

## **Design Standard**

### **Hangers and Supports HVAC and Piping and Equipment**

#### **Purpose:**

The heating, ventilating, and air-conditioning piping and equipment hangers are an essential element of the mechanical systems. This design standard has the purpose of creating a consistent application of heating, ventilating, and air-conditioning piping and equipment hanger requirements throughout the East Side Union High School District therefore achieving a standard for maintenance reliability, and quality throughout all renovation and new building projects.

#### **Design Standard:**

Design and specify work to include material and installation of supports, anchors and sleeves including: horizontal piping hangers and supports; vertical piping clamps; hanger rod attachments; building attachments; saddles and shields; miscellaneous metals, miscellaneous materials; roof equipment supports; anchors; equipment supports; wall and floor sleeves; and escutcheon plates for a complete and operable systems.

- Materials, design and manufacture of all supports, anchors and sleeves to comply with MSS SP-58, "Pipe Hangers and Supports - Materials, Design and Manufacture," latest edition.
- Select and apply pipe hangers and supports complying with MSS SP-69, "Pipe Hangers and Supports - Selection and Application," latest edition. Use only one type by one manufacturer for each piping service. Select size of hangers and supports to exactly fit pipe size for bare piping, and to exactly fit around piping insulation with saddle or shield for insulated piping. Provide copper-plated hangers and supports for un-insulated copper piping systems.
  - Pipe Hangers Size 2 Inches and Smaller: Adjustable swivel ring hanger, UL listed
  - Pipe Hangers Size 2-1/2 Inches and Larger: Adjustable clevis type, UL listed
- The use of pipe hooks, chains, plumbers tape, or perforated iron for pipe supports is not acceptable
- All piping shall be designed to maintain the required pitch and shall provide for proper expansion and contraction
- Vertical runs of pipe shall be supported with steel, UL listed riser clamps made specifically for pipe or for tubing
- Piping supports shall be designed to withstand seismic forces.
- Roof equipment supports: Coordinate the location and type of each roof equipment support with the roofing system supplier. Coordinate systems to maintain roof warranty.

- Compensate for slope in roof so top of support and roof mounted equipment is kept level
  - Construct curb to withstand seismic forces
- Roof Pipe Supports: Support piping on roof with polyethylene high-density U.V. resistant quick "pipe" block with foam pad. Recommended installation is for quick "pipe" blocks to be freestanding. Piping 3 inch and larger mounted on roller hangers. Wood block supports are not acceptable due to increased maintenance and low reliability.
- Escutcheon Plates: Design around horizontal and vertical piping at visible penetrations through walls, partitions, floors, or ceilings, including penetrations through closets, through below ceiling corridor walls, and through equipment room walls and floors.

### **Approved Manufacturers:**

- Pipe Hanger Supports
  - B-Line
  - Michigan
  - Superstrut
  - Unistrut
- Roof Equipment Supports
  - Pate ES
  - Custom Curb
  - Vibrex
  - Thycurb
- Roof Pipe Supports
  - Erico Pipe Piers
  - Nelson-Olsen Inc.

### **Substitutes Allowed:**

Yes, if performance and quality equivalency can be evidenced.

### **Associated Design Standards and Construction Specifications**

- Division 23 HVAC Design Standards
- 23 21 05 - Hydronic Piping Systems Design Standard

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