

- Push-on, using ASTM F 477 elastomeric gaskets.
- 2.11 STORM WATER PIPING, ABOVE GRADE
- A. Cast Iron Pipe: CSDI 301, hubless, service weight; Fittings: Cast iron; Joints: Neoprene gaskets and stainless steel clamp-and-shield assemblies.
- D. ABS Pipe: ASTM D 2680 or ASTM D 2751; Fittings: ABS; Joints: Solvent welded with ASTM D 2235 cement.
- 2.14 NATURAL GAS PIPING, ABOVE GRADE
- A. Steel Pipe: ASTM A 53/A 53M Schedule 40 black; Fittings: 3" and larger shall be ASME B16.3, malleable iron, or ASTM A 234/A 234M, wrought steel welding type. Threaded fittings may be used on piping 2 1/2" and smaller, except where noted on the drawings or required by code to be welded; Joints: NFPA 54, threaded or welded to ASME B31.1.
- B. Copper Tube: ASTM B 88 (ASTM B 88M), Type K (A) or L (B) annealed; Fittings: ASME B16.26, cast bronze joints: Flared.
- 2.18 FLANGES, UNIONS, AND COUPLINGS
- A. Unions for Pipe Sizes 3 Inches and Under: Ferrous pipe: Class 150 malleable iron threaded unions; Copper tube and pipe: Class 150 bronze unions with soldered joints.
- B. Flanges for Pipe Size Over 1 Inch: Ferrous pipe: Class 150 malleable iron threaded or forged steel slip-on flanges; preformed neoprene gaskets; Copper tube and pipe: Class 150 slip-on bronze flanges; preformed neoprene gaskets.
- C. Grooved and Shouldered Pipe End Couplings: Housing: Malleable iron clamps to engage and lock, designed to permit some angular deflection, contraction, and expansion; steel bolts, nuts, and washers; galvanized for galvanized pipe; Sealing gasket: C shape composition sealing gasket.
- D. Dielectric Union with polyimide or plated steel threaded end, copper solder end, water impervious isolation barrier.
- 2.19 PIPE HANGERS AND SUPPORTS
- A. Plumbing Piping – Drain, Waste, and Vent: Conform to MSS SP–58; Hangers for Pipe Sizes 1/2 Inch to 1–1/2 Inches: Malleable iron, adjustable swivel, split ring; Hangers for Pipe Sizes 2 Inches and Over: Carbon steel, adjustable, clevis; Multiple or Trapez Hangers: Steel channels with welded spacers and hanger rods; Wall Support for Pipe Sizes to 3 Inches: Cast iron hook; Wall Support for Pipe Sizes 4 Inches and Over: Welded steel bracket and wrought steel clamp; Vertical Support: Steel riser clamp; Floor Support: Cast iron adjustable pipe saddle, lock nut, nipple, floor flange, and concrete pier or steel support; Copper Pipe Support: Carbon steel ring, adjustable, copper plated.
- B. Plumbing Piping – Water and Gas: Conform to MSS SP–58; Hangers for Pipe Sizes 1/2 inch to 1–1/2 Inches: Malleable iron, adjustable swivel, split ring; Hangers for Cold Pipe Sizes 2 Inches and Over: Carbon steel, adjustable, clevis; Hangers for Hot Pipe Sizes 2 Inches to 4 Inches: Carbon steel, adjustable, clevis; Hangers for Hot Pipe Sizes 6 Inches and Over: Adjustable steel yoke, cast iron pipe roll, double hanger; Multiple or Trapez Hangers: Steel channels with welded supports or spacers and hanger rods; Multiple or Trapez Hangers for Hot Pipe Sizes 6 Inches and Over: Steel channels with welded supports or spacers and hanger rods, cast iron roll; Wall Support for Pipe Sizes to 3 Inches: Cast iron hook; Wall Support for Pipe Sizes 4 Inches and Over: Welded steel bracket and wrought steel clamp; Wall Support for Hot Pipe Sizes 6 Inches and Over: Welded steel bracket and wrought steel clamp with adjustable steel yoke and cast iron pipe roll; Vertical Support: Steel riser clamp; Floor Support for Cold Pipe: Cast iron adjustable pipe saddle, lock nut, nipple, floor flange, and concrete pier or steel support; Floor Support for Hot Pipe Sizes to 4 Inches: Cast iron adjustable pipe saddle, locknut, nipple, floor flange, and concrete pier or steel support; Floor Support for Hot Pipe Sizes 6 Inches and Over: Adjustable cast iron pipe roll and stand, steel screws, and concrete pier or steel support; Copper Pipe Support: Carbon steel ring, adjustable, copper plated.
- 2.20 GATE VALVES (Exterior Utility Service Only)
- A. Manufacturers: Conbraco Industries; Nibco, Inc; Milwaukee Valve Company.
- B. Up To and Including 3 Inches: MSS SP–80, Class 125, bronze body, bronze trim, rising stem, handwheel, inside screw, solid wedge disc, solder or threaded ends. Provide extension to grade and valve box per local jurisdiction and utility company standards. Post-indicator type were used for fire protection service or when indicated on the Drawings.
- C. 2 Inches and Larger: MSS SP–70, Class 125, iron body, bronze trim, outside screw and yoke, handwheel, solid wedge disc, flanged ends. Provide extension to grade and valve box per local jurisdiction and utility company standards. Post-indicator type were used for fire protection service or when indicated on the Drawings.
- 2.22 BALL VALVES
- A. Manufacturers: Conbraco Industries; Nibco, Inc; Milwaukee Valve Company.
- B. Construction, 4 Inches and Smaller: MSS SP–110, Class 150, 400 psi CWP, bronze, two piece body, chrome plated brass ball, regular port, teflon seats and stuffing box ring, blow-out proof stem, lever handle, solder or threaded ends.
- 2.24 BUTTERFLY VALVES
- A. Manufacturers: Hammond Valve; Crane Co; Milwaukee Valve Company.
- B. Construction 1–1/2 Inches and Larger: MSS SP–67, 200 psi CWP, cast or ductile iron body, nickel-plated ductile iron disc, resilient replaceable EPDM seat, wafer, lug, or grooved ends, extended neck, 10 position lever handle.
- C. Provide gear operators for valves 8 inches and larger, and chain-wheel operators for valves mounted over 8 feet above floor.
- 2.25 FLOW CONTROLS
- A. Manufacturers: ITT Bell & Gossett; Griswold Controls; Taco, Inc.
- B. Construction: Class 125, Brass or bronze body with union on inlet, temperature and pressure test plug on inlet and outlet.
- C. Calibration: Automatically control flow within 5 percent of selected rating, over operating pressure range of 10 times minimum pressure required for control, maximum minimum pressure 3.5 psi.
- 2.26 SWING CHECK VALVES
- A. Manufacturers: Hammond Valve; Nibco, Inc; Milwaukee Valve Company.
- B. Up to 3 Inches: MSS SP–80, Class 125, bronze body and cap, bronze swing disc with rubber seat, solder or threaded ends.
- C. Over 2 Inches: MSS SP–71, Class 125, iron body, bronze swing disc, renewable disc seat and seat, flanged or grooved ends.
- 2.28 WATER PRESSURE REDUCING VALVES
- A. Manufacturers: Amtrol Inc; Cla-Val Co; Watts Regulator Company.
- B. Up to 2 Inches: MSS SP–80, bronze body, stainless steel and thermoplastic internal parts, fabric reinforced diaphragm, strainer, threaded single union ends.
- C. Over 2 Inches: MSS SP–85, cast iron body, bronze fitted, elastomeric diaphragm and seat disc, flanged.
- 2.29 RELIEF VALVES
- A. Pressure Relief: Manufacturers: Cla-Val Co; Henry Technologies; Watts Regulator Company; AGA Z21.22 certified, bronze body, teflon seat, steel stem and springs, automatic, direct pressure actuated.
- B. Temperature and Pressure Relief: Manufacturers: Cla-Val Co; Henry Technologies; Watts Regulator Company; AGA Z21.22 certified, bronze body, teflon seat, stainless steel stem and springs, automatic, direct pressure actuated, temperature relief maximum 210 degrees F, capacity ASME (BP IV) certified and labeled.
- 2.30 STRAINERS
- A. Manufacturers: Armstrong International, Inc; Green County Filtration; WEAMCO.
- B. Size 2 inch and Under: Threaded brass body for 175 psi CWP; Y pattern with 1/32 inch stainless steel perforated screen.
2. Class 150, threaded bronze body 300 psi CWP; Y pattern with 1/32 inch stainless steel perforated screen.
- C. Size 1–1/2 inch to 4 inch: Class 125, flanged iron body, Y pattern with 1/16 inch stainless steel perforated screen.
- D. Size 5 inch and Larger: Class 125, flanged iron body, basket pattern with 1/8 inch stainless steel perforated screen.

PART 3 EXECUTION

- 3.01 EXAMINATION
- A. Verify that excavations are to required grade, dry, and not over-excavated.
- 3.02 PREPARATION
- A. Ream pipe and tube ends. Remove burrs. Bevel plain end ferrous pipe.
- B. Remove scale and dirt, on inside and outside, before assembly.
- C. Prepare piping connections to equipment with flanges or unions.
- 3.03 INSTALLATION
- A. Install in accordance with manufacturer's instructions.
- B. Provide non-conducting dielectric connections wherever jointing dissimilar metals.
- C. Route piping in orderly manner and maintain gradient. Route parallel and perpendicular to walls.
- D. Install piping to maintain headroom, conserve space, and not interfere with use of space.
- E. Group piping whenever practical at common elevations.
- F. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment.
- G. Provide clearance in hangers and from structure and other equipment for installation of insulation and access to valves and fittings.
- H. Locate all valves and control elements in accessible areas wherever possible to avoid access doors. Provide access where valves and fittings are not exposed or located in accessible areas. Provide ceiling access doors for access to all valves and control elements located above inaccessible ceiling areas. Provide minimum 12

x 12 inch size for hand access, 18 x 18 inch size for shoulder access, and as indicated. Provide 4 x 4 inch for shut off valves only. Provide rated access doors where installed in fire rated construction. Review locations prior to fabrication.

- I. Establish elevations of buried piping outside the building to ensure not less than the maximum local frost depth cover. Install tracer wire on all plastic piping outside the building.
- J. Install vent piping penetrating roofed areas to maintain integrity of roof assembly.
- K. All roofing penetrations shall be flashed and weather sealed by the roofing manufacturer's authorized roofing contractor at this Contractor's expense. This Contractor shall contract with the factory authorized roofing contractor for the specific roofing system applicable to this Project. The use of an unauthorized roofing contractor may result in removal and replacement of the penetration systems at this Contractor's expense.
- L. All sanitary vent system terminations shall be a minimum of ten feet from any fresh air intake and twenty-five feet on medical facilities (hospitals, clinics, etc.)
- M. Where pipe support members are welded to structural building framing, scrape, brush clean, and apply one coat of zinc rich primer to welding.
- N. Provide support for utility meters in accordance with requirements of utility companies.
- O. Prepare exposed, unfinished pipe, fittings, supports, and accessories ready for finish painting.
- P. Paint all exterior above grade piping with a minimum of two coats of paint, color to match roof or wall surface to which it is attached; Copper pipe Apply vinyl etch primer immediately following cleaning, EXT 5.54 Alkyd: Vinyl Wash Primer MPI #80, Alkyd MPI #8, 9 or 94, Semi-gloss; Steel pipe: Apply alkyd metal primer immediately following cleaning, EXT 5.10 Alkyd: Alkyd Metal Primer MPI #79, Alkyd MPI # 94, semi-gloss; Plastic pipe: Apply alkyd bonding primer immediately following cleaning, EXT 6.8B Alkyd: Bonding Primer MPI #17 or 69, Alkyd MPI #8, 9 or 94.
- Q. Excavate, bedding and backfill shall be in accordance with applicable sections of this Specification.
- R. Pipe vents from gas pressure reducing valves to outdoors and terminate in weather proof hood, unless of the ventless design and approved by the local jurisdiction and the local utility company regulates.
- S. The use of sanitary tee fittings will not be permitted. Utilize wye fittings in lieu of tee fittings for all intersections of drainage piping.
- T. Provide sleeves when penetrating footings, masonry walls and floors. Seal and fire stop pipe and sleeve penetrations to achieve fire resistance equivalent to fire separation required. All penetrations through footings and floors shall be sealed water tight.
- U. Wherever piping is located within 1.5 inches of the nearest edge of studs, joists, rafters or similar members, provide minimum 0.062 inch thick steel protective shield plates extending 2" above and below the pipe being protected. Shield plates may be omitted on cast iron piping only.
- V. Inserts: Provide inserts for placement in concrete formwork; Provide inserts for suspending hangers from reinforced concrete slabs and sides of reinforced concrete beams; Provide hooked rod to concrete reinforcement section for inserts carrying pipe over 4 inches; Where concrete slabs form finished ceiling, locate inserts flush with slab surface; Where inserts are omitted, drill through concrete slab from below and provide through-bolt with recessed square steel plate and nut recessed into and grouted flush with slab.
- W. Pipe Hangers and Supports: Install in accordance with ASME B31.9, ASTM F 708, and MSS SP–89; Support horizontal piping as scheduled; Install hangers to provide minimum 1/2 inch space between finished covering and adjacent work; Place hangers within 12 inches of each horizontal elbow; Use hangers with 1–1/2 inch minimum vertical adjustment. Design hangers for pipe movement without disengagement of supported pipe; Support vertical piping at every other floor. Support riser piping independently of connected horizontal piping; Where several pipes can be installed in parallel and at same elevation, provide multiple or trapeze hangers; Provide copper plated hangers and supports for copper piping; Prime cast exposed steel hangers and supports. Hangers and supports located in crawl spaces, pipe shafts, and suspended ceiling spaces are not considered exposed; Provide hangers adjacent to motor driven equipment with vibration isolation; Support cast iron drainage piping at every joint.
- 3.04 APPLICATION
- A. Install unions downstream of valves and at equipment or apparatus connections.
- B. Install ball or butterfly valves for shut-off and to isolate equipment, part of systems, or vertical risers.
- C. Install globe, ball, or butterfly valves for throttling, bypass, or manual flow control services.
- D. Provide lug and butterfly valves adjacent to equipment when provided to isolate equipment.
- E. Provide spring loaded check valves on discharge of water pumps.
- F. Provide plug or gas service rated ball valves in natural gas systems for shut-off service.
- G. Provide plug or gas service rated ball valves in propane gas systems for shut-off service.
- H. Provide automatic flow controls valves in water recirculating systems where indicated.
- I. Provide spring loaded check valves when located on the discharge of pumps.
- 3.05 TOLERANCES
- A. Interior Drainage Piping: Establish invert elevations within 1/2 inch vertically of location indicated and slope to drain at minimum of 1/4 inch per foot slope, unless noted otherwise on the Drawings.
- B. Exterior Drainage Piping: Establish invert elevations within 1/2 inch vertically of location indicated and slope to drain at a minimum of 1% grade, unless noted otherwise on the Drawings. Verify all invert elevations prior to commencing work.
- C. Water Piping: Slope at minimum of 1/32 inch per foot and arrange to drain at low draft heads.
- 3.06 DISINFECTATION OF DOMESTIC WATER PIPING SYSTEM
- A. Prior to starting work, verify system is complete, flushed and clean.
- B. Ensure Ph of water to be treated is between 7.4 and 7.6 by adding alkali (caustic soda or soda ash) or acid (hydrochloric).
- C. Inject disinfectant, free chlorine in liquid, powder, tablet or gas form, throughout system to obtain 50 to 80 mg/L residual.
- D. Bleed water from outlets to ensure distribution and test for disinfectant residual at minimum 15 percent of outlets.
- E. Maintain disinfectant in system for 24 hours.
- F. If final disinfectant residual tests less than 25 mg/L, repeat treatment.
- G. Flush disinfectant from system until residual equal to that of incoming water or 1.0 mg/L.
- H. Take samples no sooner than 24 hours after flushing, from 10 percent of outlets and from water entry, and analyze in accordance with AWWA C651.
- 3.07 SERVICE CONNECTIONS
- A. Provide new sanitary and storm sewer services as indicated on the Drawings. Before commencing work check invert elevations required for sewer connections, confirm inverts and ensure that these can be properly connected with slope for drainage and cover to avoid freezing. Removal, rework or corrections to sewer services as a result of the Contractor's failure to confirm invert elevations prior to the start of construction, regardless of the information contained on the Drawings, shall be the sole responsibility of the Contractor. Report any discrepancies difficulties to the Engineer prior to the start of construction.
- B. Provide new water service complete with approved reduced pressure backflow preventer and water meter with by-pass valves (where permitted by local authorities), pressure reducing valve (where pressure exceeds 80 psi); Provide sleeve in wall for service main and support at wall with reinforced concrete bridge. Calk enlarged sleeve and make watertight with pliable material. Anchor service main inside to concrete wall; Provide 18 gage galvanized sheet metal sleeve around service main to 2 inches above floor and 3 feet minimum below grade. Size for minimum of 2 inches of loose batt insulation stuffing.
- C. Provide new gas services complete with gas meter and regulators. Gas service distribution piping shall have initial minimum pressure as indicated on the drawings. Provide appropriately sized regulators on each line serving gas appliances, sized in accordance with the manufacturers recommendations based on the sizing parameters indicated on the Drawings. The entire gas service and piping installation shall comply with the local jurisdiction and the regulations of the serving utility.
- 3.08 SCHEDULES
- A. Pipe Hanger Spacing:
1. Metal Piping:
- a. Pipe size: 1/2 inches to 1–1/4 inches: Maximum hanger spacing: 6.5 ft; Hanger rod diameter: 3/8 inches.
- b. Pipe size: 1–1/2 inches to 2 inches: Maximum hanger spacing: 10 ft; Hanger rod diameter: 3/8 inch.
- c. Pipe size: 2–1/2 inches to 3 inches: Maximum hanger spacing: 10 ft; Hanger rod diameter: 1/2 inch.
- d. Pipe size: 4 inches to 6 inches: Maximum hanger spacing: 10 ft; Hanger rod diameter: 5/8 inch.
2. Plastic Piping:
- a. Pipe size: 1/2 inches to 6 inches: Maximum hanger spacing: 6 ft;

Hanger rod diameter: 3/8 inch.

END OF SECTION

SECTION 221006 – PLUMBING PIPING SPECIALTIES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Drains; Cleanouts; Hose bibbs; Hydrants; Backwater valves; Backflow preventers; Water hammer arrestors; Interceptors; Thermostatic mixing valves.

PART 2 PRODUCTS

2.01 BACK WATER VALVES

- A. Manufacturers: Joy R. Smith Manufacturing Company; Savko Plastic Pipe & Fittings, Inc; Zurn Industries.
- B. Cast Iron Back Water Valves: ANSI A112.21.2M; lacquered cast iron body and cover, brass valve, extension sleeve, and access cover.
- C. Plastic Back Water Valves: ABS or PVC body and valve, extension sleeve, and access cover.

2.02 BACKFLOW PREVENTERS

- A. Manufacturers: Conbraco Industries; Watts Regulator Company; Zurn Industries, Inc.

2.03 WATER HAMMER ARRESTORS

- A. Manufacturers: Joy R. Smith Manufacturing Company; Watts Regulator Company; Zurn Industries, Inc.
- B. Water Hammer Arrestors: Stainless steel or copper construction, bellows type sized in accordance with PDI-WH 201, precharged suitable for operation in temperature range 34 to 250 degrees F and maximum 150 psi working pressure.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Extend cleanouts to finished floor or wall surface. Lubricate threaded cleanout plugs with mixture of graphite and linseed oil. Ensure clearance at cleanout for rodding of drainage system.
- C. Encase exterior cleanouts in concrete flush with grade.
- D. Install floor cleanouts at elevation to accommodate finished floor for a completely flush installation.
- E. Install approved potable water protection devices on plumbing lines where contamination of domestic water may occur; on boiler feed water lines, janitor rooms, fire sprinkler systems, premise isolation, irrigation systems, flush valves, interior and exterior hose bibbs and all other locations required by Codes.
- F. Pipe relief from backflow preventer to nearest drain.
- G. Install water hammer arrestors complete with accessible isolation valve on hot and cold water supply piping to all fixtures and equipment.

END OF SECTION

SECTION 223000 – PLUMBING EQUIPMENT

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Water Heaters; Commercial gas fired water heaters; Commercial gas fired instantaneous water heaters; Commercial electric water heaters; Electric instantaneous water heaters; Water softeners; Pumps; Circulators; Sewage Ejectors; Sump Pumps; Water pressure booster system.

PART 2 PRODUCTS

2.01 WATER HEATER MANUFACTURERS

- A. A.O. Smith Water Products Co.; Bock Water Heaters, Inc.; Rheem Manufacturing Company; F.W.

2.02 COMMERCIAL GAS FIRED WATER HEATERS

- A. Type: Automatic, natural gas-fired, vertical storage
- B. Performance: Maximum working pressure: 150 psig; Equipment performance and accessories shall be as scheduled on the Drawings and specified herein. Inclusion in both locations is not a prerequisite to inclusion in the Contract. Equipment and accessories specified in either location shall be included in the Contract. Provide all necessary accessories and connections as required for a complete, functional system.
- C. Tank: Glass or copper lined welded steel ASME labeled when required by code; multiple flue passages, 4 inch diameter inspection port, thermally insulated with minimum 2 inches polyurethane, encased in corrosion-resistant steel jacket; baked-on enamel finish; floor shield and legs.
- D. Accessories: Brass water connections and dip tube, drain valve, magnesium anode, and ASME rated temperature and pressure relief valve and heat trap fittings for hot and cold water connections; Water Connections: Brass; Dip tube: Crosslinked polyethylene (PEX) or brass; Drain Valve; Anode: Magnesium; Temperature and Pressure Relief Valve: ASME labeled.
- E. Certification: Automatic storage water heater and for operation at 180 degrees F (82 degrees C) for operation on combustible floors.
- F. Controls: Automatic water thermostat with temperature range adjustable from 110 to 180 degrees F (43 to 82 degrees C), automatic reset high temperature limiting thermostat factory set at 195 degrees F, gas pressure regulator, multi-ribbon or tubular burner, 100 percent safety shut-off pilot and thermocouple, flue baffle and draft hood.

2.03 COMMERCIAL GAS FIRED INSTANTANEOUS WATER HEATERS



- A. Type: Automatic, natural gas-fired, fully modulating, tankless.
- B. Performance: Maximum working pressure: 150 psig (1000 kPa); Equipment performance and accessories shall be as scheduled on the Drawings and specified herein. Inclusion in both locations is not a prerequisite to inclusion in the Contract. Equipment and accessories specified in either location shall be included in the Contract. Provide all necessary accessories and connections as required for a complete, functional system.
- C. Accessories: Brass or bronze water connections and waterways, integral flow regulator, and ASME rated temperature and pressure relief valve and heat trap fittings for hot and cold water connections; Water Connections: Brass; Coil Copper; Burners: Stainless steel.
- D. Certification: Automatic fully modulating tankless water heater and for operation at 180 degrees F (82 degrees C) for operation on combustible floors.
- E. Controls: Automatic water thermostat with temperature range adjustable from 110 to 180 degrees F (43 to 82 degrees C), automatic reset high temperature limiting thermostat factory at 195 degrees F (90 degrees C), gas pressure regulator, 100 percent safety shut-off pilot and thermocouple, flue baffle and draft hood.

2.04 COMMERCIAL ELECTRIC WATER HEATERS

- A. Type: Factory-assembled and wired, electric, vertical or horizontal storage as specified.
- B. Performance: Maximum working pressure: 150 psig; Equipment performance and accessories shall be as scheduled on the Drawings and specified herein. Inclusion in both locations is not a prerequisite to inclusion in the Contract. Equipment and accessories specified in either location shall be included in the Contract. Provide all necessary accessories and connections as required for a complete, functional system.
- C. Electrical Characteristics: As indicated on the Drawings; Verify that proper power supply is available prior to ordering equipment. Verify proper voltage, phase and current rating of power supply and inform Engineer of any deviations prior to order, connection of equipment or start-up. Responsibility for verification of proper power supply voltage and any product returns or damage resulting from incorrect connections shall rest with this Contractor.
- D. Tank: Glass lined or copper lined welded steel; ASME labeled pressure vessel when required by code, 4 inch diameter inspection port, thermally insulated with minimum 2 inches polyurethane encased in corrosion-resistant steel jacket; baked-on enamel finish.
- E. Controls: Automatic immersion water thermostat; externally adjustable temperature range from 60 to 180 degrees F, flanged or screw-in nichrome elements, high temperature limit thermostat.
- F. Accessories: Brass water connections and dip tube, drain valve, magnesium anode, and ASME rated temperature and pressure relief valve and heat trap fittings for hot and cold water connections; Water connections: Brass; Dip tube: Crosslinked polyethylene (PEX) or brass; Drain Valve; Anode: Magnesium; Temperature and Pressure Relief Valve: ASME labeled.
- G. Controls: Ventilated control cabinet, factory-wired with solid state progressive sequencing step controller, fuses, magnetic contactors, control transformer, pilot lights indicating main power and heating stages, control circuit toggle switch, electronic low-water (probe-type) cut-off, high temperature limit thermostat, flush-mounted temperature and pressure gages.
- H. Heating Elements: Flange-mounted immersion elements; individual elements sheathed



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NOTICE TO CONTRACTORS: Further reference to these drawings shall follow procedure over accept dimensions. Contractor shall verify all dimensions and shall notify the architect if any third party without the expressed written consent of PAUL DHANENS ARCHITECT 7.	
PROJECT	
TENANT IMPROVEMENT FOR	
	
1966 WEST AVE L LANCASTER, CA	
DATE	ISSUED FOR
8-24-18	BUILDING DEPT SUBMITTAL
8-28-18	
NO.	REVISIONS
1	
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PLUMBING	
FILE NAME:	2366A2-0
SHEET	
P-502	