SECTION 232113 - HVAC PIPING

PART 1-GENERAL

1.1 SECTION INCLUDES

A. HVAC piping.

1.2 SUBMITTALS

A. Submit shop drawings and product data per applicable Division I Specification.

B. Shop drawings shall include product data noting materials, sizes, and dimensions.

1.3 QUALITY ASSURANCE

A. Follow manufacturers requirements for installation.

B. Welding procedures per ANSI/ASME Section 9, AWS D10.9 and D1.1 and the National Certified Pipe Welding Bureau.

C. Brazing procedures per ANSI B31.5 and the ASME Boiler and Pressure Vessel Code SFA-5.8, Section II.

D. Soldering procedures per ANSI B16.18.

E. Comply with ANSI B31 pressure code for pressure piping.

1.4 WARRANTY

A. Contractor shall warranty entire systems and equipment for a period of one (1) year.

PART 2-PRODUCTS

2.1 HVAC PIPING

A. Heating, Chilled, Supply and Return Piping.

1. Black steel piping

a. Piping shall be standard weight black steel for 2-1/2 inch and smaller per ASTM A53 or A120. Fittings shall be class 125 cast iron threaded per ANSI B16.4.

b. Piping shall be standard weight black steel for 3 inch and larger per ASTM A53 or A120. Fittings shall be butt welded.

2. Copper piping

a. Piping 2-1/2 inches and smaller shall be type L copper per ASTM B88. Fittings shall be wrought copper per ANSI B16.22.

3. IPS Grooved Piping System

a. Grooved mechanical pipe coupling, fittings, valves, and other grooved components may be used as an option to weld, threading, or flanged methods. All grooved components shall be of the one manufacturer and conform to local code approval and/or as listed by ANSI-B-31.1, B-31.3, B31.9, ASME, UL/ULC, FM, IAPMO or BOCA. Grooved end product manufacturer to be ISO-9001 certified. Grooved coupling shall meet the requirements of ASTM F-1476.

4. Copper press fitting may be used as an option per ASTM B16.18 or ASTM B16.22. O-rings shall be EPDM.

B. Air Conditioning Condensate and Auxiliary Drain Piping

1. Piping shall be Schedule 40 PVC with solvent joints per ASTM D2665, D2564, D2665.

2. In return air plenums and through fire walls, piping shall be type L copper per ASTM B88. Fittings shall be wrought copper per ANSI B16.22

PART 3-EXECUTION

3.1 INSTALLATION

A. Where more than one piping system material is specified, ensure system components are compatible and joined to ensure the integrity of the system is not jeopardized. Provide necessary joining fittings. Ensure flanges, union, and couplings for servicing are consistently provided.

B. Use unions, flanges, and couplings downstream of valves and at equipment or apparatus connections. Do not use direct welded or threaded connections to valves, equipment or other apparatus.

C. Provide pipe hangers and supports in accordance with Section 23 05 29 unless indicated otherwise.

D. Use ball or butterfly valves with memory stop for shut off and to isolate equipment, part of systems, or vertical risers.

E. Use ball or butterfly valves with memory stop for throttling, bypass, or manual flow control services.

F. Use spring loaded check valves on discharge of chilled water pumps.

G. Use butterfly valves in heating and chilled water systems for all piping 2- 1/2" and larger. Use ball valves in heating and chilled water systems for all piping 2" and under.

H. Use only butterfly valves in chilled water systems for throttling and isolation service.

I. Use lug end butterfly valves to isolate equipment.

J. Use 3/4 inch ball valves with hose end and cap for drains at main shut-off valves, low points of piping, bases of vertical risers, and at equipment.

K. Install in accordance with manufacturer's instructions.

L. Provide non-conducting dielectric connections wherever jointing dissimilar metals.

M. Route piping in orderly manner and maintain gradient.

N. Install piping to conserve building space and not interfere with use of space and other work.

O. Group piping whenever practical at common elevations.

P. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment.

Q. Provide clearance for installation of insulation and access to valves and fittings.

R. Provide 24"x 24" access doors where valves are not exposed and are installed where hardboard ceiling occurs.

S. Provide sleeves when penetrating footings, floors and walls. Seal pipe and sleeve penetrations to achieve fire resistance equivalent to fire separation required.

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

U. Do not attach pipe supports to underside of roof deck.

V. Metallic pipe or tubing exposed to corrosive action, such as soil conditions or moisture, shall be protected in an approved manner.

END OF SECTION 232113

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