

DIVISION 5 - STEEL  
SECTION 05 50 05 - STAINLESS STEEL METAL FABRICATION  
PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Furnish, fabricate and install:
1. Refer to scope of work document and drawings for complete list of stainless steel items.
  2. Perform all drilling and cutting in miscellaneous metal items required for the attachment of other items.
  3. Core drill concrete: grout items into place.

1.02 REFERENCES

- A. Comply with applicable requirements of the following standards and those others referenced in this section.
1. ASTM (American Society of Testing and Materials):
    - A. ASTM A 167 - stainless and heat resisting chromium-nickel steel plate, sheet and strip.
    - B. ASTM A 276 –stainless and heat- resisting steel bars and shapes.
    - C. ASTM A 666 - stainless and heat resisting chromium-nickel steel sheet strip, plate and flat bar for structural and architectural applications.
    - D. ASTM F 593 - stainless steel bolts, hex cap screws.
    - E. ASTM F 594 - stainless steel nuts.
  2. AWS - standard code for arc and gas welding in building construction.

1.03 SUBMITTALS

- A. Submit the following under provisions of division 1:
1. Literature: manufacturer's complete product data and specifications for all prefabricated items, shop primer paints, liquid zinc coating, and hydraulic cements, to be furnished hereunder.
  2.

Type of coating	VOC limit
Architectural paints, coatings and primers – flat	50 g/l
Architectural paints, coatings and primers – non flat	150 g/l
Anti-corrosive and anti-rust paints	250 g/l
Zinc-rich coatings	340 g/l

3. Shop drawings:
  - A. Include large scale details of items of all metal fabrications to be furnished hereunder, showing proposed methods of anchorage to surrounding structure and conditions.
  - B. Indicate on the shop drawings all erection marks and ensure that the actual field pieces bear corresponding marks.
4. Welder's certificates.
5. Fill out material data info sheet and submit for all products with recycled content, all products that have been extracted and manufactured within 500 miles of the site, all sealants, adhesives, paints and coatings, all wood products, and all carpet systems.
6. Quality standards sample: fabricate a sample showing a typical section demonstrating component connections. Sample section shall be minimum 18 inches in horizontal length x typical specified / detailed height.
  - A. Accepted sample will be used to establish the quality standard for fabrication and workmanship.

#### 1.04 QUALIFICATIONS

- A. Fabricator, with a minimum of 3 years documented experience demonstrating previously successful work of the type specified herein.

#### 1.05 QUALITY ASSURANCE

- A. Welders certificates: submit certifying welders employed on the work.

#### 1.06 COORDINATION

- A. Be responsible for establishing locations and levels for all work of this section, except such parts as may be delivered to others and set by them. In such cases assist them in properly locating said parts.

#### 1.07 DELIVERY, STORAGE AND HANDLING

- A. All materials under this section shall be carefully prepared for delivery, and handled and stored under cover in a manner to prevent defacement, deformation, or other damage to the materials and to shop finishes, and to prevent the accumulation of foreign matter on the metal work. All such work shall be repaired and cleaned prior to installation.

### **PART 2 PRODUCTS**

#### 2.01 MATERIALS

- A. All materials shall be new stock, free from defects impairing strength, durability or appearance and of best commercial quality for each intended purpose. Unless specifically called for otherwise, work shall be fabricated from the following:
  1. Stainless steel: ASTM A 167, non-magnetic corrosion resistant chromium-nickel steel, type 304 (18-8 alloy) polished to a no. 4, brushed finish to all exposed to view surfaces.

- B. Metal surfaces, general: for metal fabrications exposed to view upon completion of the work, provide materials selected for their surface flatness, smoothness and freedom from surface blemishes. Do not use materials whose exposed surfaces exhibit pitting, seam marks, roller marks, rolled trade names, roughness, and, for steel sheet, variations in flatness exceeding those permitted by reference standards for stretcher-leveled sheet.
- C. Provide all fasteners and attachments of the same material and finish as the metal to which it is applied unless otherwise noted. Provide all fasteners and attachments as required for work specified herein and as indicated on the drawings.
- D. Welding rods: AWS E70XX grade, or select in accordance with AWS specifications for the metal alloy to be welded and in accordance with the recommendation of the welding rod manufacturer.

## 2.02 ACCESSORIES

- A. Grout: ready mixed non-metallic high strength controlled expansion grout of flowable consistency, conforming to ASTM C 1107 with minimum compressive strength of 8,000 pounds per square inch (55.2 MPA) at 28 days. Manufacturers offering similar products which may be considered as equal include the following:
  - 1. Five Star Grout manufactured by Five Star Products, Inc.
  - 2. L&M Crystex Manufactured by Laticrete International, Inc.

## 2.03 FABRICATION – GENERAL

- A. Metal surfaces shall be clean and free from mill scale, flake, rust and rust pitting; well-formed and finished to shape and size, true to details with straight, sharp lines and angles, and smooth surfaces. Curved work shall be to true radii. Exposed sheared edges shall be eased.
- B. Shop fabricate items wherever practicable, accurately fitting all parts and making all joints tight. Do not fabricate materials until all specified submittals have been submitted to, and approved by, the architect.
- C. Do all cutting, punching, drilling, and tapping required for attachment of anchor bolts and other hardware and for attachment of work by other trades.
- D. Weld all permanent connections, make all welds in a continuous manner; tack-weld only where specifically indicated on the drawings. Grind all exposed-to-view welds completely smooth and flush to the surface plane of the base metals.
- E. Use screws and bolts only where welding cannot be performed, of sufficient size to ensure against loosening from normal usage of miscellaneous metal items furnished hereunder.
  - 1. Countersink all screw heads and bolt heads as far as practicable. Use not less than two screws bolts, or other anchorage items, at each connection point.
  - 2. Draw up all threaded connections tightly, after buttering same with pipe joint compound, to exclude water.
- F. Carefully coordinate the installation of metal fabrications with the work of trades responsible for the installation of interfacing work, and for the installation of work into the various assemblies furnished hereunder, and permit the installation of the related materials to be made at the appropriate times.

- G. Fit and assemble metal fabrications in largest practical sections for delivery to site, ready for installation.

## 2.04 FABRICATION – STAINLESS STEEL

- A. Weld and form edges, ends, and joints, by electric process, with all welded joints ground and polished smooth. Perform all welding so that no mark of any kind shall be noticed on the finished surfaces. Welds and adjoining components shall be homogenous, non-porous, free from pits, cracks, imperfections or discoloration.
  - 1. Hammer and peen flush with adjoining surface wherever materials have been depressed or sunken by a welding operation, and, if necessary re-weld and grind to eliminate low spots.
  - 2. Excessive distortions caused by welding will not be acceptable and shall be cause for rejection and removal from project site.
- B. Exercise care in grinding operations to avoid excessive heating of metal and discoloration. Use iron-free abrasives, wheels and belts on stainless steel; do not use the same abrasives, wheels or belts for both steel and stainless steel. Provide a uniform and smooth final polishing with a uni-direction grain for total length of materials. Cross grains and random polishing will not be acceptable and shall be cause for rejection.
- C. Provide a finish consistent throughout the work of this section.
  - 1. Brake ends free of open texture or orange peel appearance. Where brake work mars the finish of the materials, remove marks by grinding, polishing and finishing.
  - 2. Shear edges free of burrs, projection or fins to eliminate all danger of laceration.
  - 3. Neatly finish miter joints and bull-nosed corners with under edge of the material neatly ground to a uniform condition and in no case will overlapping materials be acceptable.

## PART 3 EXECUTION

### 3.01 ERECTION

- A. Accurately set all work to established lines and elevations, and rigidly fasten in place with suitable attachments to the construction of the building. At the completion of the work, check all work, re-adjust as required, and leave in perfect condition. Grind all exposed to view welds smooth to the touch.

### 3.02 FIELD WELDING

- A. Field weld components indicated on shop drawings in accordance with AWS D1.6.
- B. Immediately after welding, touch-up welds, burned areas and damaged surface coatings.
  - 1. Thoroughly remove all spatter by power wire brushing (or if inaccessible, wire brushing) per SSPC, surface preparation specification SP or SP3. Allow surface to cool to ambient temperature. Clean surface with solvent wipe to remove oils, grease and dirt in accordance with SSPC surface preparation specification SP1.

### 3.03 FIELD BOLTING

- A. Accurately drive all bolts into holes, protecting the bolt heads so as not to damage the thread during the driving. Ensure that bolt heads and nuts rest squarely against the metal. Where structural members have sloping flange faces, provide approved beveled washers at the bolted connections to afford square seating for bolt heads or nuts. Nick bolt threads for unfinished bolts to prevent the nuts from backing off.

**END OF SECTION**