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Non-Q Specification Cover Sheet

Complete only applicable items.

(1.) QA: N/A

Page: 1 Of: 18

2. TITLE
PLUMBING PIPING

3. DOCUMENT IDENTIFIER (Including Revision No.)
BABBA0000-01717-6300-15410 REV 01

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01

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00 01-04-94	17	Issue for Construction.
01 04-26-96	18	Reformat in accordance with NAP-MG-014. Revised Contractor to read Constructor throughout. Removed TBV-123 from QA Classification in accordance with FCR 94/371, but changed QA Classification to N/A per NLP-3-18, REV 4. Subparagraph 1.01C.8: Delete "With reference to Specification Section 15330" in accordance with FCR 95/058, and added "to the interior plumbing/sprinkler contractor interface shown on the drawing." Article 1.02: Delete Section 15330 Wet Pipe Sprinkler Systems and revise sequential lettering of paragraphs G through K. Incorporated FCR 95/058 with modifications (Section 15335 was not added). Subparagraph 1.03A.7: Added ANSI B16.24 to References in accordance with FCR 95/153. Paragraph 1.03D: Added Reference 1.03D1 and 1.03D4 and re-numbered accordingly. Paragraph 1.03I: Added MSS SP-104-90, Wrought Copper LW Solder Joint Pressure Fittings in accordance with FCR 95/070. Article 1.03: Added "J. National Fire Protection Association (NFPA): NFPA 13-94 - Standard for Installation of Sprinkler Systems NFPA 24-92 - Standard for the Installation of Private Fire Service Mains and Their Appurtenances" in accordance with FCR 95/058 with modifications.

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2.TITLE
PLUMBING PIPING

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4. Rev No./ (Date)	5. Description of Revision
01 04-26-96	Article 1.04: Revised Paragraph B, (removed TBV-046) with incorporation of FCR 95/058 with modifications per NLP-3-18, REV 4. Revised Subparagraph C.1 & C.2 (removed requirement for dimensional inspection). Subparagraph 2.02B.1: Revised in accordance with FCR 95/101. Subparagraph 2.02C.1: Revised in accordance with FCR 95/101. Subparagraph 2.03B.1: Revised in accordance with FCR 95/101. Paragraph 2.07B: Revised in accordance with FCR 95/101. Subparagraph 2.08D.2 Revised Class rating to 125. Article 2.09: Added in accordance with FCR 95/058. Paragraph 3.01A: Revise in accordance with FCR 95/058. Article 3.02: Replaced complete Article in accordance with FCR 95/153 with modifications, to clarify preparation of piping systems. Subparagraph 3.04B.3: Revise in accordance with FCR 95/058 Subparagraph 3.04C.4: Added Operational Testing. Subparagraph 3.04D.7: Revised "REECo" to read "Bechtel." Revised submittal and notification requirements.

SECTION 15410

PLUMBING PIPING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. The work under this Specification Section includes furnishing all materials, tools, equipment, and labor to install Plumbing Piping as specified herein and indicated on the Drawings.

B. This Specification Section applies to interior plumbing systems extending to 5 feet beyond the building exterior wall.

C. This work includes:

1. Domestic water piping
2. Sanitary waste and vent piping
3. Compressed air piping (non oil-free)
4. Condensate drains
5. Valves for domestic water and compressed air service
6. Compressed air specialties
7. Cleaning, testing, and sterilizing of plumbing piping systems
8. The installation of fire protection piping buried within 5 feet of the building to the interior plumbing/sprinkler contractor interface as shown on the drawings.

1.02 RELATED SECTIONS

A. Division 1 General Requirements

B. Section 02225 Water Use for Construction and Operations

C. Section 15140 Supports and Anchors

D. Section 15190 Mechanical Identification

E. Section 15260 Piping Insulation

F. Section 15310 Fire Protection Piping

G. Section 15430 Plumbing Specialties

H. Section 15440 Plumbing Fixtures

I. Section 15450 Plumbing Equipment

J. Section 15771 Air Source Heat Pumps

K. Section 15781 Packaged Air Conditioning Units

1.03 REFERENCES

A. American National Standards Institute (ANSI):

1. ANSI B1.1-89 Unified Inch Screw Threads (UN and UNR Thread Form)
2. ANSI B1.20.1-83 Pipe Threads, General Purpose (Inch)
3. ANSI B16.1-89 Cast Iron Pipe Flanges and Flanged Fittings
4. ANSI B16.3-92 Malleable Iron Threaded Fittings
5. ANSI B16.12-91 Cast Iron Threaded Drainage Fittings
6. ANSI B16.18-84 Cast Copper Alloy Solder Joint Pressure Fittings
7. ANSI B16.24 Cast Copper Alloy Pipe Flanges, Class 150, 300, 400, 600, 900, 1500, and 2500, and Flanged Fittings, Class 150 and 300
8. ANSI B16.34-88 Valves-Flanged, Threaded, and Welding End
9. ANSI B31.1-92 Power Piping
10. ANSI B40.1-91 Gauges - Pressure Indicating Dial Type - Elastic Element

B. American Society for Testing and Materials (ASTM):

1. ASTM A53B-90 Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless
2. ASTM A74-92 Standard Specification for Cast Iron Soil Pipe and Fittings
3. ASTM A126-84 Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings

4. ASTM A307A-92 — Standard Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength
5. ASTM B32-92 — Standard Specification for Solder Metal
6. ASTM B88-92 — Standard Specification for Seamless Copper Water Tube
7. ASTM C564-88 — Standard Specifications for Rubber Gaskets for Cast Iron Soil Pipe and Fittings
8. ASTM D1785-86 — Standard for Schedule 40 PVC Pipe
9. ASTM D2466-78 — Standard for Schedule 40 PVC Pipe Fittings
10. ASTM D2564-84 — Standard for PVC Solvent Cement
11. ASTM F656-80 — Standard for PVC Primers

C. American Society of Mechanical Engineers (ASME):

1. ASME SEC VIIID1-92 — BPVC Section VIII Rules of Construction of Pressure Vessels
2. ASME SEC IX-92 — BPVC Section IX Qualification Standard for Welding and Brazing Procedures, Welders, Brazers, and Welding and Brazing Operators

D. American Water Works Association (AWWA):

1. AWWA C104-90 — Cement-Mortar Lining for Ductile-Iron Pipe and Fittings for Water
2. AWWA C110-87 — Ductile-Iron and Gray-Iron Fittings, 3 in. through 48 in., for Water and Other Liquids
3. AWWA C111-90 — Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings
4. AWWA C150-81 — Thickness Design of Ductile-Iron Pipe
5. AWWA C151-86 — Ductile-Iron Pipe, Centrifugally Cast in Metal Molds or Sand-Lined Molds, for Water or Other Liquids
6. AWWA C651-86 — Disinfecting Water Mains

E. American Welding Society Inc. (AWS):

1. AWS A5.8-92 — Specifications for Filler Metals for Brazing and Braze Welding

2. AWS — Brazing Handbook 1991, Fourth Edition

F. Cast Iron Soil Pipe Institute (CISPI):

1. CISP 301-90 — Standard Specification for Hubless Cast Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste, and Vent Piping Applications

2. CISP 310-90 — Specification for Coupling for Use in Connection with Hubless Cast Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste, and Vent Pipe Applications

G. Federal Specifications (FS)

1. FSWW-T-696-E-89 — Traps, Steam and Air

2. FSWW-U-531F-84 — Union, Pipe, Steel or Malleable Iron: Threaded Connection, 150 Class lb, 250 lb and 300 lb WSP

H. International Association of Plumbing and Mechanical Officials (IAPMO):

UPC-91 — Uniform Plumbing Code

I. Manufacturer's Standardization Society of the Valves and Fittings Industry Inc. (MSS):

MSS SP 104-90 — Wrought Copper LW Solder Joint Pressure Fittings

MSS SP 80-87 — Bronze Gate, Globe, Angle and Check Valves

J. National Fire Protection Association (NFPA):

NFPA 13-94 — Standard for the Installation of Sprinkler Systems

NFPA 24-95 — Standard for the Installation of Private Fire Service Mains and Their Appurtenances

1.04 QUALITY ASSURANCE

A. Quality Assurance (QA) shall be conducted in accordance with Specification Section 01400.

B. No QA controls apply to the materials and activities covered by this Specification Section, except those QA controls required by the related Specification Section either listed in Paragraph 1.02 or specifically referenced in the body of this Specification Section.

C. Acceptance of Product

1. Receipt Verification: Visual inspection of the Plumbing Piping components. (WITNESS POINT)

2. Field Verification: Visual inspection of the installed Plumbing Piping components. (WITNESS POINT)

1.05 DELIVERY, STORAGE, AND HANDLING

Shall comply with Specification Section 01600.

PART 2 PRODUCTS

2.01 MATERIALS

General: Piping materials and fittings shall be new, unless otherwise noted on the Drawings.

2.02 DOMESTIC WATER PIPING - ABOVE GRADE

A. Pipe

1. 3 inch nominal and smaller: Type L seamless copper water tube conforming to ASTM B88.

2. 4 inch to 6 inch: Schedule 40 galvanized steel conforming to ASTM A53.

B. Fittings

1. 3 inch nominal and smaller: Wrought-copper solder joint conforming to MSS SP 104.

2. 4 inch and larger: Class 150 galvanized malleable iron screwed conforming to ANSI B16.3.

C. Unions

1. 3 inch nominal and smaller: Wrought-copper solder joint conforming to MSS SP 104. Flanges may be used on 2 ½ inch and 3 inch pipe sizes.

2. 4 inch and 6 inch: Use flanges.

D. Flanges

1. Class 125, galvanized cast iron threaded, flat-faced conforming to ANSI B16.1.

2. Gaskets: Gaskets shall be full face, 1/8 inch thick, made of styrene-butadiene (SBR) or neoprene rubber meeting the requirements of AWWA C111.

3. Bolting: Carbon steel bolts shall have square heads or heavy hex heads and heavy hex nuts conforming to ASTM A307 Grade B. Threads shall be the Coarse Thread Series as specified in ANSI B1.1, Class 2A for bolts and Class 2B for nuts.

E. Joining Materials

1. Threaded and screwed: Teflon-filled thread sealing and lubricating compound or Teflon tape.

2. Solder alloy:

a. Soldered joints shall be made with noncorrosive paste flux and lead free solder conforming to ASTM B32.

b. Cored solder shall not be permitted.

2.03 DOMESTIC WATER PIPING - BURIED WITHIN 5 FEET OF BUILDING

A. Pipe

1. 3 inch and smaller: Type K seamless copper water tube conforming to ASTM B88.

2. 4 inch to 12 inch: Cement lined ductile iron, 150 pounds per square inch (psi) working pressure, elastomeric compression-type joint, conforming to AWWA C151.

B. Fittings

1. 3 inch and smaller: Wrought-copper solder joint conforming to MSS SP 104.

2. 4 inch to 12 inch: Cement lined ductile iron, mechanical joint, 350 psi, conforming to AWWA C110.

C. Joining Materials

1. All copper pipe joints underground shall be brazed per AWS BRM.

2. Brazing alloys, flux, and filler material shall be per AWS A5.8.

2.04 SANITARY WASTE AND VENT PIPING - ABOVE GRADE

A. Piping

1. 1-1/4 inch: Schedule 40 galvanized butt-weld or continuous welded steel conforming to ASTM A53.

2. 1-1/2 inch and larger: Service cast iron, hubless conforming to CISPI 301.

B. Fittings

1. 1-1/4 inch: Cast iron, black screwed drainage fittings conforming to ASTM A126 and ANSI B16.12.

2. 1-1/2 inch and larger: Service weight cast iron, hubless fittings conforming to CISPI 301.

C. Hubless cast-iron pipe joints: Stainless-steel corrugated shield and clamp assembly over one-piece neoprene sealing sleeve conforming to CISPI 310.

2.05 SANITARY WASTE AND VENT PIPING - BURIED WITHIN 5 FEET OF BUILDING

A. Piping (all sizes): Service cast iron, coated hub and spigot soil pipe conforming to ASTM A74.

B. Fittings (all sizes): Service cast iron, coated, hub and spigot soil fittings (use standard radius bends) conforming to ASTM A74.

C. Cast-iron pipe elastomeric joints: Positive double-seal elastomeric compression-type joints conforming to ASTM C564.

2.06 COMPRESSED AIR PIPING (NON OIL-FREE)

A. Pipe (all sizes): Schedule 40 PVC conforming to ASTM D1785.

B. Fittings (all sizes): Schedule 40 PVC conforming to ASTM D2466.

C. Joining Materials: Solvent cement and primer conforming to ASTM D2564 and ASTM F656.

2.07 CONDENSATE DRAINS

A. Pipe: Type M copper water tubing conforming to ASTM B88.

B. Fittings: Wrought copper solder joint conforming to MSS SP 104.

C. Solder Alloy: Soldered joints shall be made with a noncorrosive paste flux and lead free solder conforming to ASTM B32.

2.08 VALVES

A. Gate Valves - Domestic Water

1. 2 inch and smaller: Class 125, bronze body, integral seat solid wedge, nonrising stem screwed bonnet, soldered ends conforming to ANSI B16.18 or threaded ends conforming to ANSI B1.20.1.

2. 2-1/2 inch and larger: Class 125, cast iron body; renewable bronze seats, outside screw and yoke (OS&Y), bolted bonnet, flanged ends conforming to ANSI B16.1.

B. Globe Valves - Domestic Water

1. 2 inch and smaller: Class 125, bronze body, renewable brass compensation disc, rising stem, inside screw, union bonnet, soldered ends conforming to ANSI B16.18 or threaded ends conforming to ANSI B1.20.1.

2. 2 ½ inch and larger: Class 125, C.I. body, renewable bronze seat, bronze cone-type disc, rising stem, OS&Y bolted bonnet, flanged ends conforming to ANSI B16.1.

C. Check Valves - Domestic Water

1. 2 inch and smaller: Class 125, bronze body, integral seat, screwed cap, soldered ends conforming to ANSI B16.18 or threaded ends conforming to ANSI B1.20.1.

2. 2 ½ inch and larger: Class 125, C.I. body, renewable brass seat, brass-faced disc, bolted cap, flanged ends conforming to ANSI B16.1.

D. Ball Valves

1. 2 inch and smaller: Class 125, bronze body, full port ball, handle operated, Teflon seats, threaded ends conforming to ANSI B1.20.1.

2. 2 ½ inch and larger: Class 125, cast steel body, chrome plated full port ball, Teflon seat, handle operated, flanged ends conforming to ANSI B16.1.

E. Butterfly valves: ASTM A126 Class B, cast iron body, ductile iron nylon coated or bronze disc, resilient replaceable seat, wafer or lug design, lever handle.

2.09 FIRE PROTECTION PIPING - BURIED WITHIN 5 FEET OF BUILDING

A. Piping: Ductile iron pipe (DIP) shall conform to AWWA C151, thickness Class 50, as identified in AWWA C150. All DIP shall be cement-mortar lined in accordance with AWWA C104.

B. Fittings: DIP fittings shall conform to the requirements of AWWA C110 and shall be cement-mortar lined in accordance with AWWA C104.

PART 3 EXECUTION

3.01 GENERAL

A. All work shall be installed in accordance with ANSI B31.1, NFPA 13 and 24, and UPC, as applicable, for compressed air, fire protection, and plumbing piping.

B. The general arrangement of the piping shall be as indicated on the Drawings.

1. Departures due to actual field conditions or other causes shall be approved in writing by the Architect/Engineer (A/E) prior to the alteration being performed.

2. The Constructor shall carefully examine the Drawings and shall be responsible for the proper installation of materials and equipment.

3. The Constructor shall make all connections to equipment having pipe connections and which are herein specified or shown on the Drawings. See Specification Sections 15430, 15440, and 15450 for Plumbing Specialties, Plumbing Fixtures, and Plumbing Equipment respectively.

4. Piping provided for future connections to equipment shall be terminated with removable plugs, blind flanges, or caps.

3.02 PREPARATION

A. GENERAL

1. Piping, fittings, valves and other appurtenances described in this Specification Section shall be clean: free from scale, dirt, oil, grease, tar, or other foreign matter before installation. The Constructor must take appropriate reasonable measures to ensure that residual contaminants will not clog downstream filters, strainers, sprinklers, pneumatic equipment, damage valve seats, affect system performance testing, or otherwise damage downstream appurtenances.

2. The Constructor shall prepare piping, fittings, valves, and other appurtenances described in this Specification Section per appropriate installation Standards, Codes, and Manufacturers recommendations.

B. DOMESTIC WATER AND CONDENSATE DRAIN PIPING (copper tubing):

1. Prepare copper plumbing tube, pipe, and fittings as required by the UPC.

2. Measure tube to seat in soldered or brazed joints. Allowable clearance is zero (fully seated).

3. Cut tube square to run and without deformation as determined by un-augmented visual inspection.

4. Ream tubing to full I.D. of tube as determined by un-augmented visual inspection.

5. Remove oxides by light abrading of both tubing and fitting. Do not contaminate abraded areas with foreign materials.

6. Apply a light film of flux to both the tube and fitting. Flux must be clean and free of foreign material.

C. SANITARY WASTE AND VENT PIPING - BELOW GRADE (DI and cast iron hub and spigot):

1. Ensure hub is clean as determined by un-augmented visual inspection.

2. Remove sharp edges and burrs from ends.

3. Fold and insert seal into hub. Seal lip top is to be level with pipe hub as determined by un-augmented visual inspection.

4. Ensure seal is clean as determined by un-augmented visual inspection.

5. Apply manufacturer's approved, uncontaminated, joint lubrication on seal to cover all seal rings 360 degrees.

D. SANITARY WASTE AND VENT PIPING - ABOVE GRADE (DI and cast iron no-hub):

1. Ensure sealing surfaces are clean as determined by un-augmented visual inspection.

2. Remove sharp edges and burrs from sealing surfaces.

E. COMPRESSED AIR PIPING (PVC - underground)

1. Prepare PVC pipe, and fittings as required by the UPC.

2. Ensure piping is clean as determined by un-augmented visual inspection.

3. Cut pipe square to run and without deformation as determined by un-augmented visual inspection.

4. Chamfer outside of pipe as determined by un-augmented visual inspection.

5. Ream tubing to full I.D. of tube as determined by un-augmented visual inspection.

6. Prime both piping and fittings prior to applying cement.

F. FIRE PROTECTION PIPING (DI with mechanical joints)

1. Ensure piping is clean as determined by un-augmented visual inspection.

2. Remove sharp edges and burrs from sealing surfaces.

3. Ensure mechanical seal is clean as determined by un-augmented visual inspection.

G. VALVES

Ensure valves are clean as determined by un-augmented visual inspection.

3.03 INSTALLATION

A. Pipe shall be cut and reamed accurately to measurements established at the site by the Constructor and shall be worked into place without springing or forcing. Allowance shall be made for expansion and contraction without stressing pipe, joints, or connected equipment.

1. Piping shall be run parallel with the lines of the building unless otherwise indicated on the Drawings.

2. A clearance of not less than one inch shall be kept between pipe (with insulation) and other work or the different piping services.

3. Branch connections and changes in pipe size shall be made with fittings.

B. Dielectric unions shall be provided wherever dissimilar metals are connected.

C. Screw joints shall be made with tapered threads. Joints shall be made tight with thread sealing and lubricating compound or Teflon tape applied to male threads only.

D. Tubing shall be accurately cut using the proper tools to ensure a square cut, and reamed to full diameter.

E. Provide access panels where valves and fittings are not exposed. Coordinate size and location of access doors with interior finish installer.

F. Slope water and compressed air piping provide drains at low points.

G. Establish invert elevations of buried piping to maintain 2 feet minimum cover and slope for drainage at 1/4 inch per foot minimum unless otherwise stated on the Drawings. Maintain gradients.

H. Install bell and spigot pipe with bell end upstream.

I. Install valves with stems upright or horizontal, not inverted.

J. Install unions and/or flanges downstream of valves and at equipment connections.

K. Where threaded valves are being used, install brass male threaded adapters on each side of valves in copper piped system. Sweat solder adapters to pipe.

L. Install gate or ball valves for shut-off and/or isolation of equipment, part of systems, or vertical risers.

M. Install globe or ball valves for throttling or manual flow control.

N. Provide spring-loaded check valves on discharge of pumps.

O. All valves shall be identified as to fluid and function per Specification Section 15190.

P. For pipe hangers, supports, and sleeve requirements, see Specification Section 15140.

3.04 FIELD QUALITY CONTROL

A. General

1. Testing of underground piping shall be accomplished before piping is covered.

2. All labor, materials, and equipment used for tests shall be provided by the Constructor.

3. All tests shall be made in the presence of the A/E.

B. Water System Testing (WITNESS POINT)

1. When the roughing in is completed and before the fixtures are set, the entire hot-and-cold water piping system shall be tested at a hydrostatic pressure of not less than 50 psig greater than the established working pressure, but not less than 100 psig, and proved tight at this pressure for not less than 15 minutes to permit inspection of all joints.

2. Where a portion of the water piping system is to be concealed before completion, this portion shall be tested separately as described for the entire system.

3. The underground fire protection piping shall be tested at 200 psig minimum in accordance with the testing requirements of NFPA 13 and 24.

4. All testing shall be completed before the installation of pipe insulation. Reference Specification Section 15260.

C. Drainage and Vent System Testing (WITNESS POINT)

1. Drainage and venting system piping shall be tested with water or air before the fixtures are installed.

2. Water test shall be applied to the drainage and venting system in its entirety or in sections.

a. If the entire system is tested, all openings in the pipes shall be tightly closed except for the highest opening, and the system shall be filled with water to the point of overflow.

b. If the system is tested in sections, each opening except the highest opening of the section under test shall be tightly plugged, and each section shall be filled with water and tested with at least a 10 foot head of water.

c. The water shall be kept in the system or in the section under test for at least 15 minutes before the inspection starts and for a one hour period thereafter.

d. The system shall be tight at all joints.

3. If tests are made with air, apply no less than 5 psi pressure with a force pump. Maintain at least 15 minutes without leakage. A mercury column gauge shall be used in making the air test.

4. Operational testing will be performed in accordance with water leakage provisions contained in Specification 01800.

D. Sterilization of Domestic Water Piping (WITNESS POINT)

1. The entire potable water system shall be disinfected with chlorine before acceptance for domestic operation in concentrations and durations matching AWWA C651 requirements.

2. Thoroughly flush lines before introduction of the chlorinating materials.

3. Sterilize the system with a solution containing not less than 6 ounces by weight of calcium hypochlorite (68 percent available chlorine) per 500 gallons of water.

4. Solution shall be introduced downstream of the building shut off valve.

5. Allow solution to remain in the system for 24 hours. A minimum residual of 5 ppm must be maintained. During this period, open and close valves and faucets several times.

6. After sterilization, flush the system with clean water until the chlorine content is not greater than 2 parts per million.

7. Bechtel/Nevada Occupational Medicine/Environmental Health shall perform the residual chlorine as well as a bacteriological test for "0" total coliform before system acceptance.

E. Compressed Air System Testing (WITNESS POINT)

1. General Requirements, Testing: Perform testing after cleaning. Constructor shall provide everything required for tests. Tests shall be subject to the approval of Construction Manager. Calibrate the test pressure gauges with a dead weight tester within 15 days before use, and certify by initial and date on a sticker applied to dial face. Pressurize each piping system individually and check to ensure that there are no cross connections between different systems prior to hydrostatic and operational tests.

2. Hydrostatic and Leak Tightness Tests

   a. Preliminary Preparation: Remove or isolate from the system the compressor, air dryer, filters, instruments, and equipment which would be damaged by water during hydrostatic tests, and reinstall after successful completion of tests.

   b. Performance of Hydrostatic Tests: Hydrostatically test piping systems in accordance with ANSI B31.1. Vent or flush air from the piping system. Pressurize systems for 10 minutes with water at 1-1/2 times design working pressure, then reduce to design working pressure and check for leaks and weeps.

   c. Compressed Air Leak Test: After satisfactory completion of hydrostatic pressure test, blow systems dry with clean, compressed air and test with clean, dry air at design working pressure. Brush joints with soapy water solution to check for leaks. Install a calibrated test pressure gage in piping system to observe any loss in pressure. Maintain required test pressure for a sufficient length of time to enable an inspection of joints and connections.

3. Operational Tests: Test equipment as in service to determine compliance with contract requirements and warranty. During the tests, test equipment under every condition of operation. Test safety controls to demonstrate performance of their required function. Completely test system for compliance with specifications.

PART 4 SUBMITTALS AND NOTIFICATION

4.01 SUBMITTALS

A. Submittals shall be in accordance with the attached Submittal and Notification Requirements sheet and Specification Section 01300.

B. Manufacturer's data shall indicate overall dimensions, weights, metal gauges, materials, construction details, pressure ratings, certifications, and all other information necessary for the evaluation of the following materials and/or equipment:

1. Pipe

2. Fittings and unions

3. Flanges
4. Gate valves
5. Globe valves
6. Check valves
7. Ball valves
8. Butterfly valves
9. Pressure regulators
10. Pressure reducing valves
11. Safety valves
12. Pressure gauges
13. Quick disconnect couplings
14. Single cartridge type filters
15. Strainers
16. Traps
17. Lubricants
18. Flexible connects
19. Dielectric unions

C. Field Test

1. Cleaning
2. Testing

D. Sterilization

4.02 NOTIFICATION

Should any change in this Specification Section be required to comply with these requirements, the Constructor shall notify the A/E in writing for review.

SUBMITTAL AND NOTIFICATION REQUIREMENTS

ONLY APPLICABLE ITEMS ARE TO BE COMPLETED

SECTION NO. 15410

TITLE: Plumbing Piping

Requirements	Paragraph	STATUS						TIMING										NOTIFICATION			
		INFORMATION	REVIEW	CERTIFICATION	RECORD			PRIOR TO TESTING	DAYS AFTER AWARD	PRIOR TO FABRICATION	PRIOR TO SHIPMENT	WITH SHIPMENT	PRIOR TO INSTALLATION	DAILY REPORT	AS DIRECTED	PRIOR TO FINAL ACCEPTANCE			WITNESS (DAYS)	HOLD (DAYS)	TIMING (DAYS)	
Receipt Verification	1.04C.1		X										X						3			
Field Verification	1.04C.2		X													X			3			
Field Test	3.04B,C,E		X													X			3			
Field Test Sterilization	3.04D															X			3			
Mfr's Data	4.01B		X						X												30	
Field Test	4.01C				X											X					14	
Sterilization	4.01D			X												X						

COMMENTS:

END OF SPECIFICATION SECTION