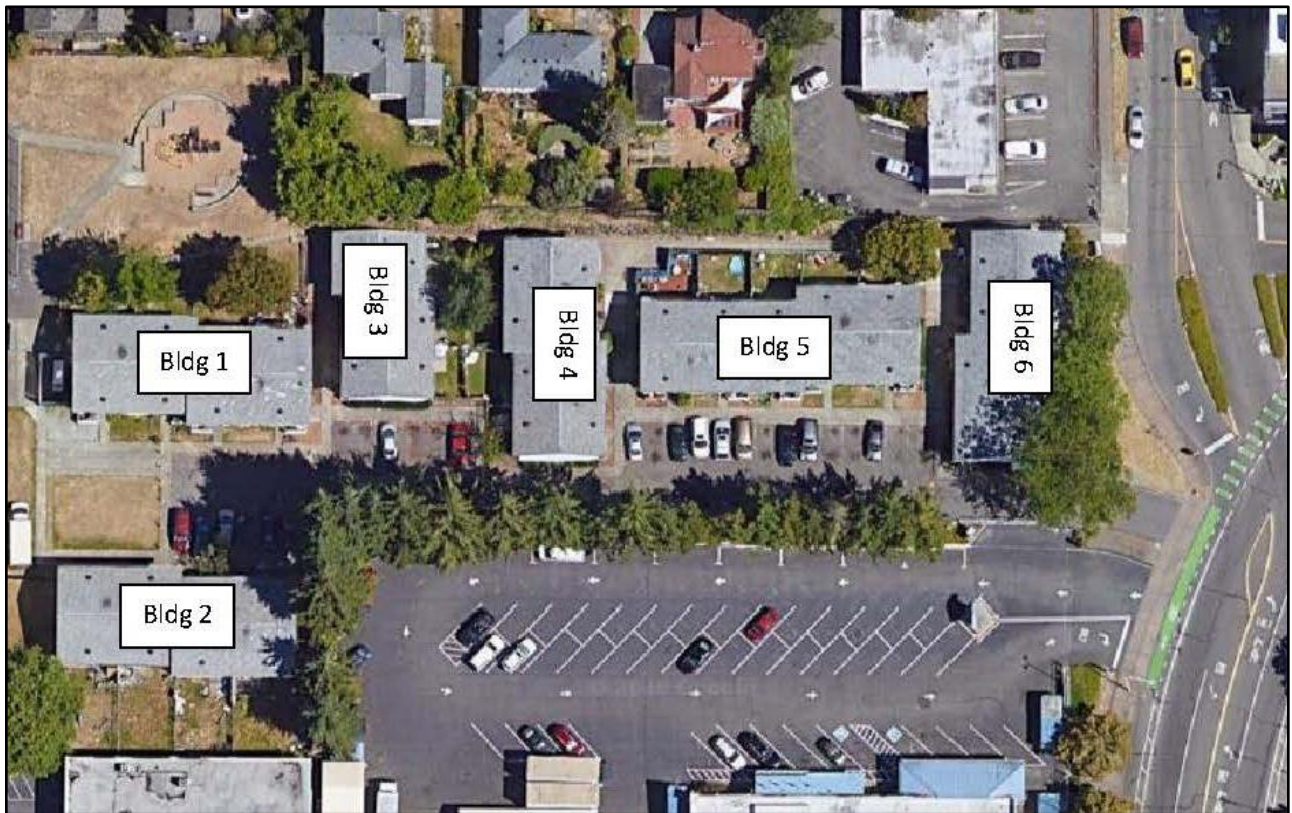


**Cedarvale Village Plumbing and Drain Replacement**

**TECHNICAL SPECIFICATIONS**



October 2019

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**Division 00 – General Conditions**

**Section 00 00 01 - Existing Conditions:**

1. 24 Townhome units in 6 buildings. Units where work will be performed will be occupied during construction.
2. THESE ARE OCCUPIED UNITS
  - o Refer any resident questions to SHA Project Manager
  - o Emergency and tenant access must be maintained and clear at all times
  - o No unit entry until 8:00 AM
  - o Notices need to be posted 48 business hours before unit entry
3. Each building has a single crawlspace access. Crawlspaces have 3-5 foot headroom.
4. All water supply lines are galvanized metal in deteriorated condition.
5. A water supply shut-off valve is located at the front of each unit, buried approximately 36 inches deep and accessed by a plastic or iron hand well.
6. The supply line is PVC from the water main to the unit shut-off valve, then galvanized pipe from the valve into the crawlspace.
7. All drain lines are iron pipe in deteriorating condition.
8. Shared wall between units has vertical utility chase ways for water and drain lines that feed kitchens and the upper level bathrooms.
9. Limited contractor parking on site.
10. Laydown areas are limited and will be identified with awarded Contractor at Pre-Construction Meeting prior to work beginning.
11. Unit Plumbing Configuration:

<b>Exterior:</b> <ul style="list-style-type: none"><li>• Shut-off valve</li><li>• 2 hose bibs</li></ul>	<b>First floor:</b> <ul style="list-style-type: none"><li>• Kitchen (Sink)</li><li>• laundry room</li><li>• Half-bath</li></ul>	<b>Second floor:</b> <ul style="list-style-type: none"><li>• Full Bathroom</li></ul>
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**END OF SECTION 00 00 01**

## Section 00 00 02 - General Instructions to Contractor

### PROJECT SCHEDULE AND SUBMITTALS

1. Before work begins Contractor will provide:
  - Project Schedule in MS Project, Excel, or PDF Format and shall identify project duration, task duration, and include start and stop dates.
  - Site Specific Safety plan
  - Sub-Contractor list
2. *All of which must be approved by SHA prior to work commencing*

### WORK HOURS

1. Monday- Friday 8:00 AM to 5:00 PM
2. No weekends/SHA holidays
3. SHA DOES NOT pay for overtime
4. All workers on site will wear high visibility vests or t-shirts to clearly identify themselves
5. All workers will be equipped with proper PPE and wear at all times

### PARKING

1. There is limited onsite parking for 1-2 construction company vehicles.
2. Material delivery will need to be coordinated in advance
3. Laydown areas and staging will be discussed at Preconstruction Meeting

### CONTRACTOR RESPONSIBILITIES

1. Fulltime site Superintendent or Foreman will be on site at all times.
2. Dust Control- Interior and Exterior
3. Protect all work until turn over to SHA
4. All work is subject to SHA acceptance and Approval (Communication is KEY)
5. Employ sufficient number of workers and equipment to perform the work in a diligent and expeditious manner. Project to be continually staffed / full time through the duration of the project.
6. Contractor shall protect areas where no work is being performed but are used by Contractor for access, storage, etc.
7. Contractor is responsible for repair and/or replacement of materials, finishes, or equipment damaged by construction process.
8. No smoking allowed on property by Contractor and/or Subcontractors.
9. All building dimensions must be field verified by contractor. Do not scale plans.

10. All quantities of materials to be replaced or altered must be field verified by contractor.
11. Understand that all work items listed in this document as well as the plans and specifications are all-inclusive and are complete systems. Contractor to provide all labor and materials, unless stated otherwise. All tasks must be complete with uniform fit, function, form, style, and type.
12. The Contractor will provide all labor, new materials, permits, and equipment necessary to perform all work associated with the removal and replacement of supply and drain lines located within the crawlspaces and enclosed in walls.
13. Any insulation removed to access work areas must be protected and replaced in good condition.
14. FINAL CLEANING: Contractor is responsible for final cleaning before hand over to SHA. This includes area of work and adjacent surfaces disturbed by construction activities. Contractor is encouraged to provide protection of non-work areas to minimize final cleaning and repair of areas of damage caused during construction.

#### PERMITS

1. All permits are Contractors/Sub Contractors responsibility
2. Any City of Jurisdiction requirements for permits is the contractors responsibility
3. The Contractor will attend all required inspections

#### SAFETY

1. Tenant safety and access is top priority
2. Maintain access to buildings for mail delivery and emergency access during construction activities.
3. Comply with safety & health codes within Local, State or Federal Jurisdictions.
4. Operate within OSHA and state-equivalent standards and requirements.

#### HAZARD MATERIALS

1. Daily site inspections. SITE CLEANER THAN WHEN YOU GOT THERE
2. Encounter Asbestos- Certified abatement Contractor under the supervision of the GC.
3. The Contractor agrees to indemnify, defend and hold SHA harmless from any claims arising out of or relating to the presence of asbestos in the Owner's building that the Contractor has subcontracted.
4. Asbestos reports available upon request.

UTILITIES

1. Contractor shall conduct public and private locates prior to any trenching or other ground disturbing activity.
2. Power & water to be provided by Owner.
3. All penetrations will be sealed/fire caulked

LANDSCAPING

1. Any Landscape disturbed by contractor activities shall be restored to current conditions prior to turn over to owner.

SITE DOCUMENTS

1. Construction/Permit Plans will be on site at all times
2. The Contractor will keep and maintain, on-site, a separate but complete set of drawings

CLOSE OUT DOCUMENTS

1. At the end of the project FINAL AS-built drawings will be submitted to be approved by owner
2. One electronic set of Operation and Maintenance (O&M's) manuals for all major materials and equipment supplied by the Contractor shall be provided upon project completion prior to final payment.
3. All O&M's and as built drawings are subject to Owner approval. O&M manuals will include all warranties associated with the work.

**END OF SECTION 00 00 02**

## DIVISION 02 - DEMOLITION

### Section 02 41 00 – Selective Demolition

#### 1.1 SUMMARY

1. Scope includes all cutting and patch-back of wall materials to match existing color and texture.
2. Vertical supply and drain lines: Open shared wet walls between units by removing the back of the sink base cabinet on one side of the wall.
3. Other vertical plumbing chases shall be accessed by careful removal of drywall in closet and bedroom areas.
4. Scope includes removal and disposal of old pipes, fittings and construction debris.

#### 1.2 RELATED SECTIONS [Not Used]

#### 1.3 REGULATORY REQUIREMENTS

1. Conform to applicable code for demolition work, dust control, products requiring electrical disconnection and re-connection.
2. Obtain required demolition permits from authorities, if necessary.
3. Do not close or obstruct egress from any building exit or site exit.
4. Do not disable or disrupt building fire or life safety systems without 3 business days' prior written notice to Owner.
5. Conform to applicable regulatory procedures when hazardous or contaminated materials are discovered.

#### 1.4 EXISTING CONDITIONS

1. Take over areas to be demolished based on their condition on date that bid is accepted.
2. Recording of existing conditions.
3. Conduct demolition to minimize interference with adjacent and occupied building areas.
4. The Contractor shall coordinate with the Owner when it is necessary to access, measure and/or photograph existing conditions prior to execution of the work.
5. Bring varying conditions immediately to the attention of the owner and consultant.

1.5 PROTECTION

1. Prevent damage of adjacent parts of existing building to remain. Make good damage caused by demolition.
2. Ensure 24 hour access and protection is provided for the residents remaining during construction.
3. Take precautions to support affected structures and, if safety of building being demolished or adjacent structures or services appears to be endangered, cease operations and notify Consultant.
4. Prevent debris from blocking surface drainage system, elevators, mechanical and electrical systems which must remain in operation.
5. Protect all adjacent surfaces and glazing.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION

3.1 PREPARATION

1. Erect and maintain temporary partitions as necessary to prevent spread of dust, odors, and noise to permit continued building occupancy.
2. Protect existing materials that are not to be demolished.
3. Notify affected utility companies before starting Work and comply with their requirements.
4. If required, contact Owner to disconnect and cap designated mechanical services and sprinkler system in accordance with authorities having jurisdiction.
5. Contractor will obtain any additional permits necessary to perform Work.
6. Remove and store in a safe location, assemblies identified for reinstallation.
7. Remove and relocate any landscaping the Owner desires to keep from damage in the execution of the Work.

3.2 DEMOLITION

1. Disconnect, remove, and identify designated utilities within demolition area.
2. Demolish in an orderly and careful manner.
3. Remove unsuitable material not marked for salvage, such as rotted wood and exterior sheathing, water damaged insulation, corroded metals, and deteriorated concrete.
4. Perform work in a safe manner at all times in accordance with OSHA/WISHA, project, and reference standard safety requirements and protocols.
5. Prepare surfaces and remove surface finishes to provide for proper installation of new Work and finishes.



6. Existing substrates to remain are to be protected. Do not over cut.
7. Remove existing equipment, services, and obstacles where required for refinishing or making good of existing surfaces, and replace as work progresses.
8. At the end of each day's work, leave work in safe condition.
9. Demolish to minimize dusting, airborne fungi, and other debris. Keep materials wetted as necessary or required by SHA staff, Consultant staff, or authorities having jurisdiction.
10. Do not sell or burn materials on site.
11. Remove from site contaminated, hazardous, or dangerous materials, if encountered, as defined by authorities having jurisdiction, relating to environmental protection, and dispose of in safe manner to minimize danger at the site or during disposal.
12. Upon completion of demolition, leave areas in clean condition.

**END OF SECTION 02 41 00**

## SECTION 092116- GYPSUM BOARD

Provide and install GWB for patching walls disturbed by work. Install GWB of matching thickness to existing, presumed to be ½"-thick. GWB finish should match surrounding wall surfaces.

### PART 1 GENERAL

#### 1.01 SECTION INCLUDES

- A. Gypsum wallboard.
- B. Joint treatment and accessories.

#### 1.2 RELATED SECTIONS [Not Used]

#### 1.3 REFERENCE STANDARDS

- A. ASTM C 475/C 475M - Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board; 2002. (Reapproved 2007)
- B. ASTM C 840 - Standard Specification for Application and Finishing of Gypsum Board; 2011.
- C. ASTM C 1396/C1396M - Standard Specification for Gypsum Board; 2011.
- D. ASTM E72 - Standard Test Methods of Conducting Strength Tests of Panels for Building Construction; 2005.
- E. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2013a
- F. GA-216 - Application and Finishing of Gypsum Board; Gypsum Association; 2010.
- G. GA-600 - Fire Resistance Design Manual; Gypsum Association; 2009.
- H. ICC (IBC) - International Building Code; 2012.
- I. UL (FRD) - Fire Resistance Directory; Underwriters Laboratories Inc.; current edition.

#### 1.4 SUBMITTALS

- A. See Division 1 Project Administration for submittal requirements and procedures. Refer to BID PACKAGE for these GENERAL REQUIREMENTS.
- B. Product Data: [not used]
- C. Test Reports: [not used]

#### 1.5 QUALITY ASSURANCE

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

**Part 2: PRODUCTS**

**2.1 GYPSUM BOARD ASSEMBLIES**

- A. Provide completed assemblies complying with ASTM C840 and GA-216.
- B. Fire Rated Assemblies: Provide completed assemblies complying with applicable code.
  - 1. Gypsum Association File Numbers: Comply with requirements of GA-600 for the particular assembly.

**2.2 BOARD MATERIALS**

- A. Manufacturers:
  - 1. CertainTeed Corporation: [www.certainteed.com](http://www.certainteed.com).
  - 2. Georgia-Pacific Gypsum: [www.gpgypsum.com](http://www.gpgypsum.com).
  - 3. National Gypsum Company: [www.nationalgypsum.com](http://www.nationalgypsum.com).
  - 4. USG Corporation: [www.usg.com](http://www.usg.com).
  - 5. Approved Substitutions
  
- B. Gypsum Wallboard: Paper-faced gypsum panels as defined in ASTM C1396/C1396M; sizes to minimize joints in place; ends square cut. Provide completed assemblies complying with ASTM C840 and GA-216.
  - 1. Regular Type:
    - a. Application: Use for vertical surfaces and ceilings, unless otherwise indicated.
    - b. Thickness: 1/2 inch or 5/8 inch, as indicated.
    - c. Edges: Tapered.
  - 2. Fire Resistant Type: Complying with Type X requirements; UL or WH rated.
    - a. At Assemblies Indicated with Fire-Rating: Use type required by indicated tested assembly; if no tested assembly is indicated, use Type X.
    - b. Thickness: 5/8 inch.
    - c. Edges: Tapered.
  - 3. Ceiling Board: Special sag-resistant type.
    - a. Application: Ceilings, unless otherwise indicated.
    - b. Thickness: 1/2 inch.
    - c. Edges: Tapered.
  
- C. Water-Resistant Gypsum Backing Board: ASTM C 1396/C 1396M; ends square cut.
  - a. Application: Vertical surfaces behind thinnest tile, except in wet areas.
  - b. Thickness: 1/2 inch, 5/8 inch, as indicated.
  - c. Edges: Tapered.

**2.3 ACCESSORIES [Not Used]**

**PART 3 EXECUTION**

**3.1 EXAMINATION [Not Used]**

**3.2 FRAMING INSTALLATION [Not Used]**

**3.3 ACOUSTIC ACCESSORIES INSTALLATION [Not Used]**

### 3.4 GYPSUM BOARD INSTALLATION

- A. Comply with ASTM C 840, GA-216, and manufacturer's instructions. Install to minimize butt end joints, especially in highly visible locations.
- B. Fire-Rated Construction: Install gypsum board in strict compliance with requirements of assembly listing.
- C. Exterior Sheathing: [Not Used]
- D. Exterior Soffit Board: [Not Used]

### 3.5 INSTALLATION OF TRIM AND ACCESSORIES [Not Used]

### 3.6 JOINT TREATMENT

- A. Finish gypsum board in scheduled areas in accordance with levels defined in ASTM C 840.
  - 1. Level 4: Walls and ceilings to receive paint finish or wall coverings, unless otherwise indicated.
  - 2. Level 1: Fire rated wall areas above finished ceilings, whether or not accessible in the completed construction.
  - 3. Utility Areas and Areas behind Cabinetry: Level 2.
- 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.

### 3.7 TOLERANCES

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

### 3.8 CLEANING AND PROTECTION

- A. Clean soiled surfaces with cleaning solution.
- B. Touch-up, repair or replace damaged products / materials / connections before Substantial Completion.
- C. Protect installed products until completion of project.

**END OF SECTION 09 21 16**

## Division 09 – FINISHES

### Section 09 90 00 - Painting

#### 1.1 SUMMARY

- a. New areas of GWB shall be painted to match adjacent finishes. Contractor to provide and apply one coat of Low VOC primer and two-coats of Low VOC interior latex paint.
- b. Where painting is required, contractor to provide floor to ceiling and corner to corner coverage.
- c. Color, sheen, and manufacturer to be provided by Owner.

#### 1.2 REFERENCES [Not Used]

#### 1.3 ADMINISTRATIVE REQUIRMENTS [Not Used]

#### 1.4 SUBMITTALS

- A. Product Data: Provide in the same order as scheduled by this Section:
  1. Manufacturer's Product Data Sheets for each product.
  2. Material Data Safety Sheets (MSDS) :
    - a. Solvents, driers, additives, and fillers.
    - b. Volatile organic compounds (VOC) emissions in grams per liter.
  3. Chip Color Samples: Manufacturer's complete selection.

#### 1.5 CLOSEOUT SUBMITTALS [Not Used]

#### 1.6 MAINTENCE MATERIAL SUBMITTALS [Not Used]

#### 1.7 [Not Used]

#### 1.8 DELIVERY, STORAGE, AND HANDLING

- A. Conform to manufacturer's instructions.
- B. Deliver in unopened, sealed containers, bearing manufacturer's original labels with manufacturer's brand name, product name and number, color designation, surface preparation, mixing and reducing instructions, coverage, drying time, clean-up instructions, MSDS, and VOC content. Include invoice statements showing quantities of each paint product. Submit to Architect upon request as a means to verify quantities suitable for coverage.
- C. Store and utilize paint in original containers bearing manufacturer's label for ease of identification. Do not put paint in containers bearing labels for other products.
- D. Store at ambient temperature between 45 degrees F and 90 degrees F. Store and mix material outside building.

- E. Take special safety precautions against hazards from toxic and flammable materials.
- F. Place paint and solvent contaminated cloths and materials, subject to spontaneous combustion, in containers and remove from job site each day.

1.9 FIELD CONDITIONS [Not Used]

1.10 WARRANTY

- A. Manufacturer specified materials Warranty.
- B. Contractor's 1 year warranty.

PART 2 PRODUCTS

2.1 MANUFACTURERS:

- A. The manufacturers listed are acceptable. Sherwin-Williams products are specified as the basis of design.
- B. Benjamin Moore:
- C. Kelly-Moore Paint Company / RPM Company, Rust-Oleum.
- D. Miller Paint Company
- E. Rodda Paint Company / Cloverdale Paint:
- F. Substitution Requests: Submit for acceptance under provisions of Section 012500.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify conditions ready to receive work of this Section before beginning work.
- B. Arrange for adequate lighting, temporary heat, and ventilation.

3.2 SURFACE PREPARATION PROCEDURES

- A. Conform to:
  - 1. SSPC- Surface Preparation Procedures.
  - 2. Manufacturer instructions.
  - 3. Contract Document provisions.
- B. Mildew removal:
  - 4. Do not use bleach to remove mold from carbon-based materials. These include paper, cellulous, wood, sucrose (sugar), gypsum board, and materials that are considered food for mold.
  - 5. Contact Owner for remediation method for mold contamination of carbon-based materials.

### 3.3 PROTECTION

- A. Take measures to protect surfaces not receiving work of this Section including protection from overspray, adjacent surfaces and downwind surfaces.
  - 1. Provide drop cloths, shields, and protective equipment.
  - 2. Repair or replace damaged surfaces caused by failure to provide suitable protection.
- B. Remove or mask electrical outlets and switch plates, mechanical diffusers, escutcheons, registers, surface hardware, fittings, fastenings, and other items not receiving coating system.
- C. Correct minor defects and clean substrate surfaces included under work of this Section.
- D. Remove coatings that exhibit surface defects or unsuitable surface adhesion.

### 3.4 APPLICATION

- A. Conform to manufacturer's instructions and provisions of Contract Documents.
- B. Conform to Premium Grade, including application of two finish coats over prepared and primed substrates.
- C. Apply as many additional coats for complete coverage and for acceptable finished appearance, free of holidays and color irregularities.
- D. Back-roll, back-brush, and perform other work as necessary to lay down gypsum board fuzz, push spray-applied coatings into surfaces, and to even out and make for smooth, uniform coated surfaces.
- E. Apply primer and each finish coat in slightly different hue as means to verify multiple coat coverage.

### 3.5 PATCHING

- A. Repair surfaces damaged during construction activities. Spot repair and refinish as necessary for finished appearance prior to Substantial Completion and Owner occupancy.

### 3.6 REPLACEMENT OF HARDWARE AND MISCELLANEOUS ITEMS

- A. Reinstall items previously removed for painting, including hardware, electrical plates.

### 3.7 ADJUSTING

- A. Take measures as necessary and as directed by Architect to repair, prepare, and recoat systems not conforming to Contract Document provisions.

### 3.8 CLEANING

- A. As Work proceeds, promptly remove spilled, and splattered paint and coating products so as not to damage surfaces.

- B. Maintain premises free from unnecessary accumulation of tools, equipment, surplus materials, and debris.
- C. At conclusion of work, thoroughly clean paint and coatings from surfaces not designated to be painted.
  - a. Do not scratch or damage surfaces.
  - b. Verify chemical compatibility of cleaners to materials to be cleaned.
- D. Leave premises neat and clean; free from debris and residue from work of this Section.
- E. Do not dump paint, stains, chemicals and clean/wash painting equipment anywhere in the landscaping around the building, site, or property, including the adjoining property.

### **3.9 INTERIOR PRIMERS**

- A. Interior Gypsum Board, Gypsum Plaster, and Veneer Plaster Primer:
  - a. Benjamin Moore, Super Spec Vapor Barrier Primer 260
  - b. Kelly-Moore, Vapor-Shield Wallboard & Masonry Primer/Sealer, 95-500
  - c. Miller Paint Company, Vapor-Lok Moisture Vapor Barrier 1545.
  - d. Rodda Paint, Vapor Block 507901.
  - e. Sherwin-Williams, Vapor Barrier B72W00001. C.
  - f. Approved, or equivalent to.

**END OF SECTION 09 90 00**



## SECTION 12 35 30

### RESIDENTIAL CASEWORK

#### PART 1 GENERAL

##### 1.1 SUMMARY

- A. If removed to accomplish work, replace back panels of Sink Base Cabinets to match existing. SHA Preferred Cabinet Basis: Rigid Thermofoil, flat-profile doors. Plywood boxes with no added urea-formaldehyde.

##### 1.2 REFERENCES

- A. American National Standards Institute:
  - 1. ANSI A156.9 - Cabinet Hardware.
  - 2. ANSI A161.1 - Performance and Construction Standard for Kitchen and Vanity Cabinets.
- B. Kitchen Cabinet Manufacturers Association: KCMA - Directory of Certified Cabinet Manufacturers.

##### 1.3 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Submittal requirements.
- B. Product Data: Submit component dimensions, configurations, construction details, joint details, and standard hardware.

##### 1.4 QUALITY ASSURANCE

- A. Perform Work in accordance with ANSI A161.1 and KCMA certification.
- B. Qualifications:
  - 1. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years' experience.

#### PART 2 PRODUCTS

##### 2.1 CASEWORK

- A. Listed Manufacturer: Lanz Cabinets, Eugene, OR.
- B. Other Manufacturers:
  - 1. Tacoma Fixture Co., Tacoma, WA.
  - 2. Cabinets Northwest Corp., Auburn, WA.
  - 3. Substitutions: Section 01 60 00 - Product Requirements.

##### 2.2 RESIDENTIAL CASEWORK COMPONENTS

- A. Finish Material: Match Existing.
  - 1. Ultra low VOC water-based spray stain and water-based high performance UV cured top coat finish.

##### 2.3 HARDWARE COMPONENTS

- A. Hardware: Match Existing.

2.4 FABRICATION [Not Used]

PART 3 EXECUTION

3.1 EXAMINATION [Not Used]

3.2 INSTALLATION

- A. Install casework, components and accessories. In general, strictly comply with manufacturer's printed installation instructions.
- B. Use anchoring devices to suit conditions and substrate materials encountered.
- C. Set casework items plumb and square, securely anchored to building structure.
- D. Carefully scribe casework abutting other components, with maximum gaps of 1/32 inch. Use filler strips; not additional overlay trim for this purpose.
- E. Close ends of units, back splashes, shelves and bases. Joints between units to be tight and flush.

3.3 ADJUSTING

- A. Adjust doors, drawers, hardware, fixtures, and other moving or operating parts to function smoothly.

3.4 CLEANING

- A. Clean casework, counters, shelves, and hardware.

3.5 PROTECTION OF INSTALLED CONSTRUCTION

- A. Do not permit finished casework to be exposed to continued construction activity.

**END OF SECTION 12 35 30**

## SECTION 22 00 00 GENERAL PLUMBING REQUIREMENTS

### 1.1 INTRODUCTION

#### A. Overview:

##### **Supply Line Replacement:**

1. Replace all galvanized metal water supply lines for 24 townhome apartments in 6 buildings.
2. Supply lines shall be PEX (Wirsbo/Uponour) terminating at copper stub-outs or approved or equivalent to.
3. NO Sharkbite repair fittings.
4. All Wall and Floor Stub-out shall be securely mounted copper with ball-valve shut-off. NO GATE VALVES.
5. Relocate and Replace water shut-off valve at each unit. Existing Shut-off valves are located approximately 3 feet outside the foundation, buried 24-30 inches deep. New shut-off valves to be installed inside the water heater closet of each unit.
6. Keep existing kitchen and bathroom sinks.
7. Replace all Kitchen and Bathroom faucets. Basis of design is Moen Chateau. Product substitutes are acceptable upon Owner's approval.
8. Replace existing hose bibs with new freeze-proof hose bibs.

##### **Drain Line Replacement**

1. Black ABS Drain Lines: Replace vertical and horizontal drain lines within building/crawlspace footprint.
2. Add cleanouts on waste line where possible.
3. Existing dry vertical metal vent pipes shall be left in place and reused.

#### B. Section Includes

1. The purpose of this section is to define the design approach upon which the mechanical design/build is to base his bid and establish the design criteria, and design submittals, which will be required in the preparation and execution of the design.
2. All work under this section must meet the minimum construction requirements as specified in the CSI Master Format.

### 1.2 APPLICABLE CODES & STANDARD

#### A. Design shall comply with rules and regulations of the following:

1. 2015 Seattle Energy Code (SEC)
2. 2015 International Mechanical code (IMC) with City of Seattle Amendments
3. 2015 International Fuel gas code (IFGC) with City of Seattle Amendments
4. 2015 International Fire code (IFC) with City of Seattle Amendments
5. 2015 Seattle Building Code (SBC)
6. 2015 International Building Code (IBC) with City of Seattle Amendments
7. 2015 Washington State Plumbing Code (WSPC) with City of Seattle Amendments
8. National Fire Protection Association (NFPA)

9. 2008 WAC 296.46B Electrical Safety Standards, Administration, and Installation
10. 2014 National Electrical Code (NEC) with City of Seattle Amendments
11. National Electrical Manufacturers Association (NEMA)
12. WA State Underground Damage Prevention Act ('Call Before you Dig') – RCW 19.122
13. Federal Americans With Disabilities Act (ADA)
14. All other applicable local jurisdiction amendments.

### 1.3 PROJECT DELIVERY

- A. This project is to be delivered complete. The Plumbing Contractor responsible for all Plumbing systems (referred to herein as the PC) shall use the provided plumbing drawings as reference information. Drawings do not represent exact location of waste lines. PC shall provide information showing actual locations of waste lines and points of connection between new and existing work through as-built drawings at end of project.
- B. The PC is encouraged to provide voluntary alternates beyond the specific scope outlined in this narrative and the accompanying drawings.
- C. The PC will provide bid response that covers the complete scope of work required to deliver a fully functional and code compliant project.
- D. Contractor shall attend design coordination meetings as needed.
- E. The architectural plans must be field verified.
- F. Submittals, will be reviewed for conformance with the bid package, code conformance and accepted practice. Discrepancies will be noted for team review prior to acceptance.
- G. Complete equipment and materials submittals shall be provided to the owner in electronic format per the time schedule issued by the Owner. Submittals shall be complete with all components included, installation manuals, and customized to this project's requirements. All submittals require Owner approval prior to purchase. The project specific equipment model numbers, options, and features are to be clearly marked within the literature. Electronic submittals with original PDF's (avoid scanning) are requested for consultant review. Additionally, conformance with Division 1 Technical Specifications including hard copy requirements apply.
- H. Construction Administration: The selected Contractor will perform construction administration, including RFI responses, attendance at periodic meetings, formal review and approval of shop drawings and submittals, coordination with other trades, preparation of final punchlist.
- I. All work contracted for must be accepted by all applicable inspectors including Site Superintendent, GC Quality Control Personnel, and Owner.

- J. Warranty period to extend for one year from date that the owner accepts the work. Warranty not applicable to defective items due to faulty work of subsequent trades.
- K. The PC shall submit final as-built drawings to the General Contractor for submittal to Owner within two weeks of project completion or unless alternative timing is agreed to. Drawings shall be provided in PDF format.
- L. Operations and Maintenance Manual: Provide 1 electronic copy (PDF) of O&Ms for ALL systems within TWO weeks of substantial completion.
- M. Codes, Permits, Inspections, and Fees:
  - 1. The PC shall obtain all permits and inspections and pay all fees required by State and Local authorities, except as noted.
  - 2. All work and materials shall be in accordance with requirements of all applicable local and state codes, statues, standards and other regulations. Date of regulations shall be as adopted by local authorities at the time of permit intake, unless indicated otherwise.
  - 3. The codes shall be construed as establishing a minimum or base level of requirements. Contract Documents shall not be construed to permit or direct work not in conformance with codes, statues, standards and other regulations. Where provisions of the various regulations conflict with each other, or with the Contract Documents, the more stringent provisions shall be included in contract pricing. Conflict shall be resolved with the Owner and Authorities Having Jurisdiction (AHJ) prior to completing the design.
  - 4. Where the Contract Documents call for material or construction of a better quality or higher capacity than required by the codes, statues, standards, and other regulations, the provisions of the Contract Documents shall take precedence over the requirements of the codes and standards.
  - 5. Material and equipment within the scope of the UL Testing Laboratory Service shall be listed by the Underwriters Laboratories for the purpose for which they are used and shall bear their listing mark.
  - 6. PC shall call for all inspections by the local code authorities when they become due and shall not cover any work until approved by these authorities.

**1.4 MISCELLANEOUS SCOPE ITEMS:**

- A. PC is to provide and install fire stopping of all through and membrane penetrations as required by the IBC and other applicable codes. Floor penetrations to include a watertight seal.
- B. All piping, plumbing, and equipment are to be seismically restrained as required by the 2015 IBC and Seattle Building Code.

1.5 COORDINATION

- A. All pipe routing and equipment locations shall be coordinated with Owner.
- B. No cutting or drilling of joists or beams will occur without Owner and Structural Engineer approval.
- C. Cutting, framing, patching and painting of wall, ceiling and floor openings shall be by Awarded Contractor.

PART 2 – PRODUCTS

2.1 PLUMBING SYSTEMS GENERAL

- A. All plumbing products in contact with potable water shall be certified Lead Free and NSF 61/NSF 372 compliant.
- B. All plumbing in areas that contain plenums are to be plenum compatible. No plastic material will be utilized unless noted otherwise.
- C. Plumbing materials are per the materials matrix.
- D. All plumbing is to be pressure tested or flow tested in accordance with code and accepted standards.
- E. All clean outs are to be installed in accessible locations. Plumbing Contractor is to provide access panels and coordinate installation with Owner as required for access to clean outs.
- F. All fixtures shall be provided and installed to comply with Washington State accessibility codes or per other architectural directions.
- G. All fixtures to be provided and installed to comply at a minimum with Washington State water conservation performance standards and UPC maximum flow rate standards.
- H. All water supply and waste and vent piping shall be secured in place with 3/16” neoprene strips wrapped around the pipe at stud penetrations or point of support to prevent direct contact with framing and resultant rattling and vibration.

2.2 DOMESTIC WATER PIPING INSULATION

- A. Provide and install pipe insulation to code in exterior walls and crawlspaces.

PART 3 – EXECUTION

3.1 PREPARATION & INSTALLATION

- A. All work contracted for must be accepted by all applicable inspectors including site superintendent, GC quality control personnel, and Owner.
- B. Piping shall be run concealed in all areas.
- C. As-built drawings: Provide Owner with electronic as-built drawings within two weeks of substantial completion. As-built drawings will reflect all changes from the construction drawing set.
- D. Owner and Maintenance Manual: provide 1 electronic copy of O&Ms for all systems. O&M's will also comply with architectural specification sections.

3.2 TESTING & INSPECTION

- A. The Plumbing Contractor (PC) is responsible for all test, balance, and startup of plumbing systems.
- B. All plumbing systems are to be tested by the PC as required by the AHJ and Plumbing Codes.
- C. The PC will document deficiencies and provide equipment, materials, and labor necessary to correct deficiencies found during the commissioning process to fulfill contract and warranty requirements.

**END OF SECTION 22 00 00**