

MEA No.: 181001

SECTION 15300 - COPPER – HVAC - PIPING & ACCESSORIES

1.1 GENERAL

- A. All applicable requirements of Section 15000 - HEATING, VENTILATING AND AIR CONDITIONING, GENERAL shall apply to this entire Section and shall have the same force and effect as if fully included herein.
- B. Unless otherwise specified herein, pipe and fittings shall conform to the requirements of ANSI Standard B31.1. Install piping to avoid interference with moving parts and to be clear of equipment that could cause damage or be damaged. Run piping straight and, where practicable and exposed, parallel or perpendicular to building lines. Run risers plumb and with minimum offsets. Run lines to slope as necessary to drain properly. Maintain indicated or required grades without sagging of lines. Open pipes shall be capped or plugged at the end of each workday to protect the pipe against the entrance of dirt, water or any extraneous material. Provide a drain at each low point in the water piping systems and a manual air vent at all high points.
- C. Do not run piping over electrical equipment.
- D. Install all devices in piping system required by the automatic temperature control system and the monitor and control system.
- E. Install sleeves for all pipes passing through walls and floors. Use size to permit passing of pipe and full thickness of insulation. Extend sleeves two-inches above finished floor. For sleeves through walls, use length same as wall thickness.
- F. Ream pipe after cutting. Remove obstructions that could interfere with normal intended flow.
- G. Install piping to prevent undue stresses due to expansion, contraction or imposed loads. Provide expansion loops and offsets as indicated or as necessary to prevent damage.
- H. Provide unions in each line immediately preceding the connection to each piece of equipment or material requiring maintenance such as coils, pumps, control valves and similar items.
- I. Reducing fittings shall be used in lieu of bushings.
- J. Valves installed in horizontal pipes shall have stems installed no lower than the center of the pipe.
- K. Provide dielectric unions between ferrous and non-ferrous piping to prevent galvanic corrosion on low temperature water. Dielectric unions shall meet requirements for tensile strength of pipe fittings and shall be suitable for temperatures and pressures encountered. The dielectric unions shall have metal connections on both ends of union. The ends shall be threaded, brazed or soldered to match adjacent piping. The metal parts of the union shall be separated so that the electrical current is below one percent of the galvanic current, which would exist with metal-to-metal contact.

1.2 SCOPE

- A. This Section of the Specifications covers the furnishing of all labor, materials, equipment and services necessary for and incidental to the installation of all piping and accessories.

1.3 PIPING SUPPORT

- A. Support piping with adjustable hangers or supports. Space hangers or supports, as necessary, to maintain slope and prevent sagging. Do not use perforated metal strap iron or band iron hangers. Offsets in hangers shall not be permitted. Threads shall be on ends only where hanger rods are installed exposed in finished areas.
- B. Support pipe risers at regular intervals to prevent undue stress and distortion. Provide riser clamps at floor penetrations.
- C. Use hangers or supports on insulated piping sized to permit insulation passing continuously through hanger. Support insulated piping outside of covering. Use 16 gauge galvanized sheet metal shields for protecting pipe covering. Shields shall be a minimum of six-inches long for pipe sizes up through 2-1/2-inches and nine-inches long for three-inch through six-inch pipe. Where roller supports or hangers are used pipe covering protection saddles shall be used in lieu of shields. Saddles and shields shall be standard catalogued products.
- D. Hang and support piping to prevent pipe load from bearing on equipment, flanges, connections and insulation.
- E. Hangers supporting copper pipe shall be copper plated steel.
- F. Pipe hangers shall be supported from the building structure with either "Parabolt" concrete anchors as manufactured by USM Corporation, Molly Fastener Division (or approved equal) or "C" clamps or beam clamps sized and placed to accommodate the loads imposed by the piping system. "C" clamps shall be used only to support pipes three-inches and smaller.
- G. Hangers, supports and appurtenances shall be as manufactured by F&S Central, Carpenter and Patterson, Grinnell or approved equal. The following, as manufactured by F&S Central are representative of the types and quality required. Pipe Rings - Fig. Nos. 4, 22 and 86; Clamps - Fig. Nos. 88, 91 and 92; Brackets - Fig Nos. 65, 800, 801, 805 and 850; Rods and Rod Attachments - Fig. Nos. 225, 226, 11, 33, 39 and 966; Saddles - Fig. Nos. 420, 421, 424 and 427.
- H. Hanger Spacing: The spacing of single hangers for straight runs of pipe shall not exceed spans listed in table. The spacing of multiple trapeze hangers shall not exceed ten feet. A hanger shall be placed within one foot of each horizontal elbow.
- I. Hanger Spacing Table

1. Size Pipe	Max. Span
<u>Inch</u>	<u>Feet</u>
1/2 to 1	5
1-1/2	9
2	10

1.4 REFRIGERANT PIPING

- A. Piping shall be seamless Type "ACR" copper ASTM B-280.
- B. Fittings shall be long radius wrought-copper or forged-brass sweat fittings designed for refrigerant use.
- C. Refrigerant line sizes between indoor and outdoor sections shall be sized in accordance with the manufacturer's recommendations for capacities required and pipe lengths to be installed.

1.5 CONDENSATE DRAIN

- A. Condensate drain piping and fittings shall be Schedule 40 PVC. Pipe shall be installed with a minimum slope of 1/8-inch per foot.

END OF SECTION 15300 - 1