

DIVISION 5 - METALS

SECTION 05120

STRUCTURAL STEEL

PART 1 GENERAL

1.1 WORK INCLUDED

- A. Structural steel framing members, with required bracing, welds, and fasteners.

1.2 WORK FURNISHED BUT INSTALLED UNDER OTHER SECTIONS

- A. Section 03300 - Cast-In-Place Concrete: Anchorages cast in concrete.

1.3 REFERENCES

- A. ASTM A36 - Structural Steel.
- B. ASTM A53 - Hot-Dipped, Zinc-coated Welded and Seamless Steel Pipe.
- C. ASTM A108 – Steel Bars, Carbon, Cold-Finished, Standard Quality.
- D. ASTM A123 - Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
- E. ASTM A307 - Carbon Steel Externally Threaded Standard Fasteners.
- F. ASTM A325 - High Strength Bolts for Structural Steel Joints.
- G. ASTM A500 - Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in round and shapes.
- H. ASTM A501 - Hot-Formed Welded and Seamless Carbon Steel Structural Tubing.
- I. ASTM A572 - High Strength Low Alloy Columbium - Vanadium Steel of Structural Quality.
- J. ASTM B633 – Electro deposited Coatings of zinc on Iron and Steel.
- K. ASTM A992 - Structural W-Shapes.
- L. FF-S-325 - Federal Specification for Shield, Expansion; Nail Expansion; and Nail, Drive Screw Devices.
- M. AWS D1.1 - Structural Welding Code.
- N. AISC - Specification for the Design, Fabrication and Erection of Structural Steel for Buildings.
- O. SSPC - Steel Structures Painting Council Systems and Specifications.

1.4 SUBMITTALS

- A. Submit mill test certificates of supplied structural steel indicating physical and chemical analysis under provisions specified in Division 1.
- B. Submit shop drawings under provisions of Division 1, except as noted below.
- C. Electronic delivery of shop drawings is acceptable.
- D. Do not reproduce contract drawings or details for use as shop drawings.

1.5 QUALITY ASSURANCE

- A. Testing of structural steel connections shall be performed under provisions of Division 1.

1.6 UNFORESEEN CONDITION PROVISION

- A. Provide 1,000 lbs of fabricated and installed structural and miscellaneous steel to be used as directed by structural engineer. Assume this steel will be of equal complexity to the channels, angles and wide flanges that are shown within the existing building. Steel not used in the project shall be credited in the final request for payment at the rate of \$1.50 per pound.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Structural Steel Members: ASTM A992 for wide flange, A36 for other.
- B. Structural Tubing: ASTM A500, Grade B.
- C. Steel Pipe: ASTM A53, Grade B.
- D. Bolts, Nuts, and Washers: ASTM A325, unless noted otherwise.
- E. Anchor Bolts: ASTM A307 or ASTM A36.
- F. Stud Shear Connectors: ASTM A108, per AWS D1.1.
- G. Welding Materials: AWS D1.1; type required for materials being welded.
- H. Drilled-In Expansion Anchors: Expansion anchors shall be stud type with a single piece three section wedge and zinc plated (unless noted otherwise) in accordance with ASTM B633. The anchor must meet the description in Federal Specification FS FF-S-325, Group and Type according to intended use. Use medium duty anchors appropriate to detail shown on drawings, as supplied by Hilti Corp., ITW Ramset/Red Head or Rawlplug Company.
- I. Shop Primer: SSPC - Painting System Guide No. 7.00, Federal Standard TT-P-31.
- J. Galvanizing: ASTM A123.

2.2 FABRICATION

- A. Fabricate structural steel members in accordance with AISC Specification.

2.3 FINISH

- A. Clean, prepare, and shop prime structural steel members. Coordinate primer for steel members that are to receive Portland Cement-based cementitious fireproofing with fireproofing manufacturer and U.L. fire rated assembly requirements for each piece.

PART 3 EXECUTION

3.1 ERECTION

- A. Erect structural steel in accordance with AISC Specification.
- B. Bolted connections shall be ASTM A325.
- C. Make provision for erection loads.

- D. Provide temporary bracing as required to maintain a safe, plumb structure in true alignment.
- E. Do not field cut or alter structural members without approval of engineer.
- F. After erection, prime welds, abrasions, and damaged shop primed-surfaces.
- G. Use a primer consistent with shop coat.

END OF SECTION 05120