and such disputes cannot be resolved by the parties involved, including labor and management representatives, the matter shall be referred for arbitration to the Director of the Department of Labor and Industries of the State of Washington, and the Director's decision shall be final and conclusive and binding on all parties involved in the dispute.

B. Before commencing the Work, Contractor shall file a statement of "Intent to Pay Prevailing Wages."

C. After completion of the Work, Contractor shall file an "Affidavit of Wages Paid."

3.4 EQUAL EMPLOYMENT OPPORTUNITY

A. During performance of the Work:

1. Contractor shall not discriminate against any employee or applicant for employment because of race, creed, color, national origin, sex, age, marital status, the presence of any physical, sensory, or mental disability, sexual orientation, Vietnam-era veteran status, disabled veteran status or political affiliation, nor commit any unfair practices as defined in RCW 49.60.
2. The Contractor shall take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, national origin, of any physical, sensory, or mental disability, sexual orientation, Vietnam-era veteran status, disabled veteran status, or political affiliation.
3. The Contractor shall give all notices and comply with all applicable laws, ordinances, rules, regulations and orders in regard to Equal Employment Opportunity including but not limited to Executive Order 11246, as amended, Section 503 of the Rehabilitation Act of 1973, as amended, and the rules, regulations, and orders of the Secretary of Labor. The Contractor shall include the terms of this Clause in every subcontract so that such term shall be binding on each Subcontractor.
4. Non-Discrimination R.C.W. 49.60: These special requirements establish minimum requirements for affirmative action and are intended to define and implement the basic discrimination provisions of these specifications. Failure to comply with these requirements may constitute grounds for application of contract default.

3.5 SAFETY PRECAUTIONS

A. In performing this contract, the Contractor shall provide for protecting the lives and health of employees and other persons; preventing damage to property, materials, supplies, and equipment; and avoid work interruptions. For these purposes, the Contractor shall:

1. Follow Washington Industrial Safety and Health Act (WISHA) regional directives and provide a site-specific safety program that will require an accident prevention and hazard analysis plan for the contractor and each subcontractor on the work site. The Contractor shall submit a site-specific safety plan to the Owner's representative prior to the initial scheduled construction meeting.
2. Provide adequate safety devices and measures including, but not limited to, the appropriate safety literature, notice, training, permits, placement and use of barricades, signs, signal lights, ladders, scaffolding, staging, runways, hoist, construction elevators, shoring, temporary lighting, grounded outlets, wiring, hazardous materials, vehicles, construction processes, and equipment required by Chapter 19.27 RCW, State Building Code (Uniform Building, Electrical, Mechanical, Fire, and Plumbing Codes); Chapter 212-12 WAC, Fire Marshal Standards, Chapter 49.17 RCW, WISHA; Chapter 296-155 WAC, Safety Standards for Construction Work; Chapter 296-65 WAC; WISHA Asbestos Standard; WAC 296-62-071, Respirator Standard; WAC 296-62, General Occupation Health Standards, WAC 296-24, General Safety and Health Standards, WAC 296-24, General Safety and Health Standards, Chapter 49.70 RCW, and Right to Know Act.

GENERAL CONDITIONS

3. Comply with the State Environmental Policy Act (SEPA), Clean Air Act, Shoreline Management Act, and other applicable federal, state, and local statutes and regulations dealing with the prevention of environmental pollution and the preservation of public natural resources.
 4. Post all permits, notices, and/or approvals in a conspicuous location at the construction site.
 5. Provide any additional measures that the Owner determines to be reasonable and necessary for ensuring a safe environment in areas open to the public. Nothing in this part shall be construed as imposing a duty upon the Owner to prescribe safety conditions relating to employees, public, or agents of the Contractors.
- B. Contractor to maintain safety records: Contractor shall maintain an accurate record of exposure data on all incidents relating to the Work resulting in death, traumatic injury, occupational disease, or damage to property, materials, supplies, or equipment. Contractor shall immediately report any such incident to Owner. Owner shall, at all times, have a right of access to all records of exposure.
- C. Contractor to provide HazMat training: Contractor shall provide all persons working on the Project site with information and training on hazardous chemicals in their work at the time of their initial assignment, and whenever a new hazard is introduced into their work area.
1. Information. At a minimum, Contractor shall inform persons working on the Project site of:
 - a. WAC: The requirements of chapter 296-62 WAC, General Occupational Health Standards;
 - b. Presence of hazardous chemicals: Any operations in their work area where hazardous chemicals are present; and
 - c. Hazard communications program: The location and availability of written hazard communication programs, including the required list(s) of hazardous chemicals and material safety data sheets required by chapter 296-62 WAC.
 2. Training. At a minimum, Contractor shall provide training for persons working on the Project site which includes:
 - a. Detecting hazardous chemicals: Methods and observations that may be used to detect the presence or release of a hazardous chemical in the work area (such as monitoring conducted by the employer, continuous monitoring devices, visual appearance or odor of hazardous chemicals when being released, etc.);
 - b. Hazards of chemicals: The physical and health hazards of the chemicals in the work area;
 - c. Protection from hazards: The measures such persons can take to protect themselves from these hazards, including specific procedures Contractor, or its Subcontractors, or others have implemented to protect those on the Project site from exposure to hazardous chemicals, such as appropriate work practices, emergency procedures, and personal protective equipment to be used; and
 - d. Hazard communications program: The details of the hazard communications program developed by Contractor, or its Subcontractors, including an explanation of the labeling system and the material safety data sheet, and how employees can obtain and use the appropriate hazard information.
- D. Hazardous, toxic or harmful substances: Contractor's responsibility for hazardous, toxic, or harmful substances shall include the following duties:
1. Illegal use of dangerous substances: Contractor shall not keep, use, dispose, transport, generate, or sell on or about the Project site, any substances now or hereafter designated as, or which are subject to regulation as, hazardous, toxic, dangerous, or harmful by any federal, state or local law, regulation, statute or ordinance (hereinafter collectively referred to as "hazardous substances"), in violation of any such law, regulation, statute, or ordinance, but in no case shall any such hazardous substance be stored on the Project site.
 2. Contractor notifications of spills, failures, inspections, and fines: Contractor shall promptly notify Owner of all spills or releases of any hazardous substances which are otherwise required to be reported to any regulatory agency and pay the cost of cleanup. Contractor shall promptly notify Owner of all failures to comply with any federal, state, or local law, regulation, or ordinance; all inspections of the Project site by any regulatory entity concerning the same; all regulatory orders or fines; and all responses or interim cleanup actions taken by or proposed to be taken by any government entity or private party on the Project site.

GENERAL CONDITIONS

- E. Public safety and traffic: All Work shall be performed with due regard for the safety of the public. Contractor shall perform the Work so as to cause a minimum of interruption of vehicular traffic or inconvenience to pedestrians. All arrangements to care for such traffic shall be Contractor's responsibilities. All expenses involved in the maintenance of traffic by way of detours shall be borne by Contractor.
- F. Contractor to act in an emergency: In an emergency affecting the safety of life or the Work or of adjoining property, Contractor is permitted to act, at its discretion, to prevent such threatened loss or injury, and Contractor shall so act if so authorized or instructed.
- G. No duty of safety by Owner: Nothing provided in this section shall be construed as imposing any duty upon Owner with regard to, or as constituting any express or implied assumption of control or responsibility over, Project site safety, or over any other safety conditions relating to employees or agents of Contractor or any of its Subcontractors, or the public.

3.6 INDEPENDENT CONTRACTOR

- A. The Contractor and Owner agree the Contractor is an independent contractor with respect to the services provided pursuant to this Contract. Nothing in this Contract shall be considered to create a relationship of employer and employee between the parties hereto. Neither the Contractor nor any employee of the Contractor shall be entitled to any benefits accorded Owner employees by virtue of the services provided under this Contract. The Owner shall not be responsible for withholding or otherwise deducting federal income tax or social security or contributing to the State Industrial Insurance Program, or otherwise assuming the duties of an employer with respect to the Contractor, or any employees of the Contractor.

3.7 OPERATIONS, MATERIAL HANDLING, AND STORAGE AREAS

- A. Contractor shall confine all operations, including storage of materials, to Owner-approved areas.
- B. Contractor shall be responsible for the proper care and protection of its materials and equipment delivered to the Project site.
- C. Contractor shall protect and be responsible for any damage or loss to the Work, or to the materials or equipment until the date of Final Acceptance, and shall repair or replace without cost to Owner any damage or loss that may occur.

3.8 PRIOR NOTICE OF EXCAVATION

- A. Prior to any excavation Contractor shall engage a locate service for all underground facilities or utilities. Contractor shall pay all fees for locator services and pay for all damages caused by excavation.

3.9 UNFORESEEN PHYSICAL CONDITIONS

- A. Notice requirement for concealed or unknown conditions: If Contractor encounters conditions at the site which are subsurface or otherwise concealed physical conditions which differ materially from those indicated in the Contract Documents, or unknown physical conditions of an unusual nature which 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, then Contractor shall give written notice to Owner promptly and in no event later than seven Days after the first observance of the conditions. Conditions shall not be disturbed prior to such notice.
- B. Adjustment in Contract Time and Contract Sum: If such conditions differ materially and cause a change in Contractor's cost of, or time required for, performance of any part of the Work, the Contractor may be entitled to an equitable adjustment in the Contract Time or Contract Sum, or both, provided it makes a request therefore as provided in Part 5.

GENERAL CONDITIONS

- 3.10 PROTECTION OF EXISTING STRUCTURES, EQUIPMENT, VEGETATION, UTILITIES, AND IMPROVEMENTS
- A. Contractor shall protect from damage all existing conditions, including soils, structures, equipment, improvements, utilities, and vegetation at or near the Project site; and on adjacent property of a third party, the locations of which are made known to or should be known by Contractor. Contractor shall repair any damage, including that to the property of a third party, resulting from failure to comply with the requirements of the Contract Documents, any defects of equipment, material, workmanship or design furnished by the Contractor, or failure by Contractor or subcontractor at any tier to exercise reasonable care in performing the Work. If Contractor fails or refuses to repair the damage promptly, Owner may have the necessary work performed and charge the cost to Contractor.
 - B. New work which connects to existing work shall correspond in all respects with that to which it connects and/or be similar to existing work unless otherwise required by the Specifications.
- 3.11 MATERIAL AND EQUIPMENT
- A. All equipment, material, and articles incorporated into the Work shall be new and of the most suitable grade for the purpose intended, unless otherwise specifically provided in the Contract Documents. References in the Specifications to equipment, material, articles, or patented processes by trade name, make, or catalog number, shall be regarded as establishing a standard quality and shall not be construed as limiting competition. Contractor may, at its option, use any equipment, material, article, or process that, in the judgment of Owner, is equal to that named in the Specifications, unless otherwise specifically provided in the Contract Documents.
 - B. Substitutions shall be considered where qualities and attributes including, but not limited to, cost, performance, weight, size, durability, visual effect, and specific features and requirements indicated are deemed equal or better by the Owner at the Owner's sole discretion. All requests for substitutions shall be made in writing to Owner and shall not be deemed to be approved unless approved in writing by Owner.
- 3.12 CORRECTION OF NONCONFORMING WORK
- A. Contractor shall promptly correct Work found by Owner not to conform to the requirements of the Contract Documents, whether observed before or after Final Acceptance.
 - B. If Contractor fails to correct nonconforming Work, Owner may replace, correct, or remove the nonconforming Work and charge the cost thereof to the Contractor.
- 3.13 CLEAN UP
- A. Contractor shall at all times keep the Project site, including hauling routes, infrastructures, utilities, and storage areas, free from accumulations of waste materials. Before completing the Work, Contractor shall remove from the premises its rubbish, tools, scaffolding, equipment, and materials. Upon completing the Work, Contractor shall leave the Project site in a clean, neat, and orderly condition satisfactory to Owner. If Contractor fails to clean up as provided herein, and after reasonable notice from Owner, Owner may do so and the cost thereof shall be charged to Contractor.
- 3.14 SUBCONTRACTORS AND SUPPLIERS
- A. Contractor shall utilize Subcontractors and suppliers which are experienced and qualified.
 - B. By appropriate written agreement, Contractor shall require each Subcontractor to be bound to Contractor by terms of those Contract Documents, and to assume toward Contractor all the obligations and responsibilities which Contractor assumes toward Owner in accordance with the Contract Documents. Each Subcontract shall preserve and protect the rights of Owner in accordance with the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights. Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. However, nothing in this paragraph shall be construed to alter the contractual relations between Contractor and its Subcontractors with respect to insurance or bonds.

GENERAL CONDITIONS

- C. Contractor shall schedule, supervise, and coordinate the operations of all Subcontractors. No Subcontracting of any of the Work shall relieve Contractor from its responsibility for the performance of the Work in accordance with the Contract Documents or any other obligations of the Contract Documents.
- D. It is the Contractor's responsibility to pay its Subcontractors and material suppliers on a timely basis. The Owner reserves the right to withhold a portion of the Contractor's payment if the Contractor fails to make timely payments to the Subcontractors and material suppliers.
- E. The Contract Documents shall not be construed to create a contractual relationship of any kind between the Owner and any Subcontractor; or any persons other than Owner and Contractor.
- F. The Contractor shall not enter into any subcontract with any subcontractor who has been suspended or debarred from participating in contracting programs by any agency of the United States Government or by any state, territory, or municipality.

3.15 INDEMNIFICATION

- A. The Contractor hereby agrees to indemnify, defend, and hold harmless the Authority, its successors and assigns, director, officers, officials, employees, agents, partners and volunteers (all foregoing singly and collectively (Indemnities")) from a and against any and all claims, losses, harm costs, liabilities, damages and expenses, including, but not limited to, reasonable attorney's fees arising or resulting from the performance of the services, 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 of this Contract.
- B. Provided, however, that the Contractor will not be required to indemnify, defend, or save harmless the indemnitee as provided in the preceding paragraphs of this section if the claim, suit, or action for injuries, death, or damages is caused by the sole negligence of the indemnitee. Where such claims, suites, or actions result from the concurrent negligence of (a) the indemnitee or the indemnitee's agents or employees and (b) the Contractor or the Contractor's agent or employee, the indemnity provisions provided in the preceding paragraphs of this section shall be valid and enforceable only to the extent of the Contractor's negligence or the negligence of its agents and employees..
- C. The foregoing indemnity is specifically and expressly intended to constitute a waiver of the Contractor's immunity under Washington's Industrial Insurance act, RCW Title 51. The parties acknowledge that these provisions were specifically negotiated and agreed upon by them. If any portion of this indemnity clause is invalid or unenforceable, it shall be deemed excised and the remaining portions of the clause shall be given full force and effect.
- D. 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 the Owner as indemnity, and failure to do so shall constitute a material breach of this Contract by the Contractor.

3.16 PROHIBITION AGAINST LIENS

- A. The Contractor is prohibited from placing a lien on the Owner's property. This prohibition shall apply to all subcontractors of any tier and all materials suppliers, in accordance with RCW 35.82.190.

3.17 DAMAGES FOR FAILURE TO ACHIEVE TIMELY COMPLETION

- A. Liquidated Damages
 - 1. Timely performance and completion of the Work is essential to Owner and time limits stated in the Contract Documents are of the essence. The liquidated damage amounts set forth will be assessed not as a penalty, but as liquidated damages for breach of the Contract Documents. This amount is fixed and agreed upon by and between the Contractor and Owner because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages the Owner would in such event sustain. This amount shall be construed as the actual amount of damages sustained by the Owner, and may be retained by the Owner and deducted from any payments to the Contractor.

GENERAL CONDITIONS

2. If different completion dates are specified in the contract for separate parts or stages of the work, the amount of liquidated damages shall be assessed on those parts or stages which are delayed.

3.18 WAIVER AND SEVERABILITY

- A. The failure or delay of either party to insist on performance of any provision of the Contract, or to exercise any right or remedy available under the Contract, shall not be construed as a waiver of that provision, right, or remedy in any later instance. Waiver or breach of any provision of the Contract shall not be construed to be a waiver of any other or subsequent breach and shall not be construed to be a modification of the terms of the Contract, unless the Contract is modified pursuant to the Clause entitled "Contract Modifications" herein.
- B. If any provision of the Contract is or becomes void or unenforceable by operation of law, the remaining provisions shall be valid and enforceable.

PART 4 - PAYMENTS AND COMPLETION

4.1 CONTRACT SUM

- A. The Contract Sum shall include all taxes imposed by law and properly chargeable to the Project, including sales tax. The Contractor shall pay the WSST to the Department of Revenue and shall furnish proof of payment to the Owner if requested.
- B. The retail sales tax does not apply to the gross contract price.
- C. Prime and subcontractors are required to pay retail sales tax upon all purchases of materials, including prefabricated and precast items, equipment, leases or rentals of tools, consumables, and other tangible personal property which is installed, applied, attached, or otherwise incorporated in their work.

4.2 APPLICATION FOR PAYMENT

- A. At monthly intervals, unless determined otherwise by Owner, Contractor shall submit to Owner an Application for Payment for Work completed in accordance with the Contract Documents. Each application shall be supported by such substantiating data as Owner may require.
- B. Each invoice shall include the following statement: "I hereby certify that the items listed are proper charges for materials, merchandise or services provided to the King County Housing Authority, and that all goods and/or services have been provided; that prevailing wages have been paid in accordance with the approved statements of intent filed with the Department of Labor and Industries; and that sub-contractors and/or suppliers have been paid, less earned retainage, as their interest appears in the last payment received."
- C. Coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule. Each Application for Payment shall be consistent with previous applications and payments.
- D. Owner shall retain 5% of the amount of each progress payment until 45 Days after Final Acceptance and receipt of all documents required by law or the Contract Documents, including releases by Washington State Employment Security Department and Washington State Department of Revenue, Department of Labor & Industries, and consent of surety to release of the retainage.
- E. Waivers of Lien: With each Application for Payment, submit conditional waivers lien from every entity who is lawfully entitled to file a lien arising out of the Contract and related to the Work covered by the payment.
 1. Submit partial waivers on each item for amount requested, before deduction for retainage, on each item.
 2. When an application shows completion of an item, submit final or full waivers.
 3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
 - a. Submit final Application for Payment with or preceded by final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.

GENERAL CONDITIONS

- F. Final Payment Application: Submit final Application for Payment with releases and close out supporting documentation.
- G. Approved payments shall be mailed to the Contractor within 30 days.

4.3 FINAL COMPLETION, ACCEPTANCE, AND PAYMENT

- A. The Owner shall make a final inspection of the Work on receipt of (1) written notice from the Contractor that the Work is ready for final inspection and (2) a final Application for Payment. When the Owner finds the Work acceptable and fully performed under the Contract Documents, and the Contractor has delivered to the Owner all warranties, permits, and operations manuals, the Owner will issue a Notice of Final Completion.
- B. Acceptance of final payment by Contractor, or any Subcontractor, shall constitute a waiver and release to Owner of all claims by Contractor, or any such Subcontractor, for an increase in the Contract Sum or the Contract Time, and for every act or omission of Owner relating to or arising out of the Work, except for those Claims made in accordance with the procedures, including the time limits, set forth in PART 7 - .

PART 5 - CHANGES

5.1 CHANGE IN THE WORK

- A. Owner may, at any time and without notice to Contractor's surety, order additions, deletions, revisions, or other changes in the Work. These changes in the Work shall be incorporated into the Contract Documents through the execution of Change Orders. If any change in the Work ordered by Owner causes an increase or decrease in the Contract Sum or the Contract Time, an equitable adjustment shall be made as provided in 5.2 and 5.3.
- B. Pending agreement on the terms of the Change Order, Owner may direct Contractor to proceed immediately with the Change Order Work. Contractor shall not proceed with any change in the Work until it has obtained Owner's approval.
- C. The Contractor agrees that any change in the Contract Amount or Contract Time provided in a Change Order is full and complete compensation to the Contractor for the change(s) to the work, deleted work, modified work, direct or indirect impact on the Contractor's schedule, and for any equitable adjustment or time extension to which the Contractor may be entitled to in this Change Order, pursuant to the Contract between the Owner and Contractor.

5.2 CHANGE IN THE CONTRACT SUM

- A. Change Order Pricing - Fixed Price: When the fixed price or time and materials method is used to determine the value of any Work covered by a Change Order, or of a request for an equitable adjustment in the Contract Sum, the following procedures shall apply:
 - 1. Contractor's Change Order proposal, or request for adjustment in the Contract Sum, shall be accompanied by a complete itemization of the costs, including labor, material, subcontractor costs, and overhead and profit. The costs shall be itemized in the manner set forth below, and shall be submitted on breakdown sheets with documentation in a form approved by Owner.
 - 2. Any request for adjustment of Contract Sum shall include only the following items:
 - a. Craft labor costs for Contractors and Subcontractors.
 - 1) Basic wages and benefits: Hourly rates and benefits according to applicable prevailing wages.
 - 2) Direct supervision shall not to exceed 15% of the cost of direct labor. No supervision markup shall be allowed for a working supervisor's hours.
 - 3) Worker's Insurance. Direct contributions to the State for industrial insurance, medical aid, and supplemental pension by the class and rates established by L&I.
 - 4) Federal Insurance. Direct contributions required by the Federal Insurance Compensation Act; Federal Unemployment Tax Act; and the State Unemployment Compensation Act.
 - 5) Safety and small tools: 4% of the sum of the amounts calculated in (1), (2), and (3) above.

GENERAL CONDITIONS

- b. Material Costs: Material costs and applicable sales tax shall be developed from actual known costs, supplier quotations or standard industry pricing guides and shall consider all available discounts. Freight costs, express charges, or special delivery charges shall be itemized.
- c. Equipment Costs: Itemization of the type of equipment and the estimated or actual length of time the equipment appropriate for the Work is or will be used on the change in the Work. Costs will be allowed for equipment and applicable sales tax only if used solely for the changed Work, or for additional rental costs actually incurred by the Contractor. The Date Quest Rental Rate (Blue Book) shall be used as a basis for establishing rental rates of equipment not listed in the above sources. The maximum rate for standby equipment shall not exceed 50% of the applicable rate.
- d. Allowance for Overhead: This allowance shall compensate Contractor for all noncraft labor, temporary construction facilities, field engineering, schedule updating, as-built drawings, home office cost, B&O taxes, office engineering, estimating costs, additional overhead because of extended time and any other cost incidental to the change in the Work. This allowance shall be strictly limited in all cases an amount not to exceed the following:
 - 1) For Contractor, for any Work actually performed by Contractor's own forces, 16% of the cost.
 - 2) For each Subcontractor (including lower tier subcontractors), for any Work actually performed by its own forces, 16% of the cost.
 - 3) For Contractor, for any Work performed by its Subcontractor(s), 6% of the amount due each Subcontractor.
 - 4) For each Subcontractor, for any Work performed by its Subcontractor(s) of any lower tier, 5% of the amount due the sub-Subcontractor.
- e. Allowance for Profit:
 - 1) For Contractor or Subcontractor of any tier for work performed by their forces, 5% of the cost developed in accordance with subsections a, b & c above.
 - 2) For Contractor or Subcontractor of any tier for work performed by a subcontractor of a lower tier, 5% of the Subcontractor cost.
- f. Insurance or Bond Premium: The costs of any change or additional premium of Contractor's liability insurance and public works bond arising directly from the changed Work. The costs of any change in insurance or bond premium shall be added after overhead and profit are calculated.

B. Change Order Pricing - Unit Prices

- 1. Work on a unit-price basis as stated in the Specifications and at the price submitted in the Bid Form or as subsequently modified.
 - a. Unit prices shall include reimbursement for all direct and indirect costs of the Work, including overhead and profit, and bond and insurance costs; and
 - b. Quantities must be supported by field measurement verified by Owner.

5.3 CHANGE IN THE CONTRACT TIME

- A. The Contract Time shall only be changed by a Change Order. Contractor shall immediately notify Owner, and shall include any request for a change in the Contract Time in its Change Order proposal.
- B. If the time of Contractor's performance is changed due to an act of Force Majeure, Contractor shall request for an equitable adjustment in the Contract Time in writing within 24-hours of the occurrence.

PART 6 - CLAIMS AND DISPUTE RESOLUTION

6.1 CLAIMS PROCEDURE

- A. If the parties fail to reach agreement regarding any dispute arising from the Contract Documents, Contractor's only remedy shall be to file a Claim with Owner within 30 Days from Owner's final offer.

GENERAL CONDITIONS

- B. The Claim shall be deemed to cover all changes in cost and time (including direct, indirect, impact, and consequential) to which Contractor may be entitled. It shall be fully substantiated and documented.
- C. After Contractor has submitted a fully-documented Claim, Owner shall respond, in writing, to Contractor with a decision within 30 Days from the date the Claim is received.
- D. Contractor shall proceed with performance of the Work pending final resolution of any Claim. Owner's written decision as set forth above shall be final and conclusive as to all matters set forth in the Claim.
- E. Any Claim of the Contractor against the Owner for damages, additional compensation, or additional time, shall be conclusively deemed to have been waived by the Contractor unless timely made in accordance with the requirements of this section.

6.2 ARBITRATION

- A. If Contractor disagrees with Owner's decision rendered in accordance with paragraph 6.1C, Contractor shall provide Owner with a written demand for arbitration. No demand for arbitration of any such Claim shall be made later than 30 Days after the date of Owner's decision on such Claim; failure to demand arbitration within said 30 Day period shall result in Owner's decision being final and binding upon Contractor and its Subcontractors.
 - 1. Notice of the demand for arbitration shall be filed with the American Arbitration Association (AAA), with a copy provided to Owner. The parties shall negotiate or mediate under the Voluntary Construction Mediation Rules of the AAA, or mutually acceptable service.
- B. All Claims arising out of the Work shall be resolved by arbitration. The judgment upon the arbitration award may be entered, or review of the award may occur, in the superior court having jurisdiction thereof. No independent legal action relating to or arising from the Work shall be maintained.

6.3 CLAIMS AUDITS

- A. All Claims filed against Owner shall be subject to audit at any time following the filing of the Claim. Failure of Contractor, or Subcontractors of any tier, to maintain and retain sufficient records to allow Owner to verify all or a portion of the Claim or to permit Owner access to the books and records of Contractor, or Subcontractors of any tier, shall constitute a waiver of the Claim and shall bar any recovery.
 - 1. In support of Owner audit of any Claim, Contractor shall promptly make available to Owner all records relating to the Work.

PART 7 - TERMINATION OF THE WORK

7.1 TERMINATION BY OWNER FOR CAUSE

- A. Owner may, upon a written Notice to Contractor and to its surety, terminate (without prejudice to any right or remedy of Owner) the Work, or any part of it, for cause upon the occurrence of any one or more of the following events:
 - 1. Contractor fails to prosecute the Work or any portion thereof with sufficient diligence to ensure Completion of the Work within the Contract Time;
 - 2. Contractor is adjudged bankrupt, makes a general assignment for the benefit of its creditors, or a receiver is appointed on account of its insolvency;
 - 3. Contractor fails in a material way to replace or correct Work not in conformance with the Contract Documents;
 - 4. Contractor repeatedly fails to supply skilled workers or proper materials or equipment;
 - 5. Contractor repeatedly fails to make prompt payment due to Subcontractors, suppliers, or for labor;
 - 6. Contractor materially disregards or fails to comply with laws, ordinances, rules, regulations, or orders of any public authority having jurisdiction; or
 - 7. Contractor is otherwise in material breach of any provision of the Contract Documents.

BID FORM

PROJECT NAME AND LOCATION:

**Electrical Panel Replacement
Meadowbrook Apartments**

Contract Number: DW2403031

BID FORM

The undersigned, Legal Name of Bidder: _____

on this date: _____, 2024, having familiarized him/herself with the contract documents, site conditions, and has field verified all measurements contained in the project manual as prepared by the Owner, hereby proposes to furnish labor, materials and necessary equipment – all including, but not limited to, demolition, disposal, new installation and the required applicable taxes and fees to complete the work for the following bid amounts:

BASE BID _____ (\$ _____)
(Including sales tax indicated in Instructions to Bidders)

ADDENDA _____
Acknowledge receipt of any addenda by inserting the number(s) above

In submitting this bid, it is understood that the right is reserved by the Owner to reject any and all bids. The undersigned hereby agrees that this proposal shall be a valid and firm offer for a period of Sixty (60) calendar days from the date of Bid Opening.

Bidder agrees that Work will be substantially complete and ready for final payment in accordance with the Contract Documents on or before the date, within the number of calendar days indicated.

The undersigned Bidder hereby certifies that, within the three-year period immediately preceding the bid solicitation date for this Project, 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 Department of Labor and Industries or through a civil judgment entered by a court of limited or general jurisdiction.

I certify (or declare) under penalty of perjury under the laws of the State of Washington that the foregoing is true and correct.

Signature of Bidder

Print Your Name

Submitted on _____ day of _____ 2024

City

State

BIDDER INFORMATION

BIDDER INFORMATION

Name of Bidder (Company): _____

Address: _____

Contact Name: _____

Phone Number: _____ Email Address: _____

Business Type: General Contractor () Other () (Please specify): _____

Bidder is a(n): Individual Partnership Joint Venture Incorporated in the state of _____

List business names & associated UBI # used by Bidder during the past 5 years if different than above:

Bidder has been in business continuously from: _____
Month, Year

Business License #: _____ Federal ID #: _____

Current UBI #: _____ Dept. of L&I Worker's Comp. Acct. #: _____

Bidder has experience in work "Similar in Scope and Complexity" comparable to that required for this Project:

As a prime contractor for _____ years. As a subcontractor for _____ years.

OWNER(S) OF COMPANY (List all owners):	OWNER'S SOCIAL SECURITY NUMBER (only required if sole proprietorship):

No. of regular full-time employees other than owner(s): _____

Indicate clearly the kind of work your company will actually perform in this project:

Approximate % of work your company will actually perform: _____

List the supervisory personnel to be employed by the Bidder and available for, and intended to, work on this project:

<u>Name</u>	<u>Title</u>	<u>How Long With Bidder</u>

BIDDER INFORMATION

SUBCONTRACTORS

Do you intend to use Subcontractor(s) in this project? Yes No (If yes, you must show the name of the subcontractors. Attach additional pages as necessary.)

Subcontractors Name	Subcontractor's UBI#	Phone Number	Trade	Years in Business
1.				
2.				
3.				
4.				
5.				

BIDDER'S EXPERIENCE

Projects successfully supervised and completed by your company for work of similar scope and value as specified in bid documents in the last 5 years. Attach additional pages as necessary.

Name of Project	Completion Date	Duration (Months)	Nature of Work	Amount of Contract
1.				
2.				
3.				
4.				
5.				

Owner's Name (of project listed above)	Project Address	Contact Person	Phone Number
1.			
2.			
3.			
4.			
5.			

Has Bidder ever been found guilty of violating any State or Federal employment laws? No Yes
If yes, give details & attach additional pages as necessary:

Has Bidder ever filed for protection under any provision of the federal bankruptcy laws or state insolvency laws?
 No Yes If yes, give details & attach additional pages as necessary:

BIDDER INFORMATION

Has any lien, claim and/or adverse legal action related to construction been rendered against Bidder in the past five years? (i.e., open claims, lawsuits, warrants, judgements including but not limited to those that would show on the L&I website) No Yes If yes, give details & attach additional pages as necessary:

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? No Yes
If yes, please state:

<u>Date</u>	<u>Type of Injury</u>	<u>Agency Receiving Claim</u>
_____	_____	_____
_____	_____	_____

Bidders current Experience Modification Rate (EMR): _____

(If Bidder is self-insured, attach proof of EMR stated, showing complete worksheet calculations)

The bidder hereby certifies that the information contained in this Bidder's Information is accurate, complete and current.

BY: _____ NAME: _____
(signature) (print)

TITLE: _____ DATE: _____

GENERAL CONDITIONS

- B. Upon termination, Owner may at its option:
 - 1. Take possession of the Project site and take possession of or use all materials, equipment, tools, and construction equipment and machinery thereon owned by Contractor to maintain the orderly progress of, and to finish, the Work;
 - 2. Finish the Work by whatever other reasonable method it deems expedient.
- C. Owner's rights and duties upon termination are subject to the prior rights and duties of the surety, if any, obligated under any bond provided in accordance with the Contract Documents.
- D. When Owner terminates the Work in accordance with this section, Contractor shall take the actions set forth in paragraph 7.2B, and shall not be entitled to receive further payment until the Work is accepted.
- E. If the unpaid balance of the Contract Sum exceeds the cost of finishing the Work, including compensation for A/E services and expenses made necessary thereby and any other extra costs or damages incurred by Owner in completing the Work, or as a result of Contractor's actions, such excess shall be paid to Contractor. If such costs exceed the unpaid balance, Contractor shall pay the difference to Owner. Contractor shall also be liable for liquidated damages until such reasonable time as may be required for Completion. These obligations for payment shall survive termination.
- F. Termination of the Work in accordance with this section shall not relieve Contractor or its surety of any responsibilities for Work performed.
- G. If Owner terminates Contractor for cause, and it is later determined that none of the circumstances set forth in 7.1A exist, then such termination shall be deemed a termination for convenience pursuant to 7.2.

7.2 TERMINATION BY OWNER FOR CONVENIENCE

- A. Owner may, upon Notice, terminate (without prejudice to any right or remedy of Owner) the Work, or any part of it, for the convenience of Owner.
- B. Unless Owner directs otherwise, after receipt of a Notice of termination for either cause or convenience, Contractor shall promptly:
 - 1. Stop performing Work on the date and as specified in the notice of termination;
 - 2. Place no further orders or subcontracts for materials, equipment, services or facilities, except as may be necessary for completion of such portion of the Work as is not terminated;
 - 3. Cancel all orders and subcontracts, upon terms acceptable to Owner, to the extent that they relate to the performance of Work terminated;

PART 8 - MISCELLANEOUS PROVISIONS

8.1 RECORDS KEEPING AND REPORTING

- A. The Contractor and all Subcontractors 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.
- B. The Contractor, and its Subcontractors, shall maintain these records for a period of six (6) years after the date of Final Acceptance.

8.2 AUDITS AND INSPECTIONS

- A. 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.

GENERAL CONDITIONS

8.3 ORGANIZATION CONFLICTS OF INTEREST

- A. 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 work under this Contract and the Contractor's organizational, financial, contractual or other interests are such that:
 - 1. Award of the Contract may result in an unfair competitive advantage; or
 - 2. The Contractor's objectivity in performing the Contract work may be impaired.
- B. 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 intends 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.
- C. 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.
- D. The provisions of this Clause shall be included in all subcontracts and consulting agreements wherein the work to be performed is similar to the services provided by the Contractor. The Contractor shall include in such subcontracts and consulting agreements any necessary provisions to eliminate or neutralize conflicts of interest.

8.4 INTERESTS OF MEMBERS OF CONGRESS

- A. 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.

8.5 INTERESTS OF MEMBERS, OFFICERS, COMMISSIONERS AND EMPLOYEES, OR FORMER MEMBERS, OFFICERS AND EMPLOYEES

- A. No member, officer, or employee of the 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 locality or localities 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.

CONTRACT FORM

This Contract is entered into by and between the King County Housing Authority, hereinafter referred to as the "Owner" whose principal office is located at 600 Andover Park West, Seattle, WA 98188 and [Name of Contractor], referred to as the "Contractor", whose principal office is located at [Contractor's Address].

IN CONSIDERATION OF the mutual benefits and conditions hereinafter contained, the parties hereto agree as follows:

1.1 Contract Documents

A. The provisions set forth in the Contract Documents are hereby incorporated into and made part of the Contract. Contractor acknowledges receipt and review of all Contract Documents applicable to performance of the work. The Contract shall consist of the following component parts:

1. This Instrument
2. Addenda
3. Specifications
4. Plans
5. Bid Form
6. Pre-Bid Agenda
7. General Conditions
8. Instructions to Bidders
9. Prevailing Wage Rates
10. Performance and Payment Bonds
11. Hazardous Material Report

1.2 Scope of Services to be Performed by the Contractor: The Contractor shall provide all labor, materials, tools, equipment, transportation, supplies, and incidentals required to complete the work in accordance with the Contract Documents for:

Project: Electrical Panel Replacement at Meadowbrook Apartments

Contract No.: DW2403031

1.3 Compensation: The total amount of the Contract shall be [\$\$\$] dollars and [¢¢] cents (\$[\$\$\$.\$\$]) subject to additions and deductions provided therein.

1.4 Duration of Contract: The Contractor shall commence work after receipt of Notice to Proceed, follow the schedule specified in the contract documents, and all work must be completed within [Contract Duration] ([##]) consecutive calendar days from the date of the Notice to Proceed unless sooner terminated pursuant to the General Conditions. Upon expiration of the original Contract term, the Contract, at the Owner's sole discretion, may be extended for a period determined by the Owner.

1.5 Liquidated Damages: Timely performance and completion of the Work is essential to Owner and time limits stated in the Contract Documents are of the essence. If Completion of the Work does not occur within the Contract Time, the Contractor agrees that Liquidated Damages in the amount of **\$250.00** per day will be assessed for each calendar day that the Contractor exceeds the time for completion.

The individuals signing this Contract warrant and represent for themselves and for their respective organizations that they are duly authorized to sign this Contract and that upon such signing their respective organizations are bound thereby.

DATED this _____ day of _____, 2024

Contractor

Owner

President/Owner

Robin Walls
President/CEO
KING COUNTY HOUSING AUTHORITY

CERTIFICATE OF INSURANCE

DATE(MM/DD/YY)

Issue Date

PRODUCER Vendor's Insurance Agent Street Address City, State, Zip Phone Number	<p>THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.</p> <p style="text-align: center;">COMPANIES AFFORDING COVERAGE</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%; text-align: center;">COMPANY A</td> <td>ABC Insurance Company</td> </tr> <tr> <td style="text-align: center;">COMPANY B</td> <td>DEF Insurance Company</td> </tr> <tr> <td style="text-align: center;">COMPANY C</td> <td>GHI Insurance Company</td> </tr> <tr> <td style="text-align: center;">COMPANY D</td> <td></td> </tr> </table>	COMPANY A	ABC Insurance Company	COMPANY B	DEF Insurance Company	COMPANY C	GHI Insurance Company	COMPANY D	
COMPANY A	ABC Insurance Company								
COMPANY B	DEF Insurance Company								
COMPANY C	GHI Insurance Company								
COMPANY D									
INSURED Vendor Name Street Address City, State, Zip									

COVERAGES

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

CO LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS	
A	GENERAL LIABILITY	XXX123	01/01/00	01/01/01	GENERAL AGGREGATE	2,000,000
	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY				PRODUCTS-COMP/OP AGG	1,000,000
	<input type="checkbox"/> CLAIMS MADE <input checked="" type="checkbox"/> OCCUR				PERSONAL & ADV INJURY	1,000,000
	<input type="checkbox"/> OWNER'S & CONTRACTOR'S PROT				EACH OCCURRENCE	1,000,000
					FIRE DAMAGE (Any one fire)	50,000
					MED EXP (Any one person)	5,000
B	AUTOMOBILE LIABILITY	XXX456	01/01/00	01/01/01	COMBINED SINGLE LIMIT	1,000,000
	<input checked="" type="checkbox"/> ANY AUTO				BODILY INJURY (Per person)	
	<input type="checkbox"/> ALL OWNED AUTOS				BODILY INJURY (Per accident)	
	<input checked="" type="checkbox"/> SCHEDULED AUTOS				PROPERTY DAMAGE	
<input type="checkbox"/> HIRED AUTOS						
<input type="checkbox"/> NON-OWNED AUTOS						
GARAGE LIABILITY					AUTO ONLY-EA ACCIDENT	
<input type="checkbox"/> ANY AUTO					OTHER THAN AUTO ONLY:	
					EACH ACCIDENT	
					AGGREGATE	
EXCESS LIABILITY					EACH OCCURRENCE	
<input type="checkbox"/> UMBRELLA FORM					AGGREGATE	
<input type="checkbox"/> OTHER THAN UMBRELLA FORM						
C	WORKERS' COMPENSATION AND EMPLOYER'S LIABILITY	XXX789	01/01/00	01/01/01	<input checked="" type="checkbox"/> STATUTORY LIMITS	
	<input type="checkbox"/> THE PROPRIETOR/PARTNERS/EXECUTIVE OFFICERS ARE:				EACH ACCIDENT	1,000,000
	<input type="checkbox"/> INCL				DISEASE-POLICY LIMIT	1,000,000
	<input type="checkbox"/> EXCL				DISEASE-EACH EMPLOYEE	1,000,000
OTHER						

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/SPECIAL ITEMS

Security Properties Residential and King County Housing Authority are named as additional insureds with respect to above general liability and auto coverage. Re: Contract DW2403031 at Meadowbrook Apartments 1408 NW Richmond Beach, Shoreline, WA 98177.

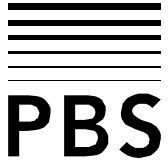
CERTIFICATE HOLDER Security Properties Residential King County Housing Authority 600 Andover Park West Seattle, WA 98188-3326	CANCELLATION SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING COMPANY WILL ENDEAVOR TO MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO MAIL SUCH NOTICE SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE COMPANY, ITS AGENTS OR REPRESENTATIVES. AUTHORIZED REPRESENTATIVE Signature of Insured's Agent
ACORD 25-S (3/93)	ACORD CORPORATION 1993

PROVIDE

**GENERAL LIABILITY
ENDORSEMENT**

and

**AUTO LIABILITY
ENDORSEMENT**



Engineering +
Environmental

LIMITED ASBESTOS SURVEY REPORT

MEADOWBROOK APARTMENTS

1404, 1406, 1408 and 1410 NW Richmond Beach Drive
Shoreline, Washington

Prepared for:

Deborah McCaslin
King County Housing Authority
625 Andover Park West
Tukwila, WA 98188

November 2011
PBS Project # 40573.064

Bend | Boise | Coquille | Eugene | Portland | Seattle | Tri-Cities | Vancouver

2517 Eastlake Avenue East, Suite 100, Seattle, WA 98102
206.233.9639 Main
206.762.4780 Fax
www.pbsenv.com

MEADOWBROOK APARTMENTS
1404, 1406, 1408 and 1410 NE Richmond Beach Road
Shoreline, Washington

LIMITED ASBESTOS SURVEY REPORT

PREPARED FOR:

Deborah McCaslin
King County Housing Authority
625 Andover Park West
Tukwila, WA 98188

October 2011

This report is for the exclusive use of the client and is not to be photographed, photocopied, or similarly reproduced in total or in part without the expressed written consent of the client.

TAB 1
Executive Summary

Background

PBS Engineering + Environmental (PBS) performed a limited inspection of the Meadowbrook Apartments located at 1404, 1406, 1408 and 1410 NW Richmond Beach Road in Shoreline, Washington, to determine the presence of asbestos-containing materials (ACMs) prior to purchase. The buildings have been designated here-on as Building A (1410), Building B (1408), Building C (1406) and Building D (1404). PBS inspected selected units and common areas in all buildings, including the roofs. Building A included units A-3, A-8, A-15, A-17, A-24 and A-25; Building B included units B-1, B-8, B-12, B-23, B-25 and B-27; Building C included units C-4, C-7, C-11, C-16, C-19, C-20 and C-27; and Building D included units D-3, D-5, D-8, D-23, D-26 and D-27. Units 1-9 are typically located on the first floor of each building; Units 10-19 are on the second floors and Units 20-29 are on the third floors.

Building Descriptions

The Meadowbrook Apartments consists of four buildings, of which Buildings A and B; and Buildings C and D are connected by breezeways. The manager's office is located in Building B with an adjacent swimming pool, pump room and storage for the swimming pool. The complex was constructed in 1967. The complex contains one, two and three-bedroom apartments with a total of 115 units. The three-story, wood-frame structures are built on concrete slab and have flat roofs with parapet walls. Interior finishes typically consist of textured gypsum wallboard, sprayed-on acoustical ceiling texture (popcorn), carpet over concrete or plywood, and sheet vinyl flooring (from one to five layers) in kitchens and bathrooms. Laundry rooms in each building have sheet vinyl flooring. The exteriors of the buildings are covered with stucco panels, wood siding and aluminum-frame windows.

All buildings have undergone improvements including replacement of windows, sliding glass doors, carpets, paint, appliances and hallway lighting. New roofing was installed over the original roofing in 2010.

Survey Process

Accessible areas of the buildings within the scope of work were inspected as part of this investigation. Inaccessible areas are defined as those requiring selective demolition, fall protection or confined-space entry protocols to gain access. Selective demolition of representative wall and ceiling assemblies to determine the presence and condition of any concealed ACMs was not included in the scope of this investigation.

Suspect asbestos materials were sampled by AHERA accredited inspector Harry Goren (Cert. # 110781 Exp. 2/23/12) and Janet Murphy (Cert. # 112302 Exp. 6/14/12) on October 17-31, 2011. Samples were assigned a unique identification number and delivered to Seattle Asbestos Test (SAT) for analysis. All samples were analyzed by polarized light microscopy (PLM), which has a reliable limit of quantification of one percent asbestos by volume. Attached is an inventory of all suspect asbestos-containing materials sampled by PBS and analyzed for asbestos content along with chain-of-custody forms and laboratory data sheets. One hundred and twenty-two (122) bulk samples were collected and delivered for analysis to SAT in Lynnwood, Washington using chain-of-custody protocol.

Findings**Asbestos-Containing Materials (ACM)**

The attached Asbestos Sample Inventory identifies all suspect materials that were sampled by

PBS and analyzed for asbestos. All buildings are considered to have homogeneous building materials, based on the similar 1967 construction and the absence of major historical renovations. The following materials were found to contain asbestos in concentrations greater than 1% as determined by PLM microscopy:

- Sprayed-on acoustical ceiling texture (popcorn) – Apartment units (Living rooms, dining rooms, bedrooms), Hallways, Storage Rooms, Laundry Rooms
- Texture on Gypsum Wallboard – on all walls in hallways, tenant units and ceilings in Kitchen and Bathrooms
- Texture Overspray on floors – under carpet and other flooring
- Texture Overspray in mechanical rooms in electrical panels on conduits and in mechanical equipment
- Fire Door Core – doors on roof at stairwell entrance
- Black Tar Roof Patches – All Roofs
- Silvercoat (friable) and Black Asphaltic Roofing with Hot Mop Bottom Layer – all Roofs
- Gray and Black Coating on Chimney Stacks – Roofs of Buildings C and D
- Brown Wood-Pattern Sheet Vinyl – Bldg A Unit 24 Foyer under carpet
- 12” Tan Vinyl Floor Tile with Speckles and Black Mastic – in closets under water heaters and Kitchens under stoves
- Sheet Vinyl (orange to brown in color) – Bldg C Laundry Room as 2nd layer under non-ACM sheet vinyl, Bldg A Maintenance Shop, in all Building’s first floor foyers in entry halls under carpet
- 12” White Vinyl Floor Tile with a Texture - Building D Laundry Room closet floor.
- Multiple layers of flooring tested positive in the following units - Bldg. A, Unit 17 Kitchen, Unit 15 Kitchen, Bldg. B, Unit 23 Bathroom, Unit 25 Kitchen, Bldg. C Unit 27 Bathroom, Unit 20 Kitchen, Bldg. D, Unit 3 Bathroom, Unit 24 Kitchen.

The following materials were found to contain no asbestos as determined by PLM microscopy:

- Light Gray Sealant – on vinyl window frames, reight frames door frames and sliding glass door frames
- Stucco – exterior of buildings
- Brown Paper – behind wood siding on exterior
- Fiberglass Insulation – in walls
- Green Pebble Pattern Sheet Vinyl – Building A Laundry Room, Building B Laundry Room
- White Sheet Vinyl With Gray Spots/Yellow Mastic- Elevators
- Pink Square Pattern Sheet Vinyl – Men’s and Women’s Locker Room/Restroom next to the Management Office
- 12” Tan Square Pattern Sheet Vinyl – Building D Laundry Room
- Yellow and Brown Carpet Mastic – Hall Foyers
- White Ceramic Tile/Caulk/Brown Mastic - Men’s Locker Room/Restroom next to the

Management Office

- Brown and White Covebase Mastic – in apartment units under rubber covebase
- Black Rubberized Roofing Material – on elevator risers on roof
- 3-Tab Shingles and Associated Black Paper – roofs at mansards and dog house
- Black Granular Roofing - installed over silver coat roofing (ACM) in raised strips
- Black Sealant - sheet metal parapet wall cap

While PBS has endeavored to identify or presumed the presence and type of ACMs in concealed locations, additional unidentified ACMs may exist. Suspect ACMs that may exist at inaccessible locations include moisture/vapor barrier felts or coatings within exterior wall cavities, caulking and/or sealants and possibly adhesives on various older finishes that may be concealed within newer construction. Flooring in any units not sampled as part of this survey is considered to be positive until tested.

Recommendations

Asbestos-Containing Materials (ACM)

The ACMs identified should only be impacted by properly trained and protected personnel using appropriate work practices and engineering controls. A qualified asbestos abatement contractor licensed in the State of Washington should be employed to remove such ACMs according to applicable local, state and federal regulations.

Caution should be exercised during renovation/demolition, as concealed ACMs may exist in various unidentified locations. Demolition activities should be performed by personnel having received a minimum of the WISHA two-hour asbestos awareness training. Other work that may impact asbestos should be performed by personnel having received proper training and utilizing proper worker protection according to WISHA standards. Work impacting asbestos is subject to the requirements of various regulations, including, but not limited to: 40 CFR Part 61, NESHAPS; 40 CFR Part 763, AHERA; WAC 296-62 and 296-65; and Puget Sound Clean Air Agency Regulation III, Article 4, Asbestos.

Report prepared by:

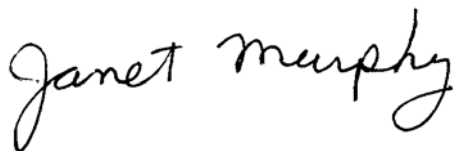


Harry Goren
AHERA Building Inspector
(Cert #110781 exp. 2/23/12)

Report reviewed by:



Brian Stanford
Senior Project Manager



Janet Murphy
AHERA Building Inspector
(Cert #112302 exp. 6/14/12)

TAB 2
Asbestos Bulk Sample Data

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>
40573.064 -01	Light gray sealant on vinyl window frames	Building A, West side	Layer 1: Light gray soft/elastic material	NAD	SAT
40573.064 -02	Light gray sealant on vinyl window frames	Building A, East side	Layer 1: Light gray soft/elastic material with paint	NAD	SAT
40573.064 -03	Light gray sealant on vinyl window frames	Building B, West side	Layer 1: Light gray soft/elastic material with paint	NAD	SAT
40573.064 -04	Light gray sealant on vinyl window frames	Building B, East side	Layer 1: Light gray soft/elastic material with paint	NAD	SAT
40573.064 -05	Light gray sealant on vinyl window frames	Building C, North side	Layer 1: Light gray soft/elastic material with paint	NAD	SAT
40573.064 -06	Light gray sealant on vinyl window frames	Building C, South side	Layer 1: Light gray soft/elastic material	NAD	SAT
40573.064 -07	Light gray sealant on vinyl window frames	Building D, North side	Layer 1: Light gray soft/elastic material with paint	NAD	SAT
40573.064 -08	Light gray sealant on vinyl window frames	Building D, South side	Layer 1: Light gray soft/elastic material with paint	NAD	SAT
40573.064 -09	Light gray sealant between reilight frame and door frame	Building A, West side	Layer 1: Light gray soft/elastic material with paint	NAD	SAT
40573.064 -10	Light gray sealant between reilight frame and door frame	Building B, East side	Layer 1: Light gray soft/elastic material	NAD	SAT
40573.064 -11	Light gray sealant between reilight frame and door frame	Building C, South side	Sample not submitted		
40573.064 -12	Light gray sealant between reilight frame and door frame	Building D, North side	Layer 1: Light gray soft/elastic material	NAD	SAT
40573.064 -13	Tan paint and gray sealant on sliding glass door frame	Building A, West side	Layer 1: Gray soft/elastic material with tan paint	NAD	SAT

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>
40573.064 -14	Tan paint and gray sealant on sliding glass door frame	Building B, East side	Layer 1: Gray soft/elastic material with tan paint	NAD	SAT
40573.064 -15	Tan paint and gray sealant on sliding glass door frame	Building C, South side	Layer 1: Gray soft/elastic material with tan paint	NAD	SAT
40573.064 -16	Tan paint and gray sealant on sliding glass door frame	Building D, North side	Layer 1: Gray soft/elastic material with tan paint	NAD	SAT
40573.064 -17	Exterior white stucco with a gray second layer	Building A, South side	Layer 1: White brittle material with paint Layer 2: Gray sandy/brittle material	NAD <1% Chrysotile	SAT
40573.064 -18	Exterior white stucco with a gray second layer	Building A, North side	Layer 1: White brittle/sandy material with paint Layer 2: Gray sandy/brittle material	NAD <1% Chrysotile	SAT
40573.064 -19	Exterior white stucco with a gray second layer	Building A, West side	Layer 1: White brittle/sandy material with paint Layer 2: Gray sandy/brittle material	NAD <1% Chrysotile	SAT
40573.064 -20	Exterior white stucco with a gray second layer	Building B, West side	Layer 1: White brittle/sandy material with paint Layer 2: Gray sandy/brittle material	NAD <1% Chrysotile	SAT
40573.064 -21	Exterior white stucco with a gray second layer	Building B, East side	Layer 1: White brittle/sandy material with paint Layer 2: Trace gray sandy/brittle material	NAD <1% Chrysotile	SAT
40573.064 -22	Exterior white stucco with a gray second layer	Building C, East side	Layer 1: White brittle/sandy material with paint Layer 2: Gray sandy/brittle material	NAD <1% Chrysotile	SAT
40573.064 -23	Exterior white stucco with a gray second layer	Building C, West side	Layer 1: White brittle/sandy material with paint Layer 2: Gray sandy/brittle material	NAD <1% Chrysotile	SAT
40573.064 -24	Exterior white stucco with a gray second layer	Building D, West side	Layer 1: White brittle/sandy material with paint	NAD	SAT

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>
			Layer 2: Gray sandy/brittle material	<1% Chrysotile	
40573.064 -25	Exterior white stucco with a gray second layer	Building D, East side	Layer 1: White brittle/sandy material with paint Layer 2: Gray sandy/brittle material	NAD <1% Chrysotile	SAT
40573.064 -26	Brown paper under wood siding	Building A, North side	Layer 1: Brown paper with trace white powdery material	NAD	SAT
40573.064 -27	Paper and debris on fiberglass	Building A, North side in pipe penetration	Layer 1: Trace paper with paint Layer 2: Yellow fibrous material	NAD NAD	SAT
40573.064 -28	Green pebble pattern sheet vinyl Gray backing, mastic	Building A, Laundry room	Layer 1: Green sheet vinyl Layer 2: Gray fibrous material with mastic	NAD NAD	SAT
40573.064 -29	White sheet vinyl with gray spots Yellow mastic	Building A, Elevator	Layer 1: White/gray sheet vinyl Layer 2: Gray fibrous material with mastic	NAD NAD	SAT
40573.064 -30	Brown carpet mastic over Orange sheet vinyl Gray back	Building A, Foyer under carpet	Layer 1: Brown mastic Layer 2: Orange sheet vinyl Layer 3: Gray fibrous material with mastic	NAD NAD 46% Chrysotile	SAT
40573.064 -31	Pink square pattern sheet vinyl Gray backing with mastic	Building A, Women's restroom	Layer 1: Pink sheet vinyl Layer 2: Gray fibrous material with mastic	NAD NAD	SAT
40573.064 -32	Green pebble pattern sheet vinyl Gray backing with mastic	Building B, Laundry room	Layer 1: Green sheet vinyl Layer 2: Gray fibrous material with mastic	NAD NAD	SAT
40573.064 -33	Brown carpet mastic over Orange sheet vinyl Gray backing with mastic	Building C, Foyer under carpet	Layer 1: Brown mastic Layer 2: Orange sheet vinyl Layer 3: Gray fibrous material with mastic	NAD NAD 47% Chrysotile	SAT

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>
40573.064 -34	Light blue sheet vinyl with gray spots over Orange sheet vinyl with Gray backing and Mastic	Building C, Laundry room	Layer 1: Light blue sheet vinyl Layer 2: Gray fibrous material with mastic Layer 3: Orange sheet vinyl Layer 4: Gray fibrous material with mastic	NAD NAD NAD 44% Chrysotile	SAT
40573.064 -35	12" square pattern gray sheet vinyl with Gray backing and Mastic	Building D, Laundry room	Layer 1: Gray sheet vinyl Layer 2: Gray fibrous material with mastic Layer 3: Green sheet vinyl Layer 4: Gray fibrous material with mastic	NAD NAD NAD NAD	SAT
40573.064 -36	Brown carpet mastic over Orange sheet vinyl with Gray backing and mastic	Building D, Foyer	Layer 1: Brown mastic Layer 2: Orange sheet vinyl Layer 3: Gray fibrous material with mastic	NAD NAD 49% Chrysotile	SAT
40573.064 -37	White ceramic tile White caulk Brown mastic	Building A, Men's locker room	Layer 1: White ceramic Layer 2: White soft/elastic material Layer 3: Brown mastic	NAD NAD NAD	SAT
40573.064 -38	White paint Red rubberized wall covering White mastic and Joint compound	Building D, Foyer on wall	Layer 1: Red soft/elastic material with woven fibrous material and paint Layer 2: White mastic Layer 3: Off-white powdery material	NAD NAD 2% Chrysotile	SAT
40573.064 -39	Brown and white covebase mastic	Building A Women's restroom	Layer 3: White/brown mastic	NAD	SAT
40573.064 -40	Brown covebase and white mastic	Building A Elevator	Layer 1: Brown rubbery material Layer 2: White mastic	NAD NAD	SAT
40573.064 -41	Overspray under carpet	Building A, Floor 3 Hall	Layer 1: Gray sandy/brittle material with powdery material	3% Chrysotile	SAT

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>
40573.064 -42	Yellow carpet mastic	Building A, Floor 3 Hall	Layer 1: Yellow mastic	NAD	SAT
40573.064 -43	Fire door core	Building B, Door on roof dog house	Layer 1: White powdery material	6% Chrysotile 3% Amosite	SAT
40573.064 -44	Black sealant over Silver coat on Black asphaltic base	Building A, Parapet wall	Layer 1: Black asphaltic material Layer 2: Silver paint Layer 3: Black asphaltic material with fibrous material	NAD 3% Chrysotile 18% Chrysotile	SAT
40573.064 -45	3-tab single black paper	Building A, Dog house roof	Layer 1: Black asphaltic material with sand Layer 2: Black asphaltic fibrous material	NAD NAD	SAT
40573.064 -46	Newer black granular asphaltic roofing	Building A, Placed over older silver coat roofing	Layer 1: Black asphaltic material with sand Layer 2: Black asphaltic material	NAD NAD	SAT
40573.064 -47	Black sealant placed over Silver coat roofing on a layer of asphaltic roofing Silver coat over black asphaltic roofing	Building A, Roof midsection	Layer 1: Black asphaltic material Layer 2: Silver paint Layer 3: Black asphaltic material Layer 4: Trace silver paint Layer 5: Black asphaltic material	4% Chrysotile 2% Chrysotile NAD NAD NAD	SAT
40573.064 -48	Fibrous insulation later under roofing	Building A, Roof midsection	Layer 1: Black asphaltic material with woven fibrous material Layer 2: Brown fibrous material	NAD NAD	SAT
40573.064 -49	Hot mop - Black asphaltic layer on wood	Building A, Roof midsection	Layer 1: Black asphaltic material Layer 2: Brown wood debris	NAD NAD	SAT
40573.064 -50	Black rubberized roofing Black mastic	Building A, Elevator riser	Layer 1: Black rubbery material Layer 2: Black asphaltic material	NAD NAD	SAT
40573.064 -51	Black asphaltic layer over Silver coat black asphaltic layer and	Building B, Roof	Layer 1: Black asphaltic material Layer 2: Silver paint	NAD 2% Chrysotile	SAT

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>
	Fibrous insulation		Layer 3: Black asphaltic material Layer 4: Black asphaltic material with fibrous material Layer 5: Brown fibrous material	5% Chrysotile NAD NAD	
40573.064 -52	Black asphaltic Hot mop layer on wood	Building B, Roof	Layer 1: Black asphaltic material Layer 2: Brown wood debris	4% Chrysotile NAD	SAT
40573.064 -53	Silver coat on Black asphaltic base	Building B, Parapet wall	Layer 1: Silver paint Layer 2: Black asphaltic material Layer 3: Black asphaltic fibrous material Layer 4: Black asphaltic material	NAD NAD 15% Chrysotile 3% Chrysotile	SAT
40573.064 -54	3-tab shingle Black paper	Building B, Dog house roof	Layer 1: Black asphaltic material with sand Layer 2: Black asphaltic fibrous material	NAD NAD	SAT
40573.064 -55	Silver coat on Black asphaltic material Silver coat over Black asphaltic material Insulation layer (fibrous)	Building C, Roof	Layer 1: Black asphaltic material with sand Layer 2: Silver paint Layer 3: Black asphaltic material with woven fibrous material Layer 4: Silver paint Layer 5: Black asphaltic material Layer 6: Brown fibrous material	NAD 2% Chrysotile NAD NAD NAD NAD	SAT
40573.064 -56	Hot mop layer on wood	Building C, Roof	Layer 1: Black asphaltic material Layer 2: Brown wood debris	NAD NAD	SAT
40573.064 -57	Silver coat on black asphaltic base Silver coat on black asphaltic material Silver coat on black asphaltic material Brown fibrous insulation Hot mop layer on wood	Building C, Parapet wall	Layer 1: Silver paint Layer 2: Black asphaltic material Layer 3: Silver paint Layer 4: Black asphaltic fibrous material Layer 5: Brown fibrous material Layer 6: Black asphaltic material	2% Chrysotile 5% Chrysotile 2% Chrysotile 17% Chrysotile NAD NAD	SAT
40573.064 -58	Silver coat on	Building D, Roof	Layer 1: Silver paint	NAD	

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>
	Black asphaltic material		Layer 2: Black asphaltic material with woven fibrous material	NAD	SAT
	Silver coat on black asphaltic material		Layer 3: Silver paint	2% Chrysotile	
	Brown fibrous insulation		Layer 4: Black asphaltic material with woven fibrous material		
	Hot mop layer on wood		Layer 5: Brown fibrous material	NAD	
			Layer 6: Black asphaltic material	NAD	
40573.064 -59	Gray and black coating on fireplace stack	Building D, Roof fireplace stack	Layer 1: Black/gray asphaltic material	4% Chrysotile	SAT
40573.064 -60	Black sealant	Building D, Parapet wall	Layer 1: Black asphaltic material	NAD	SAT
40573.064 -61	Wall texture	Building A, Floor 3 storage room	Layer 1: Trace off-white powdery material with paint	2% Chrysotile	SAT
40573.064 -62	Wall texture	Building B, Floor 3 hall	Layer 1: Off-white powdery material with paint	2% Chrysotile	SAT
40573.064 -63	Wall texture	Building B, Floor 2 hall	Layer 1: Trace white powdery material with paint	NAD	SAT
40573.064 -64	Wall texture	Building C, Floor 1 hall	Layer 1: Off-white powdery material with paint	2% Chrysotile	SAT
40573.064 -65	Wall texture	Building C, Floor 3 hall	Layer 1: White powdery material with paint	NAD	SAT
40573.064 -66	Wall texture	Building D, Floor 2 hall	Layer 1: Off-white powdery material with paint	2% Chrysotile	SAT
40573.064 -67	Popcorn ceiling texture	Building A, Floor 1 hall	Layer 1: White soft lumpy material with paint	3% Chrysotile	SAT
40573.064 -68	Popcorn ceiling texture	Building B, Floor 3 hall	Layer 1: White soft lumpy material with paint	3% Chrysotile	SAT
40573.064 -69	Popcorn ceiling texture	Building C, Floor 3 hall	Layer 1: White soft lumpy material with paint	3% Chrysotile	SAT

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>
40573.064 -70	Popcorn ceiling texture	Building D, Floor 2 hall	Layer 1: White soft lumpy material with paint	3% Chrysotile	SAT
40573.064 -71	Joint compound Gypsum wallboard	Building B, Hall	Layer 1: Off-white powdery material with paint Layer 2: White chalky material with paper	2% Chrysotile NAD	SAT
	<i>Composite result<1%</i>				
40573.064 -72	Joint compound Gypsum wallboard	Building C, Hall	Layer 1: Off-white powdery material with paint Layer 2: White chalky material with paper	2% Chrysotile NAD	SAT
	<i>Composite result<1%</i>				
40573.064 -73	Joint compound Gypsum wallboard	Building D, Hall	Layer 1: Off-white powdery material with paint Layer 2: White chalky material with paper	2% Chrysotile NAD	SAT
	<i>Composite result<1%</i>				
40573.064 -74	Wall texture	Building A #8, Living room - 1st Floor	Layer 1: Trace white powdery material with paint	NAD	SAT
40573.064 -75	Wall texture	Building A #15, Bedroom - 2nd Floor	Layer 1: Off-white powdery material with paint	2% Chrysotile	SAT
40573.064 -76	Wall texture	Building B #1, Bedroom - 1st Floor	Layer 1: Trace white powdery material with paint	NAD	SAT
40573.064 -77	Wall texture	Building B #23, Living room - 3rd Floor	Layer 1: Trace white powdery material with paint	NAD	SAT
40573.064 -78	Wall texture	Building C #11, Bedroom - 2nd Floor	Layer 1: Trace white powdery material with paint	NAD	SAT
40573.064 -79	Wall texture	Building C #27, Bedroom - 3rd Floor	Layer 1: Trace white powdery material with paint	NAD	SAT

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>
40573.064 -80	Wall texture	Building D #5, Bedroom - 1st Floor	Layer 1: Off-white powdery material with paint	2% Chrysotile	SAT
40573.064 -81	Wall texture	Building D #23, Bedroom - 3rd Floor	Layer 1: Trace white powdery material with paint	NAD	SAT
40573.064 -82	Popcorn ceiling texture	Building A #25, Living room - 3rd Floor	Layer 1: White soft lumpy material with paint	3% Chrysotile	SAT
40573.064 -83	Popcorn ceiling texture	Building A #17, Kitchen - 2nd Floor	Layer 1: White soft lumpy material with paint	3% Chrysotile	SAT
40573.064 -84	Popcorn ceiling texture	Building B #1, Living room - 1st Floor	Layer 1: White soft lumpy material with paint	2% Chrysotile	SAT
40573.064 -85	Popcorn ceiling texture	Building B #12, Bedroom - 2nd Floor	Layer 1: White soft lumpy material with paint	3% Chrysotile	SAT
40573.064 -86	Popcorn ceiling texture	Building C #11, Living room - 2nd Floor	Layer 1: White soft lumpy material with paint	2% Chrysotile	SAT
40573.064 -87	Popcorn ceiling texture	Building C #8, Living room - 1st Floor	Layer 1: White soft lumpy material with paint	2% Chrysotile	SAT
40573.064 -88	Popcorn ceiling texture	Building D #24, Living room - 3rd Floor	Layer 1: White soft lumpy material with paint	2% Chrysotile	SAT
40573.064 -89	Popcorn ceiling texture	Building D #5, Living room - 1st Floor	Layer 1: White soft lumpy material with paint	2% Chrysotile	SAT
40573.064 -90	Joint compound Gypsum wallboard	Building A #8, Bedroom - 1st Floor	Layer 1: Trace off-white powdery material with paint Layer 2: Trace white chalky material with paper	2% Chrysotile NAD	SAT
	<i>Composite result <1%</i>				
40573.064 -91	Joint compound Gypsum wallboard	Building A #24, Living room - 3rd Floor	Layer 1: Off-white powdery material with paint Layer 2: White chalky material with paper	2% Chrysotile NAD	SAT

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>
<i>Composite result <1%</i>					
40573.064 -92	Joint compound	Building B #23, Bedroom - 3rd Floor	Layer 1: Off-white powdery material with paint	2% Chrysotile	SAT
	Gypsum wallboard		Layer 2: White chalky material with paper	NAD	
<i>Composite result <1%</i>					
40573.064 -93	Joint compound	Building B #12, Bedroom - 2nd Floor	Layer 1: Off-white powdery material with paint	2% Chrysotile	SAT
	Gypsum wallboard		Layer 2: White chalky material with paper	NAD	
<i>Composite result <1%</i>					
40573.064 -94	Joint compound	Building C #27, Bedroom - 3rd Floor	Layer 1: Off-white powdery material with paint	2% Chrysotile	SAT
	Gypsum wallboard		Layer 2: White chalky material with paper	NAD	
<i>Composite result <1%</i>					
40573.064 -95	Joint compound	Building C #8, Living room - 1st Floor	Layer 1: Off-white powdery material with paint	2% Chrysotile	SAT
	Gypsum wallboard		Layer 2: White chalky material with paper	NAD	
<i>Composite result <1%</i>					
40573.064 -96	Joint compound	Building D #27, Bedroom - 3rd Floor	Layer 1: Off-white powdery material with paint	2% Chrysotile	SAT
	Gypsum wallboard		Layer 2: White chalky material with paper	NAD	
<i>Composite result <1%</i>					
40573.064 -97	Joint compound	Building D #3, Bedroom - 1st Floor	Layer 1: Off-white powdery material with paint	2% Chrysotile	SAT
	Gypsum wallboard		Layer 2: White chalky material with paper	NAD	
<i>Composite result <1%</i>					
40573.064 -98	Wood deck coating	Building C #19, Exterior - 2nd Floor	Layer 1: Gray paint	NAD	SAT

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>
40573.064 -99	Overspray under carpet	Building D #13, Living room - 2nd Floor	Layer 1: Tan foamy material with powdery material	NAD	SAT
40573.064 -100	Overspray under carpet	Building D #24, Living room - 3rd Floor	Layer 1: Gray sandy/brittle material with fibrous material and wood debris	<1% Chrysotile	
40573.064 -101	Overspray under carpet	Building C #4, Bedroom - 1st Floor	Layer 1: Tan powdery material	2% Chrysotile	SAT
40573.064 -102	Overspray under carpet	Building C #7, Living room - 1st Floor	Layer 1: Tan powdery material	2% Chrysotile	SAT
40573.064 -103	Carpet mastic (brown)	Building C #7, Living room - 1st Floor	Layer 1: Brown mastic Layer 2: Gray foamy material	NAD NAD	SAT
40573.064 -104	Laminate counter with Mastic	Building D #24, Kitchen - 3rd Floor	Layer 1: Brown/blue brittle/rigid material Layer 2: Brown mastic	NAD NAD	SAT
40573.064 -105	Covebase mastic (ivory)	Building D #3, Bathroom - 1st Floor	Layer 1: Ivory mastic	NAD	SAT
40573.064 -106	Covebase mastic (brown)	Building B #8, Bathroom - 1st Floor	Layer 1: Brown mastic with paper	NAD	SAT
40573.064 -107	Covebase mastic (ivory)	Building A # 24, Bathroom - 3rd Floor	Layer 1: Ivory mastic	NAD	SAT
40573.064 -108	Sheet floor (wood pattern)	Building A #24 at entry under carpet - 3rd Floor	Layer 1: Brown sheet vinyl Layer 2: Gray fibrous material with mastic	NAD 50% Chrysotile	SAT
40573.064 -109	Sheet floor (tan 12" square pattern with 2 layers)	Building A #8, Main bathroom - 1st Floor	Layer 1: Tan sheet vinyl Layer 2: Gray fibrous material with mastic Layer 3: Gray sheet vinyl Layer 4: Gray fibrous material with mastic Layer 5: Off-white sheet vinyl Layer 6: Gray fibrous material with mastic	NAD NAD NAD NAD NAD NAD	SAT

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>
40573.064 -110	Sheet floor (tan 12" square top layer with 3 below)	Building A #17, Kitchen/Dining room - 2nd Floor	Layer 1: Tan sheet vinyl Layer 2: Gray fibrous material with mastic Layer 3: White tile Layer 4: Black mastic Layer 5: White tile Layer 6: Yellow mastic Layer 7: White tile Layer 8: Black mastic	NAD NAD 2% Chrysotile 3% Chrysotile 2% Chrysotile NAD 2% Chrysotile 2% Chrysotile	SAT
40573.064 -111	Sheet floor (tan 12" square top with 2 below)	Building A #15, Kitchen - 2nd Floor	Layer 1: Tan sheet vinyl Layer 2: Gray fibrous material with mastic Layer 3: Gray sandy/brittle material Layer 4: Gray sheet vinyl Layer 5: Gray fibrous material with mastic Layer 6: Gray brittle material Layer 7: Off-white sheet vinyl Layer 8: Gray fibrous material with mastic	NAD NAD NAD NAD NAD NAD NAD	SAT
40573.064 -112	12" floor tile (tan speckled)	Building A #25, Kitchen - 3rd Floor	Layer 1: Tan tile Layer 2: Black mastic	2% Chrysotile 3% Chrysotile	SAT
40573.064 -113	Sheet floor (tan 12" square top with 4 layers below)	Building B #23, Bathroom - 3rd Floor	Layer 1: Tan sheet vinyl Layer 2: Gray fibrous material with mastic Layer 3: Gray sheet vinyl Layer 4: Gray fibrous material with mastic Layer 5: Off-white sheet vinyl Layer 6: Gray fibrous material with mastic Layer 7: Off-white sheet vinyl	NAD NAD NAD NAD NAD NAD	SAT

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>
			Layer 8: Gray fibrous material with mastic	NAD	
			Layer 9: Beige sheet vinyl	NAD	
			Layer 10: Gray fibrous material	NAD	
			Layer 11: Black mastic	2% Chrysotile	
			Layer 12: Gray sandy/brittle material	NAD	
40573.064 -114	Sheet floor (tan 12" square top with 3 layers and 12" floor)	Building B #25, Kitchen - 3rd Floor	Layer 1: Tan sheet vinyl	NAD	SAT
			Layer 2: Gray fibrous material with mastic	NAD	
			Layer 3: Gray sheet vinyl	NAD	
			Layer 4: Gray fibrous material with mastic	NAD	
			Layer 5: Off-white sheet vinyl	NAD	
			Layer 6: Gray fibrous material with mastic	NAD	
			Layer 7: Tan file	2% Chrysotile	
			Layer 8: Black mastic	3% Chrysotile	
40573.064 -115	Sheet floor (tan 12" square top with 4 layers)	Building C #27, Bathroom - 3rd Floor	Layer 1: Tan sheet vinyl	NAD	SAT
			Layer 2: Gray fibrous material with mastic	NAD	
			Layer 3: Gray sheet vinyl	NAD	
			Layer 4: Gray fibrous material with mastic	NAD	
			Layer 5: Off-white sheet vinyl	NAD	
			Layer 6: Gray fibrous material with mastic	NAD	
			Layer 7: Off-white sheet vinyl	NAD	
			Layer 8: Gray fibrous material with mastic	NAD	
			Layer 9: Beige sheet vinyl	NAD	
			Layer 10: Gray fibrous material	NAD	
			Layer 11: Black mastic	2% Chrysotile	
			Layer 12: Gray sandy/brittle material	NAD	

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>
40573.064 -116	Sheet floor (tan 12" square top with 1 layer below)	Building C #20, Kitchen - 3rd Floor	Layer 1: Tan sheet vinyl Layer 2: Gray fibrous material with mastic Layer 3: Gray sheet vinyl Layer 4: Gray fibrous material with mastic Layer 5: White tile Layer 6: Black mastic	NAD NAD NAD NAD 2% Chrysotile 3% Chrysotile	SAT
40573.064 -117	Sheet floor (tan 12" square top with layer below)	Building C #19, Main bathroom - 2nd Floor	Layer 1: Tan sheet vinyl Layer 2: Gray fibrous material with mastic Layer 3: Gray sheet vinyl Layer 4: Gray fibrous material with mastic Layer 5: Off-white sheet vinyl Layer 6: Gray fibrous material with mastic Layer 7: Tan sheet vinyl Layer 8: Gray fibrous material with mastic	NAD NAD NAD NAD NAD NAD NAD	SAT
40573.064 -118	Sheet floor (ivory 4" square) under carpet	Building C #7, Living room - 1st Floor	Layer 1: Tan sheet vinyl Layer 2: Gray fibrous material with mastic Layer 3: Off-white sheet vinyl Layer 4: Gray fibrous material with mastic Layer 5: Gray sandy/brittle material	NAD NAD NAD NAD NAD	SAT
40573.064 -119	Sheet floor (tan 12" square top with 2 layers below)	Building D #3, Bathroom - 1st Floor	Layer 1: Tan fibrous material with mastic Layer 2: Gray fibrous material with mastic Layer 3: Off-white sheet vinyl	NAD NAD NAD	SAT

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>
			Layer 4: Gray fibrous material with mastic	NAD	
			Layer 5: Yellow sheet vinyl	NAD	
			Layer 6: Gray fibrous material with mastic	50% Chrysotile	
40573.064 -120	Sheet floor (tan 12' square top with 1 layer below)	Building D #24, Kitchen - 3rd Floor	Layer 1: Tan sheet vinyl	NAD	SAT
			Layer 2: Gray fibrous material with mastic	NAD	
			Layer 3: Off-white sheet vinyl	NAD	
			Layer 4: Gray fibrous material	NAD	
			Layer 5: Black mastic	2% Chrysotile	
			Layer 6: Gray sandy/brittle material	NAD	
40573.064 -121	Sink undercoat (ivory)	Building B #1, Kitchen - 1st Floor	Layer 1: White brittle material with fibrous material	NAD	SAT
40573.064 -122	12" White vinyl floor tile with a texture Yellow mastic and paper	Building D, 1st Floor, laundry room closet	Layer 1: White/tan tile	2% Chrysotile	SAT
			Layer 2: Brown fibrous material with yellow mastic	50% Chrysotile	

SAT



#201114144

Project: KC11A - meadowbrook Apartment Village

Project #: 40573.064

Analysis requested: PCM

Date: 10/17/11

Relinqu'd by/Signature: Janet Murphy

Date/Time: 10/17/11

Received by/Signature: [Signature]

Date/Time: 10/17/11, 16:45

Fax results to:

- Brian Stanford
- Ernest Edwards
- Gregg Middaugh
- Mark Hiley
- Prudy Stoudt-McRae
- Joe Lucas
- Janet Murphy
- Willem Mager
- Ferman Fletcher
- Tim Ogden
- Mike Smith
- Chuck Greeb

TURN AROUND TIME:

- 1 Hour
- 2 Hours
- 4 Hours
- 24 Hours
- 48 Hours
- 3-5 Days
- Other _____

BULK SAMPLE DATA FORM				
Lab #	Sample #	Material	Location	Lab
	40573.064			
	1	Light Gray Sealant on vinyl window frames	Building A. West Side	
	2	"	Building A. East Side	
	3	"	Building B. West Side	
	4	"	Building B. East Side	
	5	"	Building C. North Side	
	6	"	Building C. South Side	
	7	"	Building D. North Side	
	8	"	Building D. South Side	
	9	Light Gray Sealant between rec-light frame and door frame	Building A. West Side	
	10	"	Building B. East Side	
	11	"	Building C. South Side	
	12	"	Building D. North Side	
	13	Tan Point and gray sealant on Sliding Glass Door Frame	Building A West Side	
	14	"	Building B East Side	
	15	"	Building C South Side	



#20114144

Project: KCHA-Meadowbrook Apartment Village

Project #: 40573.064

Analysis requested: PLM

Date: 10/27/11

Relinqu'd by/Signature: Janet Murphy

Date/Time: 10/17/11

Received by/Signature: E. DUTTON

Date/Time: 10/17/11, 10:45

Fax results to:

- Brian Stanford
- Ernest Edwards
- Gregg Middaugh
- Mark Hiley
- Prudy Stoudt-McRae
- Joe Lucas
- Janet Murphy
- Willem Mager
- Ferman Fletcher
- Tim Ogden
- Mike Smith
- Chuck Greeb

TURN AROUND TIME:

- 1 Hour
- 2 Hours
- 4 Hours
- 24 Hours
- 48 Hours
- 3-5 Days
- Other _____

BULK SAMPLE DATA FORM				
Lab #	Sample #	Material	Location	Lab
	40573.064			
	16	"	Building D. Northside	
	17	Exterior white stucco with a gray second layer	Building A South Side	
	18	"	Building A North Side	
	19	"	Building A West Side	
	20	"	Building B. West Side	
	21	"	Building B. East Side	
	22	"	Building C East Side	
	23	"	Building C West Side	
	24	"	Building D West Side	
	25	"	Building D East Side	
	26	Brown Paper under wood Siding	Building A N. Side	
	27	Paper and debris on fiberglass	Building A. North side in Pipe penetration	

SEATTLE ASBESTOS TEST, LLC

NVLAP Accredited - Bellevue:200876; Lynnwood:200768

Lynnwood Laboratory: 19711 Scriber Lake Rd, Suite D, Lynnwood, WA 98036; Tel: 425.673.9850, Fax:425.673.9810

Bellevue Laboratory: 12727 Northup Way, Suite I, Bellevue, WA 98005; Tel: 425.861.1111, Fax: 425.861.1118

Website: <http://www.seattleasbestostest.com>, E-mail: admin@seattleasbestostest.com**ANALYTICAL LABORATORY REPORT**

PLM by Method EPA/600/R-93/116

Attn.: Ms. Janet Murphy
 Client: PBS Engineering and Environmental, Seattle
 Address: 2517 Eastlake Ave. E., Suite 100
 Seattle, WA 98102

Client Job #: 40573.064
 Laboratory Batch #: 201114144
 Date Received: 10/17/2011
 Samples Received: 26
 Date Analyzed: 10/18/2011
 Samples Analyzed: 26

Project: KCHA - Meadowbrook Apartment Village

Lab ID	Client Sample ID	Layer	Description	%	Asbestos Fibers	Non-Fibrous Components	%	Non-asbestos Fibers
1	40573.064-1	1	Light gray soft/elastic material		None detected	Binder, Filler	3	Cellulose
2	40573.064-2	1	Light gray soft/elastic material with paint		None detected	Binder, Filler, Paint	4	Cellulose
3	40573.064-3	1	Light gray soft/elastic material with paint		None detected	Binder, Filler, Paint	3	Cellulose
4	40573.064-4	1	Light gray soft/elastic material with paint		None detected	Binder, Filler, Paint	5	Cellulose
5	40573.064-5	1	Light gray soft/elastic material with paint		None detected	Binder, Filler, Paint	4	Cellulose
6	40573.064-6	1	Light gray soft/elastic material		None detected	Binder, Filler	3	Cellulose
7	40573.064-7	1	Light gray soft/elastic material with paint		None detected	Binder, Filler, Paint	4	Cellulose
8	40573.064-8	1	Light gray soft/elastic material with paint		None detected	Binder, Filler, Paint, Mastic/binder	4	Cellulose
9	40573.064-9	1	Light gray soft/elastic material with paint		None detected	Binder, Filler, Mastic/binder	3	Cellulose
10	40573.064-10	1	Light gray soft/elastic material		None detected	Binder, Filler	4	Cellulose
11	40573.064-11		Sample not submitted					
12	40573.064-12	1	Light gray soft/elastic material		None detected	Binder, Filler	4	Cellulose
13	40573.064-13	1	Gray soft/elastic material with tan paint		None detected	Binder, Filler, Paint,	6	Cellulose, Polyethylene
14	40573.064-14	1	Gray soft/elastic material with tan paint		None detected	Binder, Filler	5	Cellulose, Polyethylene
15	40573.064-15	1	Gray soft/elastic material with tan paint		None detected	Binder, Filler	6	Cellulose
16	40573.064-16	1	Gray soft/elastic material with tan paint		None detected	Binder, Filler	5	Cellulose
17	40573.064-17	1	White brittle material with paint		None detected	Filler, Binder, Paint	3	Cellulose
		2	Gray sandy/brittle material	<1	Chrysotile	Sands, Filler, Binder	4	Cellulose

Analyzed by: MacKenzie Kieft/Heather Mummy

Report reviewed by: Steve (Fanyao) Zhang, President

SEATTLE ASBESTOS TEST, LLC

NVLAP Accredited - Bellevue:200876; Lynnwood:200768

Lynnwood Laboratory: 19711 Scriber Lake Rd, Suite D, Lynnwood, WA 98036; Tel: 425.673.9850, Fax:425.673.9810

Bellevue Laboratory: 12727 Northup Way, Suite 1, Bellevue, WA 98005; Tel: 425.861.1111, Fax: 425.861.1118

Website: <http://www.seattleasbestostest.com>, E-mail: admin@seattleasbestostest.com**ANALYTICAL LABORATORY REPORT**

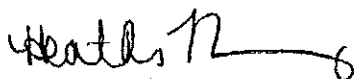
PLM by Method EPA/600/R-93/116

Attn.: Ms. Janet Murphy
 Client: PBS Engineering and Environmental, Seattle
 Address: 2517 Eastlake Ave. E., Suite 100
 Seattle, WA 98102

Client Job #: 40573.064
 Laboratory Batch #: 201114144
 Date Received: 10/17/2011
 Samples Received: 26
 Date Analyzed: 10/18/2011
 Samples Analyzed: 26

Project: KCHA - Meadowbrook Apartment Village

Lab ID	Client Sample ID	Layer	Description	%	Asbestos Fibers	Non-Fibrous Components	%	Non-asbestos Fibers
18	40573.064-18	1	White brittle/sandy material with paint		None detected	Filler, Binder, Paint	2	Cellulose
		2	Gray sandy/brittle material	<1	Chrysotile	Sands, Filler, Binder	3	Cellulose
19	40573.064-19	1	White brittle/sandy material with paint		None detected	Filler, Binder, Paint	3	Cellulose
		2	Gray sandy/brittle material	<1	Chrysotile	Sands, Filler, Binder	3	Cellulose
20	40573.064-20	1	White brittle/sandy material with paint		None detected	Filler, Binder, Paint	3	Cellulose
		2	Gray sandy/brittle material	<1	Chrysotile	Sands, Filler, Binder	2	Cellulose
21	40573.064-21	1	White brittle/sandy material with paint		None detected	Filler, Binder, Paint	3	Cellulose
		2	Trace gray sandy/brittle material	<1	Chrysotile	Sands, Filler, Binder	4	Cellulose
22	40573.064-22	1	White brittle/sandy material with paint		None detected	Filler, Binder, Paint	2	Cellulose
		2	Gray sandy/brittle material	<1	Chrysotile	Sands, Filler, Binder	5	Cellulose
23	40573.064-23	1	White brittle/sandy material with paint		None detected	Filler, Binder, Paint	3	Cellulose
		2	Gray sandy/brittle material	<1	Chrysotile	Sands, Filler, Binder	2	Cellulose
24	40573.064-24	1	White brittle/sandy material with paint		None detected	Filler, Binder, Paint	4	Cellulose
		2	Gray sandy/brittle material	<1	Chrysotile	Sands, Filler, Binder	3	Cellulose
25	40573.064-25	1	White brittle/sandy material with paint		None detected	Filler, Binder, Paint	2	Cellulose
		2	Gray sandy/brittle material	<1	Chrysotile	Sands, Filler, Binder	3	Cellulose
26	40573.064-26	1	Brown paper with trace white powdery material		None detected	Filler, Binder	87	Cellulose
27	40573.064-27	1	Trace paper with paint		None detected	Filler, Paint	76	Cellulose
		2	Yellow fibrous material		None detected	Filler, Glass beads	89	Glass fibers



Analyzed by: MacKenzie Kieft/Heather Mummy

Report reviewed by: Steve (Fanvao) Zhana, President

SAT



#201114181

P6-1

Common Areas.

Project: KCHA-Meadowbrook Apartment Village

Project #: 40573.064

Analysis requested: PLM

Date: 10/19/11

Relinqu'd by/Signature: Janet Murphy

Date/Time: 10/19/11 4:45 PM

Received by/Signature: E. Dutton

Date/Time: 10/19/11, 10:45

Fax results to:

- Brian Stanford
- Ernest Edwards
- Gregg Middaugh
- Mark Hiley
- Prudy Stoudt-McRae
- Joe Lucas
- Janet Murphy
- Willem Mager
- Ferman Fletcher
- Tim Ogden
- Mike Smith
- Chuck Greeb

TURN AROUND TIME:

- 1 Hour
- 2 Hours
- 4 Hours
- 24 Hours
- 48 Hours
- 3-5 Days
- Other _____

BULK SAMPLE DATA FORM				
Lab #	Sample #	Material	Location	Lab
	40573-28	Green Pebble Pattern Sheet Vinyl, gray backing, mastic	Bldg A Laundry Room	
	29	White sheet vinyl with gray spots, yellow mastic	Bldg A Elevator	
	30	Brown Carpet mastic over orange sheet vinyl, gray back	Bldg A Foyer Under Carpet	
	31	Pink square pattern sheet vinyl, gray backing, mastic	Bldg A Womens Restroom	
	32	Green Pebble Pattern Sheet Vinyl, gray backing, mastic	Bldg B Laundry Room	
	33	Brown Carpet mastic over orange sheet vinyl, gray backing, mastic	Bldg C Foyer Under Carpet	
	34	Light Blue sheet vinyl with gray spots over orange	Bldg C Laundry Room	
	35	Sheet vinyl with gray backing and mastic	Bldg D Laundry Room	
	36	12" square pattern gray sheet vinyl with gray backing and mastic	Bldg D Foyer	
	37	Brown Carpet mastic over orange sheet vinyl with gray backing and mastic	Bldg A Mens Locker Room	
	38	White ceramic tile, white caulk, brown mastic	Bldg D Foyer on wall	
		White Paint Red Rubberized wall covering, white mastic and joint compound		



#20114181

PG 2

Project: KCHA-meadowbrook Apartment Village

Project #: 40573.064

Analysis requested: PLM

Date: 10/19/11

Relinq'd by/Signature: Janet Murphy

Date/Time: 10/19/11

Received by/Signature: EDUHAN

Date/Time: 10/19/11, 10:45

Fax results to:

- Brian Stanford
- Ernest Edwards
- Gregg Middaugh
- Mark Hiley
- Prudy Stoudt-McRae
- Joe Lucas
- Janet Murphy
- Willem Mager
- Ferman Fletcher
- Tim Ogden
- Mike Smith
- Chuck Greeb

TURN AROUND TIME:

- 1 Hour
- 2 Hours
- 4 Hours
- 24 Hours
- 48 Hours
- 3-5 Days
- Other _____

BULK SAMPLE DATA FORM				
Lab #	Sample #	Material	Location	Lab
	39	Brown and white caobase Mastic	Bldg A Womens RR	
	40	Brown caobase and white Mastic	Bldg A Elevator	
	41	overspray under carpet	Bldg A Floor 3 Hall	
	42	yellow Carpet Mastic	Bldg A Floor 3 Hall	
	43	Fire Door Core.	Bldg B Door on Roof Dog House	
	44	Black Sealant over Silver coat on a black asphaltic base	Bldg A Parapet Wall on Dog House	
	45	3-Tab Single Black Paper	Bldg A Roof	
	46	Newer Black Granular asphaltic Roofing	Bldg A placed over older silvercoat roofing	
	47	Black Sealant placed over silvercoat Roofing on a Layer of Asphaltic Roofing	Bldg A, Roof Midsection	
		3. Silvercoat over black asphaltic roofing		
	48	Fibrous Insulation Layer under roofing	Bldg A, Roof Midsection	
	49	Hot Map Black Asphaltic Layer on Wood.	Bldg A, Roof Midsection	



#201114181

Pg-3

Project: KCHA - Meadowbrook Apartment VillageProject #: 40573.064Analysis requested: PCMDate: 10/19/11Relinqu'd by/Signature: Janet MurphyDate/Time: 10/19/11Received by/Signature: E. DuttonDate/Time: 10/19/11, 10:45

Fax results to:

- | | | |
|---|--|--|
| <input type="checkbox"/> Brian Stanford | <input type="checkbox"/> Prudy Stoudt-McRae | <input type="checkbox"/> Ferman Fletcher |
| <input type="checkbox"/> Ernest Edwards | <input type="checkbox"/> Joe Lucas | <input type="checkbox"/> Tim Ogden |
| <input type="checkbox"/> Gregg Middaugh | <input checked="" type="checkbox"/> Janet Murphy | <input type="checkbox"/> Mike Smith |
| <input type="checkbox"/> Mark Hiley | <input type="checkbox"/> Willem Mager | <input type="checkbox"/> Chuck Greeb |

TURN AROUND TIME:

- | | | |
|----------------------------------|--|--------------------------------------|
| <input type="checkbox"/> 1 Hour | <input type="checkbox"/> 24 Hours | <input type="checkbox"/> 3-5 Days |
| <input type="checkbox"/> 2 Hours | <input checked="" type="checkbox"/> 48 Hours | <input type="checkbox"/> Other _____ |
| <input type="checkbox"/> 4 Hours | | |

BULK SAMPLE DATA FORM				
Lab #	Sample #	Material	Location	Lab
	50.	Black Rubberized Roofing Black Mastic	Bldg A Elevator Riser	
	51.	Black Asphaltic Layer over Silver Coat Black Asphaltic Layer and Fibrous Insulation	Bldg B Roof	
	52.	Black Asphaltic Hot Mop Layer on Wood	Bldg B Roof	
	53.	Silver Coat on a black Asphaltic base	Bldg B Parapet Wall	
	54.	3-Tab Shingle Black Paper	Bldg B Dog House Roof	
	55.	1. Silver coat on black asphaltic material	Bldg C Roof	
		2. Silver coat over black asphaltic material Insulation Layer (fibrous)		
	56.	Hot Mop Layer on Wood	Bldg C Roof	
	57.	Silver coat on black asphaltic base	Bldg C Parapet Wall	
		1. Silver coat on black asphaltic material		
		2. Silver coat on black asphaltic material Brown fibrous insulation		
		Hot Mop Layer on Wood		



#20114181

P6-4

Project: KCHA - Meadowbrook Apartment Village

Project #: 40573.064

Analysis requested: PLM

Date: 10/19/11

Relinqu'd by/Signature: Janet Murphy

Date/Time: 10/19/11

Received by/Signature: E. Dutton

Date/Time: 10/19/11, 1045

Fax results to:

- Brian Stanford
- Ernest Edwards
- Gregg Middaugh
- Mark Hiley
- Prudy Stoudt-McRae
- Joe Lucas
- Janet Murphy
- Willem Mager
- Ferman Fletcher
- Tim Ogden
- Mike Smith
- Chuck Greeb

TURN AROUND TIME:

- 1 Hour
- 2 Hours
- 4 Hours
- 24 Hours
- 48 Hours
- 3-5 Days
- Other _____

BULK SAMPLE DATA FORM

Lab #	Sample #	Material	Location	Lab
	58.	1 Silver coat on black asphaltic material 2 Silver coat on black asphaltic material 3 Brown Fibrous Insulation 4 Hot Mop Layer on wood	Bldg D Roof	
	59.	Gray and black coating on Fireplace stack	Bldg D Roof Fireplace Stack	
	60.	Black Sealant	Bldg D Parapet wall	
	61.	Wall Texture	Bldg A Fl. 3. Storage Room	
	62.	Wall Texture	Bldg B Fl. 3. Hall	
	63.	Wall Texture	Bldg B Fl. 2. Hall	
	64.	Wall Texture	Bldg C Fl. 1. Hall	
	65.	Wall Texture	Bldg C Fl. 3 Hall	
	66.	Wall Texture	Bldg D Fl. 2. Hall	
	67.	"Popcorn Ceiling Texture"	Bldg A Fl. 1. Hall	
	68.	"Popcorn Ceiling texture"	Bldg B. Fl. 3 Hall	
	69.	"Popcorn Ceiling Texture"	Bldg C Fl. 3 Hall	



#201114181

PG-5

Project: KCHA meadowbrook Apartment Village

Project #: 40573.064

Analysis requested: PLM

Date: 10/19/11

Relinqu'd by/Signature: Janet Murphy

Date/Time: 10/19/11

Received by/Signature: E. Dutton

Date/Time: 10/19/11, 10:45

Fax results to:

- | | | |
|---|--|--|
| <input type="checkbox"/> Brian Stanford | <input type="checkbox"/> Prudy Stoudt-McRae | <input type="checkbox"/> Ferman Fletcher |
| <input type="checkbox"/> Ernest Edwards | <input type="checkbox"/> Joe Lucas | <input type="checkbox"/> Tim Ogden |
| <input type="checkbox"/> Gregg Middaugh | <input checked="" type="checkbox"/> Janet Murphy | <input type="checkbox"/> Mike Smith |
| <input type="checkbox"/> Mark Hiley | <input type="checkbox"/> Willem Mager | <input type="checkbox"/> Chuck Greeb |

TURN AROUND TIME:

- | | | |
|----------------------------------|--|--------------------------------------|
| <input type="checkbox"/> 1 Hour | <input type="checkbox"/> 24 Hours | <input type="checkbox"/> 3-5 Days |
| <input type="checkbox"/> 2 Hours | <input checked="" type="checkbox"/> 48 Hours | <input type="checkbox"/> Other _____ |
| <input type="checkbox"/> 4 Hours | | |

BULK SAMPLE DATA FORM				
Lab #	Sample #	Material	Location	Lab
	70	"Popcorn ceiling texture"	Bldg D, FL 2, Hall	
	composite 71 72 73	JL 164B	Bldg B Hall	
		JL 164B	Bldg C Hall	
		JL 164B	Bldg D Hall	

SEATTLE ASBESTOS TEST, LLC

NVLAP Accredited - Bellevue:200876; Lynnwood:200768

Lynnwood Laboratory: 19711 Scriber Lake Rd, Suite D, Lynnwood, WA 98036; Tel: 425.673.9850, Fax:425.673.9810

Bellevue Laboratory: 12727 Northup Way, Suite 1, Bellevue, WA 98005; Tel: 425.861.1111, Fax: 425.861.1118

Website: <http://www.seattleasbestostest.com>, E-mail: admin@seattleasbestostest.com**ANALYTICAL LABORATORY REPORT
PLM by Method EPA/600/R-93/116**

Attn.: Ms. Janet Murphy
 Client: PBS Engineering and Environmental, Seattle
 Address: 2517 Eastlake Ave. E., Suite 100
 Seattle, WA 98102

Client Job #: 40573.064
 Laboratory Batch #: 201114181
 Date Received: 10/19/2011
 Samples Received: 46
 Date Analyzed: 10/20/2011
 Samples Analyzed: 46

Project: KCHA - Meadowbrook Apartment Village - Common Areas

Lab ID	Client Sample ID	Layer	Description	%	Asbestos Fibers	Non-Fibrous Components	%	Non-asbestos Fibers
1	40573-28	1	Green sheet vinyl		None detected	Vinyl/binder		None detected
		2	Gray fibrous material with mastic		None detected	Binder/filler, Mastic/binder	67	Cellulose
2	40573-29	1	White/gray sheet vinyl		None detected	Vinyl/binder		None detected
		2	Gray fibrous material with mastic		None detected	Binder/filler, Mastic/binder	71	Cellulose
3	40573-30	1	Brown mastic		None detected	Mastic/binder, Filler	3	Cellulose
		2	Orange sheet vinyl		None detected	Vinyl/binder		None detected
		3	Gray fibrous material with mastic	46	Chrysotile	Binder/filler, Mastic/binder	31	Cellulose
4	40573-31	1	Pink sheet vinyl		None detected	Vinyl/binder		None detected
		2	Gray fibrous material with mastic		None detected	Binder/filler, Mastic/binder	68	Cellulose
5	40573-32	1	Green sheet vinyl		None detected	Vinyl/binder		None detected
		2	Gray fibrous material with mastic		None detected	Binder/filler, Mastic/binder	70	Cellulose
6	40573-33	1	Brown mastic		None detected	Mastic/binder, Filler	4	Cellulose
		2	Orange sheet vinyl		None detected	Vinyl/binder		None detected
		3	Gray fibrous material with mastic	47	Chrysotile	Binder/filler, Mastic/binder	33	Cellulose
7	40573-34	1	Light blue sheet vinyl		None detected	Vinyl/binder		None detected
		2	Gray fibrous material with mastic		None detected	Binder/filler, Mastic/binder	72	Cellulose
		3	Orange sheet vinyl		None detected	Vinyl/binder		None detected
		4	Gray fibrous material with mastic	44	Chrysotile	Binder/filler, Mastic/binder	36	Cellulose
8	40573-35	1	Gray sheet vinyl		None detected	Vinyl/binder		None detected
		2	Gray fibrous material with mastic		None detected	Binder/filler, Mastic/binder	69	Cellulose
		3	Green sheet vinyl		None detected	Vinyl/binder		None detected
		4	Gray fibrous material with mastic		None detected	Binder/filler, Mastic/binder	65	Cellulose
9	40573-36	1	Brown mastic		None detected	Mastic/binder, Filler	3	Cellulose
		2	Orange sheet vinyl		None detected	Vinyl/binder		None detected
		3	Gray fibrous material with mastic	49	Chrysotile	Binder/filler, Mastic/binder	30	Cellulose
10	40573-37	1	White ceramic		None detected	Ceramic/binder		None detected
		2	White soft/elastic material		None detected	Binder, Filler	3	Cellulose
		3	Brown mastic		None detected	Mastic/binder	5	Cellulose
11	40573-38	1	Red soft/elastic material with woven fibrous material and paint		None detected	Binder, Filler, Paint	28	Cellulose
		2	White mastic		None detected	Mastic/binder	2	Cellulose
		3	Off-white powdery material	2	Chrysotile	Binder/filler	5	Cellulose
12	40573-39	1	White/brown mastic		None detected	Mastic/binder	4	Cellulose

Analyzed by: Heather Mummey

Report reviewed by: Steve (Fanyao) Zhang, President

SEATTLE ASBESTOS TEST, LLC

NVLAP Accredited - Bellevue:200876; Lynnwood:200768

Lynnwood Laboratory: 19711 Scriber Lake Rd, Suite D, Lynnwood, WA 98036; Tel: 425.673.9850, Fax:425.673.9810
 Bellevue Laboratory: 12727 Northup Way, Suite 1, Bellevue, WA 98005; Tel: 425.861.1111, Fax: 425.861.1118
 Website: http://www.seattleasbestostest.com, E-mail: admin@seattleasbestostest.com

ANALYTICAL LABORATORY REPORT
PLM by Method EPA/600/R-93/116

Attn.: Ms. Janet Murphy
 Client: PBS Engineering and Environmental, Seattle
 Address: 2517 Eastlake Ave. E., Suite 100
 Seattle, WA 98102

Client Job #: 40573.064
 Laboratory Batch #: 201114181
 Date Received: 10/19/2011
 Samples Received: 46
 Date Analyzed: 10/20/2011
 Samples Analyzed: 46

Project: KCHA - Meadowbrook Apartment Village - Common Areas

Lab ID	Client Sample ID	Layer	Description	%	Asbestos Fibers	Non-Fibrous Components	%	Non-asbestos Fibers
13	40573-40	1	Brown rubbery material		None detected	Rubber/binder	2	Cellulose
		2	White mastic		None detected	Mastic/binder	3	Cellulose
14	40573-41	1	Gray sandy/brittle material with powdery material	3	Chrysotile	Sands, Filler, Binder, Synthetic foam	5	Cellulose
15	40573-42	1	Yellow mastic		None detected	Mastic/binder, Filler	3	Cellulose
16	40573-43	1	White powdery material	6	Chrysotile	Binder, Filler	17	Cellulose
				3	Amosite			
17	40573-44	1	Black asphaltic material		None detected	Filler, Asphalt, Binder	10	Cellulose
		2	Silver paint	3	Chrysotile	Paint, Filler	3	Cellulose
		3	Black asphaltic material with fibrous material	18	Chrysotile	Asphalt/binder, Binder/filler	57	Cellulose
18	40573-45	1	Black asphaltic material with sand		None detected	Asphalt/binder, Sand	31	Glass fibers
		2	Black asphaltic fibrous material		None detected	Asphalt/binder, Binder/filler	70	Cellulose
19	40573-46	1	Black asphaltic material with sand		None detected	Asphalt/binder, Sand	29	Synthetic fibers
		2	Black asphaltic material		None detected	Asphalt/binder, Binder/filler	42	Synthetic fibers
20	40573-47	1	Black asphaltic material	4	Chrysotile	Filler, Asphalt, Binder	8	Cellulose
		2	Silver paint	2	Chrysotile	Paint, Filler	2	Cellulose
		3	Black asphaltic material		None detected	Asphalt/binder, Binder/filler	13	Synthetic fibers
		4	Trace silver paint		None detected	Paint, Filler	4	Cellulose
		5	Black asphaltic material		None detected	Asphalt/binder, Binder/filler	25	Synthetic fibers, Cellulose
21	40573-48	1	Black asphaltic material with woven fibrous material		None detected	Asphalt/binder, Binder/filler	33	Glass fibers
		2	Brown fibrous material		None detected	Binder/filler	70	Cellulose
22	40573-49	1	Black asphaltic material		None detected	Filler, Asphalt, Binder	3	Cellulose
		2	Brown wood debris		None detected	Wood debris	7	Cellulose
23	40573-50	1	Black rubbery material		None detected	Rubber/binder	2	Cellulose
		2	Black asphaltic material		None detected	Asphalt/binder, Binder/filler	16	Synthetic fibers
24	40573-51	1	Black asphaltic material		None detected	Filler, Asphalt, Binder	9	Cellulose
		2	Silver paint	2	Chrysotile	Paint, Filler	2	Cellulose
		3	Black asphaltic material	5	Chrysotile	Asphalt/binder, Binder/filler	18	Cellulose
		4	Black asphaltic material with fibrous material		None detected	Asphalt/binder, Binder/filler	30	Glass fibers
		5	Brown fibrous material		None detected	Binder/filler	69	Cellulose
25	40573-52	1	Black asphaltic material	4	Chrysotile	Asphalt/binder, Binder/filler	15	Cellulose
		2	Brown wood debris		None detected	Wood debris	6	Cellulose
26	40573-53	1	Silver paint		None detected	Paint, Filler	4	Wollastonite, Talc
		2	Black asphaltic material		None detected	Asphalt/binder, Binder/filler	5	Cellulose
		3	Black asphaltic fibrous material	15	Chrysotile	Asphalt/binder, Binder/filler	57	Cellulose

Analyzed by: Heather Mummey

Report reviewed by: Steve (Fanyao) Zhang, President

SEATTLE ASBESTOS TEST, LLC

NVLAP Accredited - Bellevue:200876; Lynnwood:200768

Lynnwood Laboratory: 19711 Scriber Lake Rd, Suite D, Lynnwood, WA 98036; Tel: 425.673.9850, Fax:425.673.9810
 Bellevue Laboratory: 12727 Northup Way, Suite 1, Bellevue, WA 98005; Tel: 425.861.1111, Fax: 425.861.1118
 Website: http://www.seattleasbestostest.com, E-mail: admin@seattleasbestostest.com

ANALYTICAL LABORATORY REPORT
PLM by Method EPA/600/R-93/116

Attn.: Ms. Janet Murphy
 Client: PBS Engineering and Environmental, Seattle
 Address: 2517 Eastlake Ave. E., Suite 100
 Seattle, WA 98102

Client Job #: 40573.064
 Laboratory Batch #: 201114181
 Date Received: 10/19/2011
 Samples Received: 46
 Date Analyzed: 10/20/2011
 Samples Analyzed: 46

Project: KCHA - Meadowbrook Apartment Village - Common Areas

Lab ID	Client Sample ID	Layer	Description	%	Asbestos Fibers	Non-Fibrous Components	%	Non-asbestos Fibers
		4	Black asphaltic material	3	Chrysotile	Asphalt/binder, Binder/filler	4	Cellulose, Glass fibers
27	40573-54	1	Black asphaltic material with sand		None detected	Asphalt/binder, Sand	31	Glass fibers
		2	Black asphaltic fibrous material		None detected	Asphalt/binder, Binder/filler	68	Cellulose
28	40573-55	1	Black asphaltic material with sand		None detected	Asphalt/binder, Sand	33	Glass fibers
		2	Silver paint	2	Chrysotile	Paint, Filler	2	Wollastonite, Taic
		3	Black asphaltic material with woven fibrous material		None detected	Asphalt/binder, Binder/filler	30	Cellulose, Glass fibers
		4	Silver paint		None detected	Paint, Filler	3	Wollastonite, Taic
		5	Black asphaltic material		None detected	Asphalt/binder, Binder/filler	30	Glass fibers
		6	Brown fibrous material		None detected	Binder/filler	67	Cellulose
29	40573-56	1	Black asphaltic material		None detected	Asphalt/binder, Binder/filler	5	Cellulose
		2	Brown wood debris		None detected	Wood debris	4	Cellulose
30	40573-57	1	Silver paint	2	Chrysotile	Paint, Filler	2	Cellulose
		2	Black asphaltic material	5	Chrysotile	Asphalt/binder, Binder/filler	16	Cellulose
		3	Silver paint	2	Chrysotile	Paint, Filler	3	Cellulose
		4	Black asphaltic fibrous material	17	Chrysotile	Asphalt/binder, Binder/filler	52	Cellulose
		5	Brown fibrous material		None detected	Binder/filler	71	Cellulose
		6	Black asphaltic material		None detected	Asphalt/binder, Binder/filler	4	Cellulose
31	40573-58	1	Silver paint		None detected	Paint, Filler	3	Cellulose
		2	Black asphaltic material with woven fibrous material		None detected	Asphalt/binder, Binder/filler	28	Cellulose, Synthetic fibers
		3	Silver paint	2	Chrysotile	Paint, Filler	2	Cellulose
		4	Black asphaltic material with woven fibrous material		None detected	Asphalt/binder, Binder/filler	33	Cellulose, Glass fibers
		5	Brown fibrous material		None detected	Binder/filler	69	Cellulose
		6	Black asphaltic material		None detected	Asphalt/binder, Binder/filler	4	Glass fibers
32	40573-59	1	Black/gray asphaltic material	4	Chrysotile	Asphalt/binder, Binder/filler	4	Cellulose
33	40573-60	1	Black asphaltic material		None detected	Asphalt/binder, Binder/filler	9	Cellulose
34	40573-61	1	Trace off-white powdery material with paint	2	Chrysotile	Binder/filler, Paint	5	Cellulose
35	40573-62	1	Off-white powdery material with paint	2	Chrysotile	Binder/filler, Paint	3	Cellulose
36	40573-63	1	Trace white powdery material with paint		None detected	Binder/filler, Paint	2	Cellulose
37	40573-64	1	Off-white powdery material with paint	2	Chrysotile	Binder/filler, Paint	5	Cellulose
38	40573-65	1	White powdery material with paint		None detected	Binder/filler, Paint	4	Cellulose
39	40573-66	1	Off-white powdery material with paint	2	Chrysotile	Binder/filler, Paint	3	Cellulose

Analyzed by: Heather Mummey



Report reviewed by: Steve (Fanyao) Zhang, President

SEATTLE ASBESTOS TEST, LLC

NVLAP Accredited - Bellevue:200876; Lynnwood:200768

Lynnwood Laboratory: 19711 Scriber Lake Rd, Suite D, Lynnwood, WA 98036; Tel: 425.673.9850, Fax:425.673.9810

Bellevue Laboratory: 12727 Northup Way, Suite 1, Bellevue, WA 98005; Tel: 425.861.1111, Fax: 425.861.1118

Website: <http://www.seattleasbestostest.com>, E-mail: admin@seattleasbestostest.com**ANALYTICAL LABORATORY REPORT
PLM by Method EPA/600/R-93/116**

Attn.: Ms. Janet Murphy
 Client: PBS Engineering and Environmental, Seattle
 Address: 2517 Eastlake Ave. E., Suite 100
 Seattle, WA 98102

Client Job #: 40573.064
 Laboratory Batch #: 201114181
 Date Received: 10/19/2011
 Samples Received: 46
 Date Analyzed: 10/20/2011
 Samples Analyzed: 46

Project: KCHA - Meadowbrook Apartment Village - Common Areas

Lab ID	Client Sample ID	Layer	Description	%	Asbestos Fibers	Non-Fibrous Components	%	Non-asbestos Fibers
40	40573-67	1	White soft lumpy material with paint	3	Chrysotile	Synthetic foam, Filler, Binder, Paint	2	Cellulose
41	40573-68	1	White soft lumpy material with paint	3	Chrysotile	Synthetic foam, Filler, Binder, Paint	5	Cellulose
42	40573-69	1	White soft lumpy material with paint	3	Chrysotile	Synthetic foam, Filler, Binder, Paint	3	Cellulose
43	40573-70	1	White soft lumpy material with paint	3	Chrysotile	Synthetic foam, Filler, Binder, Paint	2	Cellulose
44	40573-71	1	Off-white powdery material with paint	2	Chrysotile	Binder/filler, Paint	2	Cellulose
		2	White chalky material with paper		None detected	Binder/filler Gypsum/binder	27	Cellulose
45	40573-72	1	Off-white powdery material with paint	2	Chrysotile	Binder/filler, Paint	3	Cellulose
		2	White chalky material with paper		None detected	Binder/filler Gypsum/binder	25	Cellulose
46	40573-73	1	Off-white powdery material with paint	2	Chrysotile	Binder/filler, Paint	5	Cellulose
		2	White chalky material with paper		None detected	Binder/filler Gypsum/binder	24	Cellulose

Analyzed by: Heather Mummey



Report reviewed by: Steve (Fanyao) Zhang, President



20114308

1/4

Project: KCHA - Meadowbrook aptzProject #: 40573.064Analysis requested: PLMDate: 10/20/11 & 10/24/11Relinqu'd by/Signature: Harry BorenDate/Time: 10/26/11Received by/Signature: Heather NDate/Time: 10/26/11 1715E-mail
Fax results to:

- | | | |
|---|--|--|
| <input type="checkbox"/> Brian Stanford | <input type="checkbox"/> Prudy Stoudt-McRae | <input type="checkbox"/> Ferman Fletcher |
| <input type="checkbox"/> Ernest Edwards | <input type="checkbox"/> Joe Lucas | <input type="checkbox"/> Tim Ogden |
| <input type="checkbox"/> Gregg Middaugh | <input checked="" type="checkbox"/> Janet Murphy | <input type="checkbox"/> Mike Smith |
| <input type="checkbox"/> Mark Hiley | <input type="checkbox"/> Willem Mager | <input type="checkbox"/> Chuck Greeb |

TURN AROUND TIME:

- | | | |
|----------------------------------|--|--------------------------------------|
| <input type="checkbox"/> 1 Hour | <input checked="" type="checkbox"/> 24 Hours | <input type="checkbox"/> 3-5 Days |
| <input type="checkbox"/> 2 Hours | <input type="checkbox"/> 48 Hours | <input type="checkbox"/> Other _____ |
| <input type="checkbox"/> 4 Hours | | |

BULK SAMPLE DATA FORM

Lab #	Sample #	Material	Location (FLOOR)	Lab
	<u>40573</u>			
	<u>74</u>	<u>wall texture</u>	<u>Bldg A #8 LR 1ST FLR</u>	
	<u>75</u>		<u>" #15 BR (2)</u>	
	<u>76</u>		<u>Bldg B #1 BR (1)</u>	
	<u>77</u>		<u>" #23 LR (3)</u>	
	<u>78</u>		<u>Bldg C #11 BR (2)</u>	
	<u>79</u>		<u>" #27 BR (3)</u>	
	<u>80</u>		<u>Bldg D #5 BR (1)</u>	
	<u>81</u>	<u>wall texture</u>	<u>#23 BR (3)</u>	
	<u>82</u>	<u>popcorn cly. text</u>	<u>Bldg A #25 LR (3)</u>	
	<u>83</u>		<u>#17 KIT (2)</u>	
	<u>84</u>		<u>Bldg B #1 LR (1)</u>	
	<u>85</u>		<u>#12 BR (2)</u>	
	<u>86</u>		<u>Bldg C #11 LR (2)</u>	
	<u>87</u>		<u>#8 LR (1)</u>	
	<u>88</u>		<u>Bldg D #24 LR (3)</u>	
	<u>89</u>	<u>popcorn cly. text</u>	<u>#5 LR (1)</u>	



201114308

2/4

Project: KCHA - MEADOWBROOK APTSProject #: 40573.064Analysis requested: PLMDate: 10/20 & 10/24/11Relinqu'd by/Signature: Harry SorenDate/Time: 10/26/11Received by/Signature: Heath NDate/Time: 10/26/11 1715

E-MAIL

Fax results to:

- | | | |
|---|--|--|
| <input type="checkbox"/> Brian Stanford | <input type="checkbox"/> Prudy Stoudt-McRae | <input type="checkbox"/> Ferman Fletcher |
| <input type="checkbox"/> Ernest Edwards | <input type="checkbox"/> Joe Lucas | <input type="checkbox"/> Tim Ogden |
| <input type="checkbox"/> Gregg Middaugh | <input checked="" type="checkbox"/> Janet Murphy | <input type="checkbox"/> Mike Smith |
| <input type="checkbox"/> Mark Hiley | <input type="checkbox"/> Willem Mager | <input type="checkbox"/> Chuck Greeb |

TURN AROUND TIME:

- | | | |
|----------------------------------|--|--------------------------------------|
| <input type="checkbox"/> 1 Hour | <input checked="" type="checkbox"/> 24 Hours | <input type="checkbox"/> 3-5 Days |
| <input type="checkbox"/> 2 Hours | <input type="checkbox"/> 48 Hours | <input type="checkbox"/> Other _____ |
| <input type="checkbox"/> 4 Hours | | |

BULK SAMPLE DATA FORM

Lab #	Sample #	Material	Location (FLOOR)	Lab
	90	GWBI/c	Bldg A #8 BR (1)	
	91	↓	" #24 LR (3)	
	92		Bldg B #23 BR (3)	
	93		" #12 BR (2)	
	94		Bldg C #27 BR (3)	
	95		" #8 LR (1)	
	96	↓	Bldg D #27 BR (3)	
	97	GWBI/c	Bldg D #3 BR (1)	
	98	Wood deck coating	Bldg C #19 EXT (2)	
	99	overspray under carpet	Bldg D #13 LR (2)	
	100	↓	" #24 LR (3)	
	101	↓	Bldg C #4 BR (1)	
	102	overspray under carpet	Bldg C #7 LR (1)	
	103	carpet mastic (brown)	Bldg C #7 LR (1)	
	104	laminated counter w/ mastic	Bldg D #24 KIT (3)	

S:\Masters\Office\Tech Forms & Templates\Lab Chain-of-Custody.doc



201114308

3/4

Project: KCHA - Meadowbrook aptsProject #: 40573.064Analysis requested: PLMDate: 10/20/11 & 10/24/11Relinq'd by/Signature: Harry BorenDate/Time: 10/26/11Received by/Signature: Heath NDate/Time: 10/26/11 1715

E-MAIL

Fax results to:

- | | | |
|---|--|--|
| <input type="checkbox"/> Brian Stanford | <input type="checkbox"/> Prudy Stoudt-McRae | <input type="checkbox"/> Ferman Fletcher |
| <input type="checkbox"/> Ernest Edwards | <input type="checkbox"/> Joe Lucas | <input type="checkbox"/> Tim Ogden |
| <input type="checkbox"/> Gregg Middaugh | <input checked="" type="checkbox"/> Janet Murphy | <input type="checkbox"/> Mike Smith |
| <input type="checkbox"/> Mark Hiley | <input type="checkbox"/> Willem Mager | <input type="checkbox"/> Chuck Greeb |

TURN AROUND TIME:

- | | | |
|----------------------------------|--|--------------------------------------|
| <input type="checkbox"/> 1 Hour | <input checked="" type="checkbox"/> 24 Hours | <input type="checkbox"/> 3-5 Days |
| <input type="checkbox"/> 2 Hours | <input type="checkbox"/> 48 Hours | <input type="checkbox"/> Other _____ |
| <input type="checkbox"/> 4 Hours | | |

BULK SAMPLE DATA FORM

Lab #	Sample #	Material	Location (FLOOR)	Lab
	105	cove base mastic (ivory)	Bldg D # 3 BATH (1)	
	106	cove base mastic (brown)	Bldg B # 8 BATH (1)	
	107	cove base mastic (ivory)	Bldg A # 24 BATH (3)	
	108	shlt floor (wood pattern)	Bldg A # 24 ^{under cpt} @ entry (3)	
	109	sheet floor (tan 12" Φ pattern w/ 2 layers)	# 8 Main BATH (1)	
	110	shlt floor (tan 12" Φ top layer w/ 3 below)	# 17 KIT/DR (2)	
	111	shlt flr (tan 12" Φ top w/ 2 below)	# 15 KIT (2)	
	112	12" floor tile (tan speckled)	Bldg A # 25 KIT (3)	
	113	shlt flr (tan 12" Φ top w/ 4 layers below)	Bldg B # 23 BATH (3)	
	114	shlt flr (tan 12" Φ top w/ 3 layers & 12" FT)	" # 25 KIT (3)	
	115	shlt flr (tan 12" Φ top w/ 4 layers)	Bldg C # 27 BATH (3)	
	116	shlt flr (tan 12" Φ top w/ 1 layer below)	# 20 KIT (3)	
	117	shlt flr (tan 12" Φ top w/ 1 layer below)	# 19 Main BATH (2)	
	118	shlt flr (ivory 4" Φ under carpet)	Bldg C # 7 LR (1)	
	119	shlt flr (tan 12" Φ top w/ 2 layers below)	Bldg D # # 3 BATH (1)	

S:\Masters\Office\Tech Forms & Templates\Lab Chain-of-Custody.doc



20114308

4/4

Project: KCHA - Meadowbrook apts

Project #: 40573.0CA

Analysis requested: PLM

Date: 10/20/11 & 10/24/11

Relinq'd by/Signature: Harry Loren

Date/Time: 10/26/11

Received by/Signature: Heath [Signature]

Date/Time: 10/26/11 1715

E-MAIL

Fax results to:

- | | | |
|---|--|--|
| <input type="checkbox"/> Brian Stanford | <input type="checkbox"/> Prudy Stoudt-McRae | <input type="checkbox"/> Ferman Fletcher |
| <input type="checkbox"/> Ernest Edwards | <input type="checkbox"/> Joe Lucas | <input type="checkbox"/> Tim Ogden |
| <input type="checkbox"/> Gregg Midaugh | <input checked="" type="checkbox"/> Janet Murphy | <input type="checkbox"/> Mike Smith |
| <input type="checkbox"/> Mark Hiley | <input type="checkbox"/> Willem Mager | <input type="checkbox"/> Chuck Greeb |

TURN AROUND TIME:

- | | | |
|----------------------------------|--|--------------------------------------|
| <input type="checkbox"/> 1 Hour | <input checked="" type="checkbox"/> 24 Hours | <input type="checkbox"/> 3-5 Days |
| <input type="checkbox"/> 2 Hours | <input type="checkbox"/> 48 Hours | <input type="checkbox"/> Other _____ |
| <input type="checkbox"/> 4 Hours | | |

BULK SAMPLE DATA FORM				
Lab #	Sample #	Material	Location (Floor)	Lab
	120	slit flr (tan 12" ϕ top w/ 1 layer below)	Bldg D #24 KIT (3)	
	121	sink undercoat (wavy)	Bldg B #1 KIT (1)	

S:\Masters\Office\Tech Forms & Templates\Lab Chain-of-Custody.doc

SEATTLE ASBESTOS TEST, LLC

NVLAP Accredited - Bellevue:200876; Lynnwood:200768

Lynnwood Laboratory: 19711 Scriber Lake Rd, Suite D, Lynnwood, WA 98036; Tel: 425.673.9850, Fax:425.673.9810

Bellevue Laboratory: 12727 Northup Way, Suite 1, Bellevue, WA 98005; Tel: 425.861.1111, Fax: 425.861.1118

Website: <http://www.seattleasbestostest.com>, E-mail: admin@seattleasbestostest.com**ANALYTICAL LABORATORY REPORT
PLM by Method EPA/600/R-93/116**

Attn.: Ms. Janet Murphy
Client: PBS Engineering and Environmental, Seattle
Address: 2517 Eastlake Ave. E., Suite 100
Seattle, WA 98102

Client Job #: 40573.064
Laboratory Batch #: 201114308
Date Received: 10/28/2011
Samples Received: 48
Date Analyzed: 10/27/2011
Samples Analyzed: 48

Project: KCHA - Meadowbrook Apts

Lab ID	Client Sample ID	Layer	Description	% Asbestos Fibers	Non-Fibrous Components	% Non-asbestos Fibers
1	40573 - 74	1	Trace white powdery material with paint	None detected	Binder/filler, Paint	2 Cellulose
2	40573 - 75	1	Off-white powdery material with paint	2 Chrysotile	Binder/filler, Paint	4 Cellulose
3	40573 - 76	1	Trace white powdery material with paint	None detected	Binder/filler, Paint	3 Cellulose
4	40573 - 77	1	Trace white powdery material with paint	None detected	Binder/filler, Paint	5 Cellulose
6	40573 - 78	1	Trace white powdery material with paint	None detected	Binder/filler, Paint	2 Cellulose
6	40573 - 79	1	Trace white powdery material with paint	None detected	Binder/filler, Paint	3 Cellulose
7	40573 - 80	1	Off-white powdery material with paint	2 Chrysotile	Binder/filler, Paint	4 Cellulose
8	40573 - 81	1	Trace white powdery material with paint	None detected	Binder/filler, Paint	2 Cellulose
9	40573 - 82	1	White soft lumpy material with paint	3 Chrysotile	Synthetic foam, Filler, Binder, Paint	3 Cellulose
10	40573 - 83	1	White soft lumpy material with paint	3 Chrysotile	Synthetic foam, Filler, Binder, Paint	5 Cellulose
11	40573 - 84	1	White soft lumpy material with paint	2 Chrysotile	Synthetic foam, Filler, Binder, Paint	6 Cellulose
12	40573 - 85	1	White soft lumpy material with paint	3 Chrysotile	Synthetic foam, Filler, Binder, Paint	3 Cellulose
13	40573 - 86	1	White soft lumpy material with paint	2 Chrysotile	Synthetic foam, Filler, Binder, Paint	2 Cellulose
14	40573 - 87	1	White soft lumpy material with paint	2 Chrysotile	Synthetic foam, Filler, Binder, Paint	5 Cellulose
15	40573 - 88	1	White soft lumpy material with paint	2 Chrysotile	Synthetic foam, Filler, Binder, Paint	4 Cellulose
16	40573 - 89	1	White soft lumpy material with paint	2 Chrysotile	Synthetic foam, Filler, Binder, Paint	2 Cellulose
17	40573 - 90	1	Trace off-white powdery material with paint	2 Chrysotile	Binder/filler, Paint	5 Cellulose
		2	Trace white chalky material with paper	None detected	Binder/filler Gypsum/binder	27 Cellulose
18	40573 - 91	1	Off-white powdery material with paint	2 Chrysotile	Binder/filler, Paint	2 Cellulose
		2	White chalky material with paper	None detected	Binder/filler Gypsum/binder	25 Cellulose
19	40573 - 92	1	Off-white powdery material with paint	2 Chrysotile	Binder/filler, Paint	3 Cellulose
		2	White chalky material with paper	None detected	Binder/filler Gypsum/binder	26 Cellulose
20	40573 - 93	1	Off-white powdery material with paint	2 Chrysotile	Binder/filler, Paint	4 Cellulose
		2	White chalky material with paper	None detected	Binder/filler Gypsum/binder	21 Cellulose

Analyzed by:  Heather Mummey

Report reviewed by: Steve (Fanfan) Zhang, President

SEATTLE ASBESTOS TEST, LLC

NVLAP Accredited - Bellevue:200876; Lynnwood:200768

Lynnwood Laboratory: 19711 Scriber Lake Rd, Suite D, Lynnwood, WA 98036; Tel: 425.673.9850, Fax:425.673.9810

Bellevue Laboratory: 12727 Northup Way, Suite 1, Bellevue, WA 98005; Tel: 425.861.1111, Fax: 425.861.1118

Website: <http://www.seattleasbestostest.com>, E-mail: admin@seattleasbestostest.com**ANALYTICAL LABORATORY REPORT
PLM by Method EPA/600/R-93/116**

Attn.: Ms. Janet Murphy
Client: PBS Engineering and Environmental, Seattle
Address: 2517 Eastlake Ave. E., Suite 100
Seattle, WA 98102

Client Job #: 40573.064
Laboratory Batch #: 201114308
Date Received: 10/26/2011
Samples Received: 48
Date Analyzed: 10/27/2011
Samples Analyzed: 48

Project: KCHA - Meadowbrook Apts

Lab ID	Client Sample ID	Layer	Description	% Asbestos Fibers	Non-Fibrous Components	% Non-asbestos Fibers
21	40573 - 94	1	Off-white powdery material with paint	2 Chrysotile	Binder/filler, Paint	2 Cellulose
		2	White chalky material with paper	None detected	Binder/filler Gypsum/binder	24 Cellulose
22	40573 - 95	1	Off-white powdery material with paint	2 Chrysotile	Binder/filler, Paint	3 Cellulose
		2	White chalky material with paper	None detected	Binder/filler Gypsum/binder	26 Cellulose
23	40573 - 96	1	Off-white powdery material with paint	2 Chrysotile	Binder/filler, Paint	4 Cellulose
		2	White chalky material with paper	None detected	Binder/filler Gypsum/binder	28 Cellulose
24	40573 - 97	1	Off-white powdery material with paint	2 Chrysotile	Binder/filler, Paint	3 Cellulose
		2	White chalky material with paper	None detected	Binder/filler Gypsum/binder	25 Cellulose
25	40573 - 98	1	Gray paint	None detected	Paint/binder	3 Cellulose
26	40573 - 99	1	Tan foamy material with powdery material	None detected	Synthetic foam, Binder/filler	2 Cellulose
27	40573 - 100	1	Gray sandy/brittle material with fibrous material and wood debris	<1 Chrysotile	Sands, Filler, Binder, Wood Debris	4 Cellulose, Synthetic fibers
28	40573 - 101	1	Tan powdery material	2 Chrysotile	Binder/filler	3 Cellulose
29	40573 - 102	1	Tan powdery material	2 Chrysotile	Binder/filler	6 Cellulose
30	40573 - 103	1	Brown mastic	None detected	Mastic/binder, Filler	5 Cellulose
		2	Gray foamy material	None detected	Synthetic foam	None detected
31	40573 - 104	1	Brown/blue brittle/rigid material	None detected	Filler, Binder, Fine debris	67 Cellulose
		2	Brown mastic	None detected	Mastic/binder	4 Cellulose
32	40573 - 105	1	Ivory mastic	None detected	Mastic/binder, Filler	2 Cellulose
33	40573 - 106	1	Brown mastic with paper	None detected	Mastic/binder, Filler	21 Cellulose
34	40573 - 107	1	Ivory mastic	None detected	Mastic/binder, Filler	3 Cellulose
35	40573 - 108	1	Brown sheet vinyl	None detected	Vinyl/binder	None detected
		2	Gray fibrous material with mastic	50 Chrysotile	Binder/filler, Mastic/binder	35 Cellulose
36	40573 - 109	1	Tan sheet vinyl	None detected	Vinyl/binder	None detected
		2	Gray fibrous material with mastic	None detected	Binder/filler, Mastic/binder	71 Cellulose
		3	Gray sheet vinyl	None detected	Vinyl/binder	None detected
		4	Gray fibrous material with mastic	None detected	Binder/filler, Mastic/binder	67 Cellulose
		5	Off-white sheet vinyl	None detected	Vinyl/binder	None detected
		6	Gray fibrous material with mastic	None detected	Binder/filler, Mastic/binder	69 Cellulose
37	40573 - 110	1	Tan sheet vinyl	None detected	Vinyl/binder	None detected


Analyzed by: Heather Mumme

Report reviewed by: Steve (Farvan) Zhang President

SEATTLE ASBESTOS TEST, LLC

NVLAP Accredited - Bellevue:200876; Lynnwood:200768

Lynnwood Laboratory: 19711 Scriber Lake Rd, Suite D, Lynnwood, WA 98036; Tel: 425.673.9850, Fax:425.673.9810

Bellevue Laboratory: 12727 Northup Way, Suite 1, Bellevue, WA 98005; Tel: 425.861.1111, Fax: 425.861.1118

Website: <http://www.seattleasbestostest.com>, E-mail: admin@seattleasbestostest.com**ANALYTICAL LABORATORY REPORT
PLM by Method EPA/600/R-93/116**

Attn.: Ms. Janet Murphy
Client: PBS Engineering and Environmental, Seattle
Address: 2517 Eastlake Ave. E., Suite 100
Seattle, WA 98102

Client Job #: 40573.064
Laboratory Batch #: 201114308
Date Received: 10/26/2011
Samples Received: 48
Date Analyzed: 10/27/2011
Samples Analyzed: 48

Project: KCHA - Meadowbrook Apts

Lab ID	Client Sample ID	Layer	Description	% Asbestos Fibers	Non-Fibrous Components	%	Non-asbestos Fibers
		2	Gray fibrous material with mastic	None detected	Binder/filler, Mastic/binder	70	Cellulose
		3	White tile	2 Chrysotile	Vinyl/binder, Mineral grains	2	Cellulose
		4	Black mastic	3 Chrysotile	Mastic/binder	6	Cellulose
		5	White tile	2 Chrysotile	Vinyl/binder, Mineral grains	3	Cellulose
		6	Yellow mastic	None detected	Mastic/binder	4	Cellulose
		7	White tile	2 Chrysotile	Vinyl/binder, Mineral grains	2	Cellulose
		8	Black mastic	2 Chrysotile	Mastic/binder	5	Cellulose
38	40573 - 111	1	Tan sheet vinyl	None detected	Vinyl/binder		None detected
		2	Gray fibrous material with mastic	None detected	Binder/filler, Mastic/binder	68	Cellulose
		3	Gray sandy/brittle material	None detected	Sands, Filler, Binder	3	Cellulose
		4	Gray sheet vinyl	None detected	Vinyl/binder		None detected
		5	Gray fibrous material with mastic	None detected	Binder/filler, Mastic/binder	70	Cellulose
		6	Gray brittle material	None detected	Filler, Binder	2	Cellulose
		7	Off-white sheet vinyl	None detected	Vinyl/binder		None detected
		8	Gray fibrous material with mastic	None detected	Binder/filler, Mastic/binder	72	Cellulose
39	40573 - 112	1	Tan tile	2 Chrysotile	Vinyl/binder, Mineral grains	3	Cellulose
		2	Black mastic	3 Chrysotile	Mastic/binder	6	Cellulose
40	40573 - 113	1	Tan sheet vinyl	None detected	Vinyl/binder		None detected
		2	Gray fibrous material with mastic	None detected	Binder/filler, Mastic/binder	69	Cellulose
		3	Gray sheet vinyl	None detected	Vinyl/binder		None detected
		4	Gray fibrous material with mastic	None detected	Binder/filler, Mastic/binder	73	Cellulose
		5	Off-white sheet vinyl	None detected	Vinyl/binder		None detected
		6	Gray fibrous material with mastic	None detected	Binder/filler, Mastic/binder	68	Cellulose
		7	Off-white sheet vinyl	None detected	Vinyl/binder		None detected
		8	Gray fibrous material with mastic	None detected	Binder/filler, Mastic/binder	70	Cellulose
		9	Beige sheet vinyl	None detected	Vinyl/binder		None detected
		10	Gray fibrous material	None detected	Binder/filler	67	Cellulose
		11	Black mastic	2 Chrysotile	Mastic/binder	5	Cellulose
		12	Gray sandy/brittle material	None detected	Sands, Filler, Binder	2	Cellulose
41	40573 - 114	1	Tan sheet vinyl	None detected	Vinyl/binder		None detected
		2	Gray fibrous material with mastic	None detected	Binder/filler, Mastic/binder	66	Cellulose
		3	Gray sheet vinyl	None detected	Vinyl/binder		None detected
		4	Gray fibrous material with mastic	None detected	Binder/filler, Mastic/binder	68	Cellulose
		5	Off-white sheet vinyl	None detected	Vinyl/binder		None detected

Analyzed by:  Heather Mummev

Report reviewed by: Steve (Fanvao) Zhan President

SEATTLE ASBESTOS TEST, LLC

NVLAP Accredited - Bellevue:200876; Lynnwood:200768

Lynnwood Laboratory: 19711 Scriber Lake Rd, Suite D, Lynnwood, WA 98036; Tel: 425.673.9850, Fax:425.673.9810

Bellevue Laboratory: 12727 Northup Way, Suite 1, Bellevue, WA 98005; Tel: 425.861.1111, Fax: 425.861.1118

Website: <http://www.seattleasbestostest.com>, E-mail: admin@seattleasbestostest.com**ANALYTICAL LABORATORY REPORT
PLM by Method EPA/600/R-93/116**

Attn.: Ms. Janet Murphy
 Client: PBS Engineering and Environmental, Seattle
 Address: 2517 Eastlake Ave. E., Suite 100
 Seattle, WA 98102

Client Job #: 40573.064
 Laboratory Batch #: 201114308
 Date Received: 10/26/2011
 Samples Received: 48
 Date Analyzed: 10/27/2011
 Samples Analyzed: 48

Project: KCHA - Meadowbrook Apts

Lab ID	Client Sample ID	Layer	Description	% Asbestos Fibers	Non-Fibrous Components	% Non-asbestos Fibers
		6	Gray fibrous material with mastic	None detected	Binder/filler, Mastic/binder	70 Cellulose
		7	Tan tile	2 Chrysotile	Vinyl/binder, Mineral grains	2 Cellulose
		8	Black mastic	3 Chrysotile	Mastic/binder	5 Cellulose
42	40573 - 115	1	Tan sheet vinyl	None detected	Vinyl/binder	None detected
		2	Gray fibrous material with mastic	None detected	Binder/filler, Mastic/binder	67 Cellulose
		3	Gray sheet vinyl	None detected	Vinyl/binder	None detected
		4	Gray fibrous material with mastic	None detected	Binder/filler, Mastic/binder	71 Cellulose
		5	Off-white sheet vinyl	None detected	Vinyl/binder	None detected
		6	Gray fibrous material with mastic	None detected	Binder/filler, Mastic/binder	68 Cellulose
		7	Off-white sheet vinyl	None detected	Vinyl/binder	None detected
		8	Gray fibrous material with mastic	None detected	Binder/filler, Mastic/binder	70 Cellulose
		9	Beige sheet vinyl	None detected	Vinyl/binder	None detected
		10	Gray fibrous material	None detected	Binder/filler	72 Cellulose
		11	Black mastic	2 Chrysotile	Mastic/binder	4 Cellulose
		12	Gray sandy/brittle material	None detected	Sands, Filler, Binder	3 Cellulose
43	40573 - 116	1	Tan sheet vinyl	None detected	Vinyl/binder	None detected
		2	Gray fibrous material with mastic	None detected	Binder/filler, Mastic/binder	71 Cellulose
		3	Gray sheet vinyl	None detected	Vinyl/binder	None detected
		4	Gray fibrous material with mastic	None detected	Binder/filler, Mastic/binder	67 Cellulose
		5	White tile	2 Chrysotile	Vinyl/binder, Mineral grains	3 Cellulose
		6	Black mastic	3 Chrysotile	Mastic/binder	6 Cellulose
44	40573 - 117	1	Tan sheet vinyl	None detected	Vinyl/binder	None detected
		2	Gray fibrous material with mastic	None detected	Binder/filler, Mastic/binder	66 Cellulose
		3	Gray sheet vinyl	None detected	Vinyl/binder	None detected
		4	Gray fibrous material with mastic	None detected	Binder/filler, Mastic/binder	69 Cellulose
		5	Off-white sheet vinyl	None detected	Vinyl/binder	None detected
		6	Gray fibrous material with mastic	None detected	Binder/filler, Mastic/binder	70 Cellulose
		7	Tan sheet vinyl	None detected	Vinyl/binder	None detected
		8	Gray fibrous material with mastic	None detected	Binder/filler, Mastic/binder	72 Cellulose
45	40573 - 118	1	Tan sheet vinyl	None detected	Vinyl/binder	None detected
		2	Gray fibrous material with mastic	None detected	Binder/filler, Mastic/binder	67 Cellulose
		3	Off-white sheet vinyl	None detected	Vinyl/binder	None detected

Analyzed by: Heather Mummev

Report reviewed by: Steve (Fanvan) Zhang President

SEATTLE ASBESTOS TEST, LLC

NVLAP Accredited - Bellevue:200876; Lynnwood:200768

Lynnwood Laboratory: 19711 Scriber Lake Rd, Suite D, Lynnwood, WA 98036; Tel: 425.673.9850, Fax:425.673.9810

Bellevue Laboratory: 12727 Northup Way, Suite 1, Bellevue, WA 98005; Tel: 425.861.1111, Fax: 425.861.1118

Website: <http://www.seattleasbestostest.com>, E-mail: admin@seattleasbestostest.com**ANALYTICAL LABORATORY REPORT**
PLM by Method EPA/600/R-93/116Attn.: Ms. Janet Murphy
Client: PBS Engineering and Environmental, Seattle
Address: 2517 Eastlake Ave. E., Suite 100
Seattle, WA 98102Client Job #: 40573.064
Laboratory Batch #: 201114308
Date Received: 10/26/2011
Samples Received: 48
Date Analyzed: 10/27/2011
Samples Analyzed: 48

Project: KCHA - Meadowbrook Apts

Lab ID	Client Sample ID	Layer	Description	%	Asbestos Fibers	Non-Fibrous Components	%	Non-asbestos Fibers
		4	Gray fibrous material with mastic		None detected	Binder/filler, Mastic/binder	71	Cellulose
		5	Gray sandy/brittle material		None detected	Sands, Filler, Binder	3	Cellulose
46	40573 - 119	1	Tan sheet vinyl		None detected	Vinyl/binder		None detected
		2	Gray fibrous material with mastic		None detected	Binder/filler, Mastic/binder	69	Cellulose
		3	Off-white sheet vinyl		None detected	Vinyl/binder		None detected
		4	Gray fibrous material with mastic		None detected	Binder/filler, Mastic/binder	72	Cellulose
		5	Yellow sheet vinyl		None detected	Vinyl/binder		None detected
		6	Gray fibrous material with mastic	50	Chrysotile	Binder/filler, Mastic/binder	26	Cellulose
47	40573 - 120	1	Tan sheet vinyl		None detected	Vinyl/binder		None detected
		2	Gray fibrous material with mastic		None detected	Binder/filler, Mastic/binder	70	Cellulose
		3	Off-white sheet vinyl		None detected	Vinyl/binder		None detected
		4	Gray fibrous material		None detected	Binder/filler	68	Cellulose
		5	Black mastic	2	Chrysotile	Mastic/binder	4	Cellulose
		6	Gray sandy/brittle material		None detected	Sands, Filler, Binder	3	Cellulose
48	40573 - 121	1	White brittle material with fibrous material		None detected	Filler, Binder	31	Cellulose, Glass fibers

Analyzed by: Heather Mummev

Report reviewed by: Steve (Fanvao) Zhang, President



201114386

Project: Meadowbrook's Apartments

Project #: 40573.064

Analysis requested: PCM

Date: 10/31/11

Relinqu'd by/Signature: Janet Murphy

Date/Time: 10/31/11

Received by/Signature: Heather N...

Date/Time: 10/31/11 1730

Fax results to:

- | | | |
|---|--|--|
| <input type="checkbox"/> Brian Stanford | <input type="checkbox"/> Prudy Stoudt-McRae | <input type="checkbox"/> Ferman Fletcher |
| <input type="checkbox"/> Ernest Edwards | <input type="checkbox"/> Joe Lucas | <input type="checkbox"/> Tim Ogden |
| <input type="checkbox"/> Gregg Middaugh | <input checked="" type="checkbox"/> Janet Murphy | <input type="checkbox"/> Mike Smith |
| <input type="checkbox"/> Mark Hiley | <input type="checkbox"/> Willem Mager | <input type="checkbox"/> Chuck Greeb |

TURN AROUND TIME:

- | | | |
|----------------------------------|--|--------------------------------------|
| <input type="checkbox"/> 1 Hour | <input type="checkbox"/> 24 Hours | <input type="checkbox"/> 3-5 Days |
| <input type="checkbox"/> 2 Hours | <input checked="" type="checkbox"/> 48 Hours | <input type="checkbox"/> Other _____ |
| <input type="checkbox"/> 4 Hours | | |

BULK SAMPLE DATA FORM

Lab #	Sample #	Material	Location	Lab
	122	12" white vinyl floor tile with a texture, on top yellow mastic and paper	Bldg D, 1st Floor Laundry Room closet	

SEATTLE ASBESTOS TEST, LLC

NVLAP Accredited - Bellevue:200876; Lynnwood:200768

Lynnwood Laboratory: 19711 Scriber Lake Rd, Suite D, Lynnwood, WA 98036; Tel: 425.673.9850, Fax:425.673.9810

Bellevue Laboratory: 12727 Northup Way, Suite 1, Bellevue, WA 98005; Tel: 425.861.1111, Fax: 425.861.1118

Website: <http://www.seattleasbestostest.com>, E-mail: admin@seattleasbestostest.com**ANALYTICAL LABORATORY REPORT**

PLM by Method EPA/600/R-93/116

Attn.: Ms. Janet Murphy

Client: PBS Engineering and Environmental, Seattle

Address: 2517 Eastlake Ave. E., Suite 100

Seattle, WA 98102

Client Job #: 40573.064

Laboratory Batch #: 201114386

Date Received: 10/31/2011

Samples Received: 1

Date Analyzed: 11/2/2011

Samples Analyzed: 1

Project: Meadowbrooks Apartments

Lab ID	Client Sample ID	Layer	Description	%	Asbestos Fibers	Non-Fibrous Components	%	Non-asbestos Fibers
1	122	1	White/tan tile	2	Chrysotile	Vinyl/binder, Mineral grains	2	Cellulose
		2	Brown fibrous material with yellow mastic	50	None detected	Binder/filler, Mastic/binder	36	Cellulose



Analyzed by: Michelle Gibeau

Report reviewed by: Steve (Fanyao) Zhang, President

TAB 3
Inspector Certifications

Certificate of Completion

This is to certify that

Janet Murphy

has satisfactorily completed
4 hours of refresher training as an

Asbestos Building Inspector

to comply with the training requirements of
TSCA Title II / 40 CFR 763 (AHERA)

112302

Certificate Number



Instructor

EPA Provider Cert. Number: 1085



Jun 15, 2011

Date(s) of Training

Exam Score: NA

Expiration Date: Jun 14, 2012

Certificate of Completion

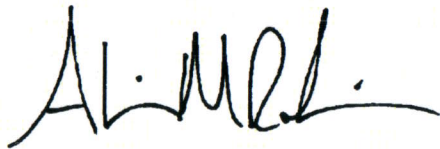
This is to certify that

Harry M. Goren

has satisfactorily completed
4 hours of refresher training as an

Asbestos Building Inspector

to comply with the training requirements of
TSCA Title II / 40 CFR 763 (AHERA)



Instructor

EPA Provider Cert. Number: 1085

110781
Certificate Number



Feb 23, 2011

Date(s) of Training

Exam Score: NA

Expiration Date: Feb 23, 2012