

## **SECTION 055000 - METAL FABRICATIONS**

### **PART 1 - GENERAL**

#### **1.1 SUMMARY**

- A. Section includes metal fabrications.

#### **1.2 ACTION SUBMITTALS**

- A. Shop Drawings: Submit shop drawings including plans, elevations, sections, details of installation, and attachments to other Work. For installed products indicated to comply with performance requirements, include structural analysis data, for information only, and shop drawings signed and sealed by the qualified professional engineer responsible for their preparation.

#### **1.3 QUALITY ASSURANCE**

- A. Welding: Qualify procedures and personnel according to AWS D1.1, "Structural Welding Code--Steel." Certify that each welder has satisfactorily passed AWS qualification tests for welding processes involved and, if pertinent, has undergone recertification.
- B. Field Measurements: Where metal fabrications are indicated to fit walls and other construction, verify dimensions by field measurements before fabrication and indicate measurements on shop drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

### **PART 2 - PRODUCTS**

#### **2.1 STRUCTURAL PERFORMANCE**

- A. Countertop Framing: Provide countertop framing capable of withstanding the following structural loads without exceeding the allowable design working stress of the materials involved, including anchors and connections, or of exhibiting excessive deflections in any of the components making up the countertops:
  - 1. All deadloads.
  - 2. 500 pound live load placed on the countertop.
  - 3. Deflection at Midspan:  $L/1000$  times span or 1/8-inch whichever is less.

- B.
- C. Frameless Door Framing: Fabricate and install concealed framing for frameless doors so that, when installed, it is capable of supporting all deadloads and withstanding the live loads imposed on it from the operation of the frameless doors.
- D. All-Glass Entrances and Storefront Framing: Fabricate and install all-glass entrances and storefront framing so that when installed, it is capable of supporting all deadloads and withstanding the live loads imposed on it from the operation of the all-glass entrance doors.

## **2.2 MATERIALS**

- A. Metal Surfaces: For metal fabrications exposed to view in the completed Work, provide materials with smooth, flat surfaces without blemishes. Do not use materials with exposed pitting, seam marks, roller marks, rolled trade names, or roughness.
- B. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.
- C. Steel Tubing: Cold-formed steel tubing complying with ASTM A 500, or hot-formed steel tubing complying with ASTM A 501.
- D. Slotted Channel Framing: Cold-formed metal channels with continuous slot and with flanged edges returned toward web complying with MFMA-3 and fabricated from steel complying with ASTM A 1011/A 1011M. Width, depth, and metal thickness as required to suit performance requirements.
- E. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.
- F. 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.
- G. Fasteners: Zinc-plated fasteners with coating complying with ASTM B 633 or ASTM F 1941, Class Fe/Zn 5, of type, grade, and class required by application indicated.

## **2.3 FABRICATION**

- A. Shop Assembly: Preassemble items in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation. Welded connections may be used where bolted connections are shown.

- B. Shear and punch metals cleanly and accurately. Remove burrs.
- C. Weld corners and seams continuously along entire line of contact. Use full penetration welds. Use materials and methods that minimize distortion and develop strength of base metals. Obtain fusion without undercut or overlap. Remove welding flux immediately. Finish exposed welds smooth and blended.
- D. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners where possible. Use exposed fasteners of type indicated or, if not indicated, Phillips flat-head (countersunk) screws or bolts. Locate joints where least conspicuous. Make up threaded connections tight so that threads are entirely concealed.
- E. Provide for anchorage of type indicated; coordinate with supporting structure. Fabricate and space anchoring devices and fasteners to secure metal fabrications rigidly in place and to support indicated loads.
- F. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.

## **2.4 MISCELLANEOUS FRAMING AND SUPPORTS**

- A. Miscellaneous Framing and Supports: Provide steel framing and supports indicated and as necessary to complete the Work and which are not a part of the structural framework, including but not limited to framing and supports for sliding doors, countertop, projection screens, ceiling-hung audio/visual equipment, tube framing for partial height walls, and mechanical and electrical equipment.
- B. Fabricate units from structural steel shapes, plates, and bars of welded construction, unless otherwise indicated. Fabricate to sizes, shapes, and profiles indicated and as necessary to receive adjacent construction retained by framing and supports. Cut, drill, and tap units to receive hardware, hangers, and similar items.
  - 1. Frameless Door Framing: Fabricate and install concealed framing for frameless doors by providing continuous steel shapes with attached bearing plates, anchors, and braces as required to sustain imposed loads.
  - 2. All-Glass Entrances and Storefront Framing: Fabricate and install all-glass entrances and storefront framing by providing continuous steel shapes with attached bearing plates, anchors, and braces as required to sustain imposed loads.
  - 3. Countertop Framing: Fabricate framing, using steel shapes and plates, and cold finished mild steel bars at exposed conditions, for support framing and plywood, to the thicknesses, sizes and shapes shown, and as required to produce work of adequate strength and durability, without objectionable deflections. Use proven details of fabrication, as required, to achieve proper assembly and alignment of the various components of the Work.

## **2.5 FINISHING**

- 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.
- B. Prepare uncoated ferrous-metal surfaces for shop priming by removing oil, grease, and similar contaminants in accordance with SSPC -SP 1 "Solvent Cleaning," followed with SSPC-SP 3, "Power Tool Cleaning."
- C. Apply a minimum of one coat of shop primer to uncoated surfaces of metal fabrications, except those to be field welded, and those to be embedded in sprayed-on fireproofing, or masonry, unless otherwise indicated. Comply with SSPC-PA 1, "Paint Application Specification No. 1," for shop painting.

## **PART 3 - EXECUTION**

### **3.1 INSTALLATION**

- A. 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. Drill holes for bolts to the exact diameter of the bolt. Provide screws threaded full length to the screw head.
- B. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations.
- C. For field welding, use materials and methods that minimize distortion and develop strength of base metals. Obtain fusion without undercut or overlap. Remove welding flux immediately. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
- D. Touchup surfaces and finishes after erection. For materials exposed to view in the finished Project, clean field welds, bolted connections, and abraded areas and touchup paint with the same material as used for shop painting.

## **END OF SECTION**