

## SECTION 230529 - HANGERS AND SUPPORTS FOR HVAC PIPING AND EQUIPMENT

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes the following:
  - 1. Steel pipe hangers and supports.
  - 2. Trapeze pipe hangers.
  - 3. Metal framing systems.
  - 4. Fastener systems.
  - 5. Equipment supports.
- B. See Section "Metal Fabrications" for structural-steel shapes and plates for trapeze hangers for pipe and equipment supports.
- C. See Section "Water-Based Fire-Suppression Systems" for pipe hangers for fire-protection piping.
- D. See Section "Metal Ducts" for duct hangers and supports.

#### 1.3 DEFINITIONS

- A. Terminology: As defined in MSS SP-90, "Guidelines on Terminology for Pipe Hangers and Supports."

#### 1.4 PERFORMANCE REQUIREMENTS

- A. Design supports for multiple pipes capable of supporting combined weight of supported systems, system contents, and test water.
- B. Design equipment supports capable of supporting combined operating weight of supported equipment and connected systems and components.
- C. Retain a registered engineer to design seismic-restraint hangers and supports for piping and equipment and obtain approval from authorities having jurisdiction.

## 1.5 SUBMITTALS

### A. Product Data: For the following:

1. Steel pipe hangers and supports.
2. Powder-actuated fastener systems.
3. Shop Drawings: Signed and sealed by a qualified professional engineer showing seismic-restraint hangers and supports for piping and equipment

### B. Welding certificates.

## 1.6 QUALITY ASSURANCE

### A. Welding: Qualify procedures and personnel according to ASME Boiler and Pressure Vessel Code: Section IX.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

#### A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.

### 2.2 EQUIPMENT SUPPORTS

#### A. Description: Welded, shop- or field-fabricated equipment support made from structural-steel shapes.

### 2.3 MISCELLANEOUS MATERIALS

#### A. Structural Steel: ASTM A 36/A 36M, steel plates, shapes, and bars; black and galvanized.

#### B. Grout: ASTM C 1107, factory-mixed and -packaged, dry, hydraulic-cement, nonshrink and nonmetallic grout; suitable for interior and exterior applications.

1. Properties: Nonstaining, noncorrosive, and nongaseous.
2. Design Mix: 5000-psi (34.5-MPa), 28-day compressive strength.

## PART 3 - EXECUTION

### 3.1 HANGER AND SUPPORT APPLICATIONS

- A. Specific hanger and support requirements are specified in Sections specifying piping systems and equipment.

### 3.2 EQUIPMENT SUPPORTS

- A. Fabricate structural-steel stands to suspend equipment from structure overhead or to support equipment above floor.
- B. Grouting: Place grout under supports for equipment and make smooth bearing surface.
- C. Provide lateral bracing, to prevent swaying, for equipment supports.

### 3.3 METAL FABRICATIONS

- A. Field Welding: Comply with AWS D1.1 procedures for shielded metal arc welding, appearance and quality of welds, and methods used in correcting welding work, and with the following:
  - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
  - 2. Obtain fusion without undercut or overlap.
  - 3. Remove welding flux immediately.
  - 4. Finish welds at exposed connections so no roughness shows after finishing and contours of welded surfaces match adjacent contours.

### 3.4 ADJUSTING

- A. Hanger Adjustments: Adjust hangers to distribute loads equally on attachments and to achieve indicated slope of pipe.

### 3.5 PAINTING

- A. Touch Up: Clean field welds and abraded areas of shop paint. Paint exposed areas immediately after erecting hangers and supports. Use same materials as used for shop painting. Comply with SSPC-PA 1 requirements for touching up field-painted surfaces.
  - 1. Apply paint by brush or spray to provide minimum dry film thickness of 2.0 mils (0.05 mm).
- B. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A 780.

END OF SECTION 230529