

## SECTION 220529

### SUPPORTS AND ANCHORS FOR PLUMBING SYSTEMS

#### PART 1 GENERAL

##### 1.1 SECTION INCLUDES

- A. Pipe and equipment hangers and supports.
- B. Equipment bases and supports.
- C. Sleeves and seals.
- D. Flashing and sealing equipment and pipe stacks.

##### 1.2 RELATED SECTIONS

- A. Division 03 - Cast-In-Place Concrete: Equipment bases.
- B. Division 07 - Firestopping: Joint seals for piping and duct penetration of fire rated assemblies.
- C. Division 07 - Caulking and Sealants.
- D. Division 09 - Painting.
- E. Section 22 07 00 - Piping Insulation.
- F. Section 22 11 16 - Plumbing Piping.

##### 1.3 REFERENCES

- A. ASME B31.9 - Building Services Piping.
- B. ASTM F708 - Design and Installation of Rigid Pipe Hangers.
- C. MSS SP58 - Pipe Hangers and Supports - Materials, Design, and Manufacturer.
- D. MSS SP69 - Pipe Hangers and Supports - Selection and Application.
- E. MSS SP89 - Pipe Hangers and Supports - Fabrication and Installation Practices.

##### 1.4 SUBMITTALS

- A. Submit under the provisions of Division 01.
- B. Shop Drawings: Indicate system layout with location and detail of trapeze hangers.
- C. Product Data: Provide manufacturers catalog data including load capacity.
- D. Design Data: Indicate load carrying capacity of trapeze, multiple pipe, and riser support hangers.
- E. Manufacturer's Installation Instructions: Indicate special procedures and assembly of components.

## 1.5 REGULATORY REQUIREMENTS

- A. Conform to the International Building Code for Support and Bracing of Plumbing Equipment and Piping. Provide engineering calculations as required to confirm conformance.

## PART 2 PRODUCTS

### 2.1 PIPE HANGERS AND SUPPORTS

- A. Manufacturers:
  - 1. I.T.T. Grinnel.
  - 2. Other acceptable manufacturers offering equivalent products.
    - a) Fee and Mason.
    - b) PHD.
    - c) Elcen.
- B. Plumbing Piping - DWV:
  - 1. Conform to ASME B31.9, ASTM F708, MSS SP58, MSS SP69 and MSS SP89.
  - 2. Hangers for Pipe Sizes up to 1-1/2 Inch: Carbon steel, adjustable swivel, split ring.
  - 3. Hangers for Pipe Sizes 2 Inches and Over: Carbon steel, adjustable, clevis.
  - 4. Multiple or Trapeze Hangers: Steel channels with welded spacers and hanger rods.
  - 5. Wall Support for Pipe Sizes to 3 Inches: Cast iron hook.
  - 6. Wall Support for Pipe Sizes 4 Inches and Over: Welded steel bracket and wrought steel clamp.
  - 7. Vertical Support: Steel riser clamp.
  - 8. Floor Support: Cast iron adjustable pipe saddle, lock nut, nipple, floor flange, and concrete pier or steel support.
  - 9. Copper Pipe Support: Carbon steel ring, adjustable, copper plated.
- C. Plumbing Piping - Water:
  - 1. Conform to ASME B31.9, ASTM F708, MSS SP58, MSS SP69 and MSS SP89.
  - 2. Hangers for Pipe Sizes up to 1-1/2 Inch: Carbon steel, adjustable swivel, split ring, copper plated or plastic coated.
  - 3. Hangers for Cold Pipe Sizes 2 Inches and Over: Carbon steel, adjustable, clevis.
  - 4. Hangers for Hot Pipe Sizes 2 to 4 Inches: Carbon steel, adjustable, clevis.
  - 5. Multiple or Trapeze Hangers: Steel channels with welded spacers and hanger rods.
  - 6. Wall Support for Pipe Sizes to 3 Inches: Cast iron hook.
  - 7. Wall Support for Pipe Sizes 4 Inches and Over: Welded steel bracket and wrought steel clamp.
  - 8. Vertical Support: Steel riser clamp, plastic coated.
  - 9. Floor Support for Cold Pipe: Cast iron adjustable pipe saddle, lock nut, nipple, floor flange, and concrete pier or steel support.
  - 10. Floor Support for Hot Pipe Sizes to 4 Inches: Cast iron adjustable pipe saddle, lock nut, nipple, floor flange, and concrete pier or steel support.
  - 11. Copper Pipe Support: Carbon steel ring, adjustable, copper plated.

### 2.2 ACCESSORIES

- A. Hanger Rods: Mild steel threaded both ends, threaded one end, or continuous threaded.

### 2.3 FLASHING

- A. Metal Flashing: 26-gage galvanized steel.
- B. Metal Counterflashing: 22-gage galvanized steel.

- C. Lead Flashing:
  - 1. Waterproofing: 5 lb/sq ft sheet lead.
  - 2. Soundproofing: 1 lb/sq ft sheet lead.
- D. Flexible Flashing: 45-mil-thick sheet compatible with roofing.
- E. Caps: Steel, 22-gage minimum; 16-gage at fire resistant elements.

## 2.4 SLEEVES

- A. Sleeves for Pipes Through Non-Fire Rated Floors: 18-gage galvanized steel.
- B. Sleeves for Pipes Through Non-Fire Rated Beams, Walls, Footings, and Potentially Wet Floors: Steel pipe or 18-gage galvanized steel.
- C. Sleeves for Pipes Through Fire Rated and Fire Resistive Floors and Walls, and Fireproofing: Prefabricated fire rated sleeves including seals, UL listed. Refer to Division 07.
- D. Stuffing or Firestopping Insulation: Glass fiber type, non-combustible; refer to Division 07.
- E. Sealant: Refer to Division 07.

## PART 3 EXECUTION

### 3.1 INSTALLATION

- A. Install in accordance with the manufacturer's instructions.

### 3.2 INSERTS

- A. Provide hooked rod to concrete reinforcement section for inserts carrying pipe over 4 inches.

### 3.3 PIPE HANGERS AND SUPPORTS

- A. Install hangers to provide minimum ½ inch space between finished covering and adjacent work.
- B. Place hangers within 12 inches of each horizontal elbow.
- C. Use hangers with 1-1/2 inch minimum vertical adjustment.
- D. Support horizontal cast iron pipe adjacent to each hub, with 5 feet maximum spacing between hangers.
- E. Where several pipes can be installed in parallel and at same elevation, provide multiple or trapeze hangers.
- F. Support riser piping independently of connected horizontal piping.
- G. Provide copper plated hangers and supports for copper piping.
- H. Design hangers for pipe movement without disengagement of supported pipe.
- I. Prime coat exposed steel hangers and supports. Refer to Division 09. Hangers and supports located in crawl spaces, pipe shafts, and suspended ceiling spaces are not considered exposed.

### 3.4 EQUIPMENT BASES AND SUPPORTS

- A. Provide housekeeping pads of concrete, minimum 4-inches-thick and extending 6 inches beyond supported equipment.
- B. Provide templates, anchor bolts, and accessories for mounting and anchoring equipment.
- C. Construct supports of steel members and Steel pipe and fittings. Brace and fasten with flanges bolted to structure.
- D. Provide rigid anchors for pipes after vibration isolation components are installed.

### 3.5 FLASHING

- A. Provide flexible flashing and metal counterflashing where piping and ductwork penetrate weather or waterproofed walls, floors, and roofs.
- B. Flash vent and soil pipes projecting 3 inches minimum above finished roof surface with lead worked one inch minimum into hub, 8 inches minimum clear on sides with 24 x 24 inches sheet size. For pipes through outside walls, turn flanges back into wall and caulk, metal counterflash, and seal.
- C. Flash floor drains in floors with topping over finished areas with lead, 10 inches clear on sides with minimum 36 x 36 inch sheet size. Fasten flashing to drain clamp device.
- D. Seal floor, shower and mop sink drains watertight to adjacent materials.
- E. Adjust storm collars tight to pipe with bolts; caulk around top edge. Use storm collars above roof jacks. Screw vertical flange section to face of curb.

### 3.6 SLEEVES

- A. Set sleeves in position in formwork. Provide reinforcing around sleeves.
- B. Size sleeves large enough to allow for movement due to expansion and contraction. Provide for continuous insulation wrapping.
- C. Extend sleeves through floors one inch above finished floor level. Caulk sleeves.
- D. Where piping penetrates floor, ceiling, or wall, close off space between pipe or duct and adjacent work with fire stopping insulation and caulk air tight. Provide close fitting metal collar or escutcheon covers at both sides of penetration.
- E. Install chrome plated steel escutcheons at finished surfaces.

END OF SECTION