

## SECTION 05500 - METAL FABRICATIONS

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section includes the following:
  - 1. Miscellaneous steel framing and supports.
  - 2. Miscellaneous steel trim.
  - 3. Metal cart bumper (installation only).

#### 1.2 QUALITY ASSURANCE

- A. Welding and equipment shall conform to American Welding Society's Code for Welding in Building Construction, latest edition (subject to state and local laws and ordinances).
- B. Fabricators and welders shall be licensed or certified in State in which project is located.
- C. Field Measurements: Take field measurements prior to preparation of shop drawings and fabrication.
- D. Shop Assembly: Preassemble items in shop to greatest extent possible to minimize field assembly.

### PART 2 - PRODUCTS

#### 2.1 METALS

- A. Metal Surfaces, General: Provide materials with smooth, flat surfaces without blemishes.
- B. Ferrous Metals:
  - 1. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.
  - 2. Steel Pipe: ASTM A 53, standard weight (Schedule 40), unless another weight is indicated or required by structural loads.
  - 3. Iron Castings: ASTM A 47, Grade 32510 (ASTM A 47M, Grade 22010) malleable iron or ASTM A 48, Class 30 (ASTM A 48M, Class 200) gray iron.
  - 4. Concrete Inserts: Threaded or wedge type; galvanized ferrous castings, either ASTM A 47 (ASTM A 47M) malleable iron or ASTM A 27/A 27M cast steel. Provide bolts, washers, and shims as needed, hot-dip galvanized per ASTM A 153/A 153M.

## 2.2 PAINT

- A. Shop Primer for Ferrous Metal: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with performance requirements in FS TT-P-664 and compatible with finish paint systems indicated.
  - 1. Products: Subject to compliance with requirements, provide one of the following:
    - a. Carboline Company; Carboline 621.
    - b. PPG Industries, Inc.; Aquapon Zinc-Rich Primer 97-670.
    - c. Tnemec Company, Inc.; Tneme-Zinc 90-97.
- B. Galvanizing Repair Paint: SSPC-Paint 20, high-zinc-dust-content paint for regalvanizing welds in steel.

## 2.3 MISCELLANEOUS MATERIALS

- A. Fasteners: Type 304 or 316 stainless-steel fasteners for exterior use and zinc-plated fasteners with coating complying with ASTM B 633, Class Fe/Zn 5, where built into exterior walls, of type, grade, and class required by application indicated.
- B. Nonshrink, Nonmetallic Grout: ASTM C 1107, factory-packaged, nonstaining, noncorrosive, nongaseous grout.
- C. Bolts, Nuts and Washers: Regular hexagon-head bolts, ASTM A 307, Grade A (ASTM F 568M), Property Class 4.6); with hex nuts, ASTM A 563 (ASTM A 563M); and where indicated, flat washers.

## 2.4 FABRICATION

- A. Connections, General: Use connections that maintain structural value of joined pieces.
  - 1. Shear and punch metals cleanly and accurately. Remove burrs.
  - 2. Weld corners and seams continuously. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals. Obtain fusion without undercut or overlap. Remove welding flux immediately. Finish exposed welds smooth and blended.
  - 3. Fabricate joints that will be exposed to weather in a manner to exclude water, or provide weep holes.
  - 4. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners where possible. Locate joints where least conspicuous.
- B. Miscellaneous Framing and Supports: Fabricate steel framing and supports that are not a part of structural-steel framework as necessary to complete the Work from structural steel of welded construction. Cut, drill, and tap units to receive hardware, hangers, and similar items.
  - 1. Where indicated to be cast into concrete or built into masonry, equip with integrally welded anchors at **24 inches (600 mm)** o.c.

- C. Miscellaneous Steel Trim: Fabricate units with continuously welded joints and smooth exposed edges. Miter corners and use concealed splices where possible. Fabricate cutouts, fittings, and anchorages; coordinate assembly and installation with other work.
  
- D. Cart Bumper: Furnished by BJ's and installed by contractor.

## 2.5 FINISHES

- A. Finish metal fabrications after assembly. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes. Shop prime ferrous-metal items not indicated to be galvanized.
  - 1. Hot-dip galvanize items indicated to be galvanized to comply with ASTM A 123 or ASTM A 153/A 153M as applicable.
  - 2. Preparation for Shop Priming: Prepare uncoated ferrous-metal surfaces to comply with SSPC-SP 3, "Power Tool Cleaning."
  - 3. Apply shop primer to comply with SSPC-PA 1, "Paint Application Specification No. 1," for shop painting.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. General: Provide anchorage devices and fasteners for securing metal fabrications to in-place construction. Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, with edges and surfaces level, plumb, and true.
  - 1. Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry, or similar construction.
  - 2. Fit exposed connections accurately together. Weld connections, unless otherwise indicated. Do not weld, cut, or abrade galvanized surfaces.
  - 3. All miscellaneous metal items in contact with concrete or masonry at exterior walls shall have contact surface treated with brush coat of bituminous based cement.
  
- B. Touch up surfaces and finishes after erection.
  - 1. Painted Surfaces: Clean field welds, bolted connections, and abraded areas and touch up paint with the same material as used for shop painting.
  - 2. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780.

### 3.2 SCHEDULE OF FINISHES

- A. Schedule is a list of principal items only. Refer to Drawing details for items not specifically scheduled.

END OF SECTION