PROJECT MANUAL

PROJECT NAME AND LOCATION:

POOL BATHROOM INSTALLATION **Contract Number: DW2201231**
CARRINGTON APARTMENTS

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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, the construction of a new ADA Accessible Bathroom as indicated in the plans and specifications and other tasks as described in the bid documents.

NOTE: Plans include replacement of pool deck which is included in a separate contract, by others.

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:	11/15/2022 at 10:00 A.M.
Jobsite Address:	Carrington Apartments, 2501 148th Ave SE, Bellevue, WA 98007.
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 will be posted on KCHA's website.

BIDS ARE DUE:

Time:		**1:00 P.M.**
Date:		**December 2, 2022**
Address:		King County Housing Authority 600 Andover Park West, Seattle, WA 98188
Submittal Process:	*	Bids may be sent to Michelle Jackson via email to MichelleJ@kcha.org,
Process:		All Bids must be received by KCHA no later than the above due date and time. No Bids will be accepted after that date and time.

BID GUARANTEE: Not Required.

PERFORMANCE AND PAYMENT BONDS: As a condition of award Performance and Payment bonds for 100% of the Contract Award Amount shall be furnished for the Work. On contracts of one hundred fifty thousand dollars ($150,000.00) or less, at Contractors option the requirement may be waived in lieu of an additional 5% (total 10%) retainage.

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

SECTION 01100 - SUMMARY

PART 1 - GENERAL

1.1 WORK COVERED BY CONTRACT DOCUMENTS

A. Project Identification: ADA Pool Bathroom

1. Project Location: Carrington Apartments, 2501 148th Avenue SE, Bellevue, WA 98007

B. The Work consists of, but is not limited to, the construction of a new ADA Accessible Bathroom as indicated in the plans and specifications and includes the following:

C. ADA Bathroom:

1. Provide and maintain floor protection and dust control in common areas during all work.
2. Remove & dispose existing walls, flooring, fixtures and materials as indicated on plans.
3. Cut, remove and replace existing concrete floor and subgrades as needed for new rough plumbing. Some demolition has already been performed but some remains.
4. Install and finish new interior partition walls per plans including GWB and finishes to match existing.
5. Install new 3’0” x 8’0” obscure glass commercial grade entry door and hardware with matching window side lite per plans. Include allowance for commercial grade ADA door hardware to match existing.
6. Install ceramic subway tile in running bond pattern, in shower per plans with concrete backer board. Provide allowance for daltile Color Wheel Classic Arctic White rectangle 3”x6” #0190.
7. Install millwork to match existing bathrooms. All interior wood trim to be solid wood, not MDF. Provide vinyl base at interior of bathroom.
8. Provide new bathroom hardware. Include allowance for robe hook, TP dispenser, mirror, soap dispenser, towel bar and grab bars as required for ADA and per plans.
9. Electrical – Install new electrical rough-in per plans, connecting to existing electrical panel in adjacent pool equipment mechanical room. Include allowance for electrical fixtures to meet ADA requirements and per WAC 245-260-031.
10. Plumbing – Install new supply and waste plumbing per plans connecting to existing. Include allowance for ADA compliant shower stall with curb-less entry, seat, grab bars, etc. per plans. Include shower valve, floor mounted toilet and wall mounted bathroom sink, including all valves and faucets.
11. Provide and cap off new sanitary sewer stub connection point as shown in plans at exterior of bathroom wall for connection to existing sanitary system as part of the pool deck replacement, by others. Protect and mark location.
12. Concrete – Install all necessary concrete foundation for walls and flooring including patching concrete floors in former spa room where demolition has already been done to discover existing underground plumbing. Contractor to confirm extent of floor patching upon pre-bid inspection to include abandoned floor drain locations and other areas not directly related to the new bathroom footprint.
13. Mechanical - Demolish and remove all existing HVAC systems serving the previously demolished interior Jacuzzi spa room per plans. Demolish and remove air handler equipment from the mechanical room for items serving this system.

14. Cap off and insulate backside of existing intake louver above door in mechanical room to remain for future use.
15. Connect new 6" duct from new bathroom fan to existing exhaust grille as shown in the plans.
16. Install properly sized ventilation fan with ducting to the exterior, actuated by combined lighting switch & moisture sensor, per plans.
17. Install and finish all new and repaired GWB including PVA primer and final coat to match existing.
18. Install ADA compliant non-slip flooring with an allowance for Traffic Master Aiden rigid core click lock luxury vinyl plank flooring.
19. Provide paint on all new and repaired existing surfaces including GWB and trim, door and repaired existing areas.
20. Provide final cleaning of all affected areas.

Note: Contractor to verify and include access and connection to all existing utilities including electrical, plumbing and waste systems.

D. Work shall conform to the requirements of authorities having jurisdiction including but not limited to the City of Bellevue and the King County Health Department, and Water Recreation Facilities - Chapter 246-260 Washington Administrative Code – Rules and Regulations of the Washington State Board of Health, the Virginia Graeme Baker Pool and Spa Safety Act, and the Consumer Product Safety Guidelines (Section 1404).

E. Pool Deck: By others, included in separate contract.

1.2 WORK SEQUENCE

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

B. Contractor will submit written schedule outlining dates and duration of job including:

1. Construction start date
2. Work sequence
3. Anticipated final completion date

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

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 and tenants will occupy site and existing building during entire construction period. Cooperate with

Owner during construction operations to minimize conflicts and facilitate resident usage. Perform the work so as not to interfere with Owner's operations

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.

1.5 PERMITS AND PLAN REVIEW

A. KCHA has acquired a City of Bellevue Building Permit and a permit with King County Health Department. Contractor is responsible for coordination of all required inspections.

B. Contractor is responsible for all electrical, mechanical permits and will prepare and file necessary plans, prepare documents and obtain necessary approvals of Authorities Having Jurisdiction (AHJ).

C. Obtain required certificates of inspection for work and deliver to the Owner before request for acceptance and final payment for the work.

1.6 CONTRACT MODIFICATION PROCEDURES

A. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.

B. Contractor-Initiated Proposals: If latent or unforeseen conditions require modifications to the Contract, Contractor may propose changes by submitting a request for a change.

C. Construction Change Directive: Owner may issue a Construction Change Directive instructing the Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.

D. Documentation: Maintain detailed records required for a change order to be approved and provide evidence of the following:

1. Wage Rates
2. Hours worked for each trade
3. Materials
4. Equipment

E. Do not perform change order Work without approval of the Owner. Work performed without approval will not be compensated.

1.7 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.
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.

1.8 PROJECT MEETINGS

A. Preconstruction Conference: Schedule a preconstruction conference before starting construction, at a time convenient to Owner, but no later than 7 days after execution of the Agreement.

B. Progress Meetings: Conduct progress meetings at weekly intervals.

1.9 DEFINITIONS

A. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.

B. "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.

C. "Provide": Furnish and install, complete and ready for the intended use.

D. “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.

1.10 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. 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 Accident Prevention Program (APP) to the Owner's representative prior to the initial scheduled construction meeting.

1.11 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 and water 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. Do not park in marked tenant spaces.

1.12 CONSTRUCTION WASTE MANAGEMENT

A. Regulatory Requirements: Conduct construction waste management activities in accordance with State of Washington RCW 39.04.13, and all other applicable laws and ordinances.

B. Performance Requirements

1. General: Where possible divert CDL waste from the landfill by one, or a combination of the following activities: Salvage, Reuse, Source-Separated CDL Recycling, Co-mingled CDL Recycling.

C. Removal of Construction Waste Management

1. Remove CDL waste materials from project site on a regular basis. Do not allow CDL waste to accumulate on-site.
2. Transport CDL waste materials off Owner's property and legally dispose of them.
3. Burning of CDL waste is not permitted.

1.13 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.

1.14 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.

3. If materials suspected of containing hazardous materials are encountered, do not disturb and immediately notify Owner.

1.15 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.

1. Prior to acceptance of the work, 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. Prior to final acceptance and final payment, Contractor shall submit a written warranty covering labor and materials for a period of one (1) year from final completion.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01100

SECTION 01732 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes demolition and removal of the following:
   1. Concrete flooring in bathroom area including trench work for plumbing and waste.
   2. Walls and ceilings of existing to allow for connection to new bathroom enclosure.

1.2 MATERIALS OWNERSHIP

A. Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, demolished materials shall become Contractor's property and shall be removed from Project site.

1.3 PROJECT CONDITIONS

A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.

B. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities.

   1. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from authorities having jurisdiction.

C. Owner assumes no responsibility for condition of areas to be selectively demolished.

D. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

E. Storage or sale of removed items or materials on-site will not be permitted.

F. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

G. Maintain fire-protection facilities in service during selective demolition operations.

1.4 HAZARDOUS MATERIALS

A. Hazardous Materials: Materials containing lead paint are included in Limited Hazardous Materials Survey Report – ADA Bathroom prepared by PBS and dated October 31, 2022.

   1. If other materials suspected of containing hazardous materials are encountered, do not disturb and immediately notify Owner. Other hazardous materials will be removed by Owner under a separate contract.

1.5 CONSTRUCTION WASTE MANAGEMENT

A. Regulatory Requirements: Conduct construction waste management activities in accordance with State of Washington RCW 39.04.13, and all other applicable laws and ordinances.

B. Performance Requirements

1. General: Where possible divert CDL waste from the landfill by one, or a combination of the following activities: Salvage, Reuse, Source-Separated CDL Recycling, Co-mingled CDL Recycling.

C. Removal of Construction Waste Management

1. Remove CDL waste materials from project site on a regular basis. Do not allow CDL waste to accumulate on-site.
2. Transport CDL waste materials off Owner's property and legally dispose of them.
3. Burning of CDL waste is not permitted.

PART 2 - PRODUCTS

2.1 REPAIR MATERIALS

A. Use repair materials identical to existing materials.

1. If identical materials are unavailable or cannot be used for exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.
2. Use materials whose installed performance equals or surpasses that of existing materials.

2.2 FILL MATERIALS

A. Crushed rock in two lifts.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that utilities have been disconnected and capped.

B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.

C. Inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged.

3.2 UTILITY SERVICES

A. Existing Utilities: Maintain services indicated to remain and protect them against damage during selective demolition operations.

3.3 PREPARATION

A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.

C. Compact all areas to 95%.

3.4 SELECTIVE DEMOLITION

A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations.

B. Trenching, backfill and concrete repair as necessary to connect all utilities.

C. Removed and Reinstalled Items:

1. Clean and repair items to functional condition adequate for intended reuse.

3.5 INSTALLATION

A. Install two layers of crushed rock compacted to 95%.

3.6 PATCHING AND REPAIRS

A. General: Promptly repair damage to adjacent construction caused by selective demolition operations.

B. Replace coping tiles if damaged during the work.

3.7 DISPOSAL OF DEMOLISHED MATERIALS

A. General: Promptly dispose of demolished materials. Do not allow demolished materials to accumulate on-site.

B. Burning: Do not burn demolished materials.

C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

END OF SECTION 01732

SECTION 02751 - CEMENT CONCRETE PAVEMENT

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes cement concrete floor and sidewalk and accessories.

PART 2 - PRODUCTS

2.1 STEEL REINFORCEMENT

A. Plain-Steel Welded Wire Fabric or #3 rebar 18-inches on center.

2.2 CONCRETE MATERIALS

A. Ready-Mixed Concrete: Comply with requirements of these specifications and the requirements of the color admixture manufacturer, and with ASTM C 94 and ASTM C 1116.

1. Slump of concrete shall be consistent throughout Project at 4-inches or less. At no time shall slump exceed 5-inches.
2. Do not add calcium chloride to mix.
3. Supplemental admixtures shall not be used unless approved by manufacturer.
4. Do not add water to the mix in the field.
5. Expansion joints.

PART 3 - EXECUTION

3.1 DEMOLITION

A. Remove and legally dispose off site.

1. All items as necessary to complete the bathroom floor, adjacent “spa room” floor and exterior walkways where new sewer stub out is to be installed.

3.2 INSTALLATION

A. Summary: Concrete floors and sidewalk in bathroom, adjacent “spa room”.

B. Provide sub grade with adequate and uniform load bearing characteristics.

C. Forms: Set, brace, and secure edge forms, bulkheads, and intermediate screed guides for pavement to required lines, grades, and elevations.

D. Reinforcement: Accurately position and support reinforcement, and secure against displacement. Set wire ties with ends directed into concrete.

E. Joints: Install construction, isolation, contraction, and expansion joints as necessary to prevent cracking. Seal expansion joints.

1. Maximum joint spacing to be 10-feet.

F. Concrete Placement: Provide a uniform 4-inch thick material. Concrete shall have a 28-day compressive strength of 3000 psi in accordance with ASTM C 94. Comply with recommendations in ACI 304R for measuring, mixing, transporting, and placing concrete. Place concrete in a continuous operation within planned joints or sections.

1. Moisten subbase to provide a uniform dampened condition at time concrete is placed.
2. Screed and initial-float concrete surfaces with darby or bull float before excess moisture or bleed water appears on the surface.
3. Protect concrete from cold or hot weather during mixing, placing, and curing.

G. Pavement Tolerances: Slope coping to drain at 1/8-inch per foot.

3.3 FINISHES AND CURING

A. Float Finish: Begin the second floating operation when bleed-water sheen has disappeared and the concrete surface has stiffened sufficiently to permit operations. Float surfaces to true planes with gaps below 10-foot long, unleveled straightedge not to exceed 1/8-inch. Cut down high spots, and fill low spots. Refloat surface immediately to uniform granular texture.

Final finish to be smooth steel trowel finish to match existing.

3.4 REPAIRS AND PROTECTION

A. Protect materials from damage. Exclude traffic from pavement for at least 2 days after placement. Repair any damage that occurred due to lack of protection.

END OF SECTION 02751

SECTION 09310 - TILE

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes ceramic subway tile in new bathroom shower.

1.2 SUBMITTALS

A. Samples: Each type, composition, color, and finish of tile.

PART 2 - PRODUCTS

2.1 TILE

A. Install new subway tile in shower area per plans.

1. Install ceramic subway tile in running bond pattern, in shower per plans with concrete backer board. Provide allowance for daltile Color Wheel Classic Arctic White rectangle 3”x6” #0190.

2.2 MORTAR

A. Cement: ASTM C150 Type I; ASTM C150 Type I White for finish or equal waterproof cements.

B. Cement waterproofing admixture.

C. Sand: ASTM C144; ASTM C144 White for finish.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. ANSI Tile Installation Standards: Comply with parts of ANSI A108 Series "Specifications for Installation of Ceramic Tile" that apply to types of setting and grouting materials and to methods indicated in ceramic tile installation schedules.

B. TCA Installation Guidelines: TCA's "Handbook for Ceramic Tile Installation." Comply with TCA installation methods indicated in ceramic tile installation schedules.

C. Grout tile to comply with requirements of ANSI A108.10, unless otherwise indicated.

END OF SECTION 09310

SECTION 06 10 00 - ROUGH CARPENTRY

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Structural dimension lumber framing.

B. Non-structural dimension lumber framing.

C. Sheathing.

D. Preservative treated wood materials.

E. Concealed wood blocking, nailers, and supports.

1.02 REFERENCE STANDARDS

A. ANSI A208.1 - American National Standard for Particleboard; 2009.

B. AWC (WFCM) - Wood Frame Construction Manual for One- and Two-Family Dwellings; 2015.

C. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2009.

D. ASTM C1396/C1396M - Standard Specification for Gypsum Board; 2014.

E. ASTM D2898 - Standard Test Methods for Accelerated Weathering of Fire-Retardant-Treated Wood for Fire Testing; 2010.

F. AWPA U1 - Use Category System: User Specification for Treated Wood; 2012.

G. PS 1 - Structural Plywood; 2009.

H. PS 2 - Performance Standard for Wood-Based Structural-Use Panels; 2010.

I. PS 20 - American Softwood Lumber Standard; 2010.

J. WWPA G-5 - Western Lumber Grading Rules; 2011.

1.03 SUBMITTALS

A. See Project Administration, for submittal procedures. Refer to BID PACKAGE for these GENERAL REQUIREMENTS.

1.04 DELIVERY, STORAGE, AND HANDLING

A. General: Cover wood products to protect against moisture. Support stacked products to prevent deformation and to allow air circulation.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

A. Dimension Lumber: Comply with PS 20 and requirements of specified grading agencies.
   1. Species: Douglas Fir-Larch, unless otherwise indicated.
   2. If no species is specified, provide any species graded by the agency specified; if no grading agency is specified, provide lumber graded by any grading agency meeting the specified requirements.
   3. Grading Agency: Any grading agency whose rules are approved by the Board of Review, American Lumber Standard Committee (www.alsc.org) and who provides grading service for the species and grade specified; provide lumber stamped with grade mark unless otherwise indicated.
   4. Lumber of other species or grades is acceptable provided structural and appearance characteristics are equivalent to or better than products specified.

B. Lumber fabricated from old growth timber is not permitted.

C. Provide sustainably harvested wood, see Section 01 81 13 - Sustainable Building Requirements

D. Provide wood harvested and milled within a 500 mile radius of the project site.

2.02 DIMENSION LUMBER

A. Grading Agency: Western Wood Products Association; WWPA G-5.

B. Sizes: Nominal sizes as indicated on drawings, S4S.

C. Moisture Content: S-dry or MC19.

D. Stud Framing (2 by 2 through 2 by 6):
   1. Species: Douglas Fir-Larch.
   2. Grade: No. 2, unless noted otherwise.

E. Joist, Rafter, and Small Beam Framing (2 by 6 through 4 by 16):

F. Miscellaneous Framing, Blocking, Nailers, Grounds, and Furring:
   1. Lumber: S4S, No. 2 or Standard Grade.
   2. Boards: Standard or No. 3.

2.03 CONSTRUCTION PANELS

A. Wall Sheathing: Plywood, PS 1, Grade C-D, Exposure I.

2.04 ACCESSORIES

A. Fasteners and Anchors:
   1. Metal and Finish: Hot-dipped galvanized steel complying with ASTM A153/A153M for high humidity and preservative-treated wood locations, unfinished steel elsewhere.

B. Sill Gasket on Top of Foundation Wall: 1/4 inch thick, plate width, closed cell plastic foam from continuous rolls.

C. Sill Flashing: As specified in plans.

2.05 FACTORY WOOD TREATMENT

A. Treated Lumber and Plywood: Comply with requirements of AWPA U1 - Use Category System for wood treatments determined by use categories, expected service conditions, and specific applications.
   1. Preservative-Treated Wood: Provide lumber and plywood marked or stamped by an ALSC-accredited testing agency, certifying level and type of treatment in accordance with AWPA standards.

B. Preservative Treatment:
   1. Preservative Pressure Treatment of Lumber Above Grade: AWPA U1, Use Category UC3B, Commodity Specification A using waterborne preservative.
      a. Kiln dry lumber after treatment to maximum moisture content of 19 percent.
      b. Treat lumber exposed to weather.
      c. Treat lumber in contact with roofing, flashing, waterproofing, or decks.
      d. Treat lumber in contact with masonry or concrete.
      e. Treat lumber less than 18 inches above grade.

PART 3 EXECUTION

3.01 PREPARATION

A. Where wood framing bears on cementitious foundations, install full width sill flashing continuous over top of foundation, lap ends of flashing minimum of 4 inches and seal.

B. Install sill gasket under sill plate of framed walls bearing on foundations; puncture gasket cleanly to fit tightly around protruding anchor bolts.

C. Coordinate installation of rough carpentry members specified in other sections.

3.02 INSTALLATION - GENERAL

A. Select material sizes to minimize waste.

B. Reuse scrap to the greatest extent possible; clearly separate scrap for use on site as accessory components, including: shims, bracing, and blocking.

C. Where treated wood is used on interior, provide temporary ventilation during and immediately after installation sufficient to remove indoor air contaminants.

3.03 FRAMING INSTALLATION

A. Set structural members level, plumb, and true to line. Discard pieces with defects that would lower required strength or result in unacceptable appearance of exposed members.

B. Make provisions for temporary construction loads, and provide temporary bracing sufficient to maintain structure in true alignment and safe condition until completion of erection and installation of permanent bracing.

C. Install structural members full length without splices unless otherwise specifically detailed.

D. Comply with member sizes, spacing, and configurations indicated, and fastener size and spacing indicated, but not less than required by applicable codes and AWC (WFCM) Wood Frame Construction Manual

E. Install horizontal spanning members with crown edge up and not less than 1-1/2 inches of bearing at each end.

F. Construct double joist headers at floor and ceiling openings and under wall stud partitions that are parallel to floor joists; use metal joist hangers unless otherwise detailed.

G. Provide bridging at joists in excess of 8 feet span as detailed. Fit solid blocking at ends of members.

H. Frame wall openings with two or more studs at each jamb; support headers on cripple studs.

3.04 BLOCKING, NAILERS, AND SUPPORTS

A. Provide framing and blocking members as indicated or as required to support finishes, fixtures, specialty items, and trim.

B. In framed assemblies that have concealed spaces, provide solid wood fire blocking as required by applicable local code, to close concealed draft openings between floors and between top story and roof/attic space; other material acceptable to code authorities may be used in lieu of solid wood blocking.

C. In walls, provide blocking attached to studs as backing and support for wall-mounted items, unless item can be securely fastened to two or more studs or other method of support is explicitly indicated.

D. Where ceiling-mounting is indicated, provide blocking and supplementary supports above ceiling, unless other method of support is explicitly indicated.

3.05 INSTALLATION OF CONSTRUCTION PANELS

A. Wall Sheathing: Secure with long dimension perpendicular to wall studs, with ends over firm bearing and staggered, using nails, screws, or staples.
   1. Place water-resistive barrier horizontally over wall sheathing, weather lapping edges and ends.

3.06 TOLERANCES

A. Framing Members: 1/4 inch from true position, maximum.

B. Surface Flatness of Floor: 1/8 inch in 10 feet maximum, and 1/4 inch in 30 feet maximum.

C. Variation from Plane (Other than Floors): 1/4 inch in 10 feet maximum, and 1/4 inch in 30 feet maximum.

3.07 CLEANING

A. Waste Disposal: Comply with the requirements of Section 01 74 19 - Construction Waste Management and Disposal.
   1. Comply with applicable regulations.
   2. Do not burn scrap on project site.
   3. Do not burn scraps that have been pressure treated.
   4. Do not send materials treated with pentachlorophenol, CCA, or ACA to co-generation facilities or “waste-to-energy” facilities.

B. Do not leave any wood, shavings, sawdust, etc. on the ground or buried in fill.

C. Prevent sawdust and wood shavings from entering the storm drainage system.

END OF SECTION

SECTION 06 20 00 - FINISH CARPENTRY

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Finish carpentry items.

B. Wood door frames.

C. Wood casings and moldings.

D. Hardware and attachment accessories.

1.02 RELATED REQUIREMENTS

A. Section 06 10 00 - Rough Carpentry: Support framing, grounds, and concealed blocking.

B. Section 09 90 00 - Painting and Coating

1.03 REFERENCE STANDARDS

A. ANSI A208.1 - American National Standard for Particleboard; 2009.

B. AWI (QCP) - Quality Certification Program; current edition at www.awiqcp.org.

C. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards; 2014.

D. AWMAC/WI (NAAWS) - North American Architectural Woodwork Standards, U.S. Version 3.0; 2016.

E. AWPA U1 - Use Category System: User Specification for Treated Wood; 2012.

F. HPVA HP-1 - American National Standard for Hardwood and Decorative Plywood; 2009.

G. WDMA I.S. 4 - Industry Specification for Preservative Treatment for Millwork; 2013.

1.04 SUBMITTALS

A. See Division 1 Project Administration for submittal procedures and requirements. Refer to BID PACKAGE for these GENERAL REQUIREMENTS.

1.05 QUALITY ASSURANCE

A. Fabricator Qualifications: Company specializing in fabricating the products specified in this section with minimum five years of documented experience.
   1. Accredited participant in the specified certification program prior to the commencement of fabrication and throughout the duration of the project.

B. Quality Certification: Comply with AWI (QCP) woodwork association quality certification service/program in accordance with requirements for work specified in this section.
   1. Provide labels or certificates indicating that the work complies with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS) requirements for grade or grades specified.
   2. Provide designated labels on shop drawings as required by certification program.
   3. Provide designated labels on installed products as required by certification program.
   4. Submit certifications upon completion of installation that verifies this work is in compliance with specified requirements.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Protect work from moisture damage.

PART 2 PRODUCTS

2.01 FINISH CARPENTRY ITEMS

A. Quality Standard: Premium Grade, in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS), unless noted otherwise.

B. Exterior Woodwork Items:
   1. Door Casings and Moldings: Softwood; prepare for paint finish.
   2. Soffits and Fascia: Prepare for paint finish.
   3. Enclosing Soffit Spaces: As detailed.
   4. Enclosing Structural Members: Softwood lumber; "PT" preservative treated.

5. Brackets, Finials, and Pediments: Prepare for paint finish.

C. Interior Woodwork Items:
1. Moldings, Bases, Casings, and Miscellaneous Trim: Clear white pine; prepare for paint finish.
2. Window Sills: Clear fir; prepare for transparent finish.

2.02 WOOD-BASED COMPONENTS

A. Wood fabricated from old growth timber is not permitted.

2.03 LUMBER MATERIALS

A. Softwood Lumber: face species, plain sawn, maximum moisture content of 6 percent; with vertical grain.

B. Hardwood Lumber: face species, plain sawn, maximum moisture content of 6 percent.

2.04 SHEET MATERIALS

A. Hardwood Plywood: Face species as indicated, plain sawn, book matched, medium density fiberboard core; HPVA HP-1, Front Face Grade AA, Back Face Grade 1, glue type as recommended for application.

2.05 FASTENINGS

A. Adhesive for Purposes Other Than Laminate Installation: Suitable for the purpose; not containing formaldehyde or other volatile organic compounds.

B. Concealed Joint Fasteners: Threaded steel.

2.06 ACCESSORIES

A. Lumber for Shimming and Blocking: Softwood lumber of Doug Fir species.

B. Wood Filler: Solvent base, tinted to match surface finish color.

2.07 WOOD TREATMENT

A. Factory-Treated Lumber: Comply with requirements of AWPA U1 - Use Category System for pressure impregnated wood treatments determined by use categories, expected service conditions, and specific applications.

B. Water Repellent Preservative Treatment by Dipping Method: WDMA I.S. 4, with 0.25 percent retainage.

2.08 FABRICATION

A. Shop assemble work for delivery to site, permitting passage through building openings.

B. When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide trim for scribing and site cutting.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify adequacy of backing and support framing.

3.02 INSTALLATION

A. Install work in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS) requirements for grade indicated.

B. Set and secure materials and components in place, plumb and level.

C. Carefully scribe work abutting other components, with maximum gaps of 1/32 inch. Do not use additional overlay trim to conceal larger gaps.

3.03 TOLERANCES

A. Maximum Variation from True Position: 1/16 inch.

B. Maximum Offset from True Alignment with Abutting Materials: 1/32 inch.

END OF SECTION

SECTION 09 21 16 - GYPSUM BOARD ASSEMBLIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Performance criteria for gypsum board assemblies.

B. Gypsum sheathing.

C. Cementitious backing board.

D. Gypsum wallboard.

E. Joint treatment and accessories.

1.02 RELATED REQUIREMENTS

A. Section 01 81 13 – Sustainable Building Requirements

B. Section 06 10 00 - Rough Carpentry: Building framing.

C. Section 07 25 00 - Weather Barriers: Water-resistive barrier over sheathing.

D. Section 07 92 00 - Joint Sealants: Sealing acoustical gaps in construction other than gypsum board or plaster work.

1.03 REFERENCE STANDARDS

A. ANSI A108.11 - American National Standard for Interior Installation of Cementitious Backer Units; 2010 (Revised).

B. ANSI A118.9 - American National Standard Specifications for Test Methods and Specifications for Cementitious Backer Units; 1999 (Reaffirmed 2010).

C. ASTM C475/C475M - Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board; 2015.

D. ASTM C645 - Standard Specification for Nonstructural Steel Framing Members; 2014.

E. ASTM C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing; 2012.

F. ASTM C754 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products; 2015.

G. ASTM C840 - Standard Specification for Application and Finishing of Gypsum Board; 2013.

H. ASTM C1002 - Standard Specification for Steel Self-Piercing Tapping Screws for Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs; 2014.

I. ASTM C1280 - Standard Specification for Application of Gypsum Sheathing Board; 2013.

J. ASTM C1325 - Specification for Non-Asbestos Fiber-Mat Reinforced Cementitious Backer Units; 2014.

K. ASTM C1396/C1396M - Standard Specification for Gypsum Board; 2014.

L. ASTM D3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber; 2012.

M. GA-216 - Application and Finishing of Gypsum Board; 2013.

1.04 SUBMITTALS

A. See Division 1 Project Administration for submittal requirements and procedures. Refer to BID PACKAGE for these GENERAL REQUIREMENTS.

B. Product Data: Provide data on gypsum board, accessories, and joint finishing system.

C. Sustainable Building Requirements:
   1. Provide product information for all mold prevention surfaces in wet areas. Evergreen Sustainable Design Standards (ESDS) Credit 7.8: State that there are smooth, durable, in-organic, water-proof surfaces in all wet areas.

2. ESDS Credit 7.9 requires non-paper faced or mold resistant gypsum wall board behind and adjacent to tub and shower enclosures. Provide documentation of compliance for products to be installed in these locations
3. Evergreen Sustainable Design Standards (ESDS) Credit 6.2 Low/No VOC Adhesives and Sealants are to be used. All interior adhesives shall comply with the most recent version of Rule 1168 of the South Coast Air Quality Management District.

D. Test Reports: For stud framing products that do not comply with ASTM C645 or ASTM C754, provide independent laboratory reports showing maximum stud heights at required spacing and deflections.

1.05 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in performing gypsum board application and finishing, with minimum 3 years of documented experience.

PART 2 PRODUCTS

2.01 GYPSUM BOARD ASSEMBLIES

A. Provide completed assemblies complying with ASTM C840 and GA-216.

2.02 BOARD MATERIALS

A. Manufacturers - Gypsum-Based Board:
   1. American Gypsum Company: www.americangypsum.com.
   2. CertainTeed Corporation: www.certainteed.com.
   3. Georgia-Pacific Gypsum: www.gpgypsum.com.
   4. National Gypsum Company: www.nationalgypsum.com.
   5. USG Corporation: www.usg.com.

B. Gypsum Wallboard: Paper-faced gypsum panels as defined in ASTM C1396/C1396M; sizes to minimize joints in place; ends square cut.
   1. Application: Use for vertical surfaces, unless otherwise indicated.
   2. Thickness:
      a. Vertical Surfaces: 5/8 inch.
      b. Ceilings: 1/2 inch.

C. Backing Board For Wet Areas:
   1. Application: Surfaces behind tile in wet areas including tub and shower surrounds and shower ceilings.
   2. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
   3. ANSI Cement-Based Board: Non-gypsum-based; aggregated Portland cement panels with glass fiber mesh embedded in front and back surfaces complying with ANSI A118.9 or ASTM C1325.
      a. Thickness: 1/2 inch.

2.03 ACCESSORIES

A. Acoustic Sealant: Acrylic emulsion latex or water-based elastomeric sealant; do not use solvent-based non-curing butyl sealant.

B. Joint Materials: ASTM C475/C475M and as recommended by gypsum board manufacturer for project conditions.
   1. Tape: 2 inch wide, coated glass fiber tape for joints and corners, except as otherwise indicated.

C. Screws for Fastening of Gypsum Panel Products to Cold-Formed Steel Studs Less than 0.033 inch in Thickness and Wood Members: ASTM C1002; self-piercing tapping screws, corrosion resistant.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that project conditions are appropriate for work of this section to commence.

3.02 FRAMING INSTALLATION

A. Studs: Space studs at 16 inches on center.
   1. Extend partition framing to structure where indicated and to ceiling in other locations.
   2. Partitions Terminating at Ceiling: Attach ceiling runner securely to ceiling track in accordance with manufacturer's instructions.

B. Openings: Reinforce openings as required for weight of doors or operable panels, using not less than double studs at jambs.

3.03 ACOUSTIC ACCESSORIES INSTALLATION

A. Acoustic Insulation: Place tightly within spaces, around cut openings, behind and around electrical and mechanical items within partitions, and tight to items passing through partitions.

B. Acoustic Sealant: Install in accordance with manufacturer's instructions.

3.04 BOARD INSTALLATION

A. Comply with ASTM C840, GA-216, and manufacturer's instructions. Install to minimize butt end joints, especially in highly visible locations.

B. Exterior Sheathing: Comply with ASTM C1280. Install sheathing vertically, with edges butted tight and ends occurring over firm bearing.

C. Cementitious Backing Board: Install over wood framing members where indicated, in accordance with ANSI A108.11 and manufacturer's instructions.

D. Installation on Wood Framing: For non-rated assemblies, install as follows:
   1. Single-Layer Applications: Screw attachment.

3.05 INSTALLATION OF TRIM AND ACCESSORIES

A. Control Joints: Place control joints consistent with lines of building spaces and as follows:
   1. Not more than 30 feet apart on walls over 50 feet long.

B. Corner Beads: Install at external corners, using longest practical lengths.

3.06 JOINT TREATMENT

A. Finish gypsum board in accordance with levels defined in ASTM C840, as follows:

B. Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes.
   1. Feather coats of joint compound so that camber is maximum 1/32 inch.

3.07 TOLERANCES

A. Maximum Variation of Finished Gypsum Board Surface from True Flatness: 1/8 inch in 10 feet in any direction.

END OF SECTION

SECTION 09 90 00 - PAINTING AND COATING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Surface preparation.

B. Field application of texture and paints.

C. Paint exposed surfaces, except where the paint schedules indicate that a surface or material is not to be painted or is to remain natural. If the paint schedules do not specifically mention an item or a surface, paint the item or surface the same as similar adjacent materials or surfaces whether or not schedules indicate colors. If the schedules do not indicate color or finish, the Owner will select from standard colors and finishes available.

D. Scope: Finish all interior and exterior surfaces exposed to view, unless fully factory-finished and unless otherwise indicated, including the following:
   1. Texture and Prime all interior surfaces
   2. Both sides and edges of plywood backboards for electrical and telecom equipment before installing equipment.
   3. Exposed surfaces of steel lintels and ledge angles.
   4. Prime and texture all surfaces to receive wall paint.
   5. Mechanical and Electrical:
      a. In finished areas, paint all insulated and exposed pipes, conduit, boxes, insulated and exposed ducts, and hangers, brackets, collars and supports, unless otherwise indicated.

E. Do Not Paint or Finish the Following Items:
   1. Items fully factory-finished unless specifically so indicated; materials and products having factory-applied primers are not considered factory finished.
   2. Items indicated to receive other finishes.
   3. Items indicated to remain unfinished.
   4. Fire rating labels, equipment serial number and capacity labels, and operating parts of equipment.
   5. Labels: Do not paint over Underwriters Laboratories (UL), Factory Mutual (FM), or other code-required labels or equipment name, identification, performance rating, or nomenclature plates.
   6. Floors, unless specifically so indicated.
   7. Glass.
   8. Concealed pipes, ducts, and conduits.

1.02 RELATED REQUIREMENTS

A. Section 06 20 00 - Finish Carpentry

B. Section 08 16 13 - Fiberglass Doors

C. Section 09 21 16 - Gypsum Board Assemblies

1.03 REFERENCE STANDARDS

A. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency; current edition.

B. ASTM D16 - Standard Terminology for Paint, Related Coatings, Materials, and Applications; 2014.

C. ASTM D4442 - Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Base Materials; 2007.

1.04 SUBMITTALS

A. See Division 1 - Project Administration for submittal requirements and procedures. Refer to BID PACKAGE for these GENERAL REQUIREMENTS.

B. Product Data: Provide complete list of all products to be used, with the following information for each:

1. Manufacturer's name, product name and/or catalog number, and general product category (e.g. "alkyd enamel").
2. MPI product number (e.g. MPI #47).
3. Cross-reference to specified paint system(s) product is to be used in; include description of each system.
4. If proposal of substitutions is allowed under submittal procedures, explanation of all substitutions proposed.

C. Sustainable Building Requirements:
1. All paints and coatings wet applied inside the Weather Resistive Barrier must comply with the requirements of Evergreen Sustainable Design Standards (ESDS) Credit 6.1 Low/No VOC Paints, Primers and Coatings. Provide documentation of compliance

D. Samples: Submit three paper "draw down" samples, 8-1/2 by 11 inches in size, illustrating range of colors available for each finishing product specified.
1. Where sheen is specified, submit samples in only that sheen.
2. Where sheen is not specified, discuss sheen options with Architect before preparing samples, to eliminate sheens definitely not required.
3. Provide up to three revisions of colors.

E. Manufacturer's Instructions: Indicate special surface preparation procedures.

F. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
1. Extra Paint and Coatings: 1 gallon of each color; store where directed.
2. Label each container with color in addition to the manufacturer's label.

1.05 SCHEDULING OF WORK

A. Coordinate the commencement of work with the Owner so as not to cause inconvenience to the facility.

B. Post notices in conspicuous areas three to five days in advance of beginning work on specified phase, noting start date, any instructions to occupants and business phone number.

C. Identify items that need to be moved by occupant (i.e.: automobiles, deck items, BBQ, lounge chairs, plants, etc.).

1.06 QUALITY ASSURANCE

A. Field Samples: Prepare Field Samples for Owner or Owner's Representative’s to review and to establish requirements for color and finish texture.

B. Correct areas, modify method of application/installation, or adjust finish texture as directed to comply with specified requirements.

C. Maintain field sample accessible to serve as a standard of quality for this Section.

D. Manufacturer Qualifications: Company specializing in manufacturing the products specified, with minimum three years documented experience.

E. Applicator Qualifications: Company specializing in performing the type of work specified approved by manufacturer.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.

B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.

C. Paint Materials: Store at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.

D. Storage and Protection: Comply with manufacturer's recommendations.

E. Remove oily rags, waste, etc., every night and take every precaution to prevent fire.

F. Store in a cool, dry place out of direct sunlight.

G. Protect from the elements and from damage.

H. Store at a temperature of not less than 40 degrees F.

I. Stack materials no more than three high in five-gallon containers.

1.08 FIELD CONDITIONS

A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.

B. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.

C. Do not apply exterior coatings during rain or snow, or when relative humidity is outside the humidity ranges required by the paint product manufacturer.

D. Minimum Application Temperatures for Latex Paints: 45 degrees F for interiors; 50 degrees F for exterior; unless required otherwise by manufacturer's instructions.

E. Provide lighting level of 80 ft. candles measured mid-height at substrate surface.

1.10 EXTRA MATERIALS

A. See Division 1 Project Administration for additional provisions. Refer to BID PACKAGE for these GENERAL REQUIREMENTS.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Provide all paint and coating products from the same manufacturer to the greatest extent possible.
   1. In the event that a single manufacturer cannot provide all specified products, minor exceptions will be permitted provided approval by Architect is obtained using the specified procedures for substitutions.

B. Paints:
   1. Rodda Paint Co.; 6107 N. Marine Dr.; Portland, OR 97203; Toll Free Tel: 800-452-2315; Tel: 503-737-6033; www.roddapaint.com

C. Primer Sealers: Same manufacturer as top coats.

D. Approved Substitution: See Division 1 Project Administration for substitution requirements and procedures. Refer to BID PACKAGE for these GENERAL REQUIREMENTS.

2.02 PAINTS AND COATINGS - GENERAL

A. Paints and Coatings: Ready mixed, unless intended to be a field-catalyzed coating.
   1. Where MPI paint numbers are specified, provide products listed in Master Painters Institute Approved Product List, current edition available at www.paintinfo.com, for specified MPI categories, except as otherwise indicated.
   2. Provide paints and coatings of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.
   3. Provide materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
   4. Supply each coating material in quantity required to complete entire project's work from a single production run.
   5. Do not reduce, thin, or dilute coatings or add materials to coatings unless such procedure is specifically described in manufacturer's product instructions.

B. Primers: Where the manufacturer offers options on primers for a particular substrate, use primer categorized as "best" by the manufacturer.
   1. Products:
      a. Rodda 501601x First Coat Primer.
      b. Rodda 70822x Barrier III High Solids Metal Primer.

C. Volatile Organic Compound (VOC) Content:
   . Paints and coatings that will be wet applied inside the WRB must comply with the VOC

content requirements of ESDS Credit 6.1 – Low VOC Paints and Coatings. a

2. Determination of VOC Content: Testing and calculation in accordance with 40 CFR 59, Subpart D (EPA Method 24), exclusive of colorants added to a tint base and water added at project site; or other method acceptable to authorities having jurisdiction.

D. Chemical Content: The following compounds are prohibited:
   1. Aromatic Compounds: In excess of 1.0 percent by weight of total aromatic compounds (hydrocarbon compounds containing one or more benzene rings).
   2. Acrolein, acrylonitrile, antimony, benzene, butyl benzyl phthalate, cadmium, di (2-ethylhexyl) phthalate, di-n-butyl phthalate, di-n-octyl phthalate, 1,2-dichlorobenzene, diethyl phthalate, dimethyl phthalate, ethylbenzene, formaldehyde, hexavalent chromium, isophorone, lead, mercury, methyl ethyl ketone, methyl isobutyl ketone, methylene chloride, naphthalene, toluene (methylbenzene), 1,1,1-trichloroethane, vinyl chloride.

E. Sheens: Provide the sheens specified; where sheen is not specified, sheen will be selected later by Architect from the manufacturer's full line.

F. Colors: To be selected from manufacturer's full range of available colors.
   1. Selection to be made by Owner after award of contract.
   2. In finished areas, finish pipes, ducts, conduit, and equipment the same color as the wall/ceiling they are mounted on/under.

2.03 PAINT SYSTEMS - EXTERIOR

A. Caulk all splits and cracks. Press all caulking into gaps using a finger or appropriate tool. Use the specified patching compound for gaps exceeding ¼ inch. Refer to manufacturer’s printed instructions for further instructions regarding caulking or patching compounds. Caulking shall be carefully completed and, if necessary, trimmed and smoothed to provide a uniform surface.
   1. Caulking: Sashco Big Stretch Caulk

B. Paint E-OP - Exterior Type 1: All Exterior Surfaces Indicated to be Painted, Unless Otherwise Indicated: Including concrete and cement board.
   1. Preparation as specified by manufacturer; sprayer, brush and roll, min 1.5 mils (4 mils wet)
   2. Two top coats and one coat primer recommended by manufacturer.
   3. Top Coat(s): Exterior Latex; MPI #10, 11, 15, 119, 214.
   4. Satin: MPI gloss level 4; use this sheen at Siding and Trim.
   5. Product(s):
      a. Rodda 521101X Cover Coat AC909 Exterior Acrylic Latex Satin.

C. Paint WE-OP-3L - Exterior Type 2: Wood, Opaque, Latex, 3 Coat:
   1. One coat of latex primer sealer. Spot prime with Rodda 501601 First Coat Acrylic Latex Primer.
   2. Semi-gloss: Two coats of latex enamel; Additional coats may be required, min dry film thickness of 1.5 per coat, 4 mils wet per coat..
   3. Product(s):
      a. Rodda 542001x Unique II Semi-Gloss

D. Paint ME-OP-3L - Exterior Type 3: Ferrous Metals, Unprimed, Latex, 3 Coat:
   1. One coat of latex primer. Spot prime exposed metal areas with 708225 Barrier III High Solids Alkyd Metal Primer (solvent based)
   2. Semi-gloss: Two coats of latex enamel; Rodda 548901x Multi Master DTM Semi-Gloss.

E. Paint MgE-OP-3L – Exterior Type 4: Galvanized Metals, Latex, 3 Coat:
   1. One coat galvanize primer.
   2. Semi-gloss: Two coats of latex enamel.

2.04 PAINT SYSTEMS - INTERIOR

A. Paint I-OP - Interior Type 1: All Interior Surfaces Indicated to be Painted, Unless Otherwise Indicated: Including gypsum board, concrete, wood, uncoated steel, shop primed steel, galvanized steel, and aluminum.
   1. Two top coats and one coat primer.

2. Top Coat(s): High Performance Architectural Interior Latex; MPI #138-141.
3. Eggshell: MPI gloss level 3; use this sheen at all locations.
4. Primer(s): As recommended by manufacturer of topcoats.

B. Paint I-OP-MD-DT - Interior Type 2: Medium Duty Door/Trim: For surfaces subject to frequent contact by occupants, including wood:
1. Two top coats and one coat primer.
2. Top Coat(s): High Performance Architectural Interior Latex; MPI #139, 140, 141.
3. Product(s):
   a. Primer: Rodda 502001x Unique II Enamel Undercoat.
   b. Finish: Rodda 542001X Unique II Semi-gloss.

C. Paint I-OP-MD-WC – Interior Type 3: Medium Duty Vertical/Overhead: (Walls and Ceilings) Including gypsum board.
1. Two top coats and one coat primer.
2. Top Coat(s): High Performance Architectural Interior Latex; MPI #138-141.
3. Satin: MPI gloss level 4; use this sheen at Walls and Ceilings.
4. Semi-Gloss: MPI gloss level 5; use this sheen at Wet areas (Bathrooms).
5. Product(s):
   a. Primer: Rodda 507801x Scotseal.
   b. Finish: Rodda 523401x Wall Pro Satin.
   c. Zinsser Perma-White Satin, tinted to color choice .
   d. Solar Chemicals - Trimaco, Mildew Control additive

D. Paint I-OP-HD – Interior Type 4: Heavy Duty Vertical and Overhead: Including Millwork and Fiberglass Entry.
1. Semi-Gloss: MPI gloss level 5; use this sheen Fiberglass Entry Door and Millwork.
2. Product(s):
   a. Finish: 2x coats; Rodda 542001x Unique II Semi-Gloss.

PART 3 EXECUTION

3.01 EXAMINATION

A. Do not begin application of coatings until substrates have been properly prepared.

B. Verify that surfaces are ready to receive work as instructed by the product manufacturer.

C. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.

D. Test shop-applied primer for compatibility with subsequent cover materials.

E. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:
1. Gypsum Wallboard: 15 percent.
2. Interior Wood: 15 percent, measured in accordance with ASTM D4442.
3. Exterior Wood: 17 percent, measured in accordance with ASTM D4442.
4. Concrete Slab-On-Grade: Perform calcium chloride test over 24 hour period or other acceptable test to manufacturer. Verify acceptable moisture transmission and pH levels.
5. Concrete: 13 percent. Cure minimum 28 days

3.02 PREPARATION

A. Clean surfaces thoroughly and correct defects prior to coating application.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

C. Remove or repair existing coatings that exhibit surface defects.

D. Remove or mask surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces or finishing.

E. Seal surfaces that might cause bleed through or staining of topcoat.

F. Remove mildew from impervious surfaces by scrubbing with solution of tetra-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.

G. Gypsum Board Surfaces to be Painted: Fill minor defects with filler compound. Spot prime defects after repair.

H. Concrete Floors and Traffic Surfaces to be Painted: Remove contamination, acid etch, and rinse floors with clear water. Verify required acid-alkali balance is achieved. Allow to dry.

I. Aluminum Surfaces to be Painted: Remove surface contamination by steam or high pressure water. Remove oxidation with acid etch and solvent washing. Apply etching primer immediately following cleaning.

J. Galvanized Surfaces to be Painted: Remove surface contamination and oils and wash with solvent. Apply coat of etching primer.

K. Corroded Steel and Iron Surfaces to be Painted: Prepare using at least SSPC-SP 2 (hand tool cleaning) or SSPC-SP 3 (power tool cleaning) followed by SSPC-SP 1 (solvent cleaning).

L. Uncorroded Uncoated Steel and Iron Surfaces to be Painted: Remove grease, mill scale, weld splatter, dirt, and rust. Where heavy coatings of scale are evident, remove by hand or power tool wire brushing or sandblasting; clean by washing with solvent. Apply a treatment of phosphoric acid solution, ensuring weld joints, bolts, and nuts are similarly cleaned. Prime paint entire surface; spot prime after repairs.

M. Shop-Primed Steel Surfaces to be Finish Painted: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces. Re-prime entire shop-primed item.

N. Interior Wood Surfaces to Receive Opaque Finish: Wipe off dust and grit prior to priming. Seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after primer has dried; sand between coats. Back prime concealed surfaces before installation.

O. Interior Wood Surfaces to Receive Transparent Finish: Wipe off dust and grit prior to sealing, seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after sealer has dried; sand lightly between coats. Prime concealed surfaces with gloss varnish reduced 25 percent with thinner.

P. Exterior Wood Surfaces to Receive Opaque Finish: Remove dust, grit, and foreign matter. Seal knots, pitch streaks, and sappy sections. Fill nail holes with tinted exterior calking compound after prime coat has been applied. Back prime concealed surfaces before installation.

3.03 APPLICATION

A. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.

B. Exterior Wood to Receive Opaque Finish: If final painting must be delayed more than 2 weeks after installation of woodwork, apply primer within 2 weeks and final coating within 4 weeks.

C. Apply products in accordance with manufacturer's instructions.

D. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.

E. Apply each coat to uniform appearance.

F. Sand wood and metal surfaces lightly between coats to achieve required finish.

G. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.

H. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

3.04 FIELD QUALITY CONTROL

A. The Owner’s Representative and paint manufacturer shall inspect preparation prior to the application of paint finishes. Contractor will rework surfaces not properly prepared to receive paint finishes to the satisfaction of the either.

B. Owner's representative will provide field inspection.

3.05 CLEANING

A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.

3.06 PROTECTION

A. Protect finished coatings until completion of project.

B. Touch-up damaged coatings after Substantial Completion.

END OF SECTION

SECTION 10 28 00 - TOILET, BATH AND CLOSET ACCESSORIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Residential toilet, shower, and bath accessories.

B. Accessories for showers, tubs, and residential bathrooms.

1.02 RELATED REQUIREMENTS

A. Section 06 10 00 - Rough Carpentry: Concealed supports for accessories, including in wall framing and plates and above ceiling framing.

1.03 REFERENCE STANDARDS

A. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2015.

B. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2015.

C. ASTM B456 - Standard Specification for Electrodeposited Coatings of Copper Plus Nickel Plus Chromium and Nickel Plus Chromium; 2011.

D. ASTM C1036 - Standard Specification for Flat Glass; 2011.

E. ASTM C1048 - Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass; 2012.

F. ASTM C1503 - Standard Specification for Silvered Flat Glass Mirror; 2008 (Reapproved 2013).

1.04 SUBMITTALS

A. See Division 1 Project Administration for submittal procedures and requirements. Refer to BID PACKAGE for these GENERAL REQUIREMENTS.

B. Product Data: Submit data on accessories describing size, finish, details of function, and attachment methods.

C. Manufacturer's Installation Instructions: Indicate special procedures and conditions requiring special attention.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. See plans for all accessory items.

1. Approved Substitutions: See Division 1 Project Administration for substitution procedures and requirements. Refer to BID PACKAGE for these GENERAL REQUIREMENTS.

2.02 MATERIALS

A. Accessories - General: Shop assembled, free of dents and scratches and packaged complete with anchors and fittings, steel anchor plates, adapters, and anchor components for installation.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify exact location of accessories for installation.

3.02 PREPARATION

A. Deliver inserts and rough-in frames to site for timely installation.

B. Provide templates and rough-in measurements as required.

3.03 INSTALLATION

A. Install accessories in accordance with manufacturers' instructions in locations indicated on the drawings.

B. Install plumb and level, securely and rigidly anchored to substrate.

C. Mounting Heights: As required by accessibility regulations, unless otherwise indicated.

3.04 PROTECTION

A. Protect installed accessories from damage due to subsequent construction operations.

END OF SECTION

SECTION 20 00 00 - GENERAL MECHANICAL REQUIREMENTS

PART 1 GENERAL

1.01 GENERAL

A. Includes, but not limited to, furnishing labor, materials, and equipment for completion of work unless indicated or noted otherwise. See Division 1 for sequence of work.

B. Work indicated on the mechanical plans and in the specifications, that will not be performed by this Mechanical Contractor (i.e. duct and pipe block-outs, penetrations through walls, floors, and attic, wall patching, work indicated to be performed by other Contractors, etc), shall be coordinated with the General Contractor prior to bid. The Mechanical Contractor is responsible for identifying quantity, size, and type of work with the General Contractor. Work not coordinated will be the responsibility of the Mechanical Contractor and shall not be charged as additional cost to the Owner.

C. All work included in Division 22 and 23 shall be the responsibility of a single Mechanical Subcontractor.

D. This Contractor shall obtain and pay for all permits required by State and local authorities governing the installation of the mechanical work. It is the Contractor's responsibility to contact all utility organizations serving the building, prior to bid, and to include all charges for inspections, installation of materials, equipment and connection of all required utilities.

E. Furnish exact location of electrical connections and complete information on motor controls to Division 26, prior to bid.

F. Putting heating, ventilating, cooling, and exhaust systems into full operation and continuing their operation during each working day of testing and balancing.

G. Making changes in mechanical drive systems (pulleys, belts, VFD’s, motor speed, etc) and dampers or adding dampers as required for correct balance as recommended by Section 23 05 93 and at no additional cost to Owner. All equipment shall be provided with a single point electrical connection, unless otherwise indicated.

H. The drawings and specifications are complementary and what is called for in either is binding as if called for in both.

I. The ductwork and accessibility to HVAC equipment shall take precedence over all other equipment in the ceiling interstitial spaces or other mechanical areas including, but not limited to, sprinkler piping, heating piping, domestic water piping and electrical conduit (except fire pump rooms where as fire sprinkler equipment takes precedence).

1.02 RELATED SECTIONS

A. General and Supplementary Conditions and Division 1 apply to this Section.

B. Section 01 81 13 – Sustainable Building Requirements

1.03 SUBMITTALS REQUIREMENTS OF THIS SECTION

A. Access doors.

1.04 QUALITY ASSURANCE

A. Requirements of Regulatory Agencies:
   1. Perform work in accordance with applicable Codes.
   2. In case of differences between building codes, state laws, local ordinances, utility company regulations, and Contract Documents, the most stringent shall govern.

B. Product Approvals: See paragraphs elsewhere in this specification.

C. Warranties:
   1. In addition to guarantee specified in General Conditions, guarantee heating, cooling, and plumbing systems to be free from noise in operation that may develop from failure to construct system in accordance with Contract Documents.
   2. In order to be protected, secure proper guarantees from suppliers and Subcontractors.
   3. Provide certificates of warranty for each piece of equipment. Clearly record "start-up" date of each piece of equipment on certificate. Include certificates as part of Operation & Maintenance Manual.

D. Manufacture: Use domestic made pipe, pipe fittings, and motors on Project.

E. Identification: Motor and equipment name plates as well as applicable UL and AGA labels shall be in place when Project is turned over to Owner.

1.05 CODES AND STANDARDS

A. Codes and agencies having jurisdictional authority over mechanical installation.
   1. Washington State Energy Code -- Latest Approved Edition
   2. International Building Code -- Latest Approved Edition
   3. International Fire Code – Latest Approved Edition
   4. International Mechanical Code -- Latest Approved Edition
   5. Uniform Plumbing Code -- Latest Approved Edition
   6. Local Sewer and Water District Requirements
   7. State and County Department of Health
   8. Local Fire Marshal
   9. State Boiler Inspector
   10. Puget Sound Air Pollution Control
   11. State of Washington Boiler and Unfired Pressure Vessel Inspection Law
   12. Occupational Safety and Health Administration (OSHA)
   13. Washington Industrial Safety and Health Act (WISHA)
   14. National Fire Protection Association (NFPA)

B. ASME code stamp required on all pressure vessels and relief valves. Certificate required from the State Boiler Inspector showing approval of the equipment and its installation.

1.06 SYSTEMS DESCRIPTION

A. Site Inspection:
   1. Examine premises and understand the conditions which may affect performance of work of this Division before submitting proposals for this work.
   2. No subsequent allowance for time or money will be considered for any consequence related to failure to examine site conditions.

1.07 DESIGN DRAWINGS

A. Mechanical drawings are not shop drawings and are intended to show general arrangement of piping, ductwork, equipment, etc. Follow as closely as actual building construction and work of other trades will permit.

B. Consider architectural, structural and electrical drawings part of this work in so far as these drawings furnish information relating to design and construction of building. Architectural drawings take precedence over mechanical drawings.

C. Because of small scale of mechanical drawings, it is not possible to indicate all offsets, fittings, and accessories which may be required. The Mechanical Contractor shall include in the bid a sufficient quantity of offsets, fittings, and accessories for the size of the project, based upon the contractor’s experience, necessary to facilitate mechanical utility installation. No additional costs shall be charged for additional offsets, fittings, and accessories required for installation of the mechanical utilities shown on the design drawings. Investigate structural and finish conditions affecting this work and arrange work accordingly, providing such fittings, valves, and accessories required in meeting the design conditions.

1.08 PRE-CONSTRUCTION COORDINATION MEETING

A. This Contractor is responsible to participate in coordination meetings with the General Contractor, Fire Protection Contractor and other subcontractors needing to coordinate special requirements (such as electrical contractor, HVAC contractor, plumbing contractor, etc.)

B. Coordination meetings shall consider elevations, required clearances, and routings of all trades to assure that all trades can be installed without conflict.

C. The outcome of this coordination shall allow each system (Mechanical, Fire Protection, Plumbing, Electrical, etc) to be installed without further conflicts for space or locations.

D. Failure to coordinate with other trades and/or existing conditions that result in the removal and re-installation of systems shall not be charged as additional costs.

1.09 COORDINATION DRAWINGS

A. Develop coordination drawings, and other pre-installation coordination methods as necessary to coordinate layouts prior to installation. Coordination drawings shall consist of overlay drawings, or other similar methods to graphically indicate plumbing, fire protection, HVAC, electrical, and other similar elements in a single location in order to identify conflicts. All elements shall be drawn to scale. Coordination drawings are not required to be submitted for approval, except where indicated otherwise in the specification. However, a minimum of one hard copy of coordination drawings shall be present on site at all times and made available to the Owner upon request. If coordination drawings are not on file, or if systems are not installed per coordination drawings, costs and delays of required reengineering, replacement and other work required to correct conflicts shall be solely the Contractor's.

B. Coordination drawings shall consist of one of the following:
   1. Drawing sheets developed sequentially by each trade with all components drawn to scale and color coded to represent each trade.

C. Where coordination drawings, or other preinstallation coordination methods show that available space is inadequate or that modifications will affect architectural elements, request information from the Owner before proceeding with work. No additional payment will be made for installation conflicts which could have been identified by coordination drawings or other pre-installation coordination methods.

D. Make runs parallel with lines of building. Utilize space efficiently to maximize accessibility for other installations, for maintenance, and for repairs.

E. Each subcontractor shall:
   1. Indicate the exact name, location and dimension of each element to be provided by that subcontractor.
   2. Arrange components as necessary to avoid conflict with new and existing conditions and the work of other subcontractors as directed by the General Contractor.
   3. Note requirements for sleeves, block-outs, cutting, patching, access doors, blocking, supports, inserts and other similar items.
   4. Notify the General Contractor of conflicts.
   5. Approve the coordination drawings when all conflicts are resolved and an acceptable layout is obtained.

F. The General Contractor shall coordinate the layouts indicated on the coordination drawings and resolve any conflicts prior to commencement of subject portions of the work.

1.10 ELECTRICAL

A. All electrical work, conduit, boxes and devices in connection with control wiring as required to install the control equipment as specified herein or shown on the drawings shall be furnished and installed complete by the Division 26 Contractor.

B. All electrical work performed under this Section of the Specifications shall conform to all applicable portions of the Division 26 specifications and shall conform to all governing codes.

C. All equipment shall be factory wired to a junction box for connection to electrical service.

D. Where a piece of equipment specified includes an electric motor, the motor shall be furnished and mounted by this Contractor. Motor starter, disconnect switches and wiring from the electrical panel to the motor control devices and to the motor shall be provided by the Division 26 Contractor unless stated otherwise in the mechanical specification and/or on the mechanical drawings.

E. All motor controllers and equipment panels (including but not limited to packaged equipment, custom control panels, custom air handler panels) shall comply with NEC (including, but not limited to, marking on controllers and labeling requirements).

1.11 TEMPORARY HEATING (ELECTRIC OR INDIRECT GAS HEATERS)

A. Temporary heating for facility during construction phase shall not be supplied by the permanent system installed under these specifications, unless all of the following are satisfied:
   1. Product warranties shall be extended to account for construction use. Contractor shall furnish certified document stating such extended warranties.
   2. Contractor shall obtain letter of approval from the Owner stating that they understand equipment expected life may be shortened due to severe usage.
   3. Contractor shall be responsible for pressure cleaning all coils and vacuum cleaning all ductwork prior to occupancy.

1.12 PRODUCT HANDLING AND PROTECTION

A. Contractor is responsible for protection of all material, equipment and apparatus provided under this Section from damage, water, corrosion, freezing and dust, both in storage and when installed, until final project acceptance.

B. Provide temporary heated and sheltered storage facilities for material and equipment.

C. Completely cover motors and other moving machinery to protect from dirt and water during construction.

D. Handle and protect equipment and/or material in manner precluding unnecessary fire hazard.

E. Equipment requiring rotation and/or lubrication during storage shall have records maintained and witnessed on a monthly basis and forwarded to the Architect/Engineer prior to acceptance. Provide recorded maintenance for the O&M Manual.

F. Material or equipment damaged because of improper storage or protection will be rejected.

G. Equipment finish that is damaged by handling, storage, etc. shall be corrected by the Contractor at no additional cost to the Owner.

1.13 DEFINITIONS

A. Finished Spaces: Spaces used for habitation or occupancy where rough surfaces are plastered, paneled, or otherwise treated to provide a pleasing appearance.

B. Unfinished Spaces: Spaces used for storage or work areas, such as fan rooms, mechanical and boiler rooms, etc., where appearance is not a factor.

C. Concealed Spaces: Spaces out of sight. For example, above ceilings; below floors; between double walls; furred-in areas; pipe and duct shafts; and similar spaces.

D. Exposed: Open to view. For example, pipe running through a room and not covered by other construction.

E. Outside: Open to view up to 5 feet beyond the exterior side of walls, above the roof, and unexcavated or crawl spaces.

F. Conditioned Space: An area, room or space normally occupied and being heated or cooled for human habitation by any equipment as defined by the extent of the building envelope insulation.

G. Replace: Existing mechanical equipment and components shall be demolished and discarded from the project site or as directed otherwise. New mechanical equipment and components shall be installed in the area where the existing mechanical equipment and components were demolished or as indicated on the contract documents.

H. Removed: Existing mechanical equipment and components identified on the contract documents shall be taken apart, taken down, and discarded from the project site unless directed

otherwise on plan. Removed items shall not be brought back to the project site for use or reinstallation.

I. Reinstall: Existing mechanical equipment and components identified on the contract documents that need to be taken down and installed in the same or new location.

1.14 SCHEDULE OF VALUES

A. General: Provide schedule of values per Division 1 and related project requirements:
   1. Division 20, 22 and 23 Breakdown: Provide schedule of values for each Division, broken down into labor and materials per specification section at a minimum. Further breakdown into subcategories is at the option of the Contractor.

B. The Contractor is advised that in addition to payments held out for retainage and project final completion, the Owner reserves the right to withhold 10% of the funds for any of the above categories until the systems (of that category) have been proven to operate as specified and have been completely tested, adjusted, and balanced.

1.15 SUBMITTAL PROCEDURES

A. All material used on the project shall be new and free of defects. The Owner reserves the right to reject any material, the appearance of which has been damaged on the site or in shipment. The material shall be of pre-approved equal quality to that which is specified. Should the make and type of material differ from that specified, the Contractor may be required to submit catalog and engineering data (samples if requested) necessary to make a comparison and determine its suitability. The Contractor shall also bear the cost of all changes to any aspect of the project (electrical, mechanical, building, etc.) made necessary by any approved substitutions. Approved substitutions include those listed as approved manufacturers or approved substitutions. Tentative approval of substitute material and equipment will be made **prior to bid only**. Such request for approval shall be made two weeks in advance of the bid opening to allow time to assess its suitability. Failure to obtain approval prior to bid shall require the successful bidder to furnish materials and equipment only as specified herein (see paragraph 2.01, this specification).

B. Equipment submittals shall be submitted per one of the following processes as selected by the Owner:
   1. Electronic Submittal Process:
      a. The Contractor shall upload one complete PDF file of the Electronic Submittal Package to the Owner for approval. The Electronic Submittal package shall include the following:
         1. All required submittals (i.e. equipment cut sheets, shop drawings, etc.) per each specification section.
         2. Table of contents identifying each specification section, submittal requirement of each specification, and the manufacturer name and model number of each item submitted.
         3. Index sheet for each specification section.
         4. Submission of PDF files of individual specifications or equipment cuts will be automatically rejected.
         5. The Contractor shall complete and upload a Submittal Information Form for Owner to review. The equipment submittal will not be considered “Received” nor will a review be provided until both the Electronic Submittal Package and Submittal information Form have been uploaded.
   2. Hard Copy Submittal Process:
      a. The Contractor shall submit to the Owner, for approval, complete information on all equipment and materials to be provided on the project. Provide copies as specified by Division 1 and at a minimum provide one (1) **copy** of the manufacturer's catalog and engineering data, shop drawings of shop fabricated equipment and instruction data for each item included under this Section of the Specifications. The Contractor shall submit a typed, signed list including all items to be furnished on the project. The signature on the aforementioned list shall indicate that the Contractor has examined the suitability of all material and equipment with respect to compliance with these

specifications. The Contractor's approval shall also indicate that physical dimensions of the equipment have been verified with the installation requirements and were found to cause no interference therewith. The submittal packages are as follows:

b. Furnish submittals in a hard-back, three-ring binder. The binder shall have tabs which are indexed with a Table of Contents. The Table of Contents shall correlate an index number for each individual specification number. If the equipment submittal is not bound to the Engineer's satisfaction, it may be rejected.

3. Review of submittal data by the Owner does not relieve the Contractor of responsibility for quantities, measurements, and compliance with the intent of all contract documents.
4. Furnish submittals generally according to the list below. Individual sections may contain more specific submittal listing of the particular section labeled "Submittal Requirements." Furnish on each particular section and the following equipment:
   a. Pipe
   b. Pipe Insulation
   c. Duct Insulation and Lining
   d. Hot Water Tanks
   e. Plumbing Fixtures
   f. Valves
   g. Pipe Hangers
   h. Piping Specialties
   i. HVAC Equipment
   j. Temperature Control Equipment and Shop Drawings
5. Any material found to be installed without prior approval will be required to be removed and replaced with only specified material at Contractor's cost.

1.16 OPERATION AND MAINTENANCE MANUAL FOR MECHANICAL SYSTEMS

A. Bind Operation & Maintenance Manual for Mechanical Systems in three-ring, hard-backed binder with clear plastic pocket on spine. Spine of each binder shall have following typewritten lettering inserted:

OPERATION
AND
MAINTENANCE
MANUAL
FOR MECHANICAL SYSTEMS

B. Provide master index at beginning of Manual showing items included. Use plastic permanent tab indexes for Sections of Manual.

C. First Section shall consist of name, address, and phone number of Architect, General Contractor, and Mechanical, Plumbing, Sheet Metal, Refrigeration, Temperature control, and Electrical Subcontractors. Also include complete list of equipment installed with name, address, and phone number of each vendor.

D. Provide Section for each type of item of equipment.

E. Submit copies as specified by Division 1.

F. Include descriptive literature (Manufacturer's catalog data) of each manufactured item. Literature shall show capacities and size of equipment used and be marked indicating each specific item with applicable data underlined.

G. Include all warranties/guarantees including extended warranties.

H. Include all start-up logs.
   1. .

I. Maintenance Instructions shall include:
   1. Manufacturer's maintenance instructions for each piece of mechanical equipment installed in Project. Instructions shall include name of vendor, installation instructions, parts numbers and lists operation instructions of equipment, and maintenance and lubrication instructions.
   2. Summary list of mechanical equipment requiring lubrication showing name of equipment,

location, and type and frequency of lubrication.

3. List of mechanical equipment used indicating name, model, serial number, and name plate data of each item together with number and name associated with each system item.

1.17 WARRANTY

A. All warranty information shall be submitted as part of the “Operation and Maintenance Manual for Mechanical Systems” in this section.

B. All warranties for mechanical and plumbing equipment shall start upon completion of commissioning.

1.18 AS-BUILT DRAWINGS

A. The Contractor shall maintain, in addition to coordination drawings, an as-built set of prints that clearly identify all deviations from the original design. The As-Built drawings shall be drafted per one of the following methods:
   1. Draft all revisions on a separate dark layer, on the coordination drawing set. The Contractor shall maintain a copy of the original coordination drawing set.
   2. Draft all revisions on the design drawings with a red color pencil.

B. This red lined set shall identify all drawing revisions including addenda items, change orders, and Contractor revisions.

C. Drawings shall show locations of all underground pipe and duct installed by this Contractor. Underground pipes and ducts shall be shown with cross section elevations. All pipe, raceway, manholes or lines of other trades shall be included.

D. The Contractor shall update all references to specific products to indicate products actually installed on project. This shall include, but not be limited to, air handlers, heat pumps etc.
   1. Upon completion of the Division 22 and 23 Work, the Contractor shall deliver the red lined drawings and one set of neatly drafted as-built drawings on electronic media in ACAD 2015 format and PDF files to the Engineer for transmittal through the Engineer to the Owner.

PART 2 PRODUCTS

A. In reviewing a manufacturer for acceptance, factors considered include the following: engineering data showing item's performance, proper local representation of manufacturer, likelihood of future manufacturer's local support of product, service availability, previous installation, previous use by Owner/Engineer/Architect and record, product quality, availability/quality of maintenance and operation data, capacity/performance compared to specified items, acoustics, items geometry/access utility needs, and similar concerns.

B. If approval is received to use other than specified items, responsibility for specified capacities and ensuring that items to be furnished will fit space available lies with this Division.

C. If non-specified equipment is used and it will not fit job site conditions, this Division assumes responsibility for replacement with items named in Specification.

2.02 ACCESS DOORS

A. This Contractor shall be responsible for furnishing and installing flush mounted access doors in walls, ceiling and floors and chases where the following equipment is concealed and is not accessible through same.
   1. Valves (shut off, balancing, control, trap primers, etc).
   2. Dampers (control, balancing, fire, smoke, etc.).

B. Doors shall be UL listed 20 ga. cold rolled steel with concealed hinge, screwdriver operated lock and prime coated. Furnish suitable for area mounted. Provide stainless steel access doors for non-painted surfaces (i.e. tile, MDF)

C. Approved Manufacturers:
   1. Milcor
   2. Acudor
   3. Greenheck
   4. Nystrom

PART 3 EXECUTION

3.01 WORKMANSHIP

A. This Contractor shall provide completed systems with a neat and finished appearance. If, in the judgment of the Engineer, any portion of the work has not been performed in a workmanlike manner or is left in a rough, unfinished state, this Contractor will be required to remove, reinstall or replace same and patch and paint surrounding surfaces in a manner acceptable to the Engineer, without increase in cost to the Owner.

3.02 FINAL INSPECTION

A. Final Inspection:
   1. Prior to acceptance of the mechanical work, the Contractor shall put all mechanical systems into operation for a period of not less than 5 working days so that they may be inspected by the Owner's representatives.
   2. The time of the final inspection shall be mutually agreed to by the Owner, and Contractor.
   3. The Contractor shall furnish adequate staff to operate the mechanical systems during inspection.

3.03 OPERATION AND MAINTENANCE TRAINING

A. Upon completion of the work, and after all tests and final inspection of the work by the Authority(s) having jurisdiction, the Contractor shall demonstrate and instruct the Owner's designated operation and maintenance personnel in the operation and maintenance of the various mechanical systems. The Contractor shall arrange scheduled instruction periods with the Owner. The Contractor's representatives shall be Superintendents or Foremen knowledgeable in each system and Supplier's Representative when so specified.

B. The contractor shall, at a minimum, include an Owner Training sign-in sheet in the O&M Manual that indicates the start and end times of the training and the type of training provided. Owner shall sign off on the Owner training sign-in sheet to be considered complete and satisfactory to Owner.

C. Costs for time involved by Contractor shall be included in the bid.

3.04 CLOSEOUT SUBMITTALS

B. Requirements: Final approval of mechanical installation will be recommended upon completion of the following:
   1. Completion of all punchlist items
   2. Owner Training Sign-In sheet with Owner's signature
   3. Permit Submittal
   4. Valve Diagrams
   5. Reproducible As-Built drawings delivered to Architect
   6. Air and/or Water Balance Report
   7. Asbestos Free Statement
   8. Guarantees
   9. Equipment Manufacturer of all HVAC compressor units shall provide start-up logs.
   10. EMCS Trend Logs.

3.05 PREPARATION

B. New Buildings: Each Section of this Division shall bear expense of cutting, patching, repairing, and replacing of work of other Sections required because of its fault, error, tardiness, or because of damage done by it.

C. Existing Buildings:
   1. Cut carefully to minimize necessity for repairs to existing work. Do not cut beams, columns, or trusses.
   2. Patch and repair walls, floors, ceilings, and roofs with materials of same quality and appearance as adjacent surfaces unless otherwise shown. Surface finishes by General Contractor.
   3. Cutting, patching, repairing, and replacing pavements, sidewalks, roads, and curbs to permit installation of work of this Division is responsibility of Section installing work.

4. This work shall be scheduled such that utility services and/or existing systems for the facility are not interrupted during normal operating hours, without prior written permission of the Owner's representative. Work that is performed during normal operational hours shall not interfere with the normal function of the facility's daily operation.
5. The Mechanical Contractor shall be responsible for the removal of all existing mechanical equipment and utilities indicated to be removed on the drawings. The Mechanical Contractor shall also be responsible for the removal and reinstallation of all existing mechanical equipment and utilities that will interfere with installation and operation of any new construction indicated or required and shall be responsible for the removal of all existing mechanical equipment and utilities indicated to be abandoned that will interfere with installation and operation of any new construction indicated or required. All mechanical equipment (other than piping) to be removed shall remain the property of the Owner, and shall be transported - stored - or disposed of, as directed by the Owner. This will be at no cost to the Owner.

3.06 INSTALLATION

B. Install mechanical equipment to permit easy access for normal maintenance, and so that parts requiring periodic replacement or maintenance, (e.g., coils, heat exchanger bundles, sheaves, filters, motors, bearings, etc.) can be removed. Relocate items, which interfere with access.

C. Provide access doors in equipment, ducts, and walls/ceilings as required to allow for inspection and proper maintenance.

D. Valves, damper operators, and other devices which are manually adjusted or operated shall be located so as to be easily accessible by a person standing on the floor. Any such items which are not in the open shall be made accessible through access openings in the building construction.

E. Gauges, thermometers, instrumentation and other components which are installed to monitor equipment performance, operating conditions, etc., shall be oriented so as to be easily read by a person standing on the floor. Provide necessary brackets and hangers as needed.

F. If circumstances at a particular location make the accessible installation of an item difficult or inconvenient, the situation shall be discussed with the Owner before installing the item in a poor access location.

G. Belts, pulleys, couplings, projecting set screws, keys and other rotating parts which may pose a danger to personnel, shall be fully enclosed or guarded in accordance with OSHA regulations.

H. Dissimilar Metals: Provide separations between all dissimilar metals. Where not specified in another way, use 10 mil black plastic tape wrapped at point of contact or plastic centering inserts.

I. Provide offsets around all electrical panels (and similar electrical equipment) to maintain space clear above and below panel to structure and clearance of 3.5 feet directly in front of panel, except where indicated otherwise or required by NEC to be more. Such offsets are typically not shown on the drawings, but are required per this paragraph.

J. Piping Through Framing: Piping through framing shall be installed in the approximate center of the member. Where located such that nails or screws are likely to damage the pipe, a steel plate at least 1/16-inch thick shall be installed to provide protection. At metal framing, wrap piping to prevent contact of dissimilar metals. At metal and wood framing, provide plastic pipe insulators at piping penetrations through framing nearest each fixture and on at least 48-inch centers.

K. Safety Protection: All ductwork, piping and related items installed by this Contractor that present a safety hazard (i.e., items installed at/near head height, items projecting into maintenance access paths, etc.) shall be covered (at hazardous area) with 3/4" thick elastomeric insulation and 2" wide reflective red/white striped self-sticking safety tape.

L. Equipment Access: Access to equipment is of utmost importance. Contractor shall apply extra attention to the laying out of pipe and duct routings, and in coordinating all work. Poor access to equipment will not be accepted. Contractor shall note that in essentially all areas, piping routed in ceiling space needs to run in joist space, necessitating elbows/fittings/transitions at crosses

with other trades, at structural beams, and at all connections to mains and branches. Hatched areas at HVAC units indicate equipment access areas. These (and all other) access areas shall be clear of obstructions. The Mechanical Contractor is responsible to coordinate and ensure that all trades stay clear of access areas for any Division 22 and 23 furnished equipment.

M. Ensure that items to be furnished fit space available. Make necessary field measurements to ascertain space requirements including those for connections and furnish and install equipment of size and shape so final installation shall suit true intent and meaning of Contract Documents.

N. Pipe Installation: Install piping in longest reasonable lengths. The use of short lengths of pipe with multiple couplings where a single length of pipe could have been used is not acceptable.

3.07 ADJUSTMENT AND CLEANING

B. Properly lubricate equipment before Owner's acceptance.

C. Clean exposed piping, ductwork, equipment, and fixtures, remove debris from site. Repair all damaged finishes and leave everything in working order.

D. Remove stickers from fixtures and adjust flush valves.

3.08 PAINTING

B. Paint all exposed pieces of equipment if not factory finished or painted under the Architectural Section of these specifications. Paint shall be one coat primer and two coats enamel color as directed by the Architect.

3.09 REBATES

B. Furnish vendor invoices on heat pumps to Owner after installation for power company rebates.

3.10 REQUESTS FOR INFORMATION (RFI)

A. It is our intent to provide a timely response for RFIs regarding Division 20, 22 and 23 Work. To further expedite this process, if a suggestion can be determined or derived at by the initiator of the RFI, it is required this suggestion be supplied with the submitted RFI. If no suggestion is given where one is possible, the RFI will be returned as incomplete. RFI’s will be returned to the Contractor within seven (7) business days from the time received by the Owner Representative. All Mechanical RFIs shall be written on the form provided at the back of this Section.

END OF SECTION

SECTION 22 11 16 - DOMESTIC WATER PIPE AND FITTINGS

PART 1 GENERAL

1.01 GENERAL

A. Includes, but not limited to, general piping installation procedures for domestic water systems.

1.02 RELATED SECTIONS

A. Section 20 00 00 – General Mechanical Requirements.

B. Section 22 13 00 – Soil, Waste, and Vent Piping System

1.03 SUBMITTAL REQUIREMENTS OF THIS SECTION

A. Pipe

B. Solder

1.04 REFERENCES

A. ASTM E814: Fire Tests of Through-Penetration Fire Stops.

B. UL 1479: Through-Penetration Fire Stop Systems.

C. NSF/ANSI 61: Leaching of contaminates into the water.

D. NSF/ANSI 372: Lead content in drinking water system components.

1.05 QUALITY ASSURANCE

A. NSF Compliance: NSF 61 for potable water service.

B. Domestic water fittings, joining materials, and all other appurtenances in contact with potable water shall be lead-free except those specifically exempted in Section 3874 of the Safe Water Drinking Act.
   1. Lead-free shall mean:
      a. Not containing more than 0.2% lead when used with respect to solder and flux; and
   2. Not more than a weighted average of 0.25% when used with respect to the vetted surfaces of pipes, pipe fittings, plumbing fittings, and fixtures.

1.06 OPERATION AND MAINTENANCE REQUIREMENTS OF THIS SECTION

Not Applicable

PART 2 PRODUCTS

2.01 PIPE (FOR POTABLE SYSTEMS)

A. Above Ground Piping:
   1. Type L Copper, ASTM B 88:
      a. Approved Manufacturers:
         1. Mueller
         2. Cambridge
         3. Nibco
         4. Cerro
   2. Fittings:
      a. Solder type (all sizes)

PART 3 EXECUTION

3.01 INSTALLATION OF PIPING AND FITTINGS

A. Furnish and install complete system of piping, valved as indicated or as necessary to completely control entire apparatus. Pipe drawings are diagrammatic and indicate general location and connections. Piping may have to be offset, lowered, or raised as required or directed at site. This does not relieve this Division from responsibility for proper erection of systems of piping in every respect.

B. Properly make adequate provisions for expansion, contraction, slope, and anchorage.
   1. Cut piping accurately for fabrication to measurements established at site and work into place without springing or forcing.
   2. Remove burr and cutting slag from pipes.
   3. Make changes in direction with proper fittings.

C. Install piping at such heights and in such a manner as to not interfere with removal of other equipment, ducts, or devices, or block access to doors, windows, or access openings. Provide accessible, ground joint unions in piping at connections to equipment.

D. Coordinate installation of piping with all trades which are affected by installation to avoid conflicts.

E. Consult all drawings for location of pipe spaces, ducts, electrical equipment, ceiling heights, door openings, window openings, and other details and report discrepancies or possible conflicts to Architect/Engineer before installing pipe.

F. Allow sufficient clearances for installation of pipe insulation in thickness specified. If interferences occur, reroute piping to accommodate insulation.

G. Make connections of dissimilar metals with insulating couplings. (di-electric unions). See Section 22 11 19 – Piping Specialties.

H. During installation cap or plug open ends of pipes and equipment to keep dirt and other foreign materials out of system. Do not use plugs of rags, wool, cotton waste, or similar materials.

I. Do not use reducing bushings, street elbows, or close nipples.

J. T-drill procedure for connecting pipes will not be allowed.

K. Wrought tees shall be used on all branch piping and branch to main connections.

L. Bury water piping 6 inches minimum below bottom of slab and encase in 2 inches minimum of sand.

M. All copper joints below slab shall be cleaned bright and brazed.

N. Copper joints to be soldered shall be cleaned bright by manual or mechanical means. The joints shall be properly fluxed with approved-type flux before soldering.

O. Solder for potable water pipes shall be of a lead free type and shall conform to current UPC standards for solder and all local code requirements.
   1. Approved Manufacturers:
      a. Canfield
      b. J.W. Harris
      c. Aqua-Clean

P. All piping in finished areas shall be installed concealed unless specifically noted otherwise.

Q. Pitch all piping and provide drain valves so that all piping and equipment can be drained.

R. Provide escutcheons where pipe passes through walls, floors, or ceilings.

S. Install all exposed piping parallel to the closest wall and in a neat, workmanlike manner.

3.02 DOMESTIC WATER PIPING TESTS AND STERILIZATION

A. Tests: As the work progresses each section of the water system shall be tested under a 100psi hydrostatic test held for 2 hours without reduction of pressure (a pressure fluctuation of +/- 1 psi is acceptable). If any leaks occur or piping or valves are found to be defective, same shall be removed and new material installed, and the test made on that section again until all material is found to be satisfactory. Such test shall be made in the presence of the Owner's Representative.

B. Flushing and Chlorination: All piping shall be flushed to remove all dirt and foreign material. After flushing, all piping shall be chlorinated in accordance with regulations of the Washington State Health Dept. After the contact period, the chlorine shall be drained from the piping and the piping flushed. The Contractor will take samples for bacteriological analysis. The water analysis must be satisfactory before piping is acceptable.

END OF SECTION

SECTION 22 11 17 - CROSSLINKED POLYETHYLENE (PEX) PIPING SYSTEM

PART 1 GENERAL

1.01 GENERAL

A. Includes, but not limited to general PEX piping installation for domestic water systems.

B. Section applies to unexposed domestic water piping 2” and smaller. See Section 22 1116 for pipe and fittings larger than 2”.

1.02 RELATED SECTIONS

A. General Conditions, Division 1

B. Section 20 00 00 – General Mechanical Requirements

C. Section 22 11 16 – Domestic Water Pipe and Fittings

1.03 SUBMITTAL REQUIREMENTS OF THIS SECTION

A. Pipe

B. Fittings

C. Hangers

1.04 REFERENCES

A. ASTM F877: Standard specification for cross-linked polyethylene (PEX) plastic hot and cold water distribution systems.

B. ASTM F1960: Standard specifications for cold expansion fittings with PEX reinforcing rings for use with cross-linked polyethylene tubing.

C. ANSI/NSF Standard 14: Plastic piping systems components and dedicated materials.

D. Uniform Plumbing Code: Approved.

1.05 SPARE PARTS

A. Two (2) crimping tools

B. 100 joint bands

C. 50 Tee fittings

D. 50 elbow fittings

E. 10 supply stops

F. 50 feet of each color of piping

1.06 OPERATION AND MAINTENANCE REQUIREMENTS OF THIS SECTION

A. List of spare parts provided to Owner.

1.07 QUALITY ASSURANCE

A. NSF Compliance: NSF 61 for potable water service.

B. Domestic water fittings, joining materials, and all other appurtenances in contact with potable water shall be lead-free except those specifically exempted in Section 3874 of the Safe Water Drinking Act.

1. Lead-free shall mean:
    a. Not containing more than 0.2% lead when used with respect to solder and flux; and
    b. Not more than a weighted average of 0.25% when used with respect to the vetted surfaces of pipes, pipe fittings, plumbing fittings, and fixtures.

PART 2 PRODUCTS

2.01 APPROVED MANUFACTURERS

A. Rehau

B. Wirsbo

C. Viega

2.02 PIPE (FOR POTABLE SYSTEMS)

A. Cross-linked polyethylene pipe shall be produced and certified in accordance with ASTM F876, PPI TR-3, and CSA B137.5.

B. Pipe shall be available in blue, red, and white colors.

2.03 FITTINGS

A. Fittings shall be plastic or brass on hot water systems. Fittings shall be plastic for cold water systems. Brass fittings (hot and cold) shall be insulated per Section 22 0719.

PART 3 EXECUTION

3.01 INSTALLATION OF PIPING AND FITTINGS

A. Furnish and install complete system of piping, valved as indicated or as necessary to completely control entire apparatus. Pipe drawings are diagrammatic and indicate general location and connections. Piping may have to be offset, lowered, or raised as required or directed at site. This does not relieve this Division from responsibility for proper erection of systems of piping in every respect.

B. PEX piping shall not be installed where exposed to view without ceilings (e.g. areas open to structure). Pipe shall transition to Type L copper or as specified under Section 22 11 16 where piping is exposed.

C. Install piping at such heights and in such a manner as to not interfere with removal of other equipment, ducts, or devices, or block access to doors, windows, or access openings. Provide accessible, ground joint unions in piping at connections to equipment.

D. Coordinate installation of piping with all trades, which are affected, by installation to avoid conflicts.

E. Consult all drawings for location of pipe spaces, ducts, electrical equipment, ceiling heights, door openings, window openings, and other details and report discrepancies or possible conflicts to Architect/Engineer before installing pipe.

F. Allow sufficient clearances for installation of pipe insulation in thickness specified. If interferences occur, reroute piping to accommodate insulation.

G. Cap or plug open ends of pipes and equipment to keep dirt and other foreign materials out of system. Do not use plugs of rags, wool, cotton waste, or similar materials.

H. Provide stainless steel inserts at compression stop valves.

I. All couplings, elbows, tees, reducing tees adapters and any other connecting devices shall be of the same manufacturer as the PEX piping.

J. Kinked tubing shall be reformed in accordance with manufacturer’s recommendation or cut out and replaced.

K. Fittings shall be made by the manufacturers recommended installation tool. Installation tools (with appropriate heads for each size of pipe on the project) shall be delivered to the Owner at the completion of the job.

L. 90° direction turns and wall penetrations shall be provided with a bend support or elbow fitting.

M. Support piping from structure, with fasteners appropriate for adjacent surfaces.

N. Copper sweated and threaded connections are to be made prior to PEX connections.

O. Transition PEX to copper at fire walls. Provide fire stop sealants at fire rated walls.

P. PEX piping is not to be installed where exposed to direct sunlight. Transition to copper as required.

Q. Tubing ends shall be cut square and free of burrs or debris before connection is made.

R. PEX tubing shall be fully seated against shoulder of fitting.

S. Horizontal piping shall be supported every 32".

T. Vertical piping shall be supported every 4'.

U. Allow 1/8" to 3/16" of slack per foot of run for expansion and contraction.

V. PEX tubing shall be installed to allow for expansion and contraction. Do not rigidly attach to structure.

W. Provide sleeves where PEX piping passes through masonry walls.

X. Protect tubing from nail/screw damage with suitable steel plate protectors.

Y. The minimum bend radius of PEX tubing is six times its diameter. Smaller radius turns shall be provided with an elbow.

Z. Install all piping in a neat, workmanlike manner.

AA. Provide insulators where PEX piping passes through metal studs.

BB. Supply stops shall be provided with a pipe bracket support from adjacent structure, a pipe clamp, tube talon, and a plastic or metal bend support. (Sioux Chief Universal Slider Bracket or approved equal).

CC. Insulation shall be continuous at hanging brackets and clamps, except where approved plastic speed clips are utilized.

DD. Plastic speed clips and cushioned clamps may be used. Provide Holdrite, or prior approved equivalent.

EE. Insulated pipe inserts and insulation shields shall be used at all hot and cold PEX hangers and pipe supports where speed clips and cushioned clamps are not used. See Section 22 05 29 for insulated pipe inserts and insulation shields.

FF. Pipe shall be installed with the following color scheme:

1. Cold Water: blue
2. Hot Water: red
3. Hot Water Recirculation: white

3.02 WATER PIPING TEST AND FLUSHING

A. Tests: As the work progresses each section of the water system shall be tested under a 100psi hydrostatic test held for 2 hours without reduction of pressure (a pressure fluctuation of +/- 1 psi is acceptable). If any leaks occur or piping or valves are found to be defective, same shall be removed and new material installed, and the test made on that section again until all material is found to be satisfactory. Such test shall be made in the presence of the Owner's Representative.

B. Flushing and Chlorination: All piping shall be flushed to remove all dirt and foreign material. After flushing, all piping shall be chlorinated in accordance with regulations of the Washington State Health Dept. After the contact period, the chlorine shall be drained from the piping and the piping flushed. The Contractor will take samples for bacteriological analysis. The water analysis must be satisfactory before piping is acceptable.

END OF SECTION

SECTION 22 13 00 - SOIL, WASTE, AND VENT PIPING SYSTEM

PART 1 GENERAL

1.01 GENERAL

A. Includes but not limited to:
   1. Furnish and install soil, waste, and vent piping systems within building and connect with outside utility lines 5 feet out from building, or as indicated.
   2. Furnish and install acid waste piping system within building, or as indicated.
   3. Perform excavating and backfilling required by work of this Section.

1.02 RELATED SECTIONS

A. General Conditions, Division 1

B. Section 20 00 00 – General Mechanical Requirements

C. Section 22 11 16 – Domestic Water Pipe and Fittings

D. Section 01 81 13 – Sustainable Building Requirements

1.03 SUBMITTAL REQUIREMENTS OF THIS SECTION

A. Pipe and Fittings

B. Above ground couplings

C. Below ground couplings

D. Solvent Cement

1.04 OPERATION AND MAINTENANCE REQUIREMENTS OF THIS SECTION

Not Applicable

PART 2 PRODUCTS

2.01 SOIL WASTE AND VENT PIPING

A. PVC Soil Waste and Vent Piping:
   1. Each pipe of PVC pipe shall bear the manufacturers identification mark and shall be certified by the manufacturer to have met the requirements of the latest ASTM specifications.
   2. Aboveground: All aboveground soil, waste and vent piping and fittings shall be type DWV and comply with ASTM D 2665/D 1785, ASTM D 2949, ASTM F 1488 and CSA CAN/CSA-B181.2.
   3. Belowground: All below ground soil, waste and vent piping and fittings shall be type DWV and comply with ASTM D 2665/D 1785, ASTM D2949, and CSA CAN/CSA-B181.2.
   4. Below Ground PVC Waste and Vent Piping Beyond 5' Outside Building: Shall be type DWV and comply with ASTM D 2665/D 1785, ASTM D 2949, ASTM D 3034, CSA B 182.2 and CSA CAN/CSA-B182.4.
   5. Joints:
      a. Mechanical Joints: Mechanical joints on drainage pipe shall be made with an elastomeric seal conforming to ASTM C 1173, ASTM D 3212 or CSA CAN/CSA-B602. Mechanical joints shall not be installed in above-ground systems, unless otherwise approved. Joints shall be installed in accordance with the manufacturer's instructions.

b. Solvent Cementing: Joint surfaces shall be clean and free from moisture. A purple primer that conforms to ASTM F 656 shall be applied. Solvent cement not purple in color and conforming to ASTM D 2564, CSA CAN/CSA-B137.3, CSA CAN/CSA-B181.2 or CSA CAN/CSA-B182.1 shall be applied to all joint surfaces. The joint shall be made while the cement is wet and shall be in accordance with ASTM D 2855. Solvent-cement joints shall be permitted above or below ground.
   1. Adhesives and sealants wet applied inside the WRB must meet ESDS 6.2 Low VOC adhesives and sealants requirements. Provide documentation of compliance.
c. Threaded Joints: Threads shall conform to ASME B1.20.1. Schedule 80 or heavier pipe shall be permitted to be threaded with dies specifically designed for plastic pipe. Approved thread lubricant or tape shall be applied on the male threads only.

6. Approved Manufacturers:
   a. Charlotte
   b. Mueller Industries
   c. Cresline

B. ABS Soil Waste and Vent Piping:
1. Each pipe of ABS pipe shall bear the manufacturers identification mark and shall be certified by the manufacturer to have met the requirements of the latest ASTM specifications.
2. Aboveground: All aboveground soil waste and vent piping and fittings shall be solid wall Schedule 40 DWV and comply with ASTM D 2661.
3. Belowground: All belowground soil waste and vent piping and fittings shall be solid wall Schedule 40 DWV and comply with ASTM D 2661.
4. Belowground ABS Waste and Vent Piping Beyond 5' Outside Building: Shall be solid wall Schedule 40 DWV and comply with ASTM D 2661 and ASTM D 2751.
5. Joints:
   a. Mechanical Joints: Mechanical joints on drainage pipe shall be made with an elastomeric seal conforming to ASTM C 1173, ASTM D 3212 or CSA CAN/CSA-B602. Mechanical joints shall not be installed in above-ground systems, unless otherwise approved. Joints shall be installed in accordance with the manufacturer's instructions.
   b. Solvent Cementing: Joint surfaces shall be clean and free from moisture. Solvent cement black in color and conforming to ASTM D 2235, CSA-B137.3, CSA-B181.2 or CSA-B182.1 shall be applied to all joint surfaces. The joint shall be made while the cement is wet and shall be in accordance with ASTM D 2855. Solvent-cement joints shall be permitted above or below ground.
   c. Threaded Joints: Threads shall conform to ASME B1.20.1. Schedule 80 or heavier pipe shall be permitted to be threaded with dies specifically designed for plastic pipe. Approved thread lubricant or tape shall be applied on the male threads only.
6. Approved Manufacturers:
   a. Plastic Services and Products (PSP)
   b. BOW Plumbing Products
   c. Rocky Mountain Colby

PART 3 EXECUTION

3.01 INSTALLATION

A. Do not caulk threaded work.

B. Place cleanouts as follows:
1. Where shown on Drawings and near bottom of each stack and riser.
2. At every 90 degree change of direction for horizontal lines.
3. Every 100 feet of horizontal run.
4. Extended cleanout to accessible surface. Do not place cleanouts in carpeted floors. In such locations, use wall type cleanouts.

C. Each fixture and appliance discharging water into sanitary sewer or building sewer lines shall have seal trap in connection with complete venting system so gases pass freely to atmosphere with no pressure or siphon condition on water seal.

D. Vent entire waste system to atmosphere. Discharge vent pipe minimum 14 inches above roof. Join lines together in least practicable number before projecting above roof. Set back vent lines so they will not pierce roof near edge or valley.

E. Use torque wrench to obtain proper tension in cinch bands on above ground hubless cast iron pipe. Butt ends of pipe against centering flange of coupling.

F. Flash pipes passing through roof with 4 lbs. per sq. ft. of sheet lead flashing (or as shown on the plan) fitted snugly around pipes and caulk between flashing and pipe with flexible waterproof compound. Extend lead up and turn in to pipe for min. 1"/vent. Flashing base shall be at least 24 inches square.

G. Grade soil and waste lines within building perimeter 1/4 inch fall per ft. in direction of flow.

H. For exterior waste piping under parking areas or roads use ductile iron or SDR 35 PVC (DWV rated) if pipe is buried less than 5'-0" below finish paving or grade.

I. Installation shall comply with all the latest local plumbing, building, and fire code requirements. Solvent cement joints shall be made in a two-step process with primer manufactured for thermoplastic piping systems and solvent cement conforming to ASTM D 2564, test installation with water.

J. Install an expansion joint in each vertical straight run of PVC, ABS, or polypropylene waste and vent pipe at intervals in excess of 30 feet. Install and anchor pipe per expansion joint manufacturer’s instructions. Provide access panel as required for servicing the expansion joint.

K. Install vertical waste pipe to comply with standard installation practices for suds control.

L. Install grease traps, grease interceptor, and oil/water separators to allow access for lid removal and servicing.

3.02 FIELD QUALITY CONTROL

A. Before piping is covered, conduct tests for leaks and defective work. Notify Architect prior to testing. Correct leaks and defective work. Fill waste and vent system to roof level with water, 10 feet minimum, and show no leaks for two hours.

END OF SECTION

SECTION 22 33 00 - ELECTRIC STORAGE TYPE WATER HEATERS

PART 1 GENERAL

1.01 GENERAL

A. Includes, but not limited to, furnishing and installing specified system.

1.02 RELATED SECTIONS

A. General Conditions, Division 1

B. Section 20 00 00 – General Mechanical Requirements

C. Section 22 11 16 – Domestic Water Pipe and Fittings

D. Section 01 81 13 – Sustainable Building Requirements

1.03 SUBMITTAL REQUIREMENTS OF THIS SECTION

A. Water heaters: Provide compliance documentation with ESDS Credit 5.9 Domestic Water Heating.

1.04 OPERATION AND MAINTENANCE REQUIREMENTS OF THIS SECTION

A. Water Heaters

PART 2 PRODUCTS

2.01 APPROVED MANUFACTURERS

A. State

B. Lochinvar

C. Rheem/Ruud

D. Bradford White

E. PVI

2.02 WATER HEATER

A. This water heater(s) shall be as scheduled and listed by Underwriter's Laboratories. Heater(s) shall have a maximum working pressure of 150 psi with a separate 3/4" tapping for relief valve installation and a rigidly supported anode rod for maximum cathodic protection. All internal surfaces of the heater(s) exposed to water shall be glass-lined with an alkaline borosilicate composition fused-to-steel. Electrical heating element(s) shall be low watt density incoloy sheath, screw-in design. Element operation shall be double element, non-simultaneous (or single element); (or double element, simultaneous). The controls shall include a thermostat with each element and a high temperature cutoff. The jacket shall provide full size control compartments for performance of service and maintenance through front panel openings and enclose the tank with foam insulation. The drain valve shall be located in the front for ease of servicing. Outer jacket shall be baked enamel finish. Heater(s) shall have an 8 or 10 year limited warranty covering the tank, thermostats, high limit and heating elements for residential installation; 3 years for commercial installation (2 years on EEC models) as outlined in the written warranty. Fully illustrated instruction manual to be included. Heater(s) shall meet ASHRAE Standard 90.lb-1990 for energy efficiencies and the minimum energy factor required by the Federal "National Energy Conservation Act of 1987".

PART 3 EXECUTION

3.01 INSTALLATION

A. Water heaters shall each have a relief valve sized to match heat input and set to relieve at 120 psi.

B. Install temperature-pressure relief valve on hot water heater and pipe discharge directly above funnel of floor drain or as shown on plans.

C. If system has a hot water recirculating line and/or check valve in the cold water supply to tank, provide a pre-charged, diaphragm type expansion tank "Amtrol" Model AST or approved equal. Size per schedule on Hot Water Tank Piping Diagram.

D. Water heaters installed in unconditioned space or on a concrete floor shall be placed on incompressible insulation having a minimum insulation value of R-10.

E. Provide and install seismic bracing per S.M.A.C.N.A. zone 3.

END OF SECTION

SECTION 22 40 00 - PLUMBING FIXTURES

PART 1 GENERAL

1.01 SUMMARY

A. Includes, but not limited to, furnishing and installing specified plumbing fixtures. Provide and install soft flow aerators on all lavatories and sinks (service sinks not included). See 3.03 for energy conservation devices.

B. All plumbing fixtures to meet ADA requirements.

1.02 RELATED SECTIONS

A. General Conditions, Division 1

B. Section 20 00 00 – General Mechanical Requirements

C. Section 22 11 16 – Domestic Water Pipe and Fittings

D. Section 22 11 17 – Crosslinked Polyethylene (PEX) Piping System

1.03 QUALITY ASSURANCE (REGULATORY REQUIREMENTS)

A. Installation shall meet requirements of local codes and manufacturer's instructions.

1.04 SUBMITTAL REQUIREMENTS OF THIS SECTION

A. All plumbing fixtures in this section and called out on the plans.

B. Carriers.

1.05 OPERATION AND MAINTENANCE REQUIREMENTS OF THIS SECTION

A. Faucets, Exploded Parts Diagram

PART 2 PRODUCTS

2.01 APPROVED MANUFACTURERS

A. Wall Hung Sinks:
   1. Kohler

B. Supply Stops:
   1. Chicago Faucets “STB” Series, Loose Key
   2. Engineered Brass Company (EBC) “LAH” Series, Loose Key
   3. BrassCraft “KT” Series, Loose Key

C. Faucets:
   1. Moen

D. Waste:
   1. EBC
   2. Just
   3. Elkay

E. Traps:
   1. EBC
   2. Just
   3. Elkay
   4. Dearborn Brass

F. Fiberglass Showers and Combination Tub/Showers:
   1. Fiberfab
   2. Lasco

G. Shower Valves/Bath & Shower Valves:
   1. Moen

2.02 FIXTURES

A. See Schedule on Drawings for fixture manufacture and model numbers and special requirements.

B. Toilets (WC): Manufactured of glazed vitreous china with an elongated bowl. Assemblies need to have a current Maximum performance (MaP) rating of 800 or more and be listed as a WaterSense approved fixture.

C. Lavatory Sinks: Manufactured of glazed vitreous china or enameled cast iron (unless called out as stainless steel or solid surface on the plumbing fixture schedule).

2.03 CARRIERS

A. WC carrier in stud wall with plumbing chase (Heavy duty type):
   1. J.R. Smith: 200 Series (Adjustable type)
   2. Zurn: Z-1200 Series (Adjustable type)
   3. Wade: W300 Series (Adjustable type)

B. Lavatory carriers in stud wall:
   1. J.R. Smith: 0700 (0700Z for 2x4 stud wall)
   2. Zurn: Z-1231
   3. Wade: W520

C. Lavatory carriers in plumbing chase wall:
   1. J.R. Smith: 0720
   2. Zurn: Z-1253
   3. Wade: W571

PART 3 EXECUTION

3.01 GENERAL

A. Installation: Install fixtures including traps and accessories with accessible stop or control valve in each hot and cold water branch supply line.
   1. Fixture and supply piping shall be the smallest diameter branch allowed.

B. Mounting: Verify mounting height with architectural elevations. Architectural elevations take precedent over these heights.
   1. ADA Fixtures:
      a. Toilet: 17" to 19" to top of seat.
      b. Lavatory: 29" minimum clearance under fixture, maximum of 33" to rim.
      c. Shower Unit: Control height shall be 40" from finished floor.

C. Make fixture floor connections with approved brand of cast iron floor flange, soldered or caulked securely to waste pipe.

D. Perform quality check flow tests prior to completion for faucets and showers, and verify toilet fill level is correct.

E. Make joints between fixtures and floor flanges tight with approved fixture setting compound or gaskets.

F. Caulk between fixtures and wall and floor with white butyl rubber non-absorbent caulking compound. Point edges.

G. Install and connect all P-100 fixtures. Provide chrome plated brass waste, "Just" or equal.

H. Provide concealed arm supports for wall mounted china lavatories.

I. All exposed metal shall be chrome-plated brass.

J. Provide concealed heavy steel stanchion and supporting plate for lavatories and urinals.

K. Provide floor-mount fixture support for wall-hung water closets, and with 2” no-hub auxiliary inlet at each location of back to back water closet and urinal.

L. Provide rear anchor support for all heavy-duty WC carriers.

M. All fixture mounting heights shall be verified or determined on site prior to installation. Coordinate with architectural drawings.

N. Provide trap primer and connection to p-trap of showers, floor sinks, floor drains, and service sinks.

O. ADA showers shall be installed with entrance lip flush with finish floor.

P. On ADA water closets, provide flush valve handle or tank handle on side facing wheelchair turn around.

Q. All ADA lavatory P-trap and angle stop assemblies shall be insulated with institutional A.D.A. insulator kit as manufactured by E.B.C. or equal. Abrasion resistant exterior cover shall be smooth and have 1/8" wall minimum over cushioned foam insert. Fasteners shall remain substantially out of sight. Use part 500RHS on offset P-trap if required.

R. Sensor Type Fixtures: Mechanical contractor to coordinate with electrical contractor for installation of all infra-red sensor type fixtures. Transformer kit provided and installed by mechanical contractor, all electrical connectors, wire connections, and testing by electrical contractor.

S. Wall Hydrant: Install at 18" above finished grade, unless otherwise indicated.

T. Lavatory, Classroom, and Hand Sink Faucets: Set hot water delivery temperature at 105°F. Faucets without a mechanical temperature limit stop shall be provided with a point of use thermostatic mixing valve.

U. Fountain: Anchor bottom of fountain to wall. Bubbler height to be a maximum 36 inches above finish floor. Also, clear knee space between the bottom of the apron and the floor shall be at least 27 inches high.

3.02 ADJUSTING, CLEANING

A. Polish chrome finish at completion of Project.

B. Remove all manufacturers' labels tags, and protective plastic.

C. Clean all fixtures.

D. Polish floor drain covers.

3.03 ENERGY CONSERVATION

A. Fixture shall be purpose-built for low-flow applications.

Fixture	Standard
Tank-type WC	.8 gal. (3.0 liters) per flush
Showerheads	1.50 gal. (8.14 liters) per minute
Lavatory Faucets (non-metered)	1.0 gal. (3.98 liters) per minute
Kitchen Faucets	1.75 gal. (9.5 liters) per minute

END OF SECTION

SECTION 23 34 23 - EXHAUST FANS

PART 1 GENERAL

1.01 GENERAL

A. Includes, but not limited to, furnishing and installing specified material as described in Contract Documents.

1.02 RELATED SECTIONS

A. General Conditions and Division 1 apply to this Section.

B. Section 20 00 00 - General Mechanical Conditions.

1.03 QUALITY ASSURANCES (REQUIREMENTS OF REGULATORY AGENCIES)

A. Bear AMCA seal, UL 507 (for continuous operation), and UL 705 (volume control by speed control on direct drive units).

1.04 SUBMITTAL REQUIREMENTS OF THIS SECTION

A. Exhaust Fans

B. Exhaust Fan Curbs (Rooftop Fans)

C. Fan curves showing system curve, and a fan curve with the maximum operation point with maximum motor size (limited by maximum shaft speed of and/or surge point).

1.05 OPERATION AND MAINTENANCE OF THIS SECTION

A. Submittal Data including Curves.

B. Exhaust Fan Operation and Maintenance Manual

PART 2 PRODUCTS

2.01 CEILING MOUNTED EXHAUST FAN

A. General:
   1. Acoustically insulated housings.
   2. Include chatterproof integral back-draft damper with no metal contact.
   3. True centrifugal wheels.
   4. Entire fan, motor, and wheel assembly shall be easily removable without disturbing housing.
   5. Suitably ground motors and mount on rubber-in shear vibration isolators.
   6. Provide roof cap or wall cap as required.
   7. Provide “Architectural deluxe” metal grille.

B. Approved Manufacturers:
   1. Greenheck
   2. Panasonic

2.02 SPEED CONTROL

A. Use manufacturer’s recommended speed control, which varies speed from 50 to 100% of full speed.

B. All fan motors 1/12 HP or greater and less than 1 HP shall be Electronically Commutated Motors (ECM) or shall have a minimum efficiency of 70 percent when rated in accordance with DOE 10 C.F.R. 431. These motor speeds shall be adjustable.

PART 3 EXECUTION

3.01 INSTALLATION

A. Anchor fan units securely to structure or curb.

B. Extend all internal wiring to box on exterior of unit.

C. Factory mount speed control on outside of case on in-line fans, including wall propeller fans, and underneath weather casing for rooftop fans.

D. Grease hood exhaust fan. Up-blast discharge shall be a minimum of 40" from top of fan to roof. Provide with vented curb and replaceable grease termination receptor.

E. Confirm fan air flow rate, speed setting, and time delay settings, as listed in the mechanical schedule.

F. Ductwork to be sealed with mastic at a minimum 1/16” thick at all lateral and longitudinal seams.

G. Elbows in ductwork to not occur within 18” of fan housing.

END OF SECTION

SECTION 26 00 00 - ELECTRICAL GENERAL CONDITIONS

PART 1 GENERAL

1.01 GENERAL

A. Conform to the General Conditions, Supplementary Conditions, and related work in other Divisions for all work in Division 26. See Division 1 for sequence of work.

1.02 WORK INCLUDED

A. It is the intention of this division of the specifications and the accompanying drawings to describe and provide for the furnishing, installing, testing and placing in satisfactory and successful operation all equipment, materials, devices and necessary appurtenances to provide a complete electrical system, together with such other miscellaneous installations and equipment hereinafter specified and/or shown in the plans. The work shall include all materials, appliances and apparatus not specifically mentioned herein or noted on the plans, but which are necessary to make a complete working installation of all electrical systems shown on the plans or described herein. Equipment and devices furnished and installed under other divisions of this specification (or by the Owner) shall be connected under this division. The drawings and specifications are complementary and what is called for in either is binding as if called for in both.

B. By submitting a bid, the Contractor is acknowledging that he has made a thorough examination of the Contract Documents, existing site and building conditions, and has determined that these documents do sufficiently describe the scope of construction work required under this Contract.

1.03 SCOPE OF BASIC BID

A. Included in Division 26 work is all work and related items necessary to provide all electrical installations except as specifically excluded. In general, this includes all labor, equipment, tools, etc., to complete the electrical work.

1.04 RELATED WORK

A. Temporary Power and Lighting - See Division 1

B. Mechanical Control Wiring – See Division 23

C. Cutting and Patching – See Division 1

1.05 STANDARDS AND REGULATIONS

A. The work shall comply with the latest edition of the applicable Standards and Codes of the following:

ASTM	American Society for Testing and Materials
NBFU	National Board of Fire Underwriters
NEC	National Electrical Code
---	State Electrical Code
NESC	National Electrical Safety Code
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
U.L.	Underwriters Laboratories Inc.
IPCEA	Insulated Power Cable Engineers
CBM	Certified Ballasts Manufacturers Associated
---	Federal, State and Local Building Codes
ETL	Electrical Testing Laboratories

B. If any conflict occurs between Government adopted Code Rules and this specification, the codes are to govern. Nothing in these drawings and specifications shall be construed to permit work not conforming with governing codes. Also, this shall not be construed as relieving the Contractor from complying with any requirements of the plans and specifications which may be in excess of, but not in conflict with, requirements of the Governing Codes.

1.06 PERMITS & FEES

A. The Contractor shall obtain and pay for all licenses, permits and inspections required by laws, ordinances and rules governing work specified herein. The Contractor shall arrange for inspection of work by the inspectors and shall give the inspectors all necessary assistance in their work of inspection.

B. The Contractor shall consult with and follow the requirements of the local fire, power, telephone, and television utilities serving the area and shall coordinate his work with them.

C. Utility connection and hook-up charges for power, telephone and television shall be paid by the Owner directly to the utility. The Electrical Contractor is required to provide any and all coordination necessary to support the utility connection, file for application of service (or assist the Owner in filing for application of service) and coordinate dates for service with the utilities.

1.07 DEFINITIONS

A. When "Provide" is used, it shall be interpreted as "furnishing and installing complete in operating condition".

B. When "Drawings" is used, it shall be interpreted as "all Contract Drawings for all Disciplines".

C. When "Contractors" is used, it shall be interpreted as the Electrical Contractor.

D. Owner shall mean King County Housing Authority.

1.08 INTENT OF DRAWINGS

A. The electrical drawings are intended to serve as working drawings for general layout. The equipment layout is diagrammatic and unless specifically dimensioned or detailed, does not indicate all fittings, hardware or appurtenances required for a complete operating installation.

B. Anything shown on the drawings but not covered in the specifications, or anything covered in the specifications but not shown on the drawings, shall be as if covered in both. In case of conflict between the drawings and specifications, the Engineer will select the method to be used. The Contractor shall be responsible for verifying all measurements before proceeding with the work.

C. Wiring diagrams are not intended to indicate the exact course of raceways or exact location of outlets. Raceway and outlet locations are approximately correct and are subject to revision as may be necessary or desirable at the time of installation. Precise location in every case shall be subject to the Engineer's approval.

1.09 PROTECTION

A. The Contractor shall store and guard all equipment before installation and shall protect same, and replace any equipment that has been damaged prior to final acceptance. See Division 1 for detailed requirements.

1.10 HOUSEKEEPING

A. All electrical materials shall be kept stored in an orderly fashion protected from heat, cold, and the weather.

B. All marred surfaces shall be refinished and painted after installation.

C. All debris shall be removed from premises during work, as directed, and at completion of job.

1.11 TEMPORARY USE

A. Temporary or interim use of any and all portions of the electrical system shall be under the supervision of the Electrical Contractor.

B. Temporary power and lighting for use during construction shall be provided per the requirements of the Division 01 specifications.

1.12 AS-BUILT DRAWINGS

A. The Contractor shall maintain, in addition to any reference drawings, an as-built set of prints, on which all deviations from the original design shall be drafted in a neat, legible manner with red colored pencil. This red lined set shall identify all drawing revisions including addenda items, change orders, and Contractor revisions. The Contractor is responsible to revise panel schedules and load calculations as required.

B. Drawings shall show locations of all concealed raceway runs larger than 1", giving the number of conductors and size of raceway. Underground ducts shall be shown with cross section elevations. All pipe, raceway, manholes or lines of other trades shall be included.

C. The Contractor shall update all references to specific products to indicate products actually installed on project. This shall include, but not be limited to, lighting fixtures, baseboard heaters, etc.

D. Upon completion of the Division 26 Work, the Contractor shall deliver the red lined drawings and one set of neatly drafted as-built drawings on electronic media in AutoCAD R-2006 format and mylar to the Engineer for transmittal through the Engineer to the Owner.

1.13 WARRANTY

A. Provide a written warranty that the Division 26 work is free from mechanical and electrical defects. Contractor shall replace and repair, to the satisfaction of the Engineer, any parts of the installation which may fail within a period of 12 months after the certificate of final acceptance, provided that such failure is due to defects in material or workmanship, or failure to follow the specifications and drawings.

1.14 INSTRUCTIONS AND MANUALS

A. Operation and maintenance data shall be submitted in accordance with Division 1 and Section 01 81 13 – Sustainable Building Design.

B. Manuals shall contain shop drawings, wiring diagrams, operating and maintenance instructions, replacement parts lists, and equipment nameplate data for all equipment and systems installed under the project. Signal equipment submittals shall contain step-by-step circuit description information designed to acquaint maintenance personnel with equipment operation in each mode of operation. Manuals shall contain original brochures supplied by manufacturers. Xerox copies of originals will not be accepted.

C. Each type of device provided shall be identified in the O & M Manual using the same identification as shown on the drawings and specifications. The information included must be the exact equipment installed not the complete "line" of the Manufacturer. Where sheets show the equipment installed and other equipment, the installed equipment shall be neatly and clearly identified on such sheets. Parts lists shall give full ordering information assigned by the original parts manufacturer. Relabeled and/or renumbered parts information as reassigned by equipment supplier is not acceptable. The following information shall be provided for each device:
   1. Manufacturer's name, address and phone number.
   2. Local supplier's name, address and phone number.
   3. Complete parts lists including quantities and manufacturer's part numbers.
   4. Installation instructions.
   5. Recommended maintenance items including maintenance procedure and recommended interval of maintenance listed in hours of operation, calendar unity or other similar time unit.

D. The O & M Manual shall be assembled as detailed in Division 1. As a minimum, the following sections shall be broken out:
   1. Light Fixtures
   2. Lamps and Ballasts - referenced to each fixture type

E. Wiring Diagrams for each system shall be complete for the specific system installed under the Contract. "Typical" Line Diagrams will not be acceptable unless properly marked to indicate the exact field installation.

1.15 WORK NOT INCLUDED

A. Indicated motors, controls, and equipment as described in other divisions shall be furnished by other trades, but shall be moved, set and wired to electrical controls and power supply by the Electrical Contractor.

B. Work to be included under this Contract shall be defined on drawings and in these specifications. Any details beyond these limits are meant only to give installation clarity to that portion which is a part of this Contract.

1.16 COMPLETION OF WORK

A. Upon completion of the Division 26 work, the Contractor shall comply with requirements of Division 1 for project closeout.

B. Arrange for and obtain all required inspections and certificates pertaining to the Division 26 work and deliver the certificates to the Engineer in triplicate.

C. Prior to or at the time of final inspection, the Contractor shall, as outlined in detail in the specifications, complete the delivery of all the following items:

1. Wiring diagrams, Maintenance Manuals, Operation Instructions, and Brochures (5 sets minimum)

PART 2 PRODUCTS

2.01 COMPETITIVE PRODUCTS

A. Any reference in the specifications to any article, device, product, material, fixture, form or type of construction by name, make or catalog number shall be interpreted as establishing a standard of quality and shall not be construed as limiting competition. The Contractor, in such cases, may at his option use any article, device, product, material, fixture, form or type of construction which in the judgment of the Engineer, expressed in writing, is equal to that specified. However, any manufacturer not listed as an accepted Bidder for a specific item must be submitted for acceptance in writing with descriptive data verifying equal quality and performance to the Engineer through Owner.

2.02 MANUFACTURER/EQUIPMENT PRIOR APPROVALS

A. Any manufacturer/equipment not listed as an approved substitute for a specified item must be submitted for acceptance in accordance with Division 1, in writing, with detailed information to include:
1. Manufacturer's Catalog Data
2. Complete Physical and Technical Data
3. Wiring Diagrams
4. Detailed reference (written or highlighted) noting compliance with the appropriate Specification Section and all applicable Specification item numbers within that Section
5. Complete type written index cross referencing all proposed substitutes and specified items
6. Detailed reference to specified items (written or highlighted) noting equal quality and performance of proposed substitute equipment
7. Other descriptive data, as required by the Engineer

B. If substitute material is determined to be acceptable by the Engineer, it will be included in a subsequent Addenda prior to bidding. The acceptance of a manufacturer’s name or product by the Engineer does not relieve the Contractor of the responsibility for providing materials and equipment which comply in all details with the requirements of the Contract Documents.

C. Only materials which are specified or published in addenda as acceptable shall be used.

2.03 MATERIALS

A. All materials must be of the quality herein specified. All materials shall be new, of the best quality

and free from defects. They shall be designed to ensure satisfactory operation and operational life in the environmental conditions which will prevail where they are being installed.

B. Each type of material shall be of the same make and quality. The materials furnished shall be standard products of the manufacturers regularly engaged in the production of such equipment and shall be the manufacturer's latest standard design.

C. All materials shall be U.L. or E.T.L. listed for the purpose for which they are used.

D. Equipment in compliance with U.L. standards but not bearing their label is not acceptable. If the manufacturer cannot arrange for labeling of an assembled unit at the factory the unit shall be field evaluated per the Washington State Administrative Code (WAC) and the electrical inspector's requirements.

2.04 COMPLETE SYSTEM

A. All the systems mentioned shall be complete and operational in every detail except where specifically noted otherwise. Mention of certain materials in these specifications shall not be construed as releasing the Contractor from furnishing such additional materials and performing all labor required to provide a complete and operable system.

PART 3 EXECUTION

3.01 GENERAL

A. Careful consideration shall be given to clearances under and over beams, pipes and ducts, to provide proper headroom in all cases. Check drawings to determine heights of all suspended ceilings and size of pipe shafts where raceway and wire-ways shall run. Coordinate installation of Division 26 wiring and equipment with Division 23 and other trades. Where insufficient room for proper installation appears, obtain clarification from Engineer before any installation is begun.

B. Cutting and Patching:
   1. Obtain permission from the Architect and/or Owner's Representative prior to cutting. Locate cuttings so they will not weaken structural components. Cut carefully and only the minimum amount necessary. Cut concrete with diamond core drills except where space limitations prevent the use of such drills.
   2. All construction materials damaged or cut into during the installation of this work must be repaired or replaced with materials of like kind and quality as original materials by skilled labor experienced in that particular building trade.

3.02 COORDINATION

A. The Contractor is responsible for accomplishing Division 26. The work shall coordinate with that of the other Contractors and/or other trades doing work in the building and shall examine all Drawings, including the several Divisions of Mechanical, Structural, Civil and Architectural, for Construction Details and necessary coordination. Specific locations of construction features and equipment shall be obtained from the Contract Documents, field measurements, and/or from the trade providing the material or equipment. No extra costs will be allowed for failure to obtain this information.

B. All conflicts shall be reported to the Owner in writing before installation for decision and correction. Special attention is called to the following items:
   1. Door swings to the end that switches will be located on "Strike" side of the door.
   2. Location of grilles, pipes, sprinkler heads, ducts and other mechanical equipment so that all electrical outlets, lighting fixtures and other electrical outlets and equipment are clear from and in proper relation to these items.
   3. Location of cabinets, counters and doors so that electrical outlets, lighting fixtures and equipment are clear from and in proper relation to these items.
   4. Type and height of ceiling.
   5. All device measurements referenced on drawings or specifications are to be centered of device unless noted otherwise.

C. The Contractor will not be paid for work requiring reinstallation due to lack of coordination or interference with other Contractors or trades. This includes, but is not limited to, removing, replacing, relocating, cutting, patching, and finishing.

3.03 REQUESTS FOR INFORMATION (RFI)

A. It is our intent to provide a timely response for RFIs regarding Division 26 Work. To further expedite this process, where a suggestion can be determined or derived at by the initiator of the RFI, it is required this suggestion be supplied with the submitted RFI. If no suggestion is given where one is possible, the RFI will be returned as incomplete.

3.04 CLEANING AND PAINTING

A. All equipment, whether exposed to the weather or stored indoors shall be covered to protect it from water, dust and dirt.

B. After installing, all metal finishes shall be cleaned and polished, cleaned of all dirt, rust, cement, plaster, grease and paint.

C. All equipment with a primer coat of paint shall be given two (2) or more coats of a finish enamel and scratched surfaces be refinished to look like new. Markings, identification and nameplates shall be replaced.

3.05 EQUIPMENT IDENTIFICATION

A. Provide identifying engraved bakelite nameplate on all equipment, including pull boxes, to clearly indicate its use, area served, circuit identification, voltage, and any other useful data.

B. Each auxiliary system, including communications, shall be clearly labeled to indicate its function.

3.06 DEVIATION

A. Deviation from the shop drawings in construction or installation of equipment shall not be made unless Shop Drawings showing proposed deviations are submitted to and approved by the Engineer. If any equipment is furnished under this or other divisions with current, voltage or phase ratings that differ from those shown on the drawings, the Contractor shall notify the Engineer in writing immediately and shall not connect said equipment until instructed as to required changes by the Architect. No extension of time will be granted as a result of such changes.

3.07 EXCAVATIONS

A. All excavations are to be so conducted so that no walls or footings shall be disturbed in any way.

B. Remove all surplus earth not needed for backfilling and dispose of same as directed.

3.08 WIRING METHODS

A. All low voltage wiring shall be in Raceway with Junction Boxes and Fittings where concealed in walls and in inaccessible ceiling space.

B. Provide access panels as needed for pull boxes and equipment located above ceiling or behind walls.

C. Multiple feeder runs shall be rod hung, using a strut type channel with individual one hole clamps, back plates and machine screws.

D. Any low voltage cables that are not terminated at both ends shall be tagged and labeled per code.

3.09 PENETRATIONS OF FIRE RATED ELEMENTS

A. Must be made such as to retain that rating.

3.10 HANGERS AND SUPPORTS

A. Provide hangers, brackets, and suspension rods and supplementary steel to support equipment.

B. Hangers provided under other divisions shall not be used for support of Division 26 equipment unless permitted by Architect/Engineer.

3.11 CHASES AND OPENINGS

A. Provide to the masonry and concrete trades all templates and details of chases, openings in floors and walls as required for Division 26 equipment installation.

3.12 PAINTING

A. Painting in general will be covered under another division of this specification, except items furnished under Division 26 that are scratched, marred in shipment or installation, shall be

refinished by the Division 26 Contractor.

3.13 WORKMANSHIP AND OBSERVATION

A. Workmanship shall be of the best quality and none but competent workers shall be employed under the supervision of a competent foreman. All completed work shall represent a neat and workmanship like appearance.

B. All work and materials shall be subject to observation at any and all times by representatives of the Engineer.

3.14 MISCELLANEOUS

A. Provide complete seismic anchorage and bracing for the lateral and vertical support of conduit and electrical equipment, as required by the International Building Code.

B. Conduits that cross seismic separations shall be installed with flexible connection suitable to accommodate conditions. Secure raceways on each side of a separation and provide a minimum of 36” length of flexible conduit to span separation.

3.15 CABLE AND WIRING ROUTED UNDERGROUND OR UNDERSLAB

A. All cables and conductors, both line voltage and low voltage, routed underground or underslab shall be U.L. listed for installation in wet locations per NEC and WAC codes.

END OF SECTION 26 00 00

SECTION 26 00 05 - ELECTRICAL – EXISTING SYSTEMS

PART 1 GENERAL

1.01 WORK INCLUDED

A. Portions of the existing electrical lighting, power and signal systems are to be removed as detailed on the drawings.

PART 2 PRODUCTS

2.01 EXISTING MATERIALS

A. Existing materials which are a part of the building shall remain the property of the Owner.

2.02 EXISTING MATERIALS RE-INSTALLED

A. Existing materials and equipment that are removed as a part of the work or stored in surplus may be re-installed as a part of the new system subject to approval of condition suitability by the Owner. The requirements of the specifications (i.e. installation, warranty, testing, etc.) shall apply as if the materials were new, supplied by the Contractor.

2.03 EXISTING MATERIALS NOT TO BE RE-INSTALLED

A. In coordination with the Owner, these materials shall be made available for his inspection and decision as to whether the Owner will retain possession. Items selected for retention shall be delivered to a location on the premises selected by the Owner and turned over to him. Take reasonable care to avoid damage to this material. If the Contractor fails to conform to this requirement, he shall purchase and turn over to the Owner replacement materials of like kind and quality.

B. All material not selected for retention by the Owner and debris shall be disposed of by the Contractor. This shall include, but not be limited to, removal of PCB type ballasts and fluorescent lamps which shall be disposed of in accordance with EPA requirements.

PART 3 EXECUTION

3.01 EXISTING CONDITIONS

A. Examine the structure, building, and conditions under which Division 26 work is to be installed for conditions detrimental to proper and timely completion of the work. Do not proceed with work until deficiencies encountered in installation have been corrected. Report any delay or difficulties encountered in installation of Division 26 work which might be unsuitable to connect with work by other divisions of this specification. Failure to report conditions shall constitute acceptance of other work as being fit and proper for the installation of Division 26 work.

B. Maintain continuity of existing circuits of equipment to remain. Existing circuits of equipment shall remain energized. Circuits which are to remain but were disturbed during demolition shall have circuits, wiring, and power restored back to original condition.

3.02 DEMOLITION

A. Switchboards, panelboards, signaling systems, other electrical equipment free standing (or surface mounted), raceway (exposed) and conductors no longer in service as a result of this Contract shall be removed. Unused raceways or sleeves shall be cut flush at ceiling, floor or wall and filled with grout.

3.03 NEW DEVICES IN REMODEL AREAS

A. Provide surface mounting for devices on existing walls. Where existing boxes are indicated to be reused, extend box as necessary and provide new devices and plates.

3.04 EXISTING PANELBOARD

A. Any modifications made to existing panels must be incorporated into the existing circuit index on the panel. If more than three circuits are modified a new typewritten index incorporating the changes to the existing index shall be installed in the existing panel.

B. Listing shall match circuit breaker arrangements, typically with odd numbers on the left and even numbers on the right. Room numbers used shall be final room numbers used in the building as verified with the Owner.

END OF SECTION 26 00 05

SECTION 26 05 19 - WIRES AND CABLES

PART 1 GENERAL

1.01 WORK INCLUDED

A. Provide all wire, cable, and terminations complete.

1.02 RELATED SECTIONS

A. Section 26 05 34 – Metal Clad Cable (Type MC) and Fittings.

PART 2 PRODUCTS

2.01 WIRE AND CABLE (COPPER, 600-VOLT)

A. Interior and Above Grade: All wires to be Type THW or RHW. Type THWN/THHN or XHHW wire may be utilized at Contractors option, subject to code requirements. Wire and cables shall be brought to project in original containers bearing the underwriters label. Provide Type AVA wire where conductors are subject to temperature above 167 Degrees F.

B. Underground: All conductors to be type USE. Increase Raceway size when necessary to accommodate conductors per code. Exception: Underground conductors completely contained in code recognized Raceway and boxes may be Type THW, THWN or XHHW.

C. Metal Clad (Type MC) Cable may be used at the Contractor’s option subject to all code requirements, the local AHJ and specifications contained herein.

D. Non-metallic sheathed cable (Romex) may be used at the Contractor’s option subject to all code requirements and the local AHJ.

2.02 SPLICES

A. Above Grade: Solderless type only. Preinsulated "twist-on" type (limited to size #10 and smaller). Bolt on compression type with application of preformed insulated cover, heat shrinkable tubing or plastic insulated tape acceptable for all sizes.

B. Below Grade: Splices below grade shall be in handholes and shall be made watertight with epoxy resin type splicing kits similar to Scotchcast.

2.03 TERMINATIONS

A. Compression set, bolted or screw terminal.

B. Conductors #12 and smaller shall utilize eye or forked tongue type compression set terminator when termination is to a bolted or screw set type terminal block or terminal cabinet.

2.04 PLASTIC CABLE TIES

A. Nylon or Equivalent, locking type.

PART 3 EXECUTION

3.01 GENERAL

A. Install all wiring in Raceway unless shown or specifically authorized otherwise.

3.02 WIRE SIZE

A. No. 12 AWG minimum for power and lighting circuits.

B. Provide solid wire for No. 10 AWG and smaller, and stranded conductors for No. 8 AWG and larger (600) volts.

3.03 TESTS

A. In addition to the factory testing of all equipment and cable, the Contractor shall test all wiring connections for continuity and ground before any fixtures or other loads are connected. Tests shall be made with a 500V. Minimum DC "Megger" type tester. If tests indicate faulty insulation (less that 2 megohms), such defects shall be corrected and tested again. Contractor shall provide all apparatus to make tests and shall bear all expenses of required testing. Routine operation tests shall be made on all pieces of equipment to demonstrate that working parts are in operating condition. Results of all tests shall be recorded and submitted to the Architect. The Contractor shall immediately replace all parts, which fail to pass the test.

B. All circuits both in and out of the building shall test out free of grounds, short circuits and other defects.

C. Check and record catalog number and ampere size of controller overload heaters installed, nameplate full-load amperes, and actual operating amperes of each motor. **IMPORTANT**: Submit recorded data in triplicate to the Engineer. Check proper load balance on the electrical system, direction of rotation, lubrication, and overload protection of all motors before placing in operation.

D. Provide a log of ampere reading for all panels from phase to neutral for 4 wire panels and from phase to phase for 3 wire panels. These readings shall be taken with all loads activated.

E. The final test of all equipment shall be made on dates designated by the Architect/Engineer and all readings shall be made in his presence.

F. Feeders shall be checked to ensure all phases are energized before connecting to their respective motors. Each motor shall rotate in the proper direction for its respective load. Prior to rotation test, all bearings shall be inspected for proper lubrication.

G. Minimum megger test for equipment shall be as follows:

Equipment Maximum Voltage Rating	Minimum Test Resistance
1,000-Volts or less	2 Megohms

H. Provide certification of torque values for feeder and service entrance conductors per equipment manufacturer's recommendation.

3.04 CONDUCTOR SIZES, REFERENCED ON PLANS

A. Copper, type THW or RHW unless noted.

3.05 PULLING

A. Use no mechanical means for pulling No. 8 AWG conductors and smaller. Powdered soap stone or approved spray cream shall be the only lubricant used.

3.06 STRIPPING INSULATION

A. Do not ring the cable, always pare or pencil.

3.07 TAPING

A. If used shall be half lapped synthetic tape.

3.08 CONDUCTORS IN PANELS AND SWITCHBOARDS

A. Conductors in panels, switchboards, and terminal cabinets shall be neatly grouped and formed in a manner to "Fan" into terminals with regular spacing.

3.09 CABLE SUPPORTS

A. Provide conductor support devices as required by code in vertical cable runs.

3.10 RACEWAY SIZES REFERENCED ON DRAWINGS

A. Raceways are sized for copper, type THW, unless otherwise noted. Size all Raceways per code unless specifically noted to be larger on the drawings.

3.11 NON-METALLIC SHEATHED CABLE PROTECTION

A. Install non-metallic sheathed cable in at least a 2 ¾" deep chase as measured from the finished wall surface per WAC requirements.

B. Provide a steel plate recessed in the cavity, covered with plaster, adobe or similar finish between the finished wall surface and the cable if the cable cannot be recessed at least 2 ¾" deep.

END OF SECTION

SECTION 26 05 26 -GROUNDING

PART 1 GENERAL

1.01 WORK INCLUDED

A. A grounding system shall be provided for neutral ground and equipment ground as required by code.

PART 2 PRODUCTS

2.01 GROUNDING CONDUCTORS

A. Copper, code size, with physical protection where subject to damage. Bare or green insulated.

PART 3 EXECUTION

3.01 GENERAL

A. Provide all grounding for electrical systems and equipment as required by codes and as specified herein.

3.02 SIZE OF GROUND WIRE

A. As required by code. Where ground wire is exposed to physical damage or is used outside of building or underground, protect with rigid non-metallic conduit.

3.03 GROUND CONNECTION OF WATER PIPING

A. Metal internal piping shall be grounded, as part of this Contract. This includes jumpers for dielectric fittings.

3.04 CONNECTION TO THE GROUND BUS

A. Provide connections in accordance with the codes; including but not limited to conduit system, switchboard frame, service neutral and electrically operated equipment and devices. No device or equipment shall be connected for electrical service which has a neutral conductor connected to a grounding conductor or to the frame within the device or equipment.

3.05 METHOD OF CONNECTION

A. Make all ground connections and ground cable splices by thermal welding. Grounding lugs, where provided as standard Manufacturer's items on equipment furnished, may be used.

3.06 FLEXIBLE RACEWAY

A. Shall not be used for grounding. Install separate ground conductor in all flexible raceway.

3.07 PVC RACEWAY

A. Install separate ground conductor in all PVC raceway as required per code.

END OF SECTION

SECTION 26 05 32 - OUTLET AND PULL BOXES

PART 1 GENERAL

1.01 WORK INCLUDED

A. Provide outlet and pull boxes to enclose devices, permit the pulling of conductors and for wire splices and branches.

PART 2 PRODUCTS

2.01 INTERIOR WIRING

A. General: Outlet and pull boxes shall be pressed drawn steel, zinc coated with plaster ring where applicable. Welded boxes not allowed. Four-inch size minimum. Large pull boxes shall be fabricated sheet steel, zinc coated or baked enamel finish, with return flange and screw retained cover. Non-metallic boxes may be used within dwelling units as permitted by code.

B. Surface Metal Raceway: Boxes of same Manufacture and to match Raceway. Boxes to accommodate standard devices and device plate.

C. Concrete and Masonry: Boxes for casting in concrete or mounting in masonry walls shall be the type specifically designed for that purpose.

D. Install pull boxes so as to be accessible after completion of building construction.

E. Ceiling outlet boxes shall be galvanized octagonal 4 inch, 1-1/2 inch deep (without fixture stud), 2-1/8 inches deep (with fixture stud).

2.02 EXTERIOR WIRING

A. Above Grade: Outlet and junction boxes shall be cast or malleable iron or shall be cast of corrosion resistant alloy compatible with Raceway to which it is connected. Pull boxes shall be fabricated of heavy gauge steel and hot dipped galvanized. All boxes shall have gasketed covers.

B. Below Grade: Where exposed to earth, boxes (handholes) shall be constructed of precast concrete with size, configuration, cover, grates and reinforcing as required by the particular installation. Manufacturer: Similar to Utility Vault 3030LA with base or Fogtite J11 Type 2 with base. Lid shall be H-20 rated where installed in traffic areas. Where not exposed to earth shall comply with Paragraph 2.02A above.

C. Exterior outlet boxes shall be weather resistant and rain tight, with appropriate covers, gaskets and screws.

PART 3 EXECUTION

3.01 ANCHORING

A. All boxes shall be firmly anchored directly or with concealed bracing to building studs or joints. Boxes must be so attached so that they will not "Rock" or "Shift" when devices are operated.

3.02 FLUSH MOUNTING

A. Except for surface mounted boxes or boxes above accessible ceilings, all boxes shall have front edge (box or plaster ring) even with the finished surface of the wall or ceiling.

3.03 ELECTRICAL OUTLETS

A. General: Coordinate the work of this section with the work of other sections and trades. Study all Drawings that form a part of this Contract and confer with various trades involved to eliminate conflicts between the work of this section and the work of other trades. Check and verify outlet locations indicated on Architectural Drawings, door swings, installation details, layouts of suspended ceilings and locations of all plumbing, heating and ventilating equipment.

B. Centered on Built-In Work: In the case of doors, cabinets, recessed or similar features, or where outlets are centered between such features, such as between a door jamb and a cabinet, make these outlet locations exact. Relocate any outlets which are located off center.

C. Vertical and Horizontal Relationships: Where more than one outlet is shown or specified to be at the same elevation or one above the other, align them exactly on centerlines horizontally or vertically. Relocate as directed all such outlets (including lighting, receptacle, power signal and thermostat outlets) which are not so installed, at no additional cost to Owner.

D. Device Outlet Height: Measure from the finished floor to the top of the rough-in box, unless otherwise noted.

Switches	4 Feet to top of rough-in box, Set Vertically
Receptacles & Telephone	18 Inches to center, Set Vertically or as Indicated
Other	As Noted or as Directed by Architect

E. Ceiling Location: For acoustical material locate outlet either at the corner joint or in the center of a panel, whichever is closer to the normal spacing. Locate all outlets in the same room in the same panel location.

F. Installed In Sound Walls: Boxes installed in sound walls shall not be installed back to back. All boxes shall be separated by one stud space and shall be interconnected with flex conduit with a 90° loop.

3.04 ELECTRICAL WORK IN COUNTERBACKS, MILLWORK AND CASEWORK

A. Provide as shown and/or specified. Provide templates, where required, to other trades for drilling and cutting to insure accurate location of electrical fixtures (outlets and devices) as verified with the Architect. Provide all wiring, devices, plates and connections required by said fixture.

3.05 CONNECTION TO EQUIPMENT

A. For equipment furnished under this or other Divisions of the Specifications, or by others. Provide outlet boxes of sizes and at locations necessary to serve such equipment. An outlet box is required if the equipment has pigtail wires for external connection, does not have space to accommodate circuit wiring used. Study equipment details to assure proper coordination.

3.06 BLANK COVERS

A. Provide blank covers or plates over all boxes not covered by equipment.

3.07 JUNCTION OR PULL BOXES

A. Pull and junction boxes shall be installed as shown, and to facilitate pulling of wire and to limit the number of bends within code requirements. Boxes shall be permanently accessible and shall be placed only at locations approved by the Architect.

B. In suspended ceiling spaces, boxes shall be supported from the structure independently from ceiling suspension system.

C. The Drawings do not necessarily show every pull or Junction Box required. The Contractor is permitted to provide boxes deemed necessary by him for his work when installed in accordance with these Specifications.

3.08 BOXES CONTAINING MULTIPLE DEVICES

A. Boxes containing emergency and normal devices are permitted only with steel barriers Manufactured especially for the purpose of dividing the box into two completely separate compartments.

B. Device Boxes Containing Multiple Devices and Wiring Rated Over 150 Volts to Ground and Over 300 Volts Between Conductors are permitted only with steel barrier manufactured especially for the purpose of dividing the box into separate compartments for each device having exposed live parts.

3.09 BOXES IN EARTH

A. Provide for all wire splices and as required to pull conductors. Boxes (handholes) shall be set in place on a 3" sand bed. Coverplates shall be flush to, and match the slope of, the final surface grade.

END OF SECTION

SECTION 26 05 33 - RACEWAY

PART 1 GENERAL

1.01 WORK INCLUDED

A. Provide Raceway System complete.

PART 2 PRODUCTS

2.01 GALVANIZED RIGID STEEL CONDUIT (GRS)

A. General: Hot dipped galvanized.

B. Fittings: Galvanized malleable iron or noncorrosive alloy compatible with galvanized conduit. Erickson couplings, watertight split couplings (O.Z. type or equivalent) permitted. Running thread or set screw type fittings not approved.

2.02 INTERMEDIATE METAL CONDUIT (IMC)

A. General: Hot Dipped galvanized.

B. Fittings: Galvanized malleable iron or noncorrosive alloy compatible with galvanized conduit. Erickson couplings, watertight split couplings (O.Z. type or equivalent) permitted. Running thread or set screw type fittings not approved.

2.03 ELECTRICAL METALLIC TUBING (EMT)

A. General: Hot dipped galvanized.

B. Fittings: Raintight; steel or malleable iron type using a split corrugated compression ring and tightening nut or stainless steel locking disc. Steel set screw fittings are acceptable. Indenter, drive-on and pressure cast or die cast type set screw are not acceptable.

2.04 FLEXIBLE METAL CONDUIT

A. Dry Locations:
   1. General: Galvanized flexible steel for dry locations.
   2. Fittings: Malleable iron or steel, Thomas and Betts "squeeze" type or equal.

B. Damp and Wet Locations:
   1. Liquid Tight: Polyvinyl chloride (PVC) weatherproof cover over flexible steel conduit.
   2. Fittings: Thomas and Betts "Super-Tite" or equal.

2.05 SURFACE METAL RACEWAY

A. Formed steel or aluminum type. Standard factory finish. Where color choice is available, consult Owner for selection prior to ordering.

2.06 RIGID NON-METALLIC CONDUIT (PVC)

A. Schedule 40 rigid polyvinyl chloride type unless otherwise noted.

PART 3 EXECUTION

3.01 GENERAL

A. Install Raceway concealed in construction unless noted otherwise on the Drawings or specifically approved in writing by the Owner.

B. Cut Raceway ends square, ream and extend maximum distance into all couplings and connectors.

C. Provide and install manufactured end caps on all Raceway ends during construction to prevent the entrance of water or dirt. Tape, as a cover, not permitted.

D. Swab out all Raceways before pulling wires.

E. All elbows for GRS and PVC Raceway shall be factory elbows. For all other Raceway, use factory ells for bends of 1-1/4" and larger diameter.

F. Raceway shall not penetrate sheet metal ducts unless permission is granted by Owner. All sleeves shall be provided for Raceway installation.

G. Provide 2 - 3/4" C.O. stub into accessible ceiling space from all recessed panelboards or systems terminal boxes.

3.02 GALVANIZED RIGID STEEL CONDUIT

A. All Connections shall be watertight. Install for all Raceways in concrete or where subject to damage.

3.03 INTERMEDIATE METAL CONDUIT

A. Intermediate metal conduit is permitted as a substitute for galvanized rigid steel conduit except where GRS is required by code.

3.04 ELECTRICAL METALLIC TUBING

A. Install for wiring in masonry, frame construction, furred ceilings and above suspended ceilings. May be used for exposed work in unfinished areas where not subject to damage. Where construction involves masonry work, surface cut masonry units wherever such masonry units are to remain unplastered or uncovered in complete construction.

3.05 RACEWAYS UNDERGROUND

A. Galvanized rigid steel conduit - painted with two coats of bitumastic paint - or galvanized rigid steel conduit with 15 mil. polyvinyl chloride (PVC) jacket (repair abrasions with PVC base paint or PVC)

B. PVC Raceways may be used for underground runs when permitted by code. Field bends, when necessary, shall be formed only with factory recommended heater. Penetrations through floor and walls shall be galvanized rigid steel conduit. PVC, if used, shall be increased in size from that shown to include code required ground wire. Bends in excess of 10 degrees shall be GRS.

C. Arrange and slope Raceways entering building to drain away from building.

D. Ground wires shall be provided in all PVC Raceway.

3.06 INSERTS, SHIELDS AND SLEEVES

A. Furnish and set in place, in advance of pouring slabs and walls, all inserts and sleeves needed to execute Division 16 equipment installation.

B. Where supports in slabs are required after wall has been poured, use a drilled-in threaded insert, installed as recommended by Manufacturer.

C. Sleeves shall be provided for all wall penetrations.

3.07 RACEWAYS THAT STUB UP THROUGH FLOOR

A. Install at such depth that the exposed Raceway is vertical and no curved section of the elbow is visible.

B. PVC Raceway shall not be stubbed through floors.

3.08 SEALING OF RACEWAY PENETRATIONS

A. Exterior Wall Surfaces Above Grade: Seal around all penetrations with caulking approved by Engineer. For concrete construction above ground level, cast Raceway in wall or core drill wall and hard pack with a mixture of equal parts of sand and cement.

B. Exterior Surfaces Below Grade: Cast Raceway into wall (or floor) or use manufactured seal assembly (such as O.Z. type "FSK") cast in place.

C. Roofs: Provide mopped, lead, roof jack where Raceway penetrates roof membrane.

D. Fire Rated Floors, Walls, Ceiling/Roofs: Concrete or masonry, seal around Raceway penetration with Dow Corning 3-6548 silicone RTV foam or approved equal. Plaster or gypsum wallboard, seal around Raceway penetration with plaster, fire tape per local Fire Marshal's requirements.

3.09 SEALING OF RACEWAYS

A. Seal interior of all Raceways which pass through buildings roofs or through outside walls of the building, above or below grade. Seal on the end inside the building using duct sealing mastic, non-hardening compound type, specially designed for such service. Pack around the wires in the Raceways.

3.10 HANGARS FOR RACEWAYS

A. In suspended ceiling spaces Contractor may, at his option, attach 1/2" or 3/4" EMT Raceways to the ceiling suspension system where such system is structurally suitable; in which case, provide clips manufactured for the purpose.

B. When more than two Raceways will use the same routing, group together on a patented channel support system (such as Unistrut).

3.11 SURFACE METAL RACEWAY

A. Install parallel to building surface (i.e., wall, ceiling, floor). Fasten to surface as recommended by Manufacturer. Mount so Raceway is in the least obvious location.

3.12 FLEXIBLE CONDUIT

A. Flexible conduit shall be used **only** for connection to motors and equipment subject to vibration with 90 degrees loop minimum to allow for isolation and for lay-in fluorescent fixtures above T-Bar ceilings. For fixture installations, one end of flex must terminate in rough-in junction box. Flex conduit shall not be installed over 6' long or used to connect from fixture to fixture. Use liquid tight for pumps, equipment which is regularly washed down, and equipment in damp locations. Provide ground wire when required by code.

3.13 PULL CORDS

A. Nylon type shall be included in all installed empty Raceway.

END OF SECTION

SECTION 26 05 34 - METAL CLAD CABLE (TYPE MC) AND FITTINGS

PART 1 GENERAL

1.01 WORK INCLUDED

A. Provide Metal Clad (Type MC) Cable for power, control and lighting systems.

B. Provide wiring connections and terminations.

1.02 REGULATORY REQUIREMENTS

A. UL 1569. Products shall be tested, approved and labeled/listed by Underwriters Laboratories, Inc.

1.03 USES PERMITTED

A. MC Cable is permitted to be used for 20amp lighting and power circuits where routing is above grade, concealed and the installation meets the requirements of NEC 330.

B. MC Cable shall NOT be used for HVAC equipment.

PART 2 PRODUCTS

2.01 CABLE ASSEMBLY

A. Metal clad cable assemblies shall consist of 2, 3 or 4 current carrying conductors and an equipment ground conductor.

B. Conductors: Solid Copper conductor, No. 12 AWG minimum or No. 10 AWG maximum. Installation methods shall be as specified under Part 3 - Execution.

C. Insulation: Conductor insulation shall be rated 600 volt, Type THHN, 90°C dry.

D. Fillers: Fillers shall be non-hygroscopic and non-wicking.

E. Binder: Core binder shall be corrugated polyester.

F. Sheath: The metal sheath shall be galvanized steel or aluminum. The metal sheath shall be extruded onto the cable or applied longitudinally, then wrapped and welded. The sheath shall then be corrugated for greater flexibility.

G. Jacketing: When PVC jacketing is required, the jacket shall be flame-retardant PVC with a temperature range of -40°C to 90°C.

H. Equipment Grounding Conductor: The equipment ground wire shall be of the same construction as specified in 2.02.A and 2.02.B and be at a minimum the same size as the current carrying conductors. The insulation color shall be green.

2.02 FITTINGS

A. Fittings shall be UL listed and identified for such use with metal clad continuous corrugated sheath cable, with or without PVC jacketing, as is appropriate for the installation.

B. Connectors shall be of steel or malleable iron and shall be a squeeze type clamp connector with a locknut for non-jacketed metal clad cable. Compression gland type connectors shall be used for jacketed metal clad cable.

PART 3 EXECUTION

3.01 INSTALLATION – POWER AND LIGHTING SYSTEMS WIRING

A. All wiring shall be installed in compliance with the latest version of the National Electrical Code and all other applicable codes and standards as indicated elsewhere in these specifications.

B. Use of metal clad cable shall be permitted only for lighting, equipment and receptacle branch circuits. Metal clad cable shall not be permitted in locations designated to be hazardous Class I, II or III.

C. Metal clad cable shall be permitted only for motor circuits where the motor being served is less than ½ HP and rated for 120V, single phase. Metal clad cable is not permitted for HVAC equipment and controls.

D. Metal clad cable shall only be installed concealed within walls and above ceiling interstitial spaces. Where there is no ceiling interstitial space, metal clad cable may not be used.

E. Bends in corrugated sheath metal clad cable shall be made so that the cable will not be damaged. The radius of the curve of the inner edge of any bend shall not be less than seven (7) times the diameter of the metallic sheath.

F. Metal clad cable is not permitted to connect branch circuits to fumehoods, gas storage cabinets, or chemical storage cabinets.

G. No metal clad cable shall be installed in ventilation ducts or plenums.

H. Conductors in Enclosures: Provide neat and workmanlike installation with conductors tied with T&B Ty-Rap, Virginia Plastics, or equal, nylon wire ties in terminal cabinets, gutters and similar locations.

3.02 FITTINGS

A. Fittings used for connecting metal clad cable to boxes, light fixtures or other equipment shall be UL listed and identified for such use.

B. Cable preparation for installation of fittings shall follow manufacturer's instructions. The manufacturer's specialized tools shall be used for preparing cable ends for installation of fittings.

C. The cable end shall be cut square to ensure flush seating of the cable into the fitting. Fitting securement screws shall be properly torqued. Cable ends shall be fitted with insulating bushings intended for the type of metal clad cable being installed.

D. For jacketed metal clad cable, the outer jacket shall be removed to the length specified by the fitting manufacturer's instructions. Remove oils or solvent by-products from the outer jacket of the cable. The cable end shall be cut square to ensure flush seating of the cable into the fitting. The fitting gland nut shall be properly torqued to the manufacturer's specifications.

3.03 ARRANGEMENT AND SUPPORT

A. Metal clad cables shall be run parallel with walls or structural elements. Vertical runs shall be plumb; horizontal runs level and parallel with structure, as appropriate. Groups shall be racked together neatly with both straight runs and bends parallel and uniformly spaced.

B. Metal clad cables shall be securely fastened in place at intervals of not more than six feet, with suitable clamps or fasteners of approved type, and all vertical conduits shall be properly supported to present a mechanically rigid and secure installation.

C. Metal clad cable installed parallel to framing members, such as studs, joist, or rafters, shall be supported so that the nearest outside surface of the cable is not less than 1-1/4 inches from the nearest edge of the framing member. Where this distance cannot be maintained, the cable shall be protected by a steel plate, sleeve, or equivalent that is at least 1/16-inch thick.

D. Maintain at least 6-inch clearance between metal clad cables and other piping systems. Maintain 12-inch clearance between metal clad cables and heat sources such as flues, steam pipes, and heating appliances.

E. No metal clad cable shall be fastened to other conduits or pipes or installed so as to prevent the ready removal of other pipes or ducts for repairs.

F. Individual metal clad cables hung from roof structure or structural ceiling shall be supported by split-ring hangers and wrought-iron hanger rods. Where three (3) or more metal clad cables are suspended from the ceiling in parallel runs, use steel channels, Kindorf, Unistrut or equal, hung from 1/2-inch rods to support the conduits. The conduit on these channels shall be held in place with metal clad cable clamps designed for the particular channel that is used.

G. Secure metal clad cable support racks to concrete walls and ceilings by means of cast-in-place anchors; die-cast, rustproof alloy expansion shields; or cast flush anchors. Wooden plugs, plastic inserts, or gunpowder driven inserts shall not be used as a base to secure conduit supports.

H. Metal clad cable shall be supported immediately on each side of a bend and not more that one (1) foot from an enclosure where a run of metal clad cable ends.

I. Use of cable tray:
   1. The sum of the cross-sectional areas of all cables shall not exceed the maximum allowable cable fill area allowed by NEC Tables 392.9, 392.9(E) and 392.9(F).
   2. Cables shall be installed in a single layer with a maintained spacing of not less than one cable diameter between cables.
   3. Ampacity of cables installed in cable tray shall meet the requirements of NEC 392.11.

3.04 INSPECTION AND TESTS

A. General: The electrical installation shall be inspected and tested to ensure safety to building occupants and operating personnel and conformity to Code.

B. Measure and record insulation resistance of all power and control wiring including insulation resistance of all equipment:
   1. The insulation resistance of each circuit phase-to-phase and phase-to-ground shall be measured. For circuits rated less than 600 volts, the resistance shall not be less than 2 megohms.
   2. Systems rated above 240 volts shall be tested with a 1000-volt Megohmeter. Circuits rated 240 volts and below shall be tested with a 500-volt Megohmeter. The D.C. potential shall be applied for thirty (30) seconds.

C. The contractor shall record test readings and submit certified test to the Engineer for review and acceptance approval before energizing respective circuits.

END OF SECTION

SECTION 26 27 26 - SWITCHES AND RECEPTACLES

PART 1 GENERAL

1.01 WORK INCLUDED

A. Provide all wiring devices and plates.

B. No push-in terminals allowed.

C. All devices color shall be white, unless otherwise noted.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Hubbell

B. Pass & Seymour

C. Leviton

D. Cooper

E. Or approved equal

2.02 SWITCHES

A. "Specification Grade", quiet type, rated 277 volt, 20 amp, unless noted, with plastic handle. Single pole, double pole, 3-way, or locking type as required. Meets Fed. Spec. WS-896 Provide matching styles and colors in other devices as required for the conditions of installation. Hubbell CSB120, Eaton CSB120, Leviton 1221, and P&S 20AC1

B. Interchangeable type shall be rated same as above.

C. Motor rated switches: Switches serving as motor disconnecting means shall be horsepower rated with overload relays and meet requirements as stated above. See manual starters in Section 26 24 19, ‘Manual Starters’.

D. Combination AFCI/Switch: 15 amp rated, 20-amp feed-through, 125 Volt outlet branch circuit combination AFCI/Switch; back and side wired. Leviton AFSW1.

E. Device plates shall be Hubbell, Leviton, or Cooper; nylon, white or color to match device.

2.03 RECEPTACLES

A. In All Non-occupyable spaces: Provide " Specification Grade", Duplex NEMA 5-20R configuration (20-Amp, 120-Volt) unless shown otherwise. Must have “rivetless ground” contact manufactured as an integral component of the external ground screw terminal. Meets Fed Spec. WC-596 Hubbell HBL5362, Cooper 5362, P&S 5362A, and Leviton 5362.

B. Tamper resistant, Duplex NEMA 5-20R configuration. Hubbell BR20ITR, Leviton 5362-SGI, and Cooper TR8300.

C. Tamper resistant, Self-Testing Ground-Fault Circuit-Interrupter Duplex Receptacles: 20A. 125V AC; 2-pole, 3 wire grounding; 10,000 amps current interrupting; green light indicator when power is ‘on’; red light indicator when device is in the tripped position; Red “EOL” (end of life) indicator with rapid flash when the unit has reached end of life and/or cannot provide GFCI protection. Provide GFI receptacles where required by code.

D. AFCI Tamper-Resistant Duplex Receptacles: 15 Amp. 125 volt; 20-amp feed-through, tamper resistant, AFCI; back and side wired. Leviton AFTR1.

E. Switched Receptacles: Switched receptacles shall match as specified elsewhere, nylon face with one controlled face split circuit hot tab, permanently marked for use with control systems, back and side wired.

F. Tamper Resistant, Weather Resistant (WR) / Ground Fault Circuit-Interrupter (GFCI) Outdoor Duplex Receptacles: NEMA 5-20R. Leviton GFWT2 or equal, for 20 Amp, 125-Volt AC.

G. Special Purpose Receptacles: For special purpose receptacles, see drawings for voltage, amperage, and phase. Provide with matching plug delivered to the Owner.

2.04 DEVICE PLATES

A. Interior: Plates for recessed boxes shall be Hubbell, Cooper or Leviton; nylon, white, or color to match device. Attachment screws shall match finish of plate. Plates for surface mounted boxes shall be of ivory nylon with size to fit exactly the box used.
   1. Where a duplex receptacle is indicated next to a USB receptacle, provide a dual-gang faceplate and mount both devices in the same backbox under the same faceplate.

B. Exterior: Intermatic # WP1010MC, for vertical mount and # WP1010HMC for horizontal mount, or equivalent for receptacles. Metal cover shall be raintight while-in-use.

2.05 LABELING

A. For receptacles other than NEMA 5-20R, the coverplate shall have ampere rating, voltage and phase engraved on a phenolic label and attached to the cover plate.

2.06 MULTIOUTLET ASSEMBLY (WHEN SHOWN)

A. Provide assemblies complete, including necessary fittings and hardware with circuits as indicated on Plans and outlet spacing as indicated. All assemblies shall contain ground wire. Wiremold or equal.

PART 3 EXECUTION

3.01 MOUNTING

A. Rigidly fasten each device to the outlet box at proper position with the wall to bring receptacle flush with plate or switch handle the proper distance through the plate.

3.02 ORIENTATION

A. Set switches vertical with handle operating vertically, up position "ON" at +48" above finished floor.

B. Set Receptacles vertical with ground slot down at +18" above finished floor.

C. Set Exterior Receptacles horizontal at +18" above finished grade.

3.03 DEVICE PLATES

A. Shall be stainless steel for each new wiring device and for each telephone and signal equipment outlet, except where equipment mounted thereon covers the outlet box completely.

B. Provide new covers on existing outlet boxes being reused.

3.04 DIMMER SWITCHES

A. Provide a separate neutral for each phase.

B. Fluorescent dimmer switches require a 4 square backbox per switch.

3.05 RECEPTACLE GROUNDING

A. Provide bare bonding wire between receptacle grounding terminal and box. Plaster ear screws connecting frame to the box will not be acceptable for grounding.

B. Provide green insulated grounding conductor in all branch circuits supplying ground-fault circuit-interrupter type receptacles.

3.06 HANDICAPPED ACCESS

A. Comply with requirements of Washington State Handicapped Access Code.

END OF SECTION

SECTION 26 50 00 - LIGHTING

PART 1 GENERAL

1.01 WORK INCLUDED

A. Provide the lighting system complete and operational.

B. Recessed fixtures installed in fire-resistive ceiling construction shall have the same fire rating as the ceiling or shall be provided with fireproofing boxes having materials of the same fire rating as the ceiling.

1.02 FIXTURE SCHEDULE MANUFACTURER'S SERIES NUMBERS

A. Are a design series reference and do not necessarily represent the number, size, wattage or the type of lamp, ballast or special requirements as specified hereinafter.

1.03 SUBMITTALS

A. Shall be neatly and clearly marked to indicate the fixtures, lamps and ballasts fully comply with contract documents. When substitute fixtures are submitted (if permitted) the data shall clearly cross reference (written or highlighted) that the substitute fixture complies with every detail of the specified fixture. Fixtures not fully complying with contract documents are not permitted.

PART 2 PRODUCTS

2.01 METAL PARTS

A. Interior Fixtures: Steel or aluminum with 300°F, baked enamel finish, brushed aluminum with baked acrylic clear lacquer finish, or stainless steel with a brushed finish, manufacturer's standard color unless specified otherwise.

B. Exterior Fixtures: Corrosion resisting metal, a (non-ferrous, stainless steel or special finish) and in all cases suitable for outdoor service without tarnishing or other damage due to exposure; manufacturer's standard colors unless specified otherwise; cadmium plate all metal parts concealed by canopies, including screws, plates and brackets. All exposed fasteners shall be tamperproof.

C. Recessed Type: Recessed fixtures shall be IC rated for direct contact with insulation.

2.02 LIGHT TRANSMITTING COMPONENTS

A. Virgin acrylic or polycarbonate plastic (0.125-inch thick overall minimum), UV stabilized or glass. Shall be contained in a captive metal frame that remains attached to the fixture when door is in open position.

2.03 SPECIAL PARTS

A. Adapters, Plates, Brackets and Anchors: Provide where required by construction features of the building to suitably mount lighting fixture. All such appurtenances and mounting methods shall be approved by the Architect/Engineer prior to fabrication and installation.

B. Low Voltage Transformers: Provide and install where required to power individual or linear runs of low voltage light fixtures.

2.04 LAMPS

A. Solid-State Lighting: Fixtures shall have a lumen maintenance life expectancy (L_{70}) of > 50,000 hours, a CRI of > 82, and a CCT of 3500K. Each solid-state fixture model shall be tested in accordance with IES LM-79.

2.05 LED DRIVERS/POWER SUPPLIES

A. The LED drivers/power supplies shall meet the following criteria:
   1. Drive mode: Constant Current or Constant Voltage depending on the LED configuration for the light fixture.
   2. Output currents: 250 mA – 1000 mA
   3. Output voltages: 6VDC – 48VDC

4. Input voltages: 110 to 277 VAC; 50/60 Hz.
5. Power factor at >0.90 @ full load
6. Line regulation accuracy: +/- 2%
7. Load regulation accuracy: +/- 3%
8. Greater than 80% efficient
9. Output over-voltage, output over-current and output short circuit protection with auto recovery
10. Limited power source output to allow for class 2 wiring.
11. Flicker Free 0-10V Dimmable to 10% light output.
12. Minimum of 50,000 hour rated life.
13. IP66 rated
14. 5 Year Warranty.
15. Acceptable Manufacturer: Advance Xitanium or approved equal.

2.06 HANGING FOR PENDANT FIXTURES

A. Rigid type, with not less than 5 thread engagement at each end, consisting of iron pipe, with brass or aluminum tubing casing, or painted tubing not less than 0.040 inches thick.

B. Provide a canopy for each fixture hanger except where fixture conceals the outlet box directly without a canopy.

C. Provide a safety chain for all glass pendant fixtures and for all fixtures mounted in gymnasiums.

D. Aircraft cable, stainless steel, sized appropriately by manufacturer for weight and seismic zone.

PART 3 EXECUTION

3.01 LIGHTING FIXTURES - GENERAL

A. Size and mounting height from finished floor to bottom of fixture as indicated on the drawings. Verify mounting provisions prior to the ordering of fixtures. Fixtures shall be UL listed for the location, and application in which they are installed.

B. Ceiling fixtures shall be coordinated with and suitable for installation in, on or from the ceiling as shown. Installation and support of fixtures shall be in accordance with NFPA 70 and manufacturer’s recommendations.

3.02 DIFFUSERS AND ENCLOSURES

A. Install lighting fixture diffusers only after construction work, painting and clean up are completed. Prior to final acceptance, remove all lamps, reflectors and diffusers, wash, rinse and reinstall.

3.03 ADJUSTMENT OF FIXTURES

A. Make all final spotlight and adjustable light settings under the direction of the Architect/Engineer during a scheduled period of time prior to the completion of the project. Include costs for all equipment and personnel expenses required for adjustment.

B. For fixtures with indirect lighting, notify Engineer prior to installation of any circumstance where the fixture lamp source will be within 12” of ceiling.

3.04 SUPPORT OF LIGHT FIXTURES

A. Recessed Downlight Type: Mount in frames suitable for the ceiling, with the recessed portion of the fixture securely supported from the ceiling framing. For fixtures supported by a ceiling suspension system, provide two safety chains secured to structural members above suspended ceiling.

B. Surface and Pendant Mounted Type:
   1. Where mounted on accessible ceilings, hang from structural members by means of hanger rods through ceiling or as approved.
   2. Where ceiling is of insufficient strength to support weight of lighting fixture, provide additional framing to support as required. Fixtures shall be supported from structure with seismic bracing independent of ceiling.

3. For Pendant Mount Type: Provide a unistrut channel for mounting fixtures entire fixture length unless light fixture is designed specifically for supporting itself. Provide 3/8-inch thread rod secured to structural members for support of unistrut channel.
4. Continuous Runs of Fixtures: Straight when sighting from end to end, regardless of irregularities in the ceiling. Where fixtures are so installed, omit ornamental ends between sections.

3.05 LOCATION

A. Mount to the dimensions shown on the drawings. Mount at quarter points where no dimensions appear. Architect shall specify mounting locations where no dimensions appear and quarter point mounting is impractical or not indicated on the drawings.

B. Refer to details, mechanical drawings, and coordinate with mechanical Contractor for equipment and ductwork mounted in ceilings to prevent conflict with light fixtures prior to installation. If conflicts cannot be resolved with the Mechanical Contractor, notify Architect/Engineer.

3.06 SPARE PARTS

A. Drivers/Ballasts: Provide (10) or 10% spare (whichever is less) of each replaceable LED driver.

3.07 FIXTURE TENTING

A. Contractor shall coordinate ceiling types with architectural drawings and specifications and provide equivalent fire rated enclosures above all light fixtures which penetrate rated ceilings. E.Z. barrier fire-rated recessed light enclosure.

END OF SECTION

GENERAL NOTES

1. Contractor shall comply with the building codes as noted on drawings.
2. Contractor shall be responsible for providing all work and materials in accordance with all applicable city, county, and local building and fire codes as required.
3. Contractor shall obtain and pay for all necessary permits other than the building permit. Additionally, pay for all other charges, fees or costs associated with the work and charged by the municipality, utilities, or private companies
4. Contractor shall visit job site and verify all existing conditions and field dimensions prior to commencing work. Notify Architect if site conditions and/or Building Department require any modifications to these drawings.
5. Contractor is responsible for maintaining a safe and clean construction site.
6. Contractor is responsible for providing temporary bracing as required until all permanent structural assemblies and connections are secured.
7. Contractor shall establish an agreement with the Owner regarding allowable days and hours of work. Contractor shall not permit any construction activity to commence, or allow employees to cause noise on site, outside of the agreed-upon work periods.
8. Contractor shall coordinate all equipment or systems to be salvaged and given to the Owner, with the Owner. The Owner shall direct the Contractor as to the location of a storage area for salvaged items. The Contractor will be responsible for removing from the building and the construction site all construction debris and/or items not retained by the owner's representative.
9. No storage or use of flammable or combustible liquids, torch cutting or welding operations, open flame work, grinding that produces sparks, roofing operations, or use of flammable gas for temporary heating or drying shall be conducted on any construction site without first having obtained a specific permit from the City of Bellevue Fire Department for these hazardous activities. This includes demolition work. Please call Fire Department permit information and application.
10. Egress, separation, fire protection systems, and emergency access shall meet the requirements of 2018 International Fire Code (IFC) chapter 33 during construction. Contractor materials and activities shall not block any exit, restrict emergency access, or impair fire separation in any building while the building is occupied. This includes demolition work and also applies to neighboring areas, spaces, and buildings.
11. The existing fire safety (fire alarm/sprinkler) system(s) shall remain online in the building(s) during the remediation project.
12. Deferred submittals may be required for any modification of the existing fire sprinkler and/or fire alarm system(s). Any and all proposed modifications must meet NFPA 13 and Bellevue Municipal Code requirements.
13. If any of the fire safety (fire alarm/sprinkler) systems are offline during the course of the project, then a fire watch shall be posted while the system(s) are offline.

EXISTING BUILDING CODE

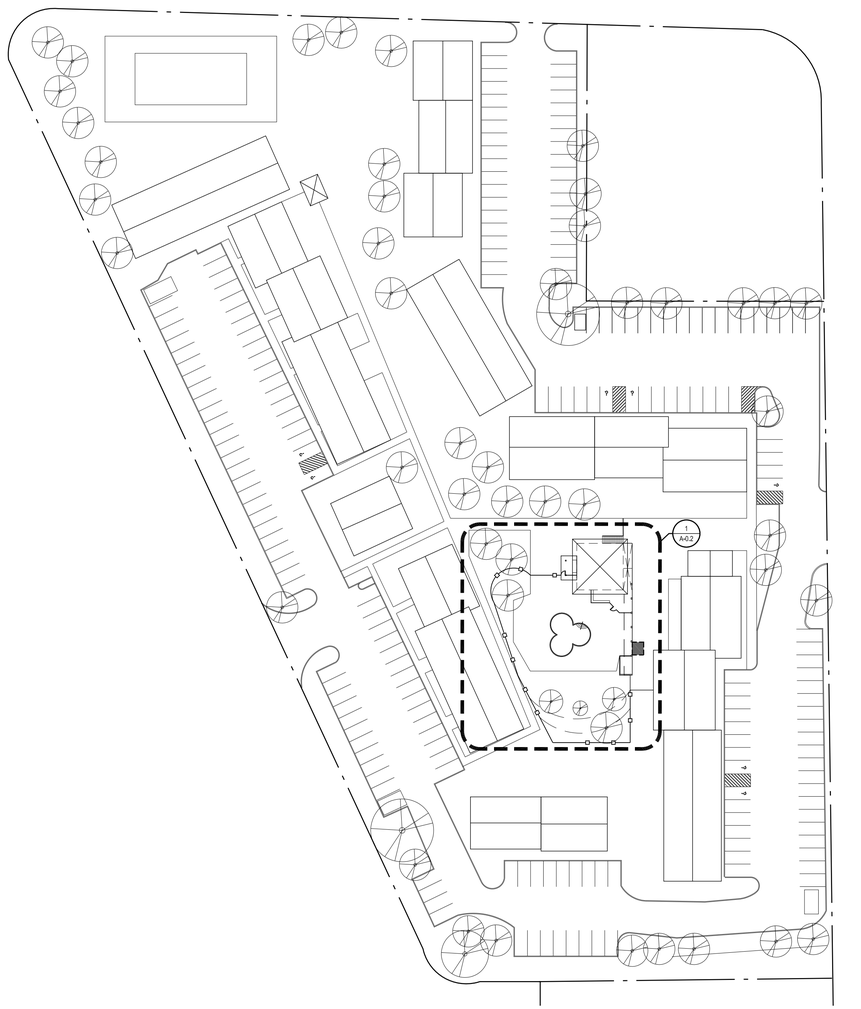
Existing Building Code Compliance: The work shall be in accordance with 2018 International Existing Building Code (IEBC), Chapter 7 & 8.

CONSTRUCTION TYPE (assumed): Type V-B per 2018 IBC.

New toilet room is fully accessible per Chapter 11 of IBC

All code requirements met per ICC A117.1-2009.

VICINITY PLAN



1 **SITE PLAN**
SCALE: 1" = 50' - 0"

PROJECT DATA

PROJECT DESCRIPTION: Proposed ADA bathroom and shower accessible for the existing pool use. Proposed interior walls, and addition of shower, sink, and toilet. Storefront windows and door to be tinted and match existing. New water supply/waste connection and exterior hose bib. All exterior to match existing.

PROPERTY ADDRESS:	2501 148th Street S.E. Bellevue, WA 98007
PARCEL NUMBER:	102405-9002
LEGAL DESCRIPTION:	Por of NE ¼ LY ELY of ELY R/W of New Castle Rd less E 225FT of N 230FT of Less STS TGW N 12FT of E ½ of SE ¼ of NW ¼ LY ELY of SD RD Less ST
Q-S-T-R:	NE-10-24-5
LOT SIZE:	241,225 sq. ft. (5.54 Acres)
YEAR BUILT:	1969
BUILDINGS:	12
DWELLING UNITS:	108 (no change)
STORIES:	2 (no change)
ZONING:	R-20 (no change)
USE:	Multiple Residence (Low Rise) (352) (no change)
JURISDICTION:	Bellevue
CLASS:	V - Wood Frame (no change)

SHEET INDEX

For Reference Only: Health Department Permit

PROJECT TEAM

CLIENT / OWNER
KING COUNTY HOUSING AUTHORITY
600 Andover Park West
Seattle, Wa 98188
c/o Darrel Westlake

PROPERTY MANAGER
ALLIED RESIDENTIAL
1601 East Valley Road, Suite 180
Renton, WA 98057
Williams Portfolio 15
c/o Michael Durnian

PROPERTY CONTACT
THE CARRINGTON APARTMENTS
2501 148th Ave. SE
Bellevue, WA 98007
Community Manager
(Leasing Office)

ARCHITECT
KILBURN ARCHITECTS, LLC
135 Lake Street South, Suite 250
Kirkland, WA 98033
contact: H Todd Kilburn, AIA
todd@kilburnarchitects.com
t - 206.682.5211

MECHANICAL/PLUMBING ENGINEER
HV ENGINEERING, INC.
6912 220th Street SW, Ste 303
Mountlake Terrace, WA 98043
c/o Brian Roetcisoender
brian@hvengineering.biz

CONTRACTOR
TBD

KILBURN
ARCHITECTS LLC

135 Lake Street South
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Kirkland, WA 98033

Tel: 206.682.5211
Fax: 206.682.1403

www.kilburnarchitects.com

7302 REGISTERED ARCHITECT
H. TODD KILBURN
STATE OF WASHINGTON

for Pricing

The Carrington Apartments

Accessible Shower

2501 148th Ave SE
Bellevue, WA 98007

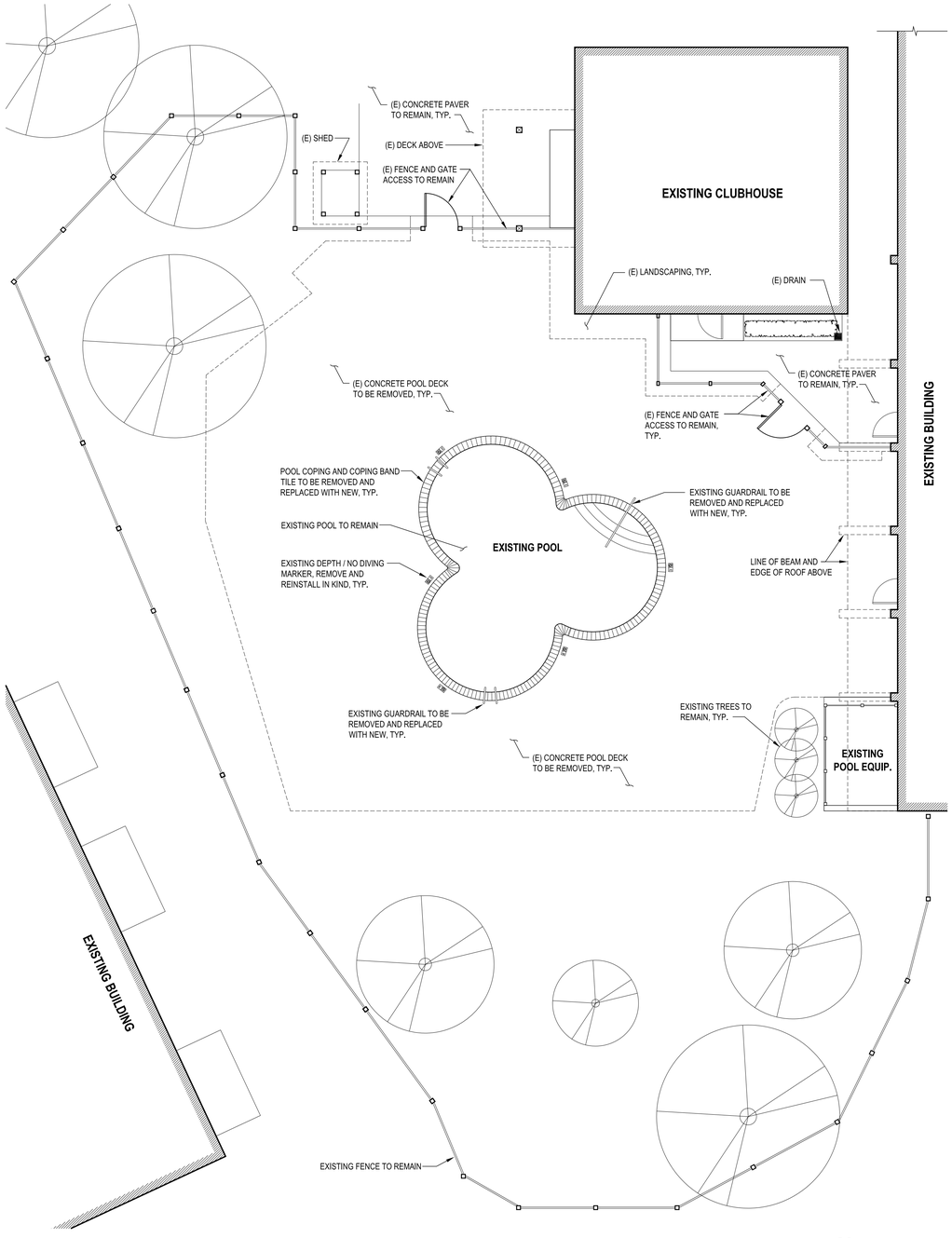
Release	Date
Permit	3.9.20
Bid set	3.25.22
bid/constr'n	07.27.22

Cover and Site Plan

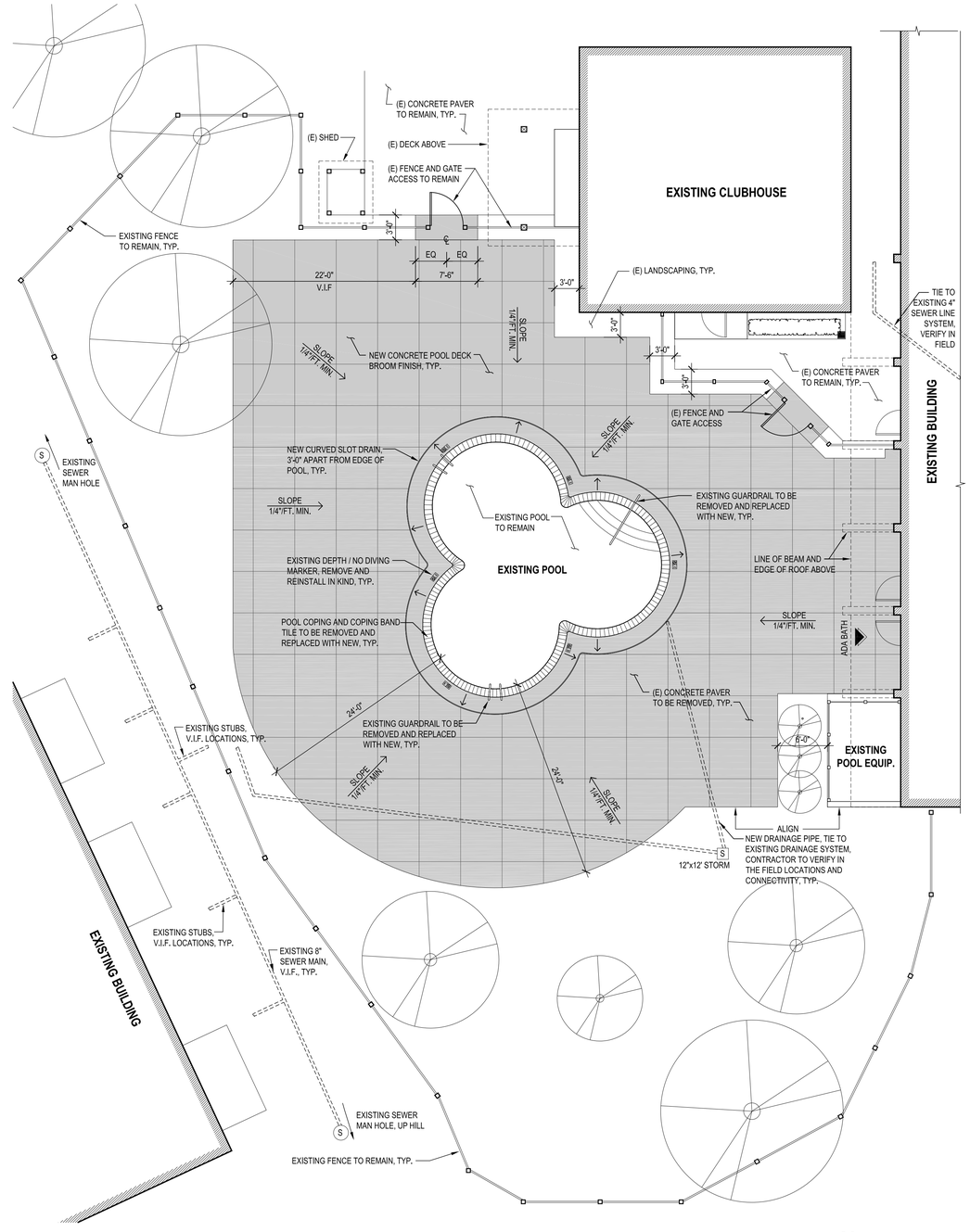
A-0.1

NOTES:
1. Verify all conditions in the field.

KEY:
- (E) WALL
- DEMO (E) CONCRETE POOL DECK
- PROPOSED CONCRETE POOL DECK



1 **Existing & Demo Pool Deck Plan**
SCALE: 1/8"=1'-0"



1 **Proposed Pool Deck Paln**
SCALE: 1/8"=1'-0"

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7302 REGISTERED ARCHITECT
H. TODD KILBURN
STATE OF WASHINGTON

The Carrington Apartments

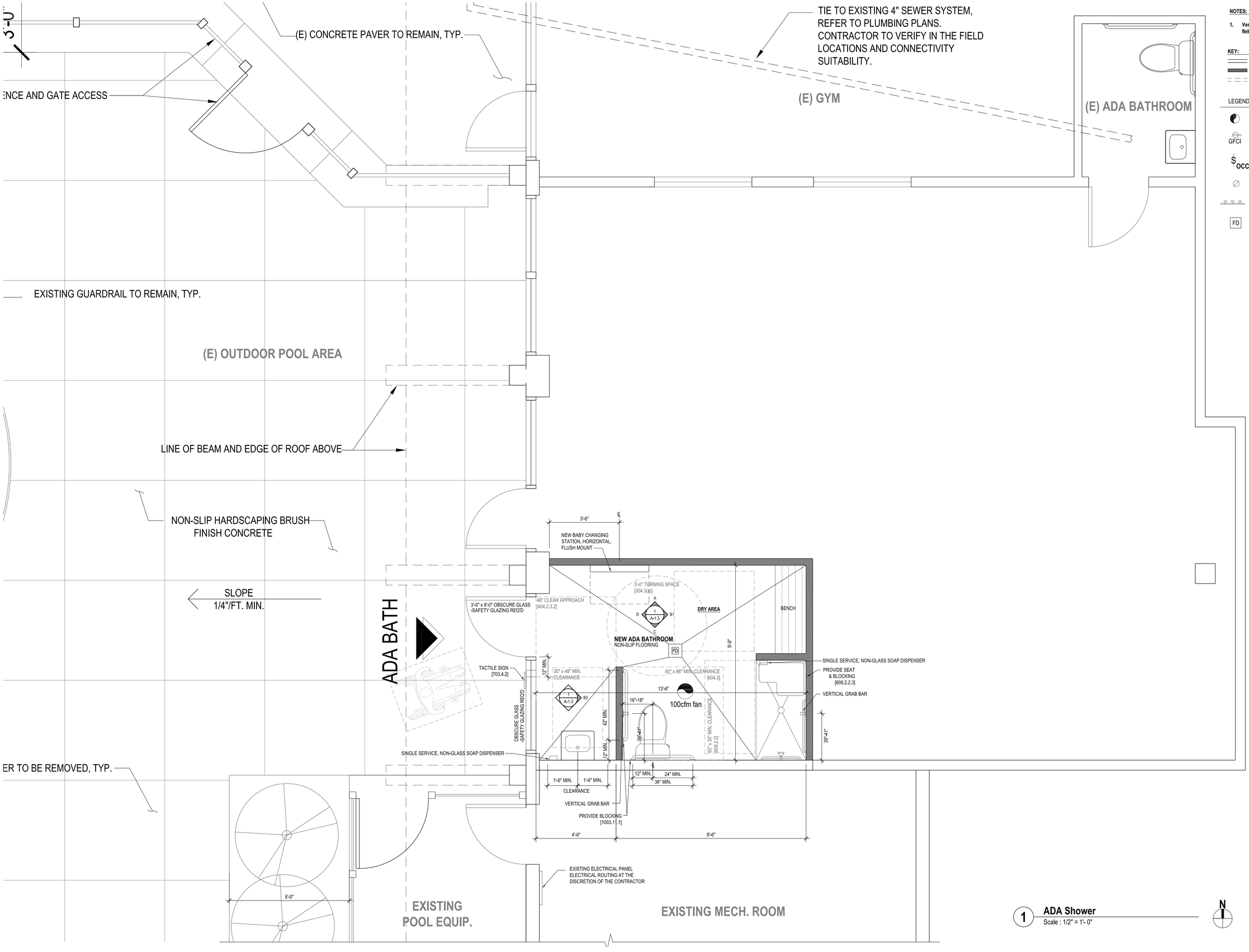
Pool Deck

2501 148th Ave SE
Bellevue, WA 98007

Release	Date
Permit	3.22.21

Paving Plans

A-0.2



NOTES:

1. **Verify all conditions and dimensions in the field, typ.**

KEY:

- EXISTING WALL TO REMAIN
- PROPOSED NEW WALL
- DEMO

LEGEND

- EXHAUST FAN
- GFCI — GFCI OUTLET
- S OCC. — OCCUPANCY SENSOR SWITCH
- RECESSED LED LIGHT FIXTURE
- WALL MOUNTED FIXTURE
- FD — FLOOR DRAIN

1 **ADA Shower**
Scale : 1/2" = 1'- 0"

N

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H. TODD KILBURN
STATE OF WASHINGTON

The Carrington Apartments

ADA Shower

2501 148th Ave SE
Bellevue, WA 98007

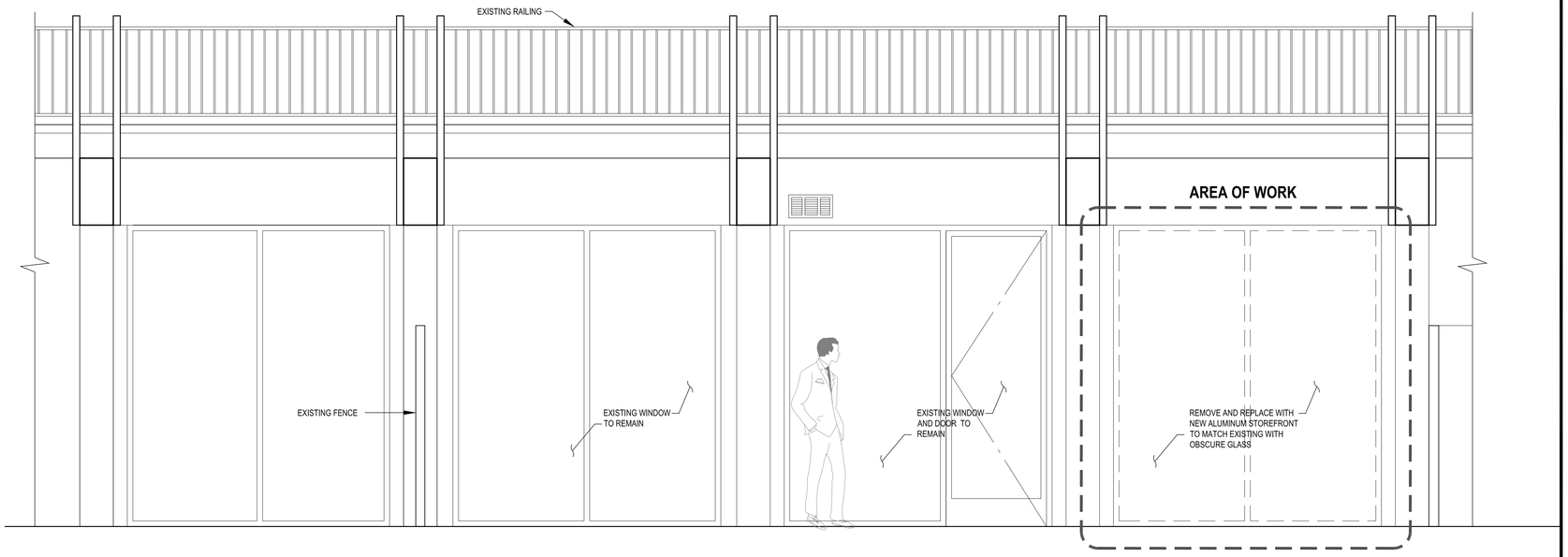
Release	Date
permit	3.09.20
rev.	03.20.20
corrections	07.08.20
bid/constr'n	08.05.22

Floor Plan
ADA Shower

A-1.1

NOTES:

1. **Verify all conditions and dimensions in the field, typ.**



1 East Elevation - Demo
Scale : 1/2" = 1'- 0"

2 East Elevation - Proposed
Scale : 1/2" = 1'- 0"

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ADA Shower

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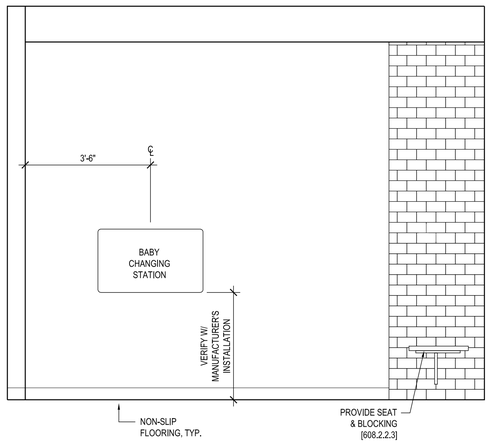
Bellevue, WA 98007

Release	Date
permit	3.09.20
rev.	03.20.20
corrections	07.08.20

Exterior Elevations - ADA Shower

A-1.2



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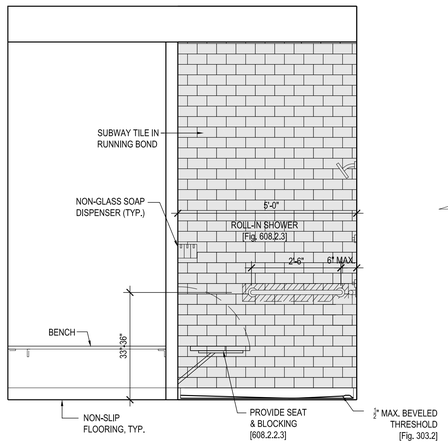

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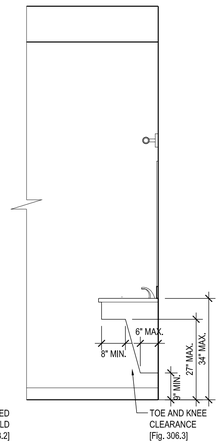

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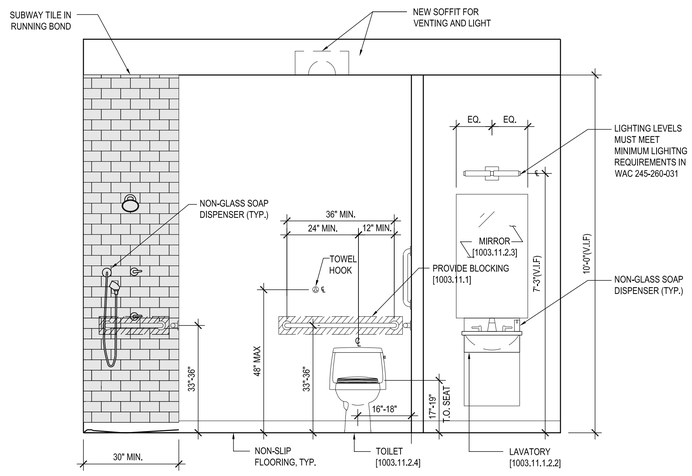

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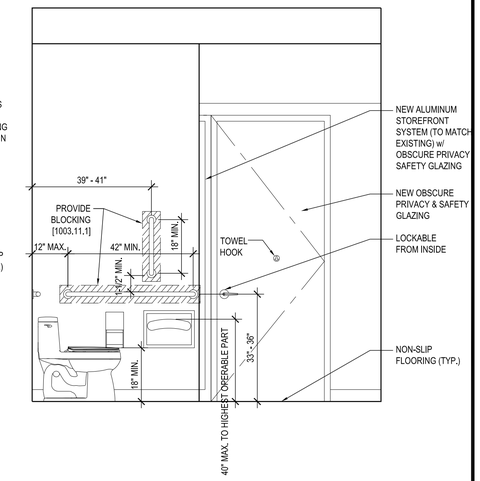


D

1 Interior Elevations

Scale : 1/2" = 1'- 0"

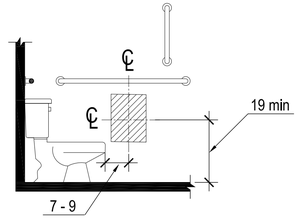


Figure *11B*-604.7
Dispenser Outlet Location

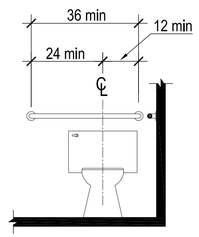


Figure *11B*-604.5.2
Rear Wall Grab Bar at Water Closets

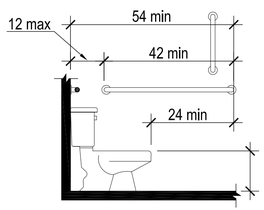


Figure *11B*-604.5.1
Side Wall Grab Bar at Water Closets
&
Figure 604.4
Water Closet Height

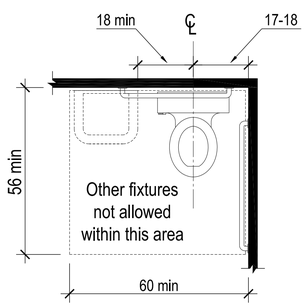


Figure *11B*-604.3 (Exception)
Overlap of Water Closet Clearance
in Residential Dwelling Units
&
(a)
wheelchair accessible water closets
Figure *11B*-604.2
Water Closet Location

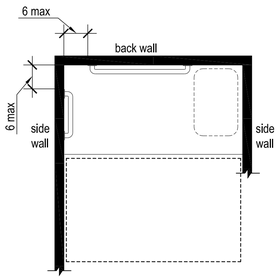


Figure *11B*-608.3.2
Grab Bars for Standard Roll-In Type *Shower*

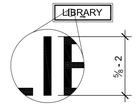


Figure *11B*-703.2.5
Height of Raised Characters

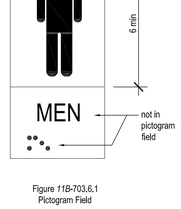


Figure *11B*-703.6.1
Pictogram Field

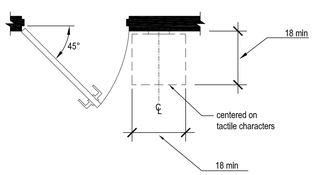
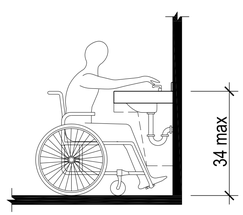
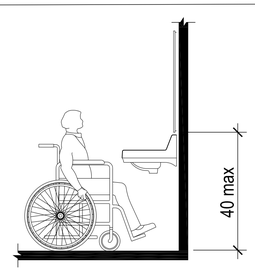


Figure 703.4.2
Location of Tactile Signs at Doors



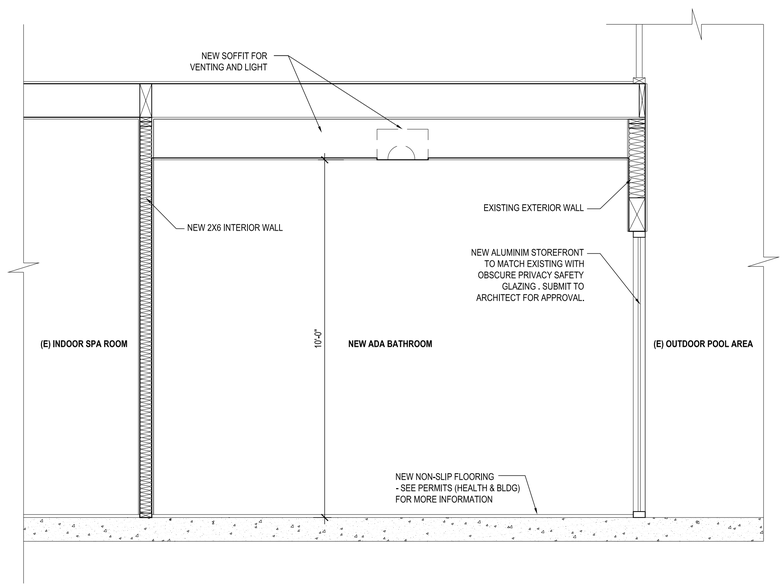
Height of Lavatories and Sinks



Height of Mirrors

2 ICC ACCESSIBILITY CODE REQUIREMENTS

Scale : Not to Scale (For Reference Only)



3 Section

Scale : 1/2" = 1' - 0"

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7302 REGISTERED ARCHITECT
H. TODD KILBURN
STATE OF WASHINGTON

The Carrington Apartments

ADA Shower

2501 148th Ave SE
Bellevue, WA 98007

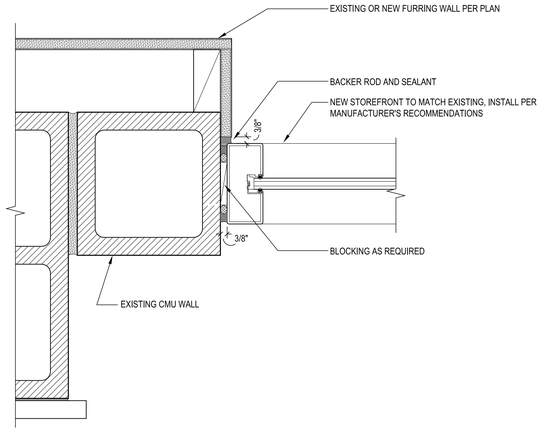
Release	Date
permit	3.09.20
rev.	03.20.20

Interior Elevations & Section - ADA Shower

A-1.3

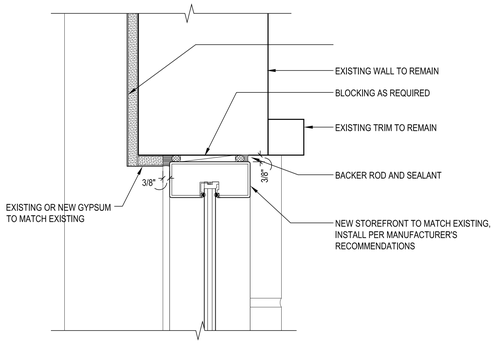
NOTES:

1. **Verify all conditions and dimensions in the field, typ.**



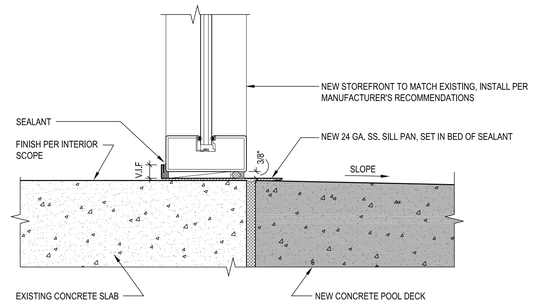
1 Storefront - Jamb

Scale : 3" = 1'- 0"



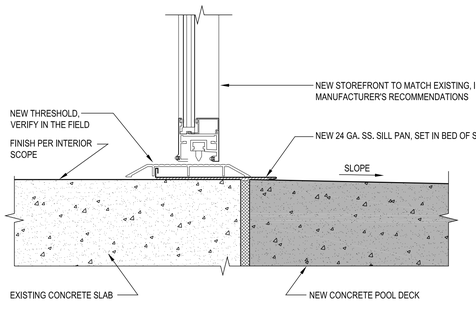
2 Storefront - Head

Scale : 3" = 1'- 0"



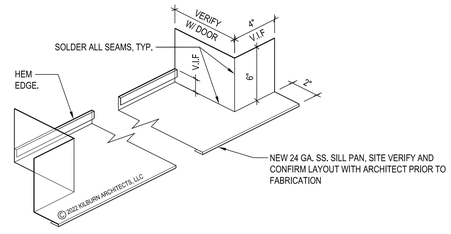
3 Storefront - Sill

Scale : 3" = 1'- 0"



4 Storefront Door - Sill

Scale : 3" = 1'- 0"



STOREFRONT SILL PAN ISOMETRIC

5 Storefront - Sill Pan

Scale : 3" = 1'- 0"

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7302 REGISTERED ARCHITECT
H. TODD KILBURN
STATE OF WASHINGTON

The Carrington Apartments

ADA Shower

2501 148th Ave SE
Bellevue, WA 98007

Release	Date
permit	3.09.20
rev.	03.20.20
corrections	07.08.20

Storefront Details - ADA Shower

A-1.4

NOTES:

1. Verify all conditions and dimensions in the field, typ.
2. All interior fixture selections to be of equal or similar style, typ.

1 ADA Shower
Scale : 3" = 1'- 0"

2A Kohler Awaken - ADA Shower Head - option 1
Scale : 3" = 1'- 0"

2B American Standard - ADA Shower Head - option 2
Scale : 3" = 1'- 0"

3A LED Bathroom Vanity Wall Light (by Brink)

3B LED 9in Round White Flush Mount
(in lieu of Recessed Can Light Option)

4A Cerastyle - Nameeks Elite - ADA Sink - option 1

4B Cerastyle - Nameeks Mona - ADA Sink - option 2

5A Kohler Geometric - ADA Faucet - option 1

5B Kohler Sculpted - ADA Faucet - option 2

5C Kohler Strayt - ADA Faucet - option 3

6A American Standard-Champion - ADA Toilet - option 1

6B Kohler - Highline Pressure Lite K-3493 - ADA Toilet - option 2

7A Traffic Master Aiden - non-slip vinyl flooring - option 1

7B Traffic Master - Winding - non-slip - opt 2

7C Home Decorators Athabasca - non-slip - opt 3

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7302 REGISTERED ARCHITECT
H. TODD KILBURN
STATE OF WASHINGTON

The Carrington Apartments

ADA Shower

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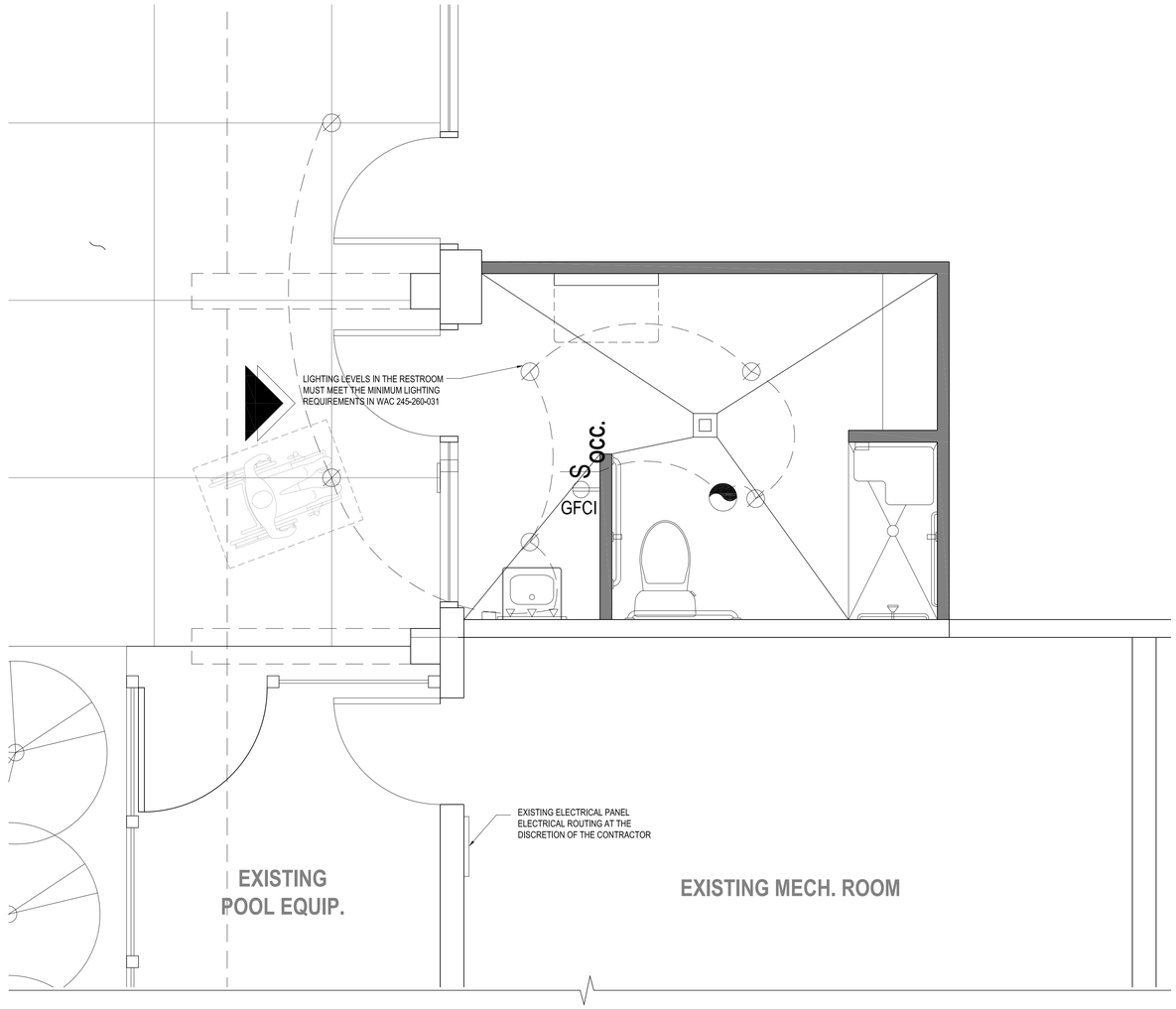
Bellevue, WA 98007

Release	Date
permit	3.09.20
rev.	03.20.20
corrections	07.08.20
bid/constr'n	08.05.22

ADA Fixture Specifications

A-1.5



1 **Electrical Plan**
Scale : 1/2" = 1'- 0"

N

NOTES:

1. **Verify all conditions and dimensions in the field, typ.**

KEY:

EXISTING WALL TO REMAIN

PROPOSED NEW WALL

DEMO

LEGEND

EXHAUST FAN

GFCI OUTLET

OCCUPANCY SENSOR SWITCH

RECESSED LED LIGHT FIXTURE

WALL MOUNTED FIXTURE

FD FLOOR DRAIN

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7302 REGISTERED ARCHITECT
H. TODD KILBURN
STATE OF WASHINGTON

The Carrington Apartments

ADA Shower

2501 148th Ave SE
Bellevue, WA 98007

Release	Date
permit	3.09.20
rev.	03.20.20
corrections	07.08.20
bid/constr'n	08.05.22

Electrical Plan
ADA Shower

E-1.1

GENERAL PLUMBING NOTES

1. THE FOLLOWING NOTES APPLY TO ALL PLUMBING DRAWINGS. ADDITIONAL PLUMBING NOTES MAY BE INDICATED ON EACH PLUMBING DRAWING. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
2. INSTALLATION SHALL COMPLY WITH ALL GOVERNING CODES AND REGULATIONS (LOCAL AND STATE). NOTHING ON THE DRAWINGS OR SPECIFICATIONS SHALL BE CONSTRUED AS ALLOWING DEVIATION FROM THIS REQUIREMENT. IF A CONFLICT SHOULD OCCUR BETWEEN DRAWINGS AND REGULATIONS, THE REGULATIONS SHALL TAKE PRECEDENT AND CONTRACTOR SHALL NOTIFY ENGINEER IN WRITING OF SUCH CONFLICT PRIOR TO PROCEEDING WITH INSTALLATION.
3. INSTALL ALL WASTE LINE CLEANOUTS IN ACCORDANCE WITH CHAPTER SEVEN OF THE UNIFORM PLUMBING CODE:
   A. 3" WASTE PIPE – 3" CLEANOUT WITH 2.5" PLUG
   B. 4" WASTE PIPE – 4" CLEANOUT WITH 3.5" PLUG
   C. 6" WASTE PIPE – 4" CLEANOUT WITH 3.5" PLUG
4. WASTE, VENT AND SUPPLY PIPING SIZES TO INDIVIDUAL PLUMBING FIXTURES SHALL BE AS SHOWN ON PLUMBING FIXTURE SCHEDULES. BELOW GRADE SANITARY WASTE PIPING SIZES SHALL BE AS SHOWN ON PLANS AND FIXTURE SCHEDULES AND SHALL NOT BE LESS THAN 2" DIAMETER.
5. ALL SANITARY SEWER PIPING BELOW SLAB SHALL BE INSTALLED AT A MINIMUM OF 1/4" PER FT SLOPE UNLESS APPROVAL IS PROVIDED BY THE "ADMINISTRATIVE AUTHORITY" IN WRITING FOR A SHALLOWER SLOPE. IN NO CASES SHALL SEWER PIPING BE INSTALLED AT LESS THAN 1/8" PER FT SLOPE. IN NO CASES WILL PIPING SMALLER THAN 4" BE INSTALLED AT SLOPES SHALLOWER THAN 1/4" PER FOOT. PIPING INSTALLED AT 1/8"/FT SHALL BE RESIZED PER CHAPTER 7 OF THE UNIFORM PLUMBING CODE AND SUPPORTING CALCULATION SUBMITTED TO ENGINEER FOR REVIEW.
6. PROVIDE STOPS PRIOR TO ALL PLUMBING EQUIPMENT. THIS SHALL ALSO INCLUDE PROVIDING INTEGRAL STOPS ON ALL SHOWER AND TUB/SHOWER VALVES (WHETHER SPECIFIED OR NOT). PROVIDE WASTE TRAPS AT ALL DIRECT CONNECTED EQUIPMENT IN ACCORDANCE WITH CODE AND THE SPECIFICATIONS.
7. PROVIDE TRAP PRIMERS AT ALL FLOOR DRAINS UNLESS NOTED OTHERWISE. PROVIDE UNION ON UPSTREAM AND DOWNSTREAM SIDE OF ALL TRAP PRIMERS. TRAP PRIMER BRANCH TAKEOFF SHALL BE FROM TOP OF MAIN DISTRIBUTION PIPE.
8. INSULATE P-TRAPS EXPOSED IN UNHEATED SPACES.
9. SEE ARCHITECTURAL DRAWINGS FOR PLUMBING FIXTURE ROUGH-IN DIMENSIONS AND OTHER DETAILS. ALSO SEE ARCHITECTURAL DRAWINGS FOR FINISH REQUIREMENTS OF ALL PLUMBING FIXTURES INCLUDING REQUIREMENTS FOR FLUSH LEVER LOCATION AT ADA COMPLIANT TOILETS AND VALVE LOCATIONS OF ADA SHOWERS. REPORT ALL DISCREPANCIES TO ENGINEER PRIOR TO ANY WORK.
10. REFER TO ARCHITECTURAL DRAWING FOR ROOM ELEVATIONS. LOCATE PLUMBING FIXTURES AT HEIGHTS SHOWN ON ARCHITECTURAL ROOM ELEVATIONS.
11. PLUMBING DRAWINGS SHOW APPROXIMATE LOCATIONS OF PLUMBING FIXTURES. REFER TO ARCHITECTURAL PLANS FOR EXACT LOCATIONS. COORDINATE FLOOR DRAINS FOR MECHANICAL SPACES WITH MECHANICAL EQUIPMENT BEING SERVED.
12. REFER TO ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR GENERAL CONSTRUCTION INCLUDING CONCRETE EQUIPMENT PADS, FLASHING DETAILS, ETC.
13. REFER TO ELECTRICAL DRAWINGS FOR ADDITIONAL ELECTRICAL CHARACTERISTICS OF PLUMBING EQUIPMENT (VOLTAGES, ETC.).
14. ELECTRICAL CHARACTERISTICS OF LISTED EQUIPMENT SHALL BE VERIFIED BY CONTRACTOR DURING SUBMITTAL PROCESS. ANY ELECTRICAL CHARACTERISTICS THAT DEVIATE FROM THOSE LISTED SHALL BE IDENTIFIED BY THE CONTRACTOR, SUBMITTED TO THE ENGINEER FOR APPROVAL AND COORDINATED WITH DIVISION 26 ELECTRICAL PRIOR TO INSTALLATION OF EQUIPMENT AS REQUIRED TO PROPERLY SERVE EQUIPMENT.
15. SECURE WATER HEATERS AND STORAGE TANKS AND PLUMBING EQUIPMENT TO STRUCTURE AS REQUIRED BY CODE. REFER TO THE STRUCTURAL DRAWINGS FOR ADDITIONAL SPECIAL REQUIREMENTS RELATED TO THE PLUMBING INSTALLATION.
16. PROVIDE PLUMBING ANCHORAGE AND EXPANSION EVERY 100' PIPE LENGTH PER CODE.
17. ACCESS PANELS ARE REQUIRED AT ALL CONCEALED VALVES AND EQUIPMENT. COORDINATE LOCATION AND SIZE WITH ARCHITECT.
18. STUB OUT TO SITE SERVICES 5'-0" OUTSIDE BUILDING FOUNDATION. PIPE SIZE, FIXTURE UNIT COUNT, AREA DRAINED, AND INVERT ELEVATIONS AS INDICATED. NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO COMMENCING WORK.
19. INSULATE PIPING PER 2018 WSEC.
20. GENERALLY DUCTWORK PLANNED TO BE TIGHT TO STRUCTURE WITH PIPING BELOW DUCTWORK AND BETWEEN LIGHT FIXTURES. ADJUST AS NECESSARY.
21. PIPING INSTALLED ADJACENT TO ELECTRICAL CABLE TRAYS SHALL ALLOW MINIMUM ACCESS OF 6" IF RUNNING PARALLEL AND ABOVE CABLE TRAYS, ALLOW 18" TO THE SIDE OF CABLE TRAYS.
22. COORDINATE LOCATIONS OF PLUMBING EQUIPMENT TO PROVIDE CLEARANCES OVER LIGHTING FIXTURES FOR REMOVAL AND SERVICE ACCESS DUE TO EQUIPMENT MAINTENANCE.
23. REFER TO PIPING DIAGRAMS AND DETAILS FOR REQUIRED FITTINGS, VALVES, ETC. FLOOR PLANS AND SECTIONS INDICATE EQUIPMENT LOCATIONS AND GENERAL PIPE ROUTING ONLY.
24. PROVIDE FABRICATED STEEL MEMBER SUPPORTS AS REQUIRED BY MANUFACTURER'S INSTALLATION INSTRUCTIONS, AS INDICATED ON DRAWINGS, OR IN SPECIFICATIONS FOR INSTALLATION OF EQUIPMENT. REQUIRED STRUCTURAL MEMBERS, BOLTS, AND WELDS SHALL BE IN ACCORDANCE WITH AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) MANUAL.
25. IF REQUIRED FOR INSTALLATION OF PIPES AND EQUIPMENT, PROVIDE ADDITIONAL STRUCTURAL MEMBERS BETWEEN COLUMNS, JOISTS, AND STRUCTURAL FRAME TO MEET SUPPORT REACTIONS (FORCES, MOMENTS, DEFLECTIONS). STRUCTURAL MEMBERS SHALL BE DESIGNED BY A REGISTERED PROFESSIONAL ENGINEER.
26. DO NOT CORE DRILL OR DRILL THROUGH BEAMS, COLUMNS, AND SHEAR WALLS, UNLESS INDICATED ON STRUCTURAL DRAWINGS OR AS APPROVED BY THE STRUCTURAL ENGINEER.
27. PIPES INDICATED WITHOUT DIMENSIONS SHALL BE SIZED PER PRECEDING UPSTREAM PIPE SECTIONS.
28. DRAWINGS ARE SCHEMATIC IN SOME AREAS AND MAY NOT SHOW PIPING OFFSETS WHICH MAY BE REQUIRED.
29. ALL WATER PIPING IN UNHEATED SPACES SHALL BE HEAT TRACED AND INSULATED.
30. WHERE PIPE SIZES ARE NOT SHOWN ON DRAWINGS, SIZE PIPING PER THE 2018 UNIFORM PLUMBING CODE.
31. PRIOR TO SUBMITTING ALL PLUMBING FIXTURES THE CONTRACTOR SHALL VERIFY COMPATIBILITY OF THE SPECIFIED FIXTURE WITH THE SIZES OF FINISH CABINETRY AS IDENTIFIED IN GENERAL CONTRACTOR'S SHOP DRAWINGS. ANY DISCREPANCIES BETWEEN THE SIZE OF THE FIXTURES SPECIFIED AND THE FINISH CABINETRY SIZES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IN WRITING BEFORE SUBMITTAL.
32. PLUMBING VENTS SHALL TERMINATE A MINIMUM 10' FROM OUTSIDE AIR INTAKES, PER CODE.
33. LABEL ALL PIPING SYSTEMS PER THE IMC AND UPC.
34. SUPPORT AND BRACE PIPING SYSTEMS IN ACCORDANCE WITH UPC SECTION 314 AND AS REQUIRED IN THE SPECIFICATIONS.
35. ALL MATERIALS IN CONTACT WITH PIPING SYSTEMS SHALL BE COMPATIBLE FOR USE WITH AND FOR CONTACT WITH THE PIPING MATERIAL. CONTRACTORS AND TRADES SHALL VERIFY COMPATIBILITY OF THEIR PRODUCTS WITH THE PIPING SYSTEMS. THIS INCLUDES, BUT IS NOT LIMITED TO, FIRE STOPPING SEALANTS, FIRE STOPPING COLLARS, VIBRATION ISOLATION ELEMENTS, THERMAL INSULATION, EXPANSION JOINTS AND ANY MATERIAL IN CONTACT WITH PIPES.
36. ALL CAST IRON SOIL PIPE AND FITTINGS SHALL BE MARKED WITH THE COLLECTIVE TRADEMARK OF THE CAST IRON SOIL PIPE INSTITUTE (CISPI) AND BE LISTED BY NSF INTERNATIONAL.
37. PIPE BURIAL METHODS FOR BELOW GRADE PIPING SHALL COMPLY WITH MFR INSTALLATION INSTRUCTIONS, ASTM D 2321 AND ASTM F1668. FAILURE TO FOLLOW THESE REQUIREMENTS CAN LEAD TO PIPE FAILURE.
38. ROOF MOUNTED PIPING SHALL BE INSTALLED ON FREE FLOATING, PREFABRICATED SUPPORTS SIMILAR TO MIRO MODEL 24-R OR ROOF TOP BLOX ON WALKWAY TREAD PADS. THE USE OF WOOD FOR SUPPORTS IS PROHIBITED.
39. ALL ITEMS IN CONTACT WITH POTABLE WATER SHALL COMPLY WITH THE NATIONAL "REDUCTION OF LEAD IN DRINKING WATER ACT" S.3874.

ABBREVIATIONS

AAV	AIR ADMITTANCE VALVE
AC	AIR CONDITIONING
ABV	ABOVE
AD	ACCESS DOOR
AFC	ABOVE FINISHED CEILING
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AFUE	ANNUALIZED FUEL EFFICIENCY
AHU	AIR HANDLING UNIT
AL	ALUMINUM
APPROX	APPROXIMATELY
ARCH	ARCHITECTURAL
ATMOS	ATMOSPHERE
BATT	BATTERY
BF	BLIND FLANGE
BFC	BELOW FINISHED CEILING
BHP	BRAKE HORSE POWER
BLDG	BUILDING
BTU	BRITISH THERMAL UNIT
BTUH	BRITISH THERMAL UNIT PER HOUR
CFM	CUBIC FEET PER MINUTE
CHAR	CHARACTERISTICS
CHEM	CHEMICAL INJECTION
CHWS	CHILLED WATER SUPPLY
CHWR	CHILLED WATER RETURN
CLG	CEILING
CO	CLEAN OUT
CONC	CONCRETE
CONN	CONNECT OR CONNECTION
CPLG	COUPLING
CS	CARBON STEEL
CSC	CARSEALED CLOSED
CSO	CARSEALED OPEN
CW	COLD WATER
CRD	CEILING RADIATION DAMPER
DET	DETAIL
DFU	DRAINAGE FIXTURE UNITS
DIA	DIAMETER
DIM	DIMENSION
DISCH	DISCHARGE
DI	DUCTILE IRON
DN	DOWN
DP	DIFFERENTIAL PRESSURE
DR	DRAIN
DWG	DRAWING
EA	EACH
ECC	ECCENTRIC
EF	EXHAUST FAN
EFF	EFFICIENT, EFFICIENCY
EL	ELEVATION
ELEC	ELECTRICAL
EQUIP	EQUIPMENT
ET	ELECTRIC TRACED
EXIST.(E)	EXISTING
EXH	EXHAUST
EXT	EXTERIOR
F	FAHRENHEIT
FD	FIRE DAMPER OR FLOOR DRAIN
FF	FINISHED FLOOR
FLGD	FLANGED
FLR	FLOOR
FCO	FLOOR CLEAN OUT
FPM	FEET PER MINUTE
FLTR	FILTER
FOF	FACE OF FLANGE
FPI	FINS PER INCH
FT	FEET, FOOT
FU	FIXTURE UNITS
FW	FEED WATER
G	GAS
GALV	GALVANIZED
GEN	GENERATOR
GPM	GALLONS PER MINUTE
GV	GATE VALVE
GW	GRAY WATER (NON POTABLE)
GWR	GLYCOL WATER RETURN
GWS	GLYCOL WATER SUPPLY
HP	HORSE POWER
HPFS	HIGH POINT FINISHED SURFACE
HR	HOUR
HTG	HEATING
HT	HEIGHT
HVAC	HEATING, VENTILATION AND AIR CONDITIONING
HW	HOT WATER
HWC	HOT WATER CIRCULATING
HWS	HOT WATER HEATING SUPPLY
HWR	HOT WATER HEATING RETURN
ID	INSIDE DIMENSION
IE	INVERT ELEVATION
IH	INSULATION HOT
IN	INCH, INCHES
INFO	INFORMATION
INST	INSTRUMENT
INSUL	INSULATE, INSULATION
INV	INVERT
IRR	IRRIGATION (NON POTABLE)
IU	INDOOR UNIT
JAN	JANITOR
KW	KILOWATT
KWH	KILOWATT HOUR
LAT	LEAVING AIR TEMPERATURE
LBS	POUND
LC	LOCKED CLOSED
LF	LINEAL FEET
LOC	LOCATION
LL	LANDLORD
LVG	LEAVING
MATL	MATERIAL
MAX	MAXIMUM
MPG	MEDIUM PRESSURE GAS
MBH	THOUSAND BRITISH THERMAL UNITS PER HOUR
MCC	MOTOR CONTROL CENTER
MCA	MAXIMUM CIRCUIT AMPS
MAX	MAXIMUM
MECH	MECHANICAL
MFR	MANUFACTURER
MED	MEDIUM
MH	MANHOLE
MIN	MINIMUM, MINUTE
MISC	MISCELLANEOUS
N	NORTH, NEUTRAL
NA	NOT APPLICABLE
NC	NORMALLY CLOSED
NIC	NOT IN CONTRACT
NO	NUMBER OR NORMALLY OPEN
NG	NATURAL GAS
NTS	NOT TO SCALE
O2	OXYGEN
OC	ON CENTER
OSA	OUTSIDE AIR
OAT	OUTSIDE AIR TEMPERATURE
OA	OUTSIDE AIR
OD	OUTSIDE DIMENSION
OPP	OPPOSITE
OCP	OVER CURRENT PROTECTION
OU	OUTDOOR UNIT
P	PUMP
PD	PRESSURE DROP
PERF	PERFORATED
PF	PRE FILTER
PH	PHASE
PJ	PUSH ON JOINTS
PLCS	PLACES
PNL	PANEL
POC	POINT OF CONNECTION
PRV	PRESSURE REDUCING VALVE
PS	PIPE SUPPORT
PSV	PRESSURE SAFETY (RELIEF) VALVE
QTY	QUANTITY
RED	REDUCER
REQD	REQUIRED
RR	REMOVE AND RELOCATE
RJ	RESTRAINED JOINTS
RET	RETURN
RPM	REVOLUTIONS PER MINUTE
RWL	RAINWATER LEADER
SS	SANITARY SEWER
SCHED	SCHEDULE
SECT	SECTION
SEER	SEASONAL ENERGY EFF. RATIO
SVC	SERVICE
SHT	SHEET
SV	SOLENOID VALVE
SW	SOCKET WELD
STA	STATION
STD	STANDARD
SHT	SHEET
SP	STATIC PRESSURE
SPEC	SPECIFICATION
SQ	SQUARE
SS	STAINLESS STEEL
SYS	SYSTEM
STAT	THERMOSTAT
TEMP	TEMPERATURE
TD	TEMPERATURE DIFFERENTIAL
TDH	TOTAL DYNAMIC HEAD
TEMP	TEMPORARY
THRU	THROUGH
TI	TENANT IMPROVEMENT
TSTAT	THERMOSTAT
TYP	TYPICAL
TRU	TERMINAL REHEAT UNIT
UL	UNDERWRITER'S LABORATORY
UNO	UNLESS NOTED OTHERWISE
UBC	UNIFORM BUILDING CODE
UPC	UNIFORM PLUMBING CODE
UG	UNDERGROUND
V	VOLT
VAC	VOLTS AC
VDC	VOLTS DC
VAC	VACUUM
VEL	VELOCITY
VF	VENTILATION FAN
VFD	VARIABLE FREQUENCY DRIVE
VTR	VENT THROUGH ROOF
VOL	VOLUME
V/PH/HZ	VOLTS/PHASE/HERTZ
W/	WITH
W/O	WITHOUT
W	WASTE
WC	WATER CLOSET
WCO	WALL CLEAN OUT
WG	WATER GAUGE
WHA	WATER HAMMER ARRESTER
WT	WATER TANK
WT	WEIGHT
WTR, W	WATER

PLUMBING LEGEND

SYMBOL	DESCRIPTION

WATER PIPING SYSTEMS

WS	WATER SERVICE
CWF	COLD WATER FILTERED
	COLD WATER (ABOVE FLOOR/GRADE)
	HOT WATER (ABOVE FLOOR/GRADE) (140° F WATER IF NOT INDICATED OTHERWISE)
140	HIGH TEMP HOT WATER 140° OR AS INDICATED
160	HIGH TEMP HOT WATER 160° OR AS INDICATED
T	TEMPERED WATER
TWC	TEMPERED WATER CIRCULATING
	HOT WATER CIRCULATING
NP	NON POTABLE WATER
M	WATER METER
	HEAT TRACE FOR COLD WATER PIPE

DRAIN WASTE & VENT PIPING

	WASTE (ABOVE FLOOR) PIPING
	WASTE (BELOW FLOOR) PIPING
	WASTE (BELOW FLOOR) PIPING BACKWATER VALVE
	VENT
AW	ACID WASTE
GW	GREASE WASTE
GD	GARAGE DRAIN
C	CONDENSATE DRAIN
P	PUMPED PIPING
FCO	FLOOR CLEANOUT (FCO)
WCO	WALL CLEANOUT (WCO)
VTR	VENT THRU ROOF
	FLOOR DRAIN
	FLOOR SINK

NARRATIVE OF SCOPE:

PROJECT SCOPE FOR HVAC INCLUDES ADDING AN EXHAUST FAN SERVING A NEW ADA RESTROOM, DUCTWORK AND EXTERIOR LOUVER SERVING THE EXHAUST. IT ALSO INCLUDES THE ADDITION OF TRANSFER AIR DUCTWORK AND AN ELECTRIC WALL HEATER. EXISTING DUCTWORK SERVING THE FORMER INDOOR SPA WILL BE DEMOLISHED AND REMOVED.

PROJECT SCOPE FOR PLUMBING INCLUDES CONNECTION TO EXISTING BUILDING DOMESTIC COLD WATER, RECONNECTING THE DOMESTIC WATER FOR TWO TOILET ROOMS, AND ADDING SERVICE TO THE NEW ADA RESTROOM. THE NEW RESTROOM WILL INCLUDE A FLOOR MOUNTED TANK-TYPE TOILET, A WALL MOUNTED LAVATORY, AND AN ADA SHOWER ENCLOSURE. HOT WATER WILL BE PROVIDED WITH A NEW ELECTRIC WATER HEATER LOCATED IN THE SPA MECHANICAL EQUIPMENT AREA.

PLUMBING LEGEND

SYMBOL	DESCRIPTION

PIPING

	FLOW ARROW
	CAP OR CLEANOUT
	PIPE UP OR TEE UP AND DOWN
	PIPE DOWN
	PIPE TEE UP
	PIPE TEE DOWN
	45° DEGREE ELBOW
	90° DEGREE ELBOW
	4 WAY TEE
	TEE
	PIPE BREAK

PIPING SPECIALTIES

	PRESSURE GAGE
	THERMOMETER
	SIGHT GLASS
	VENTURI FLOW METER
	FLOW METER
	MANUAL AIR VENT (MAV)
	GAS PRESSURE REGULATOR
M	WATER METER
	WYE STRAINER
	WYE STRAINER WITH CAPPED HOSE END BLOWDOWN VALVE
	FLANGE
	UNION
	ECCENTRIC REDUCER
	STEAM TRAP
	HOSE BIBBS
	HOSE BIBB/WALL HYDRANT
	PIPE ANCHOR
	ALLIGNMENT GUIDE
TS	TEMPERATURE/PRESSURE TEST PORT/PETE'S PLUG
	FLEXIBLE CONNECTION IN PIPING
Y	FUNNEL

VALVES

	BALANCING VALVE
	PRESSURE REGULATING VALVE
	PRESSURE REDUCING VALVE (PRV)
M	AUTOMATIC CONTROL VALVE – TWO WAY (ELECTRIC OPERATOR SHOWN)
M	AUTOMATIC CONTROL VALVE – THREE WAY (ELECTRIC OPERATOR SHOWN)
	BALL VALVE
	GATE VALVE
	GAS COCK
	RELIEF VALVE
	CHECK VALVE
	BUTTERFLY VALVE
	REDUCED PRESSURE BACKFLOW ASSEMBLY
	BALANCING/MEASURING VALVE

PLUMBING LEGEND

SYMBOL	DESCRIPTION

GENERAL

NORTH	NORTH ARROW
A / M201	SECTION IDENTIFICATION
	SHEET IDENTIFICATION
1	SHEET NOTES
1	RISER CALLOUT (RISER-1)
WC / 1	PLUMBING FIXTURE TAG (WC-1)
1	REVISION CALLOUT (REV-1)
	REVISION BUBBLE
1 / P2.05	DETAIL CALLOUT (1/P2.05)
A / 6	COLUMN GRID SYMBOLS
1	GENERAL MECHANICAL NOTES NUMBER IDENTIFICATION
1	FLAG MECHANICAL NOTES NUMBER IDENTIFICATION
	EXISTING WORK OR BACKGROUND
	INFORMATION (LIGHT LINE) NEW WORK (HEAVY LINES)
R	RELOCATE EXISTING EQUIPMENT ITEM OR DEVICE INDICATED
	EXISTING EQUIPMENT OR PIPING TO BE SELECTIVELY DEMOLISHED
PMP-1	TYPICAL EQUIPMENT DESIGNATION (PUMP)
	POINT OF CONNECTION TO EXISTING

REFERENCE CODES - WASHINGTON

IBC	INTERNATIONAL BUILDING CODE (2018)
IMC	INTERNATIONAL MECHANICAL CODE (2018)
UPC	UNIFORM PLUMBING CODE (2018)
IFGC	INTERNATIONAL FUEL GAS CODE (2018)
WSEC	WASHINGTON STATE ENERGY CODE (2018)
ADA	AMERICAN DISABILITY ACT STANDARDS (2010)
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS – A17.1 – 2007 W/ 2008 ADDENDA SAFETY CODE FOR ELEVATORS AND ESCALATORS
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION STANDARDS 13D, 13R, OR 13 (AS APPLICABLE) (2016)

SHEET INDEX

PHSKC STAMP

VERIFY SCALE

BAR MEASURES ONE INCH ON ORIGINAL DRAWING

0" ——— 1"

IF NOT ONE INCH ON THIS DRAWING, ADJUST SCALES ACCORDINGLY.

PERMIT SET

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Project
THE CARRINGTON APARTMENTS - ADA SHOWER

Location
2501 148TH AVE SE
BELLEVUE, WA 98007

Parcel #: --------

Prepared For
KILBURN ARCHITECTS, LLC

135 LAKE STREET SOUTH
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NO.	DATE	REVISION

PARTNER IN CHARGE: BWR
PROJECT MANAGER: BWR
PROJECT ENGINEER: IGM
PROJECT TEAM MEMBERS: IGM
CHECK: BWR

ENGINEERS SEAL

BRIAN W. ROETCISOENDER
STATE OF WASHINGTON
Brian Roetcisoender
3032
REGISTERED
PROFESSIONAL ENGINEER

08/19/2022

TITLE
ABBREVIATIONS, NOTES & LEGEND

PROJECT NO. 2022-019
DATE AUGUST 19, 2022
PROJECT NETWORK PATH

SHEET NUMBER
M0.1

PLUMBING EQUIPMENT CONNECTION SCHEDULE

SYMBOL	ITEM	WASTE	VENT	CW	HW	SPECIFICATION	REMARKS
WC-1	WATER CLOSET, FLOOR MOUNTED, PRESSURE ASSIST TANK, ADA	3	2	1/2		SEE ARCHITECTURAL PLANS FOR MAKE AND MODEL	1.28 GPF MAX
LV-1	LAVATORY, WALL-HUNG ADA	2	1-1/2	1/2	1/2	SEE ARCHITECTURAL PLANS FOR MAKE AND MODEL	0.5 GPM
SH-1	ADA SHOWER	2	1-1/2	1/2	1/2	SEE ARCHITECTURAL PLANS FOR MAKE AND MODEL	1.75 GPM MAX

NOTE: PROVIDE UNIT PRICING FOR FIXTURES, VERIFY FIXTURE SELECTION WITH ARCHITECT AND INTERIOR DESIGN, VERIFY ADA FIXTURE LOCATIONS WITH ARCHITECT.

PLUMBING SYSTEM SCHEDULE & SPECIFICATION

SYSTEM	ABOVE GROUND	BELOW GROUND	JOINT METHOD	PIPE INSULATION/REMARKS
SOIL/WASTE/VENT	PVC	PVC (SOLID CORE)	SOLVENT WELD NO-HUB	USE CISP FOR ANY EXPOSED VENT PIPE IF REQUIRED ON ROOF DECK ABOVE, PVC ONLY BELOW GRADE FOR DURABILITY FROM POOL MECHANICAL ROOM BACKWASH
COLD WATER & HOT WATER 2" & SMALLER	PEX TYPE L COPPER	N/A	PER PEX MANUFACTURER 95/5 SOLDER	INSULATION THICKNESS PER WSEC, SEE INSULATION THICKNESS SCHEDULE, ½" INSULATION ON COLD WATER MAINS.
NOTES:				

PLUMBING SPECIALTIES SCHEDULE

SYMBOL	ITEM	MAKE/MODEL	REMARKS
FD-1	FLOOR DRAIN	JAY R. SMITH #2005	INCLUDE TRAP PRIMER
WHA	WATER HAMMER ARRESTER	JAY R. SMITH 5005	SIZE PER MANUFACTURER'S RECOMMENDATIONS, REQ'D NEAR ALL QUICK CLOSING VALVES.
CO/WCO	CLEAN OUT, WALL CLEAN OUT	JAY R. SMITH 4020-G	FLUSH TYPE
TP	TRAP PRIMER	PRECISION PLUMBING PRODUCTS (PPP) MODEL FVP OR P2-500	
NOTES:			

FAN SCHEDULE

EQUIPMENT NUMBER	EF-1
SERVICE	
AREA	ADA RESTROOM
SYSTEM	EXHAUST
FAN	
FAN TYPE	CEILING
BLADE TYPE	FC
DISCHARGE	INLINE
DRIVE TYPE	DIRECT
SERVICE CONDITIONS	
CAPACITY-CFM	100
E.S.P. - in. W.C.	0.5 MAX
SPEED-RPM	1222
INLET TEMP-°F	70
CONTROL	MOTION/HUMIDITY
NOISE REQUIREMENTS (MAX. dBA)	
SONES	1.2 [4]
MOTOR	
HORSEPOWER (WATTS)	(16.1 W)
CFM/W	7.7
SPEED-RPM	1222
ELECTRICAL	
V/ø/Hz	115/1ø/60
CURRENT (AMPS)	0.24
MANUFACTURER-DESIGN BASIS	PANASONIC
MODEL	FV-0511VQC1
UNIT WEIGHT	11.8
NOTES	[1], [2], [3], [5]
REMARKS	

[1] PROVIDE GRAVITY BACKDRAFT DAMPER

[2] FAN TO BE VENTED TO OUTDOORS

[3] ECM MOTOR

[4] CEILING FAN SONE RATINGS BASED UPON 0.1" E.S.P. PER HVI CERTIFIED TESTING.

[5] BUILT IN TIME DELAY, MOTION AND HUMIDITY SENSORS.

WSEC TABLE C403.10.1.1 OUTDOOR AIR DUCTWORK INSULATION SCHEDULE

DUCT SYSTEM	DUCT LOCATION AND USE	CLIMATE ZONE*	AIRFLOW	MINIMUM INSTALLED DUCT INSULATION R-VALUE [A], [B]	NOTES
OUTDOOR AIR	INSIDE CONDITIONED SPACE AND UPSTREAM OF AUTOMATIC SHUTOFF DAMPER	4C AND 5B	≥2800 CFM	R-16	SEE SECTION C403.10.1.1 FOR ADDITIONAL REQUIREMENTS
OUTDOOR AIR	INSIDE CONDITIONED SPACE AND DOWNSTREAM OF AUTOMATIC SHUTOFF DAMPER TO HVAC UNIT OR ROOM	4C	≥2800 CFM	R-8	
OUTDOOR AIR	INSIDE CONDITIONED SPACE AND DOWNSTREAM OF AUTOMATIC SHUTOFF DAMPER TO HVAC UNIT OR ROOM	5B	≥2800 CFM	R-12	
OUTDOOR AIR	INSIDE CONDITIONED SPACE	4C AND 5B	<2800 CFM	R-7	SEE EXCEPTION 1 TO SECTION C403.10.1.1 FOR ADDITIONAL DETAILS [C]

[A] INSULATION R-VALUES, MEASURED IN H·HR²·°F/BTU, ARE FOR THE INSULATION AS INSTALLED AND DO NOT INCLUDE FILM RESISTANCE. THE REQUIRED MINIMUM THICKNESSES DO NOT CONSIDER WATER VAPOR TRANSMISSION AND POSSIBLE SURFACE CONDENSATION. INSULATION RESISTANCE MEASURED ON A HORIZONTAL PLAN IN ACCORDANCE WITH ASTM C518 AT A MEAN TEMPERATURE OF 75°F AT THE INSTALLED THICKNESS.

[B] SEE INTERNATIONAL MECHANICAL CODE SECTIONS 603.12 AND 604 FOR FURTHER DETAILS ON DUCT INSULATION REQUIREMENTS.

[C] C403.10.1.1 EXCEPTION 1: OUTDOOR AIR DUCTS SERVING INDIVIDUAL SUPPLY AIR UNITS WITH LESS THAN 2,800 CFM OF TOTAL SUPPLY AIR CAPACITY, PROVIDED THESE ARE INSULATED TO THE MINIMUM INSULATION VALUES IN TABLE C403.10.1.1.

*THIS BUILDING IS LOCATED IN KING COUNTY, WA AND SUBJECT TO CLIMATE ZONE 4C REQUIREMENTS.

WSEC TABLE C403.10.1.2 SUPPLY, RETURN, EXHAUST, AND RELIEF AIR DUCTWORK INSULATION SCHEDULE

DUCT SYSTEM	DUCT LOCATION AND USE	CLIMATE ZONE*	MINIMUM INSTALLED DUCT INSULATION R-VALUE [A], [B]	NOTES
SUPPLY AIR OR RETURN AIR	OUTSIDE THE BUILDING (OUTDOORS AND EXPOSED TO WEATHER) [C]	4C	R-8	SEE SECTION C403.10.1.2 FOR DETAILS
SUPPLY AIR OR RETURN AIR	OUTSIDE THE BUILDING (OUTDOORS AND EXPOSED TO WEATHER) [C]	5B	R-12	SEE SECTION C403.10.1.2 FOR DETAILS
SUPPLY AIR OR RETURN AIR	UNCONDITIONED SPACE (ENCLOSED BUT NOT IN THE BUILDING CONDITIONED ENVELOPE)	4C AND 5B	R-6	SEE SECTION C403.10.1.2 FOR DETAILS
SUPPLY AIR OR RETURN AIR	UNCONDITIONED SPACE WHERE THE DUCT CONVEYS AIR THAT IS WITHIN 15°F OF THE AIR TEMPERATURE OF THE SURROUNDING UNCONDITIONED SPACE.	4C AND 5B	R-3.3	SEE IMC SECTION 603.12 FOR ADDITIONAL REQUIREMENTS FOR CONDENSATION CONTROL AT DUCTWORK
SUPPLY AIR OR RETURN AIR	WHERE LOCATED IN A BUILDING ENVELOPE ASSEMBLY	4C AND 5B	R-16	DUCT OR PLENUM IS SEPARATED FROM BUILDING ENVELOPE ASSEMBLY WITH THE MINIMUM INSULATION VALUE
SUPPLY AIR	WITHIN CONDITIONED SPACE WHERE THE SUPPLY DUCT CONVEYS AIR THAT IS LESS THAN 55°F OR GREATER THAN 105°F	4C AND 5B	R-3.3	SEE SECTION C403.10.1.2 FOR DETAILS
SUPPLY AIR	WITHIN CONDITIONED SPACE THAT THE DUCT DIRECTLY SERVES WHERE THE SUPPLY DUCT CONVEYS AIR THAT IS LESS THAN 55°F OR GREATER THAN 105°F	4C AND 5B	NONE	SEE SECTION C403.10.1.2 FOR DETAILS
SUPPLY AIR	WITHIN CONDITIONED SPACE WHERE THE SUPPLY DUCT CONVEYS AIR THAT 55°F OR GREATER AND 105°F OR LESS	4C AND 5B	NONE	
RETURN OR EXHAUST AIR	WITHIN CONDITIONED SPACE, DOWNSTREAM OF AN ENERGY RECOVERY MEDIA, UPSTREAM OF AN AUTOMATIC SHUTOFF DAMPER	4C	R-8	
RETURN OR EXHAUST AIR	WITHIN CONDITIONED SPACE, DOWNSTREAM OF AN ENERGY RECOVERY MEDIA, UPSTREAM OF AN AUTOMATIC SHUTOFF DAMPER	5B	R-12	
RELIEF OR EXHAUST AIR	CONDITIONED SPACE AND DOWNSTREAM OF AN AUTOMATIC SHUTOFF DAMPER	4C AND 5B	R-16	

[A] INSULATION R-VALUES, MEASURED IN H·HR²·°F/BTU, ARE FOR THE INSULATION AS INSTALLED AND DO NOT INCLUDE FILM RESISTANCE. THE REQUIRED MINIMUM THICKNESSES DO NOT CONSIDER WATER VAPOR TRANSMISSION AND POSSIBLE SURFACE CONDENSATION. INSULATION RESISTANCE MEASURED ON A HORIZONTAL PLAN IN ACCORDANCE WITH ASTM C518 AT A MEAN TEMPERATURE OF 75°F AT THE INSTALLED THICKNESS.

[B] SEE INTERNATIONAL MECHANICAL CODE SECTIONS 603.12 AND 604 FOR FURTHER DETAILS ON DUCT INSULATION REQUIREMENTS.

[C] INCLUDES ATTICS ABOVE INSULATED CEILINGS, PARKING GARAGES AND CRAWL SPACES.

***THIS BUILDING IS LOCATED IN KING COUNTY, WA AND SUBJECT TO CLIMATE ZONE 4C REQUIREMENTS.**

ELECTRIC WATER HEATER SCHEDULE

EQUIPMENT NUMBER		**WH-1**
UNIT LOCATION		SPA EQUIPMENT ROOM
SYSTEM SERVED		DOMESTIC HW
CAPACITY-GALLONS		80
	RECOVERY (GPH @ 80 DEG RISE)	61
	FIRST HOUR RATING (GALLONS)	--
SERVICE CONDITIONS		
	LVG WATER TEMP-DEG F	120
ELECTRICAL		
	NUMBER OF STAGES	2
	KW INPUT/STAGE	6
	TOTAL KW (SIMULTANEOUS OPERATION)	12
	VOLTS-PHASE-HERTZ	PER DIV. 26
NOTES		[1], [2]
MANUFACTURER-DESIGN BASIS		
	MAKE	A.O. SMITH
	MODEL	DEN-80
	OPERATING WEIGHT (LBS)	883
	DIAMETERxHEIGHT (INCHES)	24"X60"
REMARKS		
[1]	MOUNT ON R-10 INSULATED PAD	
[2]	PROVIDE SEISMIC STRAPS.	
[3]	PROVIDE AMTROL ST-12 OR EQUIV. EXPANSION TANK.	

WSEC COMPLIANT, 0.960 - 0.0003V. EF. PER DOE 10 CFR PART 430
CONFIRM WITH MFR

COMMERCIAL ENERGY EFFICIENCY TABLE C403.10.3

MINIMUM PIPE INSULATION THICKNESS (in.) [a]

FLUID OPERATING TEMPERATURE RANGE AND USAGE (°F)	INSULATION CONDUCTIVITY		NOMINAL PIPE OR TUBE SIZE (in.)		
	CONDUCTIVITY Btu*in/(h*ft^2*°F) [b]	MEAN RATING TEMPERATURE, °F	< 1	1 TO < 1½	1½ TO < 4
105 – 140	0.21 – 0.28	100	1.0	1.0	1.5
40 – 60	0.21 – 0.27	75	0.5	0.5	1.0

[a] FOR PIPING SMALLER THAN 1½ INCHES AND LOCATED IN PARTITIONS WITHIN CONDITIONED SPACES, REDUCTION OF THESE THICKNESSES SHALL BE PERMITTED (BEFORE THICKNESS ADJUSTMENT REQUIRED IN FOOTNOTE [b] BUT NOT TO A THICKNESS LESS THAN 1 INCH.

[b] FOR INSULATION OUTSIDE THE SLATED CONDUCTIVITY RANGE, THE MINIMUM THICKNESS (T) SHALL BE DETERMINED AS FOLLOWS:

$T = r\{(1 + t/r)^{(K/k)} - 1\}$

WHERE:
T = MINIMUM INSULATION THICKNESS
r = ACTUAL OUTSIDE RADIUS OF PIPE
t = INSULATION THICKNESS LISTED IN THE TABLE FOR APPLICABLE FLUID TEMPERATURE AND PIPE SIZE
K = CONDUCTIVITY OF ALTERNATE MATERIAL AT MEAN RATING TEMPERATURE INDICATED FOR THE APPLICABLE FLUID TEMPERATURE (Btu*in/h*ft^2*°F)
k = THE UPPER VALUE OF THE CONDUCTIVITY RANGE LISTED IN THE TABLE FOR THE APPLICABLE FLUID TEMPERATURE.

TABLE C404.3.1 - HOT WATER PIPING VOLUME & MAXIMUM PIPE LENGTHS

NOMINAL PIPE SIZE (IN.)	VOLUME (FL.OZ. PER FOOT LENGTH)	MAXIMUM PIPING LENGTH (FT.)	
		PUBLIC LAV FAUCETS	OTHER FIXTURES/APPLIANCES
½"	1.5	2.0	43.0
¾"	3.0	0.5	21.0
1"	5.0	0.5	13.0
1¼"	8.0	0.5	8.0
1½"	11.0	0.5	6.0
2" AND LARGER	18.0	0.5	4.0

DISINFECTION OF POTABLE WATER SYSTEM (NEW & REPAIRED)NEW AND REPAIRED
A.) NEW OR REPAIRED POTABLE WATER SUPPLY SYSTEMS SHALL BE DISINFECTED PRIOR TO USE.
B.) INITIAL COLIFORM SAMPLE IS REQUIRED PRIOR TO ADMINISTERING WATER-CHLORINE SOLUTION.
C.) SECTION 6.9.9 ITEMS #2 OR #3 CAN BE USED PRECEDED BY AND FOLLOWED BY ITEM #1.
D.) AFTER WATER-CHLORINE IS INCORPORATED INTO THE NEW OR REPAIRED WATER SUPPLY A 48 HOUR WAITING PERIOD MUST BE OBSERVED PRIOR TO BACTERIOLOGICAL TEST.
E.) BACTERIOLOGICAL TEST SHALL BE CONDUCTED BY A LABORATORY CERTIFIED FOR DRINKING WATER IN WASHINGTON STATE AFFIRMING WATER QUALITY CONTAINS NO COLIFORM BY SAMPLE TESTING THE FURTHEST FIXTURE FROM PUBLIC WATER SOURCE AND NOT LESS THAN TWO OTHER LOCATIONS PART OF THE WATER SUPPLY SYSTEM.
F.) CHLORINE LEVEL IN THE NEW OR REPAIRED WATER SUPPLY SYSTEM SHALL NOT BE LESS THAN THE MEAN AVERAGE OF THE ARE IN RELATIONSHIP FROM THE WATER PURVEYOR SOURCE.

NOTE: PLUMBING PERMITS WILL NOT BE APPROVED FOR FINAL INSPECTION UNTIL DISINFECTION TEST MEETS DRINKING WATER QUALITY.

PLUMBING CALCULATIONS (NEW ADA RESTROOM PLUS TWO TOILETROOM CONN.'S)

2018 UPC PLUMBING CODE — CW/HW FOR TENANT IMPROVEMENT SPACE PER TABLE 702.1 AND A-2.1

BUILDING SUMMARY / FIXTURE TYPE	MIN. SIZE TRAP/ARM IN.		DOMESTIC WATER WSFU PER FIXTURE		HW PER FIXTURE	TOTAL* HW	SEWER DFU PER FIXTURE	TOTAL
		QTY		TOTAL				
SHOWER, PRIVATE/PUBLIC .5" SUPPLY	2	1	2	2	2	2	2	2
LAVATORY, SINGLE	1.25	3	1	3	0.75	2.25	1	3
WATER CLOSETS 1.5 GPF TANK, PUBLIC	--	--	--	--	--	--	--	--
	3	3	2.5	7.5	--	--	4	12
MISCELLANEOUS	--	--	--	--	--	--	--	--
FLOOR DRAINS	--	3	--	--	--	--	2	6
	--	--	--	--	--	--	--	--
7/20/2022	TOTALS	10		12.5		4.25		17
TOTAL PEAK WATER DEMAND (GPM)		8						
1" CW SERVICE TO POINT OF CONNECTION								

NOTE 1: SEWER SERVICE SIZE IS 4" FOR BUILDING. FIXTURE LOAD IS 17 WASTE DFU. A 4" DRAIN SLOPED AT 1/4" PER FOOT CAN HANDLE 216 DFU PER 2018 UPC TABLE 703.2 (OR 173 DFU IF EXISTING IS SLOPED AT 1/8" PER FOOT.
DOMESTIC WATER SERVICE IS 1.5" SERVING THE ENTIRE BUILDING LOAD OF APPROXIMATELY 18 FIXTURE UNITS.

PHSKC STAMP

VERIFY SCALE

BAR MEASURES ONE INCH ON ORIGINAL DRAWING
0" — 1"
IF NOT ONE INCH ON THIS DRAWING, ADJUST SCALES ACCORDINGLY.

PERMIT SET

HV Engineering, Inc.
Consulting Engineers
Hall Creek Office Park
6912 220th St. SW, Suite 303
Mountlake Terrace, WA 98043

Phone: (206) 706-9669
www.hvengineering. biz

Project
THE CARRINGTON APARTMENTS - ADA SHOWER

Location
2501 148TH AVE SE
BELLEVUE, WA 98007

Parcel #: --------

Prepared For
KILBURN ARCHITECTS, LLC

135 LAKE STREET SOUTH
SUITE 250
KIRKLAND, WA 98033

NO.	DATE	REVISION

PARTNER IN CHARGE: BWR
PROJECT MANAGER: BWR
PROJECT ENGINEER: IGM
PROJECT TEAM MEMBERS: IGM
CHECK: BWR

ENGINEERS SEAL

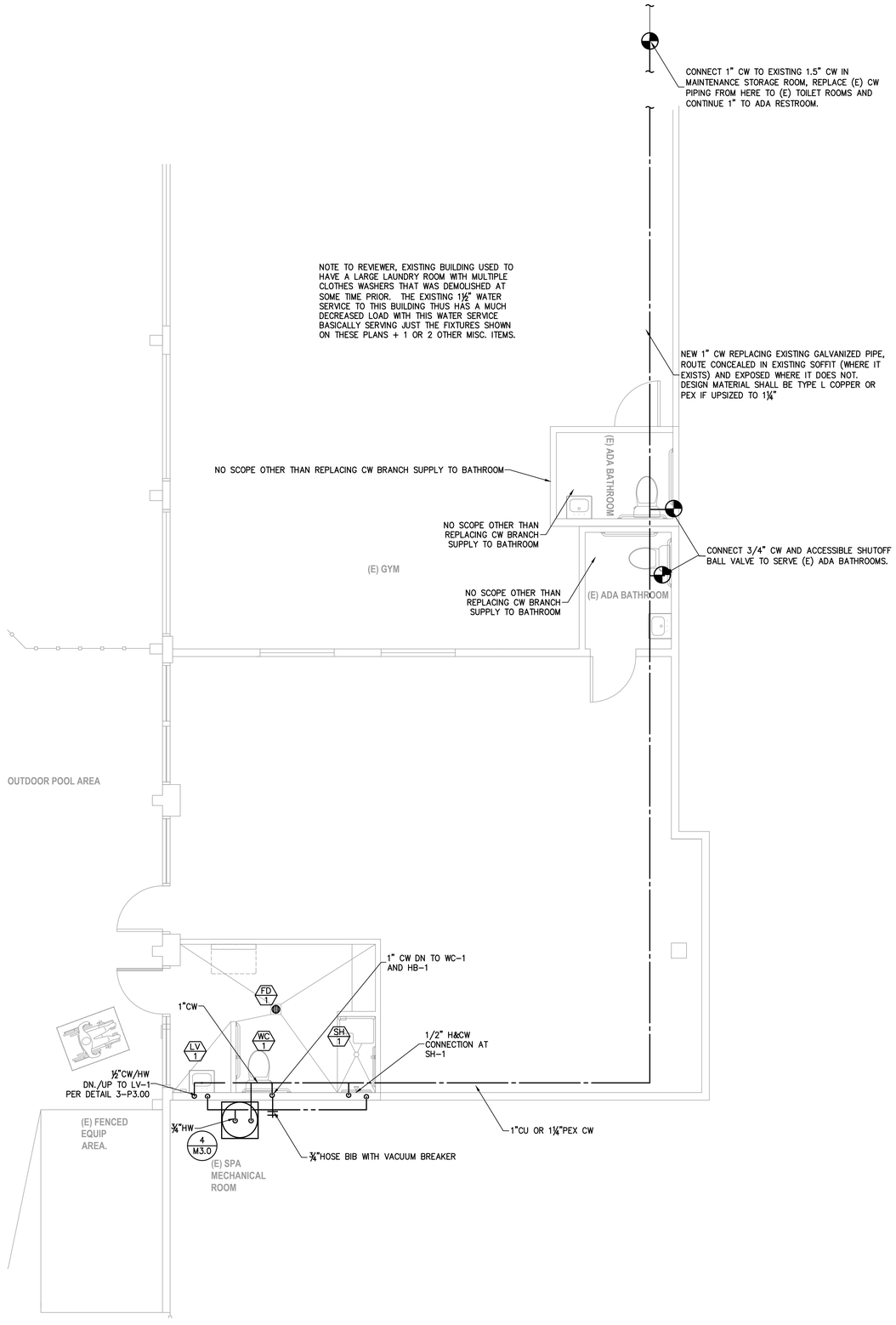
BRIAN M. ROETCISOENDER — STATE OF WASHINGTON — 30321 — REGISTERED PROFESSIONAL ENGINEER

08/19/2022

TITLE
ABBREVIATIONS & SCHEDULES

PROJECT NO.: 2022-019
DATE: AUGUST 19, 2022
PROJECT NETWORK PATH:

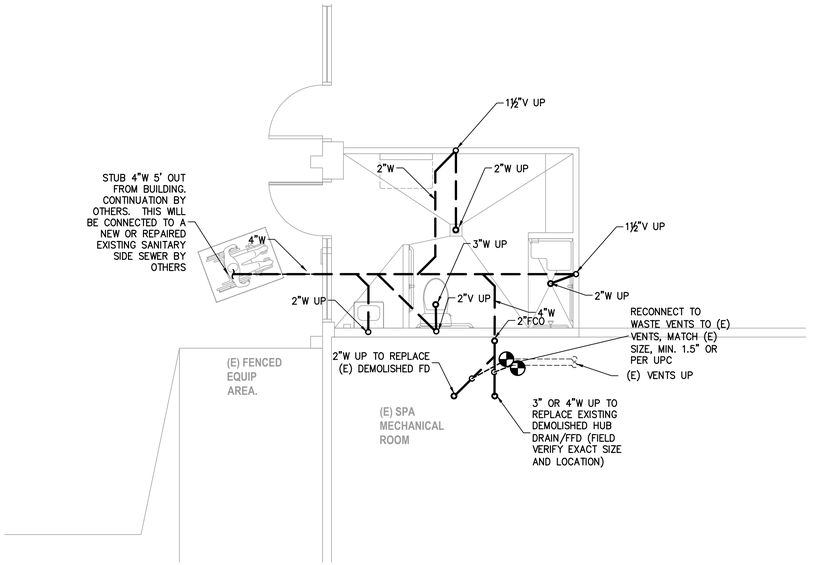
SHEET NUMBER
M0.2



PLUMBING CW/HW FLOOR PLAN

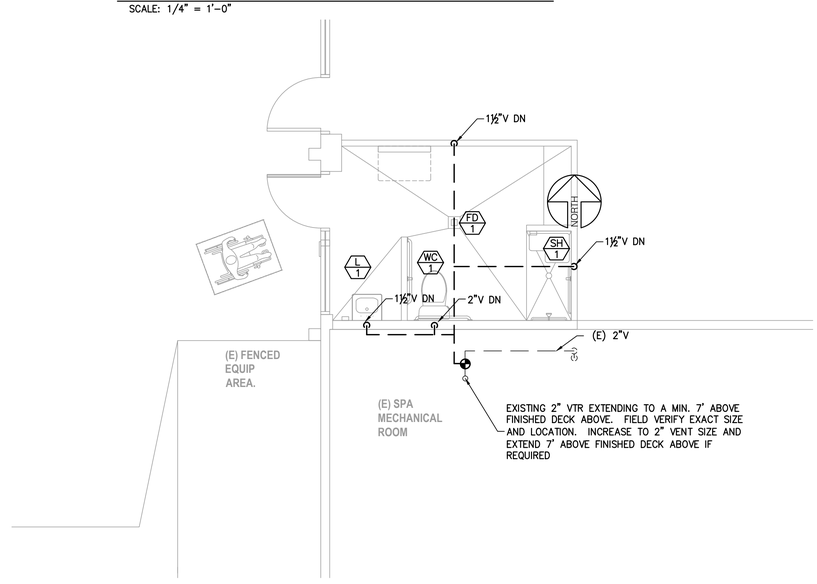
SCALE: 1/4" = 1'-0"

NORTH



UNDERGROUND PLUMBING FLOOR PLAN

SCALE: 1/4" = 1'-0"



PLUMBING W&V FLOOR PLAN

SCALE: 1/4" = 1'-0"

NORTH

PHSKC STAMP

HV Engineering, Inc.
Consulting Engineers
Hall Creek Office Park
6912 220th St. SW, Suite 303
Mountlake Terrace, WA 98043
Phone: (206) 706-9669
www.hvengineering. biz

Project
THE CARRINGTON APARTMENTS - ADA SHOWER

Location
2501 148TH AVE SE
BELLEVUE, WA 98007

Parcel #: --------

Prepared For
KILBURN ARCHITECTS, LLC

135 LAKE STREET SOUTH
SUITE 250
KIRKLAND, WA 98033

NO.	DATE	REVISION

PARTNER IN CHARGE: BWR
PROJECT MANAGER: BWR
PROJECT ENGINEER: IGM
PROJECT TEAM MEMBERS: IGM
CHECK: BWR

ENGINEERS SEAL

BRIAN W. ROETCISOENDER
STATE OF WASHINGTON
30321
REGISTERED
PROFESSIONAL ENGINEER

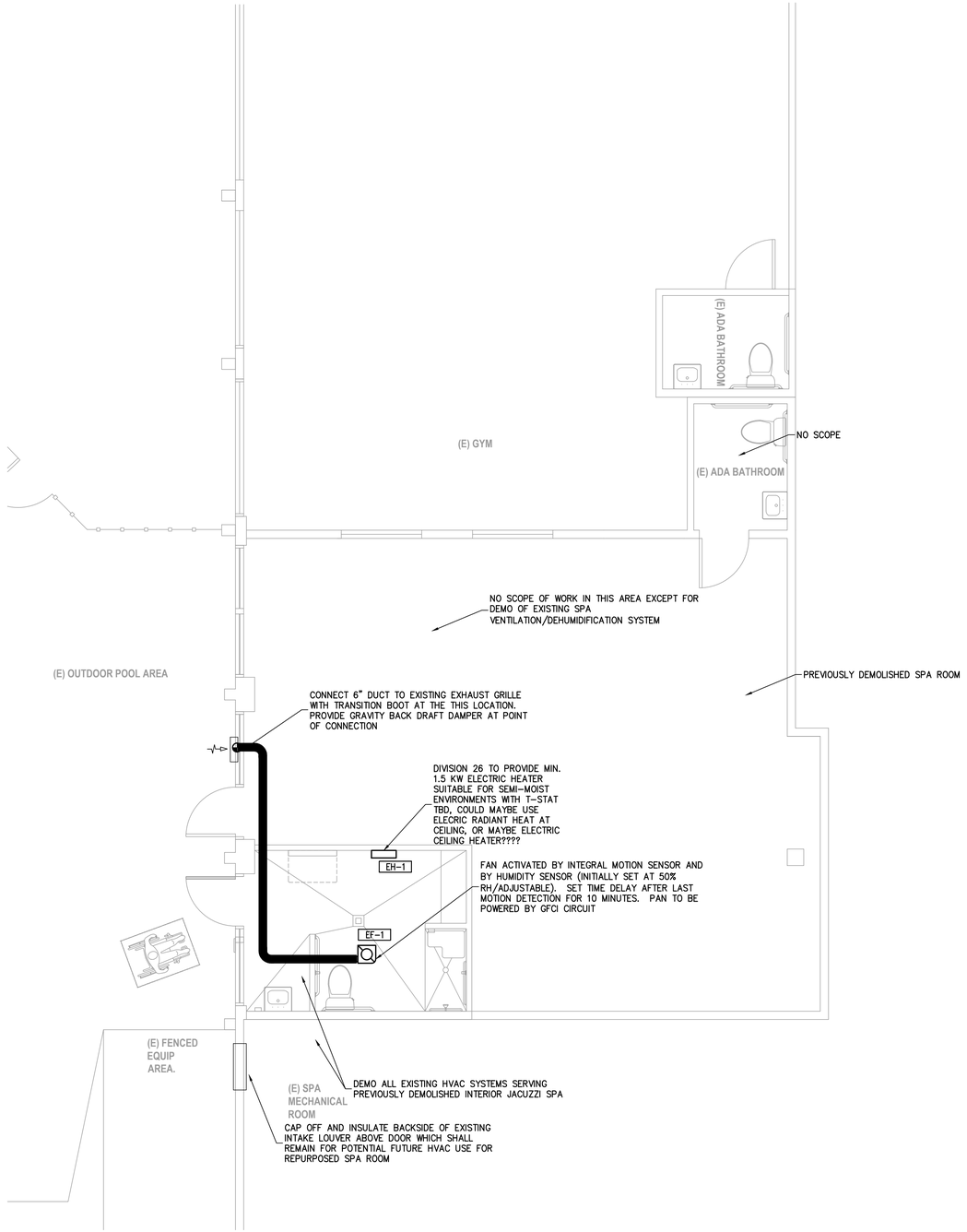
08/19/2022

TITLE: PLUMBING FLOOR PLANS

PROJECT NO.: 2022-019
DATE: AUGUST 19, 2022
PROJECT NETWORK PATH:

SHEET NUMBER: **P1.0**

PERMIT SET



HVAC FLOOR PLAN

SCALE: 1/4" = 1'-0"

NORTH

PHSKC STAMP

VERIFY SCALE

BAR MEASURES ONE INCH ON ORIGINAL DRAWING

0" 1"

IF NOT ONE INCH ON THIS DRAWING, ADJUST SCALES ACCORDINGLY.

PERMIT SET

HV Engineering, Inc.

Consulting Engineers
Hall Creek Office Park
6912 220th St. SW, Suite 303
Mountlake Terrace, WA 98043

Phone: (206) 706-9669
www.hvengineering. biz

Project
THE CARRINGTON APARTMENTS - ADA SHOWER

Location
2501 148TH AVE SE
BELLEVUE, WA 98007

Parcel #: --------

Prepared For
KILBURN ARCHITECTS, LLC

135 LAKE STREET SOUTH
SUITE 250
KIRKLAND, WA 98033

NO.	DATE	REVISION

PARTNER IN CHARGE: BWR
PROJECT MANAGER: BWR
PROJECT ENGINEER: IGM
PROJECT TEAM MEMBERS: IGM
CHECK: BWR

ENGINEERS SEAL

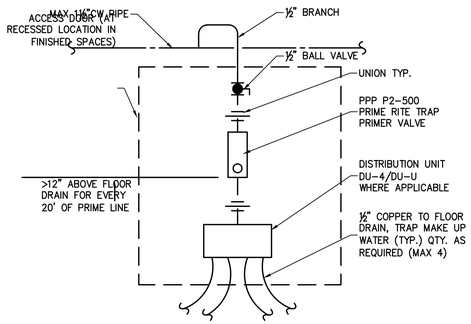
BRIAN W. ROETCISOENDER
STATE OF WASHINGTON
30321
REGISTERED
PROFESSIONAL ENGINEER

08/19/2022

TITLE: HVAC FLOOR PLAN

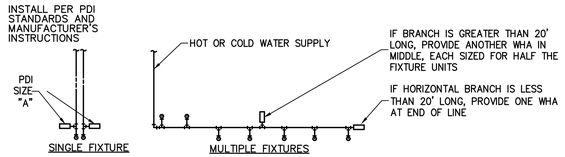
PROJECT NO.: 2022-019
DATE: AUGUST 19, 2022
PROJECT NETWORK PATH:

SHEET NUMBER
M1.0



1 M3.0 TRAP PRIMER DETAIL

SCALE: NTS



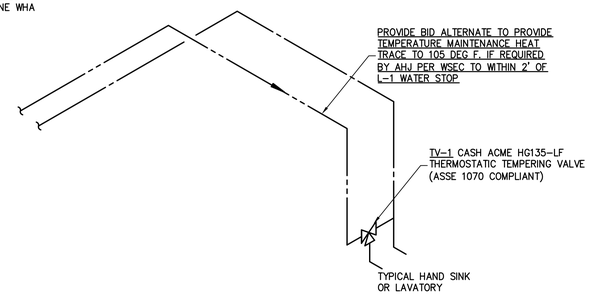
PDI SIZE	PIPE SIZE	FIXTURE UNIT LOAD
A	½"	1–3
B	¾"	4–12
C	1"	13–25
D	1¼"	26–50
E	1½"	51–85

FIXTURE UNIT TABULATION		
FIXTURE	COLD	HOT
FLUSHVALVE WATER CLOSET	5	--
LAVATORY / HAND SINK	1	1
KITCHEN SINKS	1.5	1.5
MOP BASIN	3	3
URINAL	4	--

PC TO PROVIDE WATER HAMMER ARRESTERS BY SIOUX CHIEF, PRECISION PLUMBING PRODUCTS, WATTS OR APPROVED EQUIVALENT WITH PISTON AND O-RING CONSTRUCTION, HAVING PDI #WH-201, ASSE #1010 AND ANSI #A112.26.1M CERTIFICATION. INSTALL IN HORIZONTAL OR VERTICAL POSITION, BUT NEVER UPSIDE DOWN. INSTALL IN LINE WITH WATER FLOW DIRECTION IF POSSIBLE. SIZE THE UNITS AS SHOWN ON THE DRAWINGS AND/OR PER THE TABLES SHOWN ABOVE.

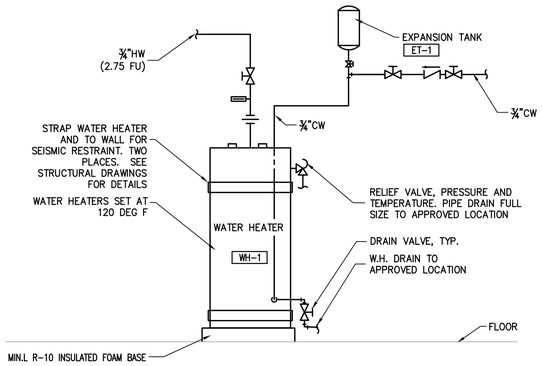
2 M3.0 WATER HAMMER ARRESTERS

SCALE: NTS



3 M3.0 TYPICAL HAND SINK/LAV PIPING DETAIL

SCALE: NTS



4 M3.0 ELECTRIC WATER HEATER DIAGRAM

SCALE: NONE

5 M3.0 FLOOR DRAIN DETAIL

SCALE: NTS

PHSKC STAMP

VERIFY SCALE

BAR MEASURES ONE INCH ON ORIGINAL DRAWING

0" 1"

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Project
THE CARRINGTON APARTMENTS - ADA SHOWER

Location
2501 148TH AVE SE
BELLEVUE, WA 98007

Parcel #: --------

Prepared For
KILBURN ARCHITECTS, LLC

135 LAKE STREET SOUTH
SUITE 250
KIRKLAND, WA 98033

NO.	DATE	REVISION

PARTNER IN CHARGE: BWR
PROJECT MANAGER: BWR
PROJECT ENGINEER: IGM
PROJECT TEAM MEMBERS: IGM
CHECK: BWR

ENGINEERS SEAL

BRIAN W. ROETCISOENDER
STATE OF WASHINGTON
30321
REGISTERED
PROFESSIONAL ENGINEER

08/19/2022

TITLE: PLUMBING DETAILS

PROJECT NO.: 2022-019
DATE: AUGUST 19, 2022
PROJECT NETWORK PATH:

SHEET NUMBER: **P3.0**

Environmental Health Services Division
401 Fifth Avenue, Suite 1100
Seattle, WA 98104-1818
206-263-9566 Fax 206-296-0189
TTY Relay: 711
www.kingcounty.gov/health

Public Health
Seattle & King County

April 1, 2022

Attn: Darrell Westlake
King County Housing Authority
600 Andover Park West
Seattle, WA 98188

RE: Construction permit for a restroom for the swimming pool at:

The Carrington Apartments
2501 148th Avenue SE
Bellevue, WA 98007

SR1438916 PR0010109

Dear Darrell Westlake:

The plans and specifications for the above project have been reviewed for conformance with the provisions of Title 14, the Code of the King County Board of Health (King County Water Recreation Facility Code) and Washington Administrative Code (WAC) 246-260 and the plans are hereby **approved** subject to the conditions below:

1. The restroom has the required diaper changing table and single service non-glass soap dispensers at the sink and shower.
2. The restroom floor and shower floor are non-slip and properly drain to prevent standing water.
3. Lighting levels in the restroom meet the minimum lighting requirements in WAC 246-260-031(23).
4. A copy of the construction permit and approved plans sent to the Kilburn Architecture will be provided to the general contractor, once a contractor has been selected.

Health Department inspections are required to view all completed work.

As required in the Water Recreation Facility Code, upon completion of the construction and prior to use, the owner shall:

1. Submit a construction report from the engineer or architect (a copy of the form to be completed is enclosed) and a completed Pool Data Form to me at 401 5th Ave, Suite 1100E, Seattle, WA 98104.
2. Obtain a preoperational inspection approval. **Contact Carsten Thomsen at (206) 263-8492 at least one week in advance** to schedule a preoperational inspection. Be sure all other inspections (plumbing, building, etc.) are done before you call the Health Department for an inspection.

If the facility is opened without the Health Department preoperational inspection, it may be subject to closure. Your application for a Water Recreation Facility permit from Public Health – Seattle & King County may be approved during this inspection; however, it is the responsibility of the Water Recreation Facility operator/owner to obtain all necessary permits and approvals from other agencies. Operating the facility without these required permits or approvals may subject the operator/owner to legal action by the appropriate agencies. If the facility is opened without the Health Department preoperational inspection, it may be subject to closure. The cost for plan review beyond what is covered by the submittal fee is $229.80 per hour.

Your pool has been assigned the plan review service request number. Please use this SR number **SR1438916** in all future contact with us.

This letter of approval serves as a **CONSTRUCTION PERMIT** under the requirements of Title 14. **This construction permit shall be valid for a period of 24 months from the initial construction permit date of 06/04/2020.** If you have any questions, please contact me at (206) 477-7548.

Sincerely,

Laura Cheng, RS
Water Recreational Plans Examiner
Downtown Environmental Health

Cc: Kilburn Architecture, LLC
Carsten Thomsen, Health & Environmental Investigator II

Environmental Health Services Division
401 Fifth Avenue, Suite 1100
Seattle, WA 98104-1818
206-263-9566 Fax 206-296-0189
TTY Relay: 711
www.kingcounty.gov/health

Public Health
Seattle & King County

April 11, 2022

King County Housing Authority
Attn: Darrell Westlake
600 Andover Park W.
Seattle, WA 98188

RE: Construction permit for the deck replacement and new drainage pipe for the pool at:
The Carrington Apartments
2501 148th Ave. SE
Bellevue, WA 98007

SR #1463837 PR#0010109 PE #5144

Dear Mr. Westlake:

The plans and specifications for the above project have been reviewed for conformance with the provisions of Title 14, the Code of the King County Board of Health (King County Water Recreation Facility Code) and Washington Administrative Code (WAC) 246-260 and the plans are hereby **approved** subject to the conditions below:

1. Remove the existing concrete pavers in accordance with the approved plans.
2. Existing fence and gate to remain in accordance with the approved plans.
3. The existing depth markers/no diving markers to be removed and reinstalled in accordance with the approved plans and WAC 246-260-041 (8)(b-i). Where pool depth markings shall be located on the horizontal surface of pool coping or deck of pools within eighteen inches of the water's edge, easily readable while standing on the deck facing the water, in numbers at least four inches high; placed at the maximum and minimum water depths and at all points of slope change; spaced at increments of water depth of two feet or less; spaced along sides of pools at horizontal intervals of twenty-five feet or less; arranged uniformly on both sides and ends of pool; placed on all major deviations in shape; applied in a contrasting color; and made of slip-resistant material on decks.
4. Existing handrails at steps and ladders must be re-installed in accordance with the approved plans.
5. Install the new broom finished concrete walking surface in accordance with the approved plans and WAC-246-260-031(3) Walking surfaces must slope away from the pool; slope a minimum of one-fourth inch per foot to drain; having a nonslip finish; not having an abrupt change in height of greater than one-half inch, a gap no greater than one-half inch in width, or a crumbling surface presenting a potential tripping hazard; be equipped with sufficient drains to prevent standing water; and be of easily cleanable, impervious finishes.
6. Install the new drainage pipe in accordance with the approved plans. The deck drains must discharge into a sanitary sewer line or meet the discharge requirements that are required and approved by other governing agencies.
7. Install the new slotted deck drain in accordance with the approved plans. Slot openings must not be greater than 1/2 inch in width.

8. Ensure the gap from the bottom of the existing fence to the new concrete finished surface does not exceed 4 inches per WAC 246-260-031 (4)(d)(i) where barriers, including windows, (see figures 031.1 (f)) may not:(i) Allow passage of a four-inch diameter sphere.

9. **Prior to requesting final inspection the following must be submitted to Public Health** and as required in the Water Recreation Facility Code, upon completion of the construction and prior to use, the owner shall:

    1) Provide a **Construction Report** stamped, dated, and signed by a Washington State licensed Architect that the work was completed per the approved plans. Construction reports can be downloaded at Construction Report of WRF.
    2) Obtain a preoperational inspection approval. **Contact Cindy Marshall at 263-8163 at least one week in advance** to schedule a preoperational inspection. Be sure all other inspections (plumbing, building, etc.) are done before you call the Health Department for an inspection.

If the facility is opened without the Health Department preoperational inspection, it may be subject to closure. Your application for a Water Recreation Facility permit from Public Health – Seattle & King County may be approved during this inspection; however, it is the responsibility of the Water Recreation Facility operator/owner to obtain all necessary permits and approvals from other agencies. Operating the facility without these required permits or approvals may subject the operator/owner to legal action by the appropriate agencies. Your pool has been assigned the plan review service request number. Please use this SR number 1463837 in all future contact with us.

This letter of approval serves as a **CONSTRUCTION PERMIT** under the requirements of Title 14. If you have any questions, please contact me at (206) 263-8163.

Sincerely,

Cindy Marshall

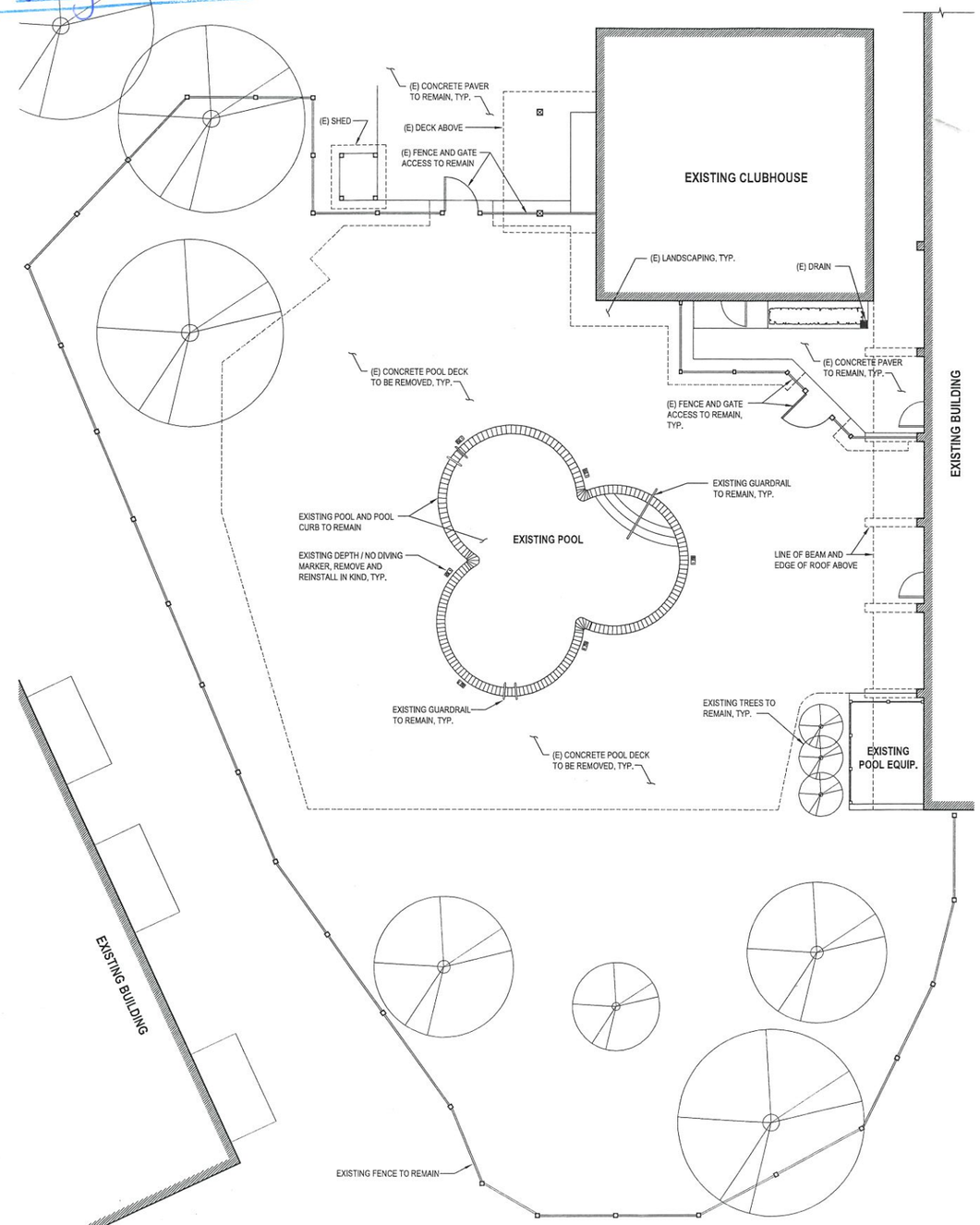
Cindy Marshall, RS
Plans Examiner
Downtown Environmental Health

Cc: H. Todd Kilburn, Kilburn Architects, LLC
Cassandra Cheatham, Kilburn Architects, LLC

SR14638 37

APPROVED
SUBJECT TO ORDINANCE
APR 12 2022
PUBLIC HEALTH
SEATTLE-KING CO.
ENVIRONMENTAL HEALTH
BY Cindy Marshall

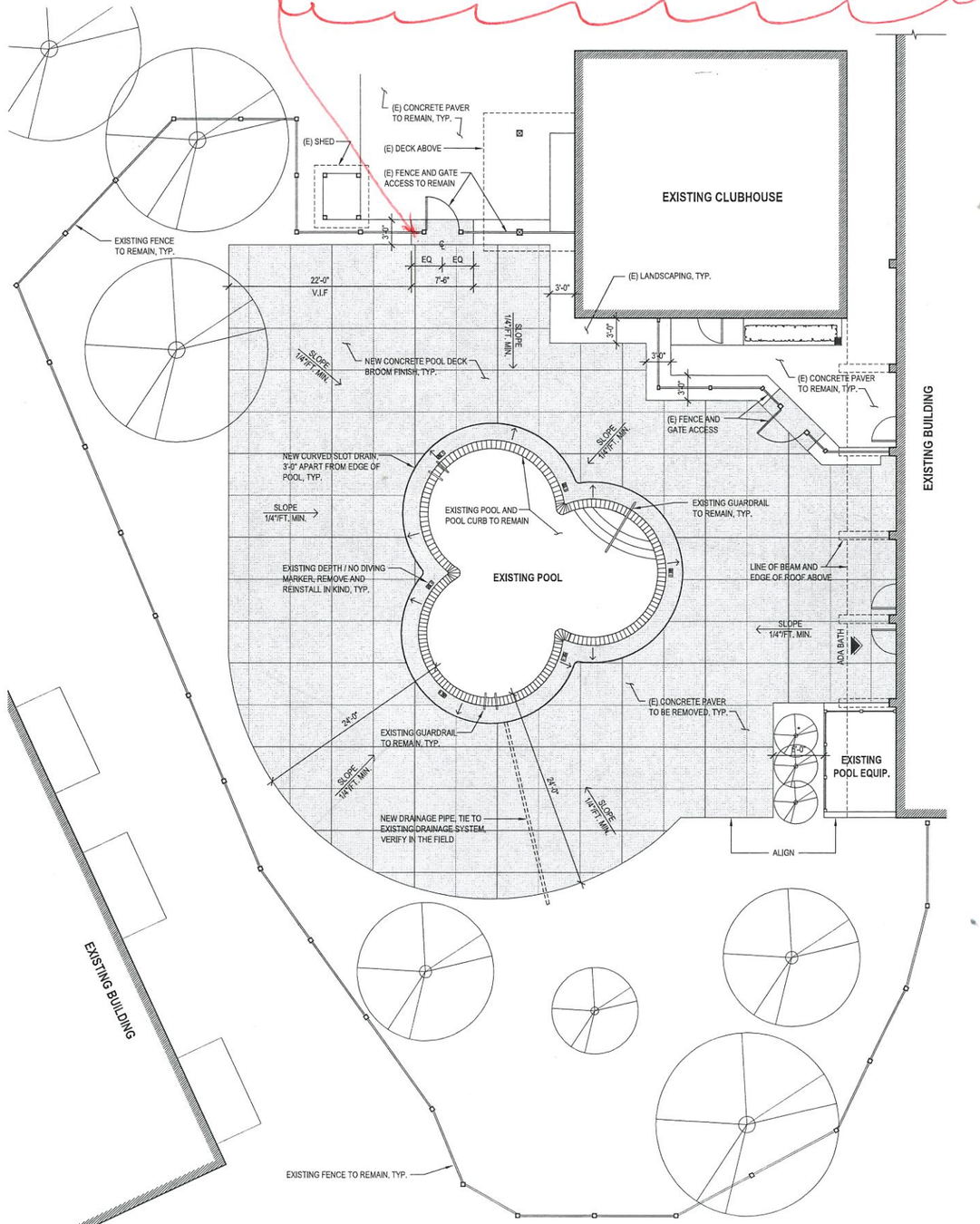
SEE ADDITIONAL NOTES ON PERMIT APPROVAL LETTER



NOTES:
1. Verify all conditions in the field.

KEY:
- (E) WALL
- DEMO (E) CONCRETE POOL DECK
- PROPOSED CONCRETE POOL DECK

MUST ENSURE GAP FROM BOTTOM OF FENCE/GATE TO FINISHED GRADE OF NEW CONCRETE DECKING DOES NOT EXCEED 4 INCHES (TYP.)



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Kirkland, WA 98033

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7302 REGISTERED ARCHITECT
H. TODD KILBURN
STATE OF WASHINGTON

The Carrington Apartments

Pool Deck

2501 148th Ave SE
Bellevue, WA 98007

Release	Date
Permit	3.22.21

Paving Plans

KILBURN
ARCHITECTS LLC

THE CARRINGTON SPA – ADA SHOWER/BATHROOM INTERIOR SPECIFICATIONS

Date: 8-24-2022

ADA Toilet (*Commercial Grade*)

Minimum requirements: Elongated Bowl, ADA Compliance with grab bars (See permit for minimum ADA requirements), automatic flush/touchless flushometer, white, 1.28gpf maximum, tankless

Recommended Manufacturer (*and Style similar to*):

- American Standard

  https://www.build.com/american-standard-211ca-104/s1077990?uid=2589854&searchId=I8oehT0CW4

- Kohler

  https://vevano.com/products/kohler-highline-classic-elongated-two-piece-toilet-product-group?variant=42861025886451&campaignid=17376182361&adgroupid=&matchtype=&device=c&placement=&network=x&creative=&utm_source=google&utm_medium=ppc&utm_campaign=&utm_content=&utm_term=&hsa_acc=6350515609&hsa_cam=17376182361&hsa_grp=&hsa_ad=&hsa_src=x&hsa_tgt=&hsa_kw=&hsa_mt=&hsa_net=adwords&hsa_ver=3&gclid=CjwKCAjwmJeYBhAwEiwAXlg0AXBgvz_loQh8-OS7PmPDrPJTlsAsUr0BKMYdwU4fp60k_4uHBfS6HRoC26sQAvD_BwE

- ; or similar, or better

ADA Sink (*Commercial Grade*)

Minimum requirements: Rectangular, ADA Compliance, wall mounted, white, ceramic, modern, contemporary style, 23” x 17”x 6” minimum,

Recommended Manufacturer (*and Style similar to*):

- Cerastyle by Nameeks: 032000-U (“Elite”) or 064200-U (“Mona”)

  https://www.thebathoutlet.com/bathroom-sink-rectangle-white-ceramic-wall-mounted-or-drop-in-sink-cerastyle-032000-u/product/2112

  https://www.thebathoutlet.com/bathroom-sink-rectangular-white-ceramic-wall-mounted-or-drop-in-bathroom-sink-cerastyle-064200-u/product/2158

- American Standard

- ; or similar, or better

ADA Sink Faucet Fixture (*Commercial Grade*)

Minimum requirements: ADA Compliance, Automatic/touchless, polished chrome

Recommended Manufacturer (*and Style similar to*):

- American Standard
- Kohler (*style similar to*)

  https://www.us.kohler.com/us/geometric-single-hole-touchless-ac-powered-commercial-bathroom-sink-faucet-with-Insight-technology-temperature-mixer-and-6-3-4-spout/productDetail/commercial-faucets/427740.htm?skuId=407348&brandId=432175

  https://www.us.kohler.com/us/sculpted-single-hole-touchless-ac-powered-commercial-bathroom-sink-faucet-with-Insight-technology-temperature-mixer-and-5-3-4-spout/productDetail/commercial-faucets/427738.htm?skuId=407344&brandId=432175

  https://www.us.kohler.com/us/strayt-touchless-bathroom-sink-faucet-w-kinesiis-sensor-technology-and-mixer-dc-powered/productDetail/commercial-faucets/1477692.htm?skuId=1477603&brandId=1683371
- ; or similar, or better

Soap Dispenser (*Commercial Grade*)

Minimum requirements: Plastic (see health permit for minimum requirements), automatic,

Recommended Manufacturer (*and Style similar to*):

- American Standard
- Kohler
- ; or similar, or better

ADA Standard Roll-in Shower (*Commercial Grade*)

Minimum requirements: ADA Compliance including shower seat and grab bars (see permit for details), handheld showerhead wall mounted, plastic soap dispensers), roll-in, Left/Right, 60”x30”-36” inside minimum dimensions (See Health & Building Permit and ADA Code for minimum adjustable shower head requirements and clearance spaces)

Recommended Manufacturer (*and Style similar to*):

- Freedom
  https://www.freedomshowers.com/ADA-Showers-for-Handicapped-Accessibility/Wheelchair-Accessible-ADA-Roll-in-Showers/APFQ6233BFF875R
- Aquatic
- ; or similar, or better

Handheld Showerhead Fixture (*Commercial Grade*)

Minimum requirements: ADA Compliance, wall mounted, with sidebars, polished chrome (See Permit and ADA Code for minimum adjustable shower head requirements and clearance spaces)

Recommended Manufacturer (*and Style similar to*):

- American Standard

  https://www.grainger.com/product/AMERICAN-STANDARD-Handheld-Showerhead-American-29RR94

- Kohler *(style similar to)*

  https://www.grainger.com/product/KOHLER-Showerhead-Kohler-493J04

- ; or similar, or better

Flooring (*Commercial Grade*)

Minimum requirements: Non-slip, vinyl, plank or tile pattern (see Health Department permit for minimum requirements)

Recommended Manufacturer (*and Style similar to*):

- TrafficMaster
  https://www.homedepot.com/p/TrafficMaster-Aiden-Platinum-6-in-x-36-in-Rigid-Core-Click-Lock-Luxury-Vinyl-Plank-Flooring-23-95-sq-ft-case-VTRHDAIDPLA6X36/317053106

  https://www.homedepot.com/p/TrafficMaster-Winding-Brook-5-98-in-W-Rigid-Core-Click-Lock-Luxury-Vinyl-Plank-Flooring-23-95-sq-ft-case-VTRHDWINBRO6X36/312650275

- Home Decorators Collection
  https://www.homedepot.com/p/Home-Decorators-Collection-7-in-W-x-42-in-L-Athabasca-Glacier-Rigid-Core-Click-Lock-Luxury-Vinyl-Plank-Flooring-20-78-sq-ft-case-VTRHDATHGLA7X42/316696658

- ; or similar, or better

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;

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 bathroom installation projects of similar scope and complexity. Poor performance, lack or 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.

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

E. The Bidder agrees to hold the base bid prices for sixty (60) days from date of bid opening.

1.4 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 the bid due date.
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.

1.5 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.

1.6 EXAMINATION OF PLANS, SPECIFICATIONS, AND SITE

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.

1.7 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

1.8 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 does not meet 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.

1.9 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.

B. The retail sales tax does not apply to the gross contract price as indicated in WAC 458-20-17001.

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.

1.10 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. On contracts of one hundred fifty thousand dollars ($150,000.00) or less, the requirement for a Performance and Payment Bond may, at Contractors option, be waived in lieu of an additional 5% (total 10%) retainage.

1.11 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.

1.12 ADDITIVE OR DEDUCTIVE BID ITEMS

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.

1.13 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 price extensions and the total bid price. A discrepancy between a bid item price and the extended amount of any bid item shall be resolved by accepting the bid item price as correct.

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 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.

1.14 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. Bonding, insurance certificates and endorsements, and an approved Statement of Intent to Pay Prevailing Wages shall be submitted to the Owner within 14 days of award. A Notice to Proceed shall be issued immediately after receipt.

C. 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.

D. 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.

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.

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.
   Employer's Liability: $1,000,000 per accident for bodily injury/sickness or disease.

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.

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.

B. On contracts of one hundred fifty thousand dollars or less, at the option of the contractor as defined in RCW 39.10.210, the Owner may, in lieu of the bond, retain ten percent of the contract amount for a period of forty-five days after date of final acceptance, or until receipt of all necessary releases from the department of revenue, the employment security department, and the department of labor and industries and settlement of any liens filed under chapter 60.28 RCW, whichever is later.

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. KCHA has acquired a City of Bellevue Building Permit and a permit with King County Health Department. Contractor is responsible for coordination of all required inspections.

B. Contractor is responsible for all electrical, mechanical permits and will prepare and file necessary plans, prepare documents and obtain necessary approvals of Authorities Having Jurisdiction (AHJ).

C. Obtain required certificates of inspection for work and deliver to the Owner before request for acceptance and final payment for the work.

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:

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.

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.

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.

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.

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 proceeding 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.

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 and Department of Labor & Industries.

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.

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 written 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 the 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.

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 Premium: The costs of any change or additional premium of Contractor's liability insurance or bond premium arising directly from the changed Work. The costs of any change in insurance 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, bond premium, 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.

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.

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.

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.

BID FORM

PROJECT NAME AND LOCATION:

POOL BATHROOM INSTALLATION **Contract Number: DW2201231**
CARRINGTON APARTMENTS

BID FORM

The undersigned, Legal Name of Bidder: _____

on this date: _____, 2022, 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 _____2022

_____ _____
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:

Name	Title	How Long With Bidder
_____	_____	_____
_____	_____	_____

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:

Date	Type of Injury	Agency Receiving Claim

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: _____

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. 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: Carrington Apartments Pool Bathroom Installation Contract No.: DW2201231

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 ninety (90) 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 _____, 2022

Contractor

_____
President/Owner

Owner

_____
Dan Watson
Advisor to the Executive Director
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

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.

INSURED
Vendor Name
Street Address
City, State, Zip

COMPANIES AFFORDING COVERAGE

COMPANY **A**	**ABC Insurance Company**
COMPANY **B**	**DEF Insurance Company**
COMPANY **C**	**GHI Insurance Company**
COMPANY **D**	

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 REPSECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POICIES 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** [X] COMMERCIAL GENERAL LIABILITY [ ] CLAIMS MADE [X] OCCUR [ ] OWNER'S & CONTRACTOR'S PROT	**XXX123**	**01/01/00**	**01/01/01**	GENERAL AGGREGATE PRODUCTS-COMP/OP AGG PERSONAL & ADV INJURY EACH OCCURRENCE FIRE DAMAGE (Any one fire) MED EXP (Any one person)	**2,000,000** **1,000,000** **1,000,000** **1,000,000** **50,000** **5,000**
B	**AUTOMOBILE LIABILITY** [X] ANY AUTO [ ] ALL OWNED AUTOS [ ] SCHEDULED AUTOS [X] HIRED AUTOS [ ] NON-OWNED AUTOS	**XXX456**	**01/01/00**	**01/01/01**	COMBINED SINGLE LIMIT BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE	**1,000,000**
	GARAGE LIABILITY [ ] ANY AUTO				AUTO ONLY-EA ACCIDENT OTHER THAN AUTO ONLY: EACH ACCIDENT AGGREGATE	
	EXCESS LIABILITY [ ] UMBRELLA FORM [ ] OTHER THAN UMBRELLA FORM				EACH OCCURRENCE AGGREGATE	
C	**WORKERS' COMPENSATION AND EMPLOYER'S LIABILITY** THE PROPRIETOR/ PARTNERS/EXECUTIVE OFFICERS ARE: [ ] INCL [ ] EXCL	**XXX789**	**01/01/00**	**01/01/01**	[X] STATUTORY LIMITS EACH ACCIDENT DISEASE-POLICY LIMIT DISEASE-EACH EMPLOYEE	**1,000,000** **1,000,000** **1,000,000**
	OTHER					

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/SPECIAL ITEMS

Allied Residential and King County Housing Authority are named as additional insureds with respect to above general liability and auto coverages. Contract #DW2201231
Re: Insured's work/services provided at Carrington Apartments, 2501 148th Ave SE, Bellevue, WA 98007

CERTIFICATE HOLDER

Allied Residential
and 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

PROVIDE

GENERAL LIABILITY ENDORSEMENT

and

AUTO LIABILITY ENDORSEMENT

Limited Hazardous Materials Survey Report – ADA Bathroom

Carrington Apartments
2501 148th Avenue Southeast
Bellevue, Washington 98007

Prepared for:
King County Housing Authority (KCHA)
700 Andover Park West
Seattle, Washington 98188

October 31, 2022
PBS Project 40573.245

214 EAST GALER STREET, SUITE 300
SEATTLE, WA 98102
206.233.9639 MAIN
866.727.0140 FAX
PBSUSA.COM

Table of Contents

Supporting Data

APPENDICES

1 INTRODUCTION

1.1 Project Background

PBS Engineering and Environmental Inc. (PBS) performed a limited hazardous materials survey of the Carrington Apartments located at 2501 148th Avenue Southeast in Bellevue, Washington in conjunction with the planned renovation. The intent of this investigation is to ensure compliance with applicable regulatory requirements that a "good faith inspection" for asbestos-containing materials (ACMs) be performed prior to renovation and restoration activities.

At the request of KCHA, the survey was limited to the Management Office Building basement where the hot tube room will be renovated into an ADA accessible bathroom.

1.2 Building Descriptions

The Carrington Apartments management building was built in the 1969. It consists of a wood framed structure. With a below grade basement. The building totals approximately 10,000 square feet with office space, restrooms and additional common areas in the basement. Interior flooring finishes consist of the following: concrete, light weight concrete, vinyl floor tile, sheet vinyl flooring, and tac down carpet. Exterior finishes include concrete with windows are metal framed.

1.3 Survey Process

Accessible areas included in the project scope were inspected by Asbestos Hazard Emergency Response Act (AHERA) Certified Building Inspector Janet Murphy (Cert. No. IMR-22-8300A Exp. 3/23/2023) on October , 21, 2022. PBS endeavored to inspect all accessible areas of the scope of work. Inaccessible areas consist of those requiring selective demolition, fall protection, or confined space entry protocols to gain access.

When observed, suspect materials were sampled. Eighteen (18) samples were assigned a unique identification number and transmitted for analysis to Seattle Asbestos Test (NVLAP #200768-0) in Lynwood, Washington under chain-of-custody protocols. Samples were analyzed according to EPA Method 600R-93/116 using Polarized Light Microscopy (PLM), which has a reliable limit of quantification of 1% asbestos by volume.

PBS endeavored to determine the presence and estimate the condition of suspect materials in all inaccessible areas included in the scope of work. While PBS has endeavored to identify the ACMs that may be found in concealed locations, additional unidentified ACMs may exist.

2 FINDINGS

2.1 Asbestos-Containing Materials (ACMs)

Regulated asbestos-containing building materials are defined by EPA as containing greater than 1% asbestos by weight.

No materials were found to contain asbestos as part of this investigation.

The following materials sampled and found not to contain detectable concentrations of asbestos as part of this investigation:

- Texture on gypsum wallboard – walls;
- Gypsum wallboard and joint compound – walls;
- Fiberglass insulation – around PVC pipes under slab;
- Clear sealant – in ceiling expansion joint seam;

- Brown fluffy insulation – pipe trench;
- Concrete slab – floor of basement of Management Office Building;
- Texture and gray mastic – on concrete covebase and concrete floor slab ;
- Texture on concrete – concrete walls.

Refer to Appendix A for specific samples locations and associated laboratory analysis.

2.2 Lead-Containing Components

Two (2) representative painted coatings were sampled for lead content. The samples were assigned unique identification numbers and transmitted to NVL Laboratories, Inc. (AIHA IH #101861) in Seattle, Washington under chain-of-custody protocols for analysis using Flame Atomic Absorption.

Lead **was detected** in the following painted coatings.

- Tan paint on the concrete ceiling – Management Office Building basement (0.68 % lead)

The following painted coatings were sampled and determined **not** to contain detectable lead.

- Tan paint on walls – Management Office Building basement (<0.0090% lead)

Refer to Appendix B for specific sample locations and associated laboratory analysis.

3 RECOMMENDATIONS

3.1 Asbestos-Containing Materials (ACMs)

No asbestos-containing materials were found in the work scope area during this survey. Should future renovation, maintenance, or demolition activated impact materials other than those included in this investigation, additional sampling of suspect ACMs will be required to meet the regulatory requirements of a "Good Faith Inspection".

The possibility exist that suspect ACMs may be present/concealed in equipment, floor, wall and ceiling cavities, included in the scope of renovations. These may include but are not limited to ACM pipe insulation and hard-mudded fittings in wall cavities, chase areas and ceiling plenums, construction mastics and adhesives within wall/ceiling assemblies, mechanical insulation/components on ductwork and equipment, and/or weatherproofing/moisture barriers.

PBS recommends that any previously unidentified materials revealed during renovation activities be sampled for asbestos content prior to impact. If suspect ACMs is uncovered during construction, contractor should stop work immediately and inform the owner promptly for confirmation testing. All untested materials should be presumed asbestos-containing or tested for asbestos content prior to impact.

3.2 Lead-Containing Components

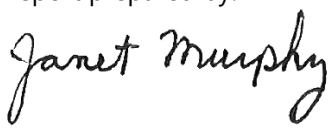
The tan paint on the basement ceiling was found to contain lead. All construction activities performed in pre-1978 residential buildings require compliance with the Environmental Protection Agency (EPA) and State of Washington lead paint regulations including but not limited to 40 CFR 745 Renovation, Repair and Painting (RRP) program regulations and 24 CFR 35 Lead-Based Paint Poisoning in Certain Residential Structures, Washington Administrative Code (WAC) 296-155-176 Lead in Construction, and WAC 173-303 State of Washington Department of Ecology Dangerous Waste Regulations.

The paint sampling performed as part of this survey was intended to provide information regarding lead-content of representative painted surfaces for compliance with the L&I Lead in Construction regulations. The paint sampling was not intended to meet the requirements of the RRP regulations or the Housing and Urban Development (HUD) Guidelines for the Evaluation and Control of Lead-Based Paint in Housing.

Painted coatings may exist in inaccessible areas of the work area or in secondary coatings. Any previously unidentified painted coatings not sampled should be considered lead containing until sampled and proven otherwise. Dust control and housekeeping is crucial in preventing worker and occupant exposures.

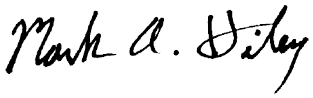
Please do not hesitate to contact us if you have any questions regarding this report or require additional information.

Report prepared by:



Janet Murphy
Senior Industrial Hygienist
AHERA Building Inspector
Cert. # IMR-22-8300A Exp. 03/23/2023

Report reviewed by:



Mark Hiley
Senior Project Manager

APPENDIX A

PLM Bulk Sampling Information

PLM Bulk Sample Inventory
PLM Bulk Sample Laboratory Data Sheets
PLM Bulk Sample Chain of Custody Documentation

PLM ASBESTOS SAMPLE INVENTORY

PBS Sample #	Material Type	Sample Location	Lab Description	Lab Result	Lab
40573.245 -08	Texture on gypsum wallboard wall	Management office basement N	Layer 1: White powdery material with paint	NAD	SAT
40573.245 -09	Texture on gypsum wallboard wall	Management office basement S	Layer 1: White powdery material with paint Layer 2: White chalky material with paper	NAD NAD	SAT
40573.245 -10	Texture on gypsum wallboard wall	Management office basement E	Layer 1: White powdery material with paint	NAD	SAT
40573.245 -11	Composite joint compound and wallboard	Wall next to column	Layer 1: White powdery material with paint Layer 2: White chalky material with paper	NAD NAD	SAT
40573.245 -12	Composite joint compound and wallboard	Wall at pipe trench	Layer 1: White powdery material with paint and paper Layer 2: White chalky material with paper	NAD NAD	SAT
40573.245 -13	Styrofoam insulation and concrete	Insulation around PVC pipe	Layer 1: Yellow fibrous material Layer 2: Gray sandy/brittle material	NAD NAD	SAT
40573.245 -14	Concrete and clear sealant	Ceiling expansion joint	Layer 1: Gray hard sandy/brittle material Layer 2: Clear soft/elastic material	NAD NAD	SAT
40573.245 -15	Brown trench fill	Trench under slab	Layer 1: Brown soft material	NAD	SAT
40573.245 -16	Brown trench fill and pipe cover	Trench under slab	Layer 1: Brown brittle material	NAD	SAT
40573.245 -17	Brown trench fill and pipe cover	Trench under slab	Layer 1: Brown brittle material	NAD	SAT
40573.245 -18	Concrete slab	At PVC pool pipes	Layer 1: Gray hard sandy/brittle material	NAD	SAT
40573.245 -19	Concrete slab	At wall edge	Layer 1: Gray hard sandy/brittle material	NAD	SAT
40573.245 -20	Concrete slab	Central floor	Layer 1: Gray hard sandy/brittle material	NAD	SAT
40573.245 -21	Concrete floor texture	Management office basement W	Layer 1: Tan brittle material with paint	NAD	SAT

PBS Sample #	Material Type	Sample Location	Lab Description	Lab Result	Lab
	Gray mastic		Layer 2: Gray mastic	NAD	
40573.245 -22	Concrete floor texture Gray mastic	Management office basement central	Layer 1: Tan brittle material with paint Layer 2: Gray mastic	NAD NAD	SAT
40573.245 -23	Concrete texture at bottom of wall	Wall over pipe trench	Layer 1: Tan brittle material with paint	NAD	SAT
40573.245 -24	Concrete texture on concrete covebase	Wall over pipe chase	Layer 1: Tan brittle material with paint	NAD	SAT
40573.245 -25	Concrete texture on concrete covebase	Wall over pipe chase	Layer 1: Tan brittle material with paint	NAD	SAT

SEATTLE ASBESTOS TEST, LLC

Lynnwood Laboratory: 19701 Scriber Lake Road, Suite 103, Lynnwood, WA 98036, Tel: 425.673.9850, Fax: 425.673.9810, NVLAP Lab Code: 200768-0

www.seattleasbestostest.com, admin@seattleasbestostest.com

Project Manager:	Mark Hiley	Date Analyzed:	10/25/2022
Client:	PBS Engineering and Environmental, Seattle	Client Job#:	40573.245
Address:	214 E Galer Street, Suite 300, Seattle, WA 98102	Project Location:	Carrington Apartment Homes RR
Tel:	206.233.9639	Laboratory batch#:	202211329
Date Report Issued:	10/24/2022	Samples Received:	18

Enclosed please find the test results for the bulk samples submitted to our laboratory for asbestos analysis. Analysis was performed using polarized light microscopy (PLM) in accordance with Test Method US EPA - 40 CFR Appendix E of Part 763, Interim Method of Determination of Asbestos in Bulk Insulation Samples and Test Method US EPA/600/R-93/116.

Percentages for this report are done by visual estimate and relate to the suggested acceptable error ranges by the method. Since variation in data increases as the quantity of asbestos decreases toward the limit of detection, the EPA recommends point counting for samples containing between <1% and 10% asbestos (NESHAP, 40 CFR Part 61). Statistically, point counting is a more accurate method. If you feel a point count might be beneficial, please feel free to call and request one.

The test results refer only to the samples or items submitted and tested. The accuracy with which these samples represent the actual materials is totally dependent on the acuity of the person who took the samples. This report must not be used by the client to claim product certification, approval, or endorsement by Seattle Asbestos Test, LLC, NVLAP, NIST, or any agency of the Federal government. The test report or calibration certificate shall not be reproduced except in full, without written approval of the laboratory. If the sample is inhomogeneous the sub-samples of the components are analyzed separately as layers.This report in its entirety consists of this cover leter, the customer sampling COC or data sheet, and the analytical report which is page numbered.

This report is highly confidential and will not be released without your consent. Samples are archived for 30 days after the analysis, and disposed of as hazardous waste thereafter.

Thank you for using our service and let us know if we can further assist you.

Sincerely

SZhang

Steve (Fanyao) Zhang
Approved Signatory

20221329 SAT

LABORATORY CHAIN OF CUSTODY

Project: Carrington Apartment Homes RR **Project #:** 40573.245

Analysis requested: PLM **Date:** 10/11/22

Relinq'd by/Signature: Janet Murphy **Date/Time:** 10/11/22

Received by/Signature: Janet Murphy **Date/Time:** 10/24/22 16:40

Email ALL INVOICES to: seattleap@pbsusa.com

E-mail results to:

- ☐ Willem Mager
- ☐ Gregg Middaugh
- ☒ Mark Hiley
- ☐ Tim Ogden
- ☐ Ryan Hunter
- ☐ Prudy Stoudt-McRae
- ☒ Janet Murphy
- ☐ Kaitlin Soukup
- ☐ Allison Welch
- ☐ Toan Nguyen
- ☐ Peter Stensland
- ☐ Claire Tsai
- ☐ Holly Tuttle
- ☐ Mike Smith
- ☐ Ferman Fletcher
- ☐ Cameron Budnick
- ☒ Kameron DeMonnin
- ☐ _____

TURN AROUND TIME:

- ☐ 1 Hour
- ☐ 2 Hours
- ☐ 4 Hours
- ☒ 24 Hours
- ☐ 48 Hours
- ☐ 3-5 Days
- ☐ Other_____

SAMPLE DATA FORM

Sample #	Material	Location	Lab
8.	Texture on GWB Wall	Management Office Basement N.	
9.	"	" S.	
10.	"	" E.	
11	Composite Joint Compound and Wall board	Wall next to Column	
12	"	Wall at Pipe Trench	
13	Styrofoam Insulation and Concrete	Insulation around PVC Pipe.	
14	Concrete and Clear Sealant	Ceiling Expansion Joint	
15	Brown Trench Fill	Trench Under Slab	
16.	Brown Trench Fill and Pipe Cover	Trench Under Slab	
17	Brown Trench Fill and Pipe Cover	Trench Under Slab	
18	Concrete Slab	At PVC Pool Pipes	
19	"	At Wall Edge	
20	"	Central Fiber	

20221329 SAT

LABORATORY CHAIN OF CUSTODY

Project: Carrington Apartment Homes RR Project #: 40573.245

Analysis requested: PLM Date: 10/11/22

Relinq'd by/Signature: Janet Murphy Date/Time: 10/11/22

Received by/Signature: Janet Murphy Date/Time:

Email ALL INVOICES to: seattleap@pbsusa.com

E-mail results to:

- ☐ Willem Mager
- ☐ Gregg Middaugh
- ☒ Mark Hiley
- ☐ Tim Ogden
- ☐ Ryan Hunter
- ☐ Prudy Stoudt-McRae
- ☒ Janet Murphy
- ☐ Kaitlin Soukup
- ☐ Allison Welch
- ☐ Toan Nguyen
- ☐ Peter Stensland
- ☐ Claire Tsai
- ☐ Holly Tuttle
- ☐ Mike Smith
- ☐ Ferman Fletcher
- ☐ Cameron Budnick
- ☒ Kameron DeMonnin
- ☐ _____

TURN AROUND TIME:

- ☐ 1 Hour
- ☐ 2 Hours
- ☐ 4 Hours
- ☒ 24 Hours
- ☐ 48 Hours
- ☐ 3-5 Days
- ☐ Other_____

SAMPLE DATA FORM

Sample #	Material	Location	Lab
21	Concrete Floor Texture Gray Mastic	Management Office Basement Lv.	
22	Concrete Floor Texture Gray Mastic	Management office Basement Central	
23	Concrete Texture at bottom of wall	Wall Over Pipe Trench	
24	Concrete Texture on Concrete Cove base	Wall Over pipe chase	
25	Concrete texture on Concrete Cove base	Wall Over Pipe Chase	

SEATTLE ASBESTOS TEST

Lynnwood Laboratory: 19701 Scriber Lake Road, Suite 103, Lynnwood, WA 98036, Tel: 425.673.9850, Fax: 425.673.9810, NVLAP Lab Code: 200768-0

ANALYTICAL LABORATORY REPORT

[PLM] EPA – 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples; [PLM] EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

Attn.: Mark Hiley
Client: PBS Engineering and Environmental, Seattle
Address: 214 E Galer Street, Suite 300, Seattle, WA 98102
Job#: 40573.245
Batch#: 202211329
Date Received: 10/24/2022
Samples Rec'd: 18
Date Analyzed: 10/25/2022
Samples Analyzed: 18
Project Loc.: Carrington Apartment Homes RR

Analyzed by: Cici Xu

Approved Signatory: Steve (Fanyao) Zhang, President

Lab ID	Client Sample ID	Layer	Description	%	Asbestos Fibers	Non-fibrous Components	%	Non-asbestos Fibers
1	8	1	White powdery material with paint		None detected	Binder/filler, Paint	5	Cellulose
2	9	1	White powdery material with paint		None detected	Binder/filler, Paint	5	Cellulose
		2	White chalky material with paper		None detected	Binder/filler, Gypsum/binder	25	Cellulose
3	10	1	White powdery material with paint		None detected	Binder/filler, Paint	4	Cellulose
4	11	1	White powdery material with paint		None detected	Binder/filler, Paint	5	Cellulose
		2	White chalky material with paper		None detected	Binder/filler, Gypsum/binder	24	Cellulose
5	12	1	White powdery material with paint and paper		None detected	Binder/filler, Paint	35	Cellulose
		2	White chalky material with paper		None detected	Binder/filler, Gypsum/binder	26	Cellulose
6	13	1	Yellow fibrous material		None detected	Filler	90	Glass fibers
		2	Gray sandy/brittle material		None detected	Sand, Filler, Binder	3	Cellulose
7	14	1	Gray hard sandy/brittle material		None detected	Sand, Filler, Cement/binder	3	Cellulose
		2	Clear soft/elastic material		None detected	Binder, Filler	4	Cellulose
8	15	1	Brown soft material		None detected	Filler, Binder	3	Cellulose
9	16	1	Brown brittle material		None detected	Filler, Binder	2	Cellulose
10	17	1	Brown brittle material		None detected	Filler, Binder	3	Cellulose
11	18	1	Gray hard sandy/brittle material		None detected	Sand, Filler, Cement/binder	3	Cellulose
12	19	1	Gray hard sandy/brittle material		None detected	Sand, Filler, Cement/binder	3	Cellulose
13	20	1	Gray hard sandy/brittle material		None detected	Sand, Filler, Cement/binder	3	Cellulose
14	21	1	Tan brittle material with paint		None detected	Filler, Binder, Paint	2	Cellulose
		2	Gray mastic		None detected	Mastic/binder	4	Cellulose

SEATTLE ASBESTOS TEST

Lynnwood Laboratory: 19701 Scriber Lake Road, Suite 103, Lynnwood, WA 98036, Tel: 425.673.9850, Fax: 425.673.9810, NVLAP Lab Code: 200768-0

ANALYTICAL LABORATORY REPORT

[PLM] EPA – 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples; [PLM] EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

Attn.: Mark Hiley
Client: PBS Engineering and Environmental, Seattle
Address: 214 E Galer Street, Suite 300, Seattle, WA 98102
Job#: 40573.245
Batch#: 202211329
Date Received: 10/24/2022
Samples Rec'd: 18
Date Analyzed: 10/25/2022
Samples Analyzed: 18
Project Loc.: Carrington Apartment Homes RR

Analyzed by: Cici Xu

Approved Signatory: Steve (Fanyao) Zhang, President

Lab ID	Client Sample ID	Layer	Description	%	Asbestos Fibers	Non-fibrous Components	%	Non-asbestos Fibers
15	22	1	Tan brittle material with paint		None detected	Filler, Binder, Paint	3	Cellulose
		2	Gray mastic		None detected	Mastic/binder	3	Cellulose
16	23	1	Tan brittle material with paint		None detected	Filler, Binder, Paint	3	Cellulose
17	24	1	Tan brittle material with paint		None detected	Filler, Binder, Paint	4	Cellulose
18	25	1	Tan brittle material with paint		None detected	Filler, Binder, Paint	2	Cellulose

APPENDIX B

AA Lead Paint Chip Sampling Information

AA Lead Paint Chip Sample Inventory
AA Lead Paint Chip Laboratory Data Sheets
AA Lead Paint Chip Chain of Custody Documentation

AA LEAD PAINT CHIP SAMPLE INVENTORY

PBS Sample #	Paint Color / Component or Substrate	Sample Location	Results (mg/kg)	Results (%)	Lab
40573.245 -Pb03	Tan / Concrete / Ceiling	Management office basement	**680**	**0.068**	NVL
40573.245 -Pb04	Tan / Gypsum wallboard / Wall	Management office basement	<90	<0.0090	NVL

mg/kg = Milligrams per kilogram
< = Less than the Limit of Detection

October 24, 2022

Mark Hiley
PBS Environmental - Seattle
214 E Galer St. Suite. 300
Seattle, WA 98102

NVL Batch # 2218932.00

RE: Total Metal Analysis
Method: EPA 7000B Lead by FAA <paint>
Item Code: FAA-02

Client Project: 40573.245
Location: Carrington Apartments Homes RR

Dear Mr. Hiley,

NVL Labs received 2 sample(s) for the said project on 10/21/2022. Preparation of these samples was conducted following protocol outlined in EPA 3051/7000B , unless stated otherwise. Analysis of these samples was performed using analytical instruments in accordance with EPA 7000B Lead by FAA <paint>. The results are usually expressed in mg/Kg and percentage (%). Test results are not blank corrected.

For recent regulation updates pertaining to current regulatory levels or permissible exposure levels, please call your local regulatory agencies for more detail.

At NVL Labs all analyses are performed under strict guidelines of the Quality Assurance Program. This report is considered highly confidential and will not be released without your approval. Samples are archived after two weeks from the analysis date. Please feel free to contact us at 206-547-0100, in case you have any questions or concerns.

Sincerely,

Nick Ly, Technical Director

Enc.: Sample results

Analysis Report

Total Lead (Pb)

Client: PBS Environmental - Seattle
Address: 214 E Galer St. Suite. 300
Seattle, WA 98102

Attention: **Mr. Mark Hiley**
Project Location: Carrington Apartments Homes RR

Batch #: 2218932.00
Matrix: Paint
Method: EPA 3051/7000B
Client Project #: 40573.245
Date Received: 10/21/2022
Samples Received: 2
Samples Analyzed: 2

Lab ID	Client Sample #	Sample Weight (g)	RL in mg/Kg	Results in mg/Kg	Results in percent
22418752	40573.245-3	0.1927	52	680	0.068
22418753	40573.245-4	0.1112	90	< 90	< 0.0090

Sampled by: Client
Analyzed by: Shalini Patel
Reviewed by: Nick Ly

Date Analyzed: 10/24/2022
Date Issued: 10/24/2022

Nick Ly, Technical Director

mg/ Kg =Milligrams per kilogram
Percent = Milligrams per kilogram / 10000
Note : Method QC results are acceptable unless stated otherwise.
Unless otherwise indicated, the condition of all samples was acceptable at time of receipt.

RL = Reporting Limit
'<' = Below the reporting Limit

Bench Run No: 2022-1024-05
FAA-02

LEAD LABORATORY SERVICES

Company	PBS Environmental - Seattle	**NVL Batch Number**	**2218932.00**
Address	214 E Galer St. Suite. 300 Seattle, WA 98102	**TAT** 1 Day **Rush TAT**	**AH** No
Project Manager	Mr. Mark Hiley	**Due Date** 10/24/2022	**Time** 4:35 PM
Phone	(206) 233-9639	**Email**	mark.hiley@pbsusa.com
Office:	(800) 628-9639	**Fax**	(866) 727-0140

Project Name/Number: 40573.245 **Project Location:** Carrington Apartments Homes RR

Subcategory Flame AA (FAA)

Item Code FAA-02 EPA 7000B Lead by FAA <paint>

Total Number of Samples 2 Rush Samples

	Lab ID	Sample ID	Description	A/R
1	22418752	40573.245-3		A
2	22418753	40573.245-4		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Courier				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Rachelle Miller		NVL	10/21/22	1635
Analyzed by	Shalini Patel		NVL	10/24/22	
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 10/21/2022
Time: 4:38 PM
Entered By: Rachelle Miller

NVL

PBS

LAB(2218932 USTODY

Project: Carrington Apartment Homes RR

Project #: 40573.245

Analysis requested: AAS Lead

Date:

Relinq'd by/Signature: Janet Murphy

Date/Time:

Received by/Signature: Janet Murphy Rochelle M.

Date/Time: 10/21/22 1635 Courier

Email ALL INVOICES to: seattleap@pbsusa.com

E-mail results to:

- [ ] Willem Mager
- [ ] Gregg Middaugh
- [x] Mark Hiley
- [ ] Tim Ogden
- [ ] Ryan Hunter
- [ ] Prudy Stoudt-McRae
- [x] Janet Murphy
- [ ] Kaitlin Soukup
- [ ] Allison Welch
- [ ] Toan Nguyen
- [ ] Peter Stensland
- [ ] Claire Tsai
- [ ] Holly Tuttle
- [ ] Mike Smith
- [ ] Ferman Fletcher
- [ ] Cameron Budnick
- [x] Kameron DeMonnin
- [ ] _____

TURN AROUND TIME:

- [ ] 1 Hour
- [ ] 2 Hours
- [ ] 4 Hours
- [x] 24 Hours
- [ ] 48 Hours
- [ ] 3-5 Days
- [ ] Other_____

SAMPLE DATA FORM

Sample #	Material	Location	Lab
3	Ton Paint / Concrete / Ceiling	Manager Office Basement	
4	Ton Paint / GWB / Wall	Management Office Basement	

APPENDIX C

PBS Inspector Certifications

THIS IS TO CERTIFY THAT

JANET MURPHY

HAS SUCCESSFULLY COMPLETED THE TRAINING COURSE

for

ASBESTOS INSPECTOR / MANAGEMENT PLANNER REFRESHER

In accordance with TSCA Title II, Part 763, Subpart E, Appendix C of 40 CFR

Course Date: 03/23/2022

Course Location: Online,

Certificate: IMR-22-8300A

CCB #SRA0615 4-Hr Training

AHERA is the Asbestos Hazard Emergency Response Act enacting Title II of Toxic Substance Control Act (TSCA)

Expiration Date: 03/23/2023

For verification of the authenticity of this certificate contact:
PBS Engineering and Environmental Inc.
4412 S Corbett Avenue
Portland, OR 97239
503.248.1939

Andy Fridley, Instructor