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The Description of the Project
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SPECIFICATION DIVISION 33

NUMBER SECTION DESCRIPTION

DIVISION 33 UTILITIES

SECTION 336320 - UTILITY TUNNELS - DOMESTIC HOT WATER DISTRIBUTION
SYSTEMS

END OF CONTENTS TABLE

DIVISION 33 UTILITIES

SECTION 336320 - UTILITY TUNNELS - DOMESTIC HOT WATER DISTRIBUTION SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, Standard General and Supplementary General Conditions, Division 01 Specification Sections, and other applicable Specification Sections, in particular the Related Sections listed below, apply to this Section.

1.2 SUMMARY

- A. This Section includes all utility tunnel domestic hot water distribution systems, including but not limited to:
1. Domestic Hot Water Supply and Return Systems
 2. Domestic Hot Water Piping System Insulation
 3. Hangers, Supports and Anchors
 4. Valves
 5. Domestic Hot Water Specialties
 6. Expansion Joints
 7. Thermometers and Gauges

1.3 SUBMITTALS

- A. Shop Drawings Submit the following project specific items for approval in compliance with Division 1:
1. Product Data: Include manufacturer, catalog illustrations, model, rated capacities, performance, dimensions, component sizes, roughin requirements, materials of construction, and operating and maintenance clearance requirements.
 2. Provide a piping material schedule that indicates, service, pipe material, pipe manufacturer, fitting type and manufacturer, joint type and manufacturer.
 3. Solder and brazing material data sheets.
 4. Grooved fittings, couplings, and accessories data sheets.
 5. Provide data sheets for all products listed in this section including flanges, gaskets, unions, hangers, di-electric protection method, thermal hanger shield inserts, di-electric fittings, flexible metal hose, flexible connectors, and seal sleeve systems.
 6. Submit all submittals for a given system or component at the same time.
- B. Installation, Operation and Maintenance Manuals
- C. Source Quality Control Submittals
- D. Warranty Documentation
- E. As-Built Drawings
- F. Test Reports
- G. Contractor submit the following for A/E review and approval:

1. Type and model for all manufactured pipe support components, including building attachments, hangers, insulation saddles and shields, expansion joints, anchors.
2. Locations of anchors, expansion bends and joints.
3. Locations of building attachments where deemed necessary.

H. Details and supporting calculation of additional supports.

1.4 QUALITY ASSURANCE

- A. Manufacturers and Products: The products and manufacturers specified in this Section establish the standard of quality for the Work. Subject to compliance with all requirements, provide specified products from the manufacturers named in Part 2.
- B. Reference Standards: Products in this section shall be built, tested, and installed in compliance with the specified quality assurance standards; latest editions, unless noted otherwise.
1. National Sanitation Foundation NSF/ANSI-61 (potable drinking water) and NSF-61 Annex G (listed as $\leq 0.25\%$ weighted average lead content) (and/or NSF/ANSI-372) and Annex F.
 2. U.S Safe Drinking Water Act.
- C. Qualifications
1. Manufacturers
 2. Suppliers
 3. Fabricators
 4. Installers / Applicators / Erectors
 5. Testing Agencies
 6. Licensed Professionals

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store materials and equipment raised on pallets and protected with coverings to prevent damage due to weather and construction activities. Store in areas that prevent damage due to freezing and extreme temperatures or sunlight. Arrange coverings to provide air circulation to avoid damage from condensation or chemical build-up. Protect from damage, dirt and debris at all times.

1.6 WARRANTY

- A. Provide a complete warranty for parts and labor for a minimum of one year from the date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PIPE SYSTEM

- A. Domestic Hot Water Pipe - (DHWS & DHWR):
1. For tunnel applications:
 - a. Piping: Type L copper, hard drawn, ASTM B88.
 - b. Fittings: Wrought Copper, ANSI B16.22
 - c. Joints: Soldered through 2"; Piping 2-1/2" through 6" shall be grooved joints.

2.2 PIPE JOINTS:

- A. Soldered Joints: ASTM B32; Alloy Sb5, (95% Tin, 5% Antimony, maximum 0.20% Lead). When recommended by the component manufacturer, use manufacturer's recommended flux. Unless noted otherwise, joints may be screwed or flanged to suit valves and equipment. Manufacturers: Engelehard "Silverbrite 100", Harris "Bridgit"
- B. Flanged Joints:
1. Select flange and gasket materials to suit service of piping and to comply with the respective B31.9 piping standard.
 2. For copper pipe, provide Class 150 flat face ANSI B16.24 cast bronze flanges, brazed to the copper tube.
 - a. Alternative: Copper companion flange by CTS Fabrication USA rated 450 PSI minimum working pressure from -66°F to 272°F. ANSI B16.5 compliant, powder coated, with an EPDM insulator adhered to the plate steel flange protruding inside of the flange to prevent contact with the copper companion flange adapter. Flange adapter shall be manufactured to ASME B16.22, brazed to the copper tube.
 3. Gaskets shall conform to respective ANSI Standards, A21.11, B16.20, B16.21. Flange gaskets for domestic hot water shall be 100% PTFE Garlock Blue-Gard Style 3000 ring type gaskets or comparable. Full face gaskets allowed only when BOTH flanges are full face. Butterfly valves with removable seat screw heads that would interfere with the metal strip winding shall be installed with Garlock Style 9850 gaskets on the seat screw head side.
 4. Flange Bolts and Nuts: Provide ASTM A193 B7 bolts and studs with ASTM A194 grade 2H heavy hex nuts.
- C. Grooved Joints - for Copper Piping, maximum pipe size 8": Rolled grooves, peroxide cured EPDM gaskets, ductile iron housing (ASTM A 532 or A 536), wrought copper (ASTM B 75, ANSI B16.22) or cast bronze fittings, rated for minimum 300 psi working pressure at 250°F, when used with grooves that comply with AWWA C606. Grooved system/components shall provide rigid installation. UL and UPC approved. Utilize manufacturer's recommended gasket lubricant. Brazed Class 150 ANSI B16.24 cast bronze flanges (or copper companion flange by CTS Fabrication USA) must be used at any component requiring a flanged connection. Clamp-on branch outlets are prohibited. Exact gasket material and style shall be as recommended by the coupling manufacturer for the service, and NSF/ANSI-61 Annex G and NSF/ANSI-372 listed when used for potable water. On potable water service, provide non-standard gasket styles that close off and isolate gasket cavities from the water in the pipe. The manufacturer of the couplings and the fittings shall be the same. The same grooved component manufacturer shall be provided for the entire scope of the work, for each system.
- D. Manufacturers: Victaulic Style 607. Other coupling manufacturers will be considered for approval as owner option, provided they comply with all the above.

2.3 FLEXIBLE METAL HOSE CONNECTORS

- A. For copper piping systems, (up to 2" in size) use copper construction braided hoses. Manufacturers: Anaconda, Flex Hose Co., Flexonics, Mason, Metraflex.

- B. For sizes 2½" above, all stainless steel with an inner corrugated hose made of type 316 stainless steel and outer braid made of 316 stainless steel, with stainless steel flanges. Dual floating flanges only. Fixed flanges are not acceptable.

All wetted parts shall be stainless steel. Approved Manufacturers: Metraflex, Flexonics, Masonly, Twin City Hose.

- C. Provide flange union with dielectric gasket and bolt sleeves. On copper pipe, a stainless steel companion flange with a fully floating powder coated steel flange, fitted with a neoprene insulator, as manufactured by CTS Fabrication USA, may be used.

2.4 EXPANSION JOINTS

A. General

1. Expansion joints sizes 2" and smaller shall have screw threads or sweat ends. Joints 2-1/2" and larger shall have 150 pound ASA standard flange ends unless indicated otherwise.
2. All bellows joints shall be pre-set at the factory and "held" with removable metal clips or strips tack welded across the flanges.
3. Provide guides of the type indicated at locations indicated in the plans. And if not shown of the drawing, per published manufacture recommendations.
4. For pipe 2-1/2 inch and larger: Provide flange union with dielectric gasket and bolt sleeves. On copper pipe, a copper companion flange with a fully floating powder coated stainless steel flange, fitted with a neoprene insulator, as manufactured by CTS Fabrication USA, may be used.

B. Bellows Expansion Joints (Controlled Flexing Type):

1. Expansion joints shall be multiple 316 stainless steel bellows with mated neck rings.
2. Bellows shall be welded with minimum number of longitudinal seams and no circumferential seams.
3. The joints shall be single or double with center anchor base where indicated and scheduled, with Van Stone flanges and with internal sleeves (joints are to be insulated).
4. The joints shall be rated for 125 lbs. operating pressure and 250 degree F maximum operating temperature.

2.5 VALVES

A. General:

1. All valves shall have seats, stem seals and disc materials compatible with intended fluid, temperature, pressure and service.
2. All EPDM shall be peroxide cured. All wetted seals shall be made from materials that are immune from chloramine degradation.
3. Valves in contact with domestic (potable) water shall be "lead free" NSF/ANSI-61 Annex G (and/or NSF/ANSI-372) labeled.

4. Valves shall be repack-able under pressure whether open or closed.
5. Unless noted otherwise, valves shall be rated for a minimum working pressure of 150 psi and minimum 210° F working temperature.
6. Unless noted otherwise, all butterfly valves shall be full lug construction, suitable for bi-directional dead end service, and have open position memory stop.
7. Manually operated butterfly valves less than 4" shall be lever operated
8. Manually operated butterfly valves 2-1/2" and larger shall have enclosed worm gear operators with position indicators.
9. Gear operated valves shall be provided with self-locking gears. The actuator mounting bracket shall be rigidly dowel pinned to the body to absorb torque loads and shall be centered by machined register between bracket and body.
10. Valve actuator handle size shall be provided with manufacturers approved smallest available handle diameter to prevent obstruction of tunnel corridor.
11. Provide extended valve stems for insulated piping.
12. Valves shall be same size as piping unless otherwise indicated.

B. Valve Schedule:

1. Isolation through 2": Ball Valve
2. Isolation 2 1/2" and larger: High Performance Butterfly Valve, All stainless steel.
3. Check: Silent Check for all sizes.
4. Balancing: Automatic Balancing Valve.

C. Ball Valve:

1. Two-piece, full port, bronze body, stainless steel ball and stem, Teflon seat, plastic coated lever handle and locking devices where noted in drawings.
2. Manufacturers: Watts, Nibco, Apollo, Milwaukee, Hammond, Grinnell (Grinnell permitted only where grooved connections permitted).

D. High Performance Butterfly Valve:

1. Full lug, high performance type, 316 stainless steel body, 316 stainless steel disc, stainless steel shaft and bearing, (all wetted parts stainless steel) PTFE seat, Teflon stem packing. Rated for 150 psi, 250 degrees F.
2. Manufacturers: Jomar T-100-SS and S-100-SS, Jamesbury series 300, Grinnell 3700-6 and 3700SJ-6, Watts series B-6000, Nibco, Apollo, Pegler, Crane, Milwaukee, American Valve, Hammond

E. Butterfly Valve - Grooved:

1. Grooved ductile iron body, suitable for installation with grooved piping, EPDM coated steel disc and shaft, stainless steel hub bearing, EPDM seat, Teflon stem packing. Rated for 300 psi, 230 degrees F. Manufacturer: Victaulic Vic-300

2. Grooved Nylon coated ductile iron body, EPDM coated ductile iron disc, stainless steel shaft, bronze shaft bearing. MSS SP-67 Manufacturer: Grinnell Gruvlock Series 7700.
3. Grooved butterfly valves may be used only within grooved piping systems and only when specifically noted as permitted on the project drawings. Otherwise, high performance butterfly valves shall be provided, including grooved piping systems.

F. Drain Valve:

1. General Service: Ball valve with 3/4-inch hose threaded end fitting and cap.

2.6 AUTOMATIC FLOW CONTROL VALVES:

- A. Body: Inline design manufactured out of series 300 stainless steel; nickel plated union nut for ease of installation and serviceability
- B. End Connections: Threaded inlet and outlet with the outlet connection being union style
- C. Automatic Flow Cartridge
- D. Body: series 300 stainless steel wear surface, CNC machined piston and cylinder; Spring: stainless steel; Calibration: Integral, adjustable, factory set, threaded locking nut to calibrate spring compression for design flow performance, field tamper resistant; Pressure Range: Operates within 2 - 32 PSI or 5 - 60 PSI. Selection is dependent upon pump head requirements; Accuracy: Factory pre set flow +/-5% over defined pressure differential range or spring range as defined by manufacturer and determined by pump head calculations.
- E. Maximum Operating Temperature: 180 F; Commercial Hot Water rating
- F. Cold Working Pressure Rating: 400 PSIG
- G. Factory Testing/Performance: 100% spring test of all flow control cartridges at the factory to verify performance; Leak Test each valve at 100 psi under water
- H. Certifications: Valve shall be NSF 61-G certified for use in Commercial and Domestic Hot Water; Manufacturer shall supply documented proof of actual NSF 61-G certification as part of the submittal package and valve itself must be stamped with NSF 61-G certification seal.
- I. Manufacturer: FDI Model ICSS or Owner-approved equal

2.7 PIPE HANGERS, SUPPORTS AND ANCHORS:

- A. General
 1. Provide pipe hangers, supports and accessories for the proper support of all piping.
 2. Pipe hangers, supports and accessories shall be sized to allow uninterrupted pipe insulation thickness.

- B. Provide adjustable type pipe hangers, supports and accessories for the proper support of all piping. See details on drawings for requirements. Figure and model numbers specified on drawings are for Anvil International, and Pipe Shields Inc. Equivalent products by Carpenter & Paterson, Cooper B-line and PHD Manufacturing are also acceptable. Continuous threaded rod shall be used for intermediate attachments.
- C. Dielectric protection for hangers and supports: Where copper piping is supported with steel hangers and supports, dielectric protection must be provided. Use one of the following means as applicable:
 - 1. Coated hangers (copper or plastic coating)
 - 2. Insulation inserts
 - 3. Cushion clamps
 - 4. Other as approved by Engineer.
- D. Equipment
 - 1. Guides and Slides
 - a. Only use manufactured guides - site built guides are not acceptable unless otherwise approved by Utilities
 - b. 1/2" Thick graphite on both upper and lower assemblies
 - c. Graphite to have a compressive strength of 2000 psi
 - d. Temperature range of -20 degrees F to 750 degrees F
 - e. Epoxy boned to steel assemblies to withstand 350 degrees F
 - f. Guides to allow a maximum of 1/16" lateral movement
 - g. Designed to accommodate pipe insulation
 - 2. Anchors
 - a. Anchors shall be engineered and detail on drawing to meet specific needs of that pipe section.
 - b. Manufactures: Anvil, ATS

2.8 DIELECTRIC FITTINGS:

- A. For pipe 2 inch and less: Provide brass coupling. (Dielectric unions are not acceptable).
- B. For pipe 2-1/2 inch and larger: Provide flange union with dielectric gasket and bolt sleeves. On copper pipe, a copper companion flange with a fully floating powder coated steel flange, fitted with a neoprene insulator, as manufactured by CTS Fabrication USA, may be used.

2.9 THERMOMETERS AND PRESSURE GAUGES:

- A. Thermometers
 - 1. Industrial Glass Thermometer: Adjustable angle, scale to be 9" long with white aluminum back and black graduation, aluminum or polyester casing, red appearing liquid tube, glass window. Stem for air duct shall be 12" long with protective aluminum slotted bulb guard and mounting flange.
 - 2. Stem for piping shall be 3-1/2" long aluminum, brass or stainless steel stem to match specified thermometer well. Adjust stem length for insulation extension.
 - 3. Range and accuracy: (+/-) 1 scale div. Except where otherwise noted, select range for maximum precision for system served:

Service	Range (deg.F)
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| Domestic Hot Water | 30-180 |

4. These devices shall be installed through a reduced Tee - 6" x ¾" and with a male sweat to FPT fitting (copper or bronze) Pulled tee-'s are not acceptable.
5. Manufacturers: Ashcroft, H. O. Trerice, Marsh, Weksler.

B. Thermometer Wells:

1. Stainless steel, with neck extension for insulated piping, with cap and chain fastened to well. ¾"NPT, 2 1/2" insertion length, and 3 1/2" extension length.

C. Pressure Gauges

1. Provide all pressure gauges with 4 ½" clear glass window, cast aluminum, stainless steel or polypropylene case, black on white face, stainless steel wetted parts, brass 1/2" MPT socket, 1% full scale accuracy complying with ASME/ANSI B40-1 Grade 1A. Provide coil siphon (pigtail) configuration installed on steam pipes.
2. Gauge pressure range shall be twice normal operating pressure.
3. Manufacture: Ashcroft, Trerice

2.10 INSULATION

A. General:

1. Domestic hot water piping including butterfly valves conveying fluids at temperatures above 110F (Hot Service).
NOTE: VALVES TO BE INSULATED AFTER SUCCESSFUL HYDROTEST.
2. All insulation materials shall be asbestos free.
3. Flame spread classification (ASTM E84, NFPA 255): No greater than value listed.
4. Smoke density classification (ASTM E84, NFPA 255): No greater than value listed.

B. Piping Insulation Fiberglass

1. Fiberglass insulation with factory-applied vapor barrier jacket with self-sealing laps. ASTM C547 Class 1 insulation. Vapor barrier jacket: laminated white Kraft paper, aluminum foil, glass fiber reinforcement.
2. Approved Manufacturers: Johns-Manville, Knauf, Owens/Corning.
3. Required thickness: Fiberglass Piping Insulation Thickness Table

Piping Fluid	System	Temp Range (°F)	Nominal Pipe Size (inches)			
			<1.0"	1.0"	1.5"-4.0"	6" 8" & above
Domestic Hot Water		Any	1.5	1.5	2.0	2.0

C. Aluminum Jacketing

1. Jacketing shall be 0.016-inch thick stucco embossed aluminum complete with integrally bonded polycraft moisture barrier held in place with aluminum screws; elbow covers to be prefabricated.

2. Fasten jacketing with aluminum screws at a minimum 6-inch spacing. .
 3. Acceptable manufacturers:
 - a. Childers; Ell-Jacs; or Approved equal
 4. Joint sealant shall be aluminum pigmented butyl polymer.
 5. Acceptable products are as follows:
 - a. Foster Div., Amchem Product Inc., "Elastolar Sealant, Aluminum 95-44", Childers "Chil-Joint CP-70" or Approved equal
- D. Piping Insulation Specialties
1. Expansion Joints Insulation: Expansion joints shall be insulated with prefabricated insulation blankets, installed in a manner to allow for the repacking of the joints without removing blanket. Hold blankets in place with permanently attached Velcro fasteners.
 2. Removable Insulation Jackets: Where indicated on drawings, provide removable insulation jackets with ceramic impregnated fiberglass or Aerogel High Temperature insulation, flexible fabric jacket and velcro fasteners.
 3. Manufacturer: ESI - Q Master; Insulation Technologies Inc.

PART 3 - EXECUTION

3.1 GENERAL PIPING INSTALLATION REQUIREMENTS:

- A. Work shall be done in accordance with applicable ordinances and codes. Arrange for inspections.
- B. Install pipe components and joining systems in accordance with the manufacturer's installation instructions.
- C. Provide capped hose end ball type drain valves at all low and high points to allow proper draining and venting of the system during future maintenance operations.
- D. All branch connections shall have a three valve configuration to allow flexibility in directing flow in the future.
- E. Provide fittings and specialties necessary to properly interconnect all items, whether or not shown in detail.
- F. Piping shall remain protected and capped until just prior to connection. Immediately after assembly, restore all protection and cap unprotected ends to prevent odors, dust, moisture, and other debris from entering the piping system.
- G. Locate groups of pipe parallel to each other, spaced to permit applying insulation and servicing of valves.
- H. Install piping at least 3 inches clear of electrical conduit. Do not install pipe within the National Electrical Code (NEC) working space zone of electrical equipment/panels.

3.2 FLUSHING AND CLEANING OF PIPING:

- A. Flush the following piping systems:
- B. Domestic Hot Water(flush only)

- C. Develop plan for flushing and cleaning piping. Submit plan for approval prior to completion of piping. Provide all temporary and permanent piping, equipment, materials necessary to complete flushing and cleaning.
- D. Flushing for new piping: Flush all piping with cold water (or fire protection system where approved by owner) for a minimum of one hour, until water runs clear. Water supply shall be equivalent to piping to be flushed. Use (2) 2-1/2" fire hose connections for piping 3" and larger. Drain all low points.

3.3 PIPING SYSTEMS PRESSURE TESTING

A. General

- 1. Test new systems only, from point of connection to the existing systems. Perform initial tests and correct deficiencies prior to requesting acceptance test.
- 2. Perform acceptance pressure tests in the presence of the owner representative.

B. Acceptance Pressure Testing:

- 1. Perform acceptance pressure testing
- 2. In accordance with the following table:

Piping System	Hydro Test Pressure
Domestic Hot Water	125 psig
- 3. Remake leaking gasket joints with new flange bolting. Where welded joints fail, submit proposed method of repair for approval by the Owner's representative and authorities having jurisdiction.
- 4. For each system tested, provide a certificate testifying that the system was satisfactorily tested and passed, using owner furnished forms.

3.4 INSTALLATION OF PIPE HANGERS AND SUPPORTS:

- A. Arrange pipe hangers and supports to permit proper pitch of piping, free to move with pipe expansion, installed at proper intervals. Hangers shall be located near or at changes in piping direction and concentrated loads. Valves, strainers, in line pumps and other heavy equipment shall be supported independent of the pipes. After systems have been installed and filled adjust hangers and supports to evenly distribute weight, and maintain proper pitch. Refer to drawings for pipe hanger and support details.
- B. Horizontal Piping Hanger Spacing: Space hangers in compliance with schedule on drawings and applicable codes, or per MSS SP-89, which ever results in shortest spacing.

3.5 THERMOMETERS AND PRESSURE GAUGES:

- A. Thermometers and pressure gauges shall be installed through a reduced Tee - 6" x 3/4" and with a male sweat to FPT fitting (copper or bronze) Pulled tee-'s are not acceptable.

3.6 INSULATION INSTALLATION

- A. All systems shall be tested and approved before being insulated.
- B. The insulation shall be applied over clean, dry surface.
- C. Insulate all valves, expansion joints, flanges, couplings and fittings. Valve, expansion joint, and flange insulation shall be provided with removable and re-installable jackets, regardless if missing on drawings. Removable insulation jackets shall overlap adjacent pipe insulation, a minimum of 4", on both sides. Removable blankets are required, even if not detailed in construction drawings.
- D. Insulation jackets to maintain outer temperature at or below 120 Degrees F.
- E. Full lengths of insulation shall be used except at end of straight sections and as required to accommodate fittings. Insulation shall be applied with the joints tightly fitted together. Cracks or voids shall be filled with insulation. Manufacturer's recommended installation procedures shall be strictly adhered to.
- F. The edges and seams at all visible locations shall be finished in a neat and workmanlike manner.

3.7 SLIDES, GUIDES, AND ROLLERS

- A. All piping systems designed to accommodate thermal expansion movement shall be mounted on rollers or slides.
- B. Provide at all expansion loops and joints:
- C. As indicated on the Drawings.
- D. As required to maintain alignment.
- E. In accordance with Expansion Joint Manufacturer's Association recommendations

3.8 PIPE RESTRAINTS

- A. Provide adequate pipe restraints for all expansion or contraction of piping due to temperature change:
- B. Including, but not limited to, that indicated on the Drawings.
- C. As instructed by Engineer.
- D. At locations to prevent stresses from exceeding those permitted by ANSI B31 and to prevent transfer of loading and stresses to connected equipment.

3.9 VALVE INSTALLATION

- A. General: Install valves such that operator is completely operable, and the valve position indicator is discernible from the floor.
- B. Domestic hot water flanged valves shall be installed with Garlock Blue-Gard Style 3000 ring type gaskets or comparable. Full face gaskets allowed only when BOTH flanges are full face."

3.10 INSTALLATION OF EXPANSION JOINTS

- A. The installations shall be in strict accordance with manufacturer's instructions.
- B. For each expansion joint, record the initial position, final position and actual movement of the joint and include in Turnover Documents.
- C. Expansion joint will be shipped at a preset ambient temperature. If the ambient temperature at the time of installation is colder or hotter, then adjust the travel of the expansion joint as required.

3.11 INSULATION PROTECTION

- A. Provide Protection Saddle:
- B. Equal to insulation thickness.
- C. At each hanger.
- D. For all insulated piping systems where longitudinal expansion exceeds 1-inch per 100 feet.

3.12 PAINTING

- A. Touchup: Cleaning and touchup of painting of field welds, bolted connections and abraded areas of shop paint on miscellaneous metal are specified in Division 09 - Finishes.
- B. Galvanized Surfaces: Clean welds, bolted connections and abraded areas. Apply galvanizing repair paint to comply with ASTM A780.

3.13 CONSTRUCTION WASTE

- A. Construction Waste Management: Refer to Division 01 requirements applicable to all trades.

END OF SECTION 336330