

Division 5 - Metals

General

Preparation of contract documents, design calculations, and other structural data are to be performed by, or under the supervision of a qualified Professional Engineer registered in the State of Texas who is legally qualified to practice the engineering services of the kind indicated.

Owner will engage a qualified independent testing and inspecting agency to perform tests and inspections on field-welded and bolted connections. Special inspections will be performed when required by the Design Professional. Testing can include but not limited to visual, ultrasonic (UT), x-ray, or radiographic.

Specify fabrication to be performed by a qualified fabricator with at least 5 years of documented experience and who participates in the AISC Quality Certification Program and is designated an AISC-Certified Plant, Category STD.

Specify steel erection to be performed by a qualified erector with a minimum of 5 years documented experience. References will be made available upon request.

Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel", AWS D1.2/D1.2M, "Structural Welding Code - Aluminum", and AWS D1.6, "Structural Welding Code - Stainless Steel", and AWS D1.3 "Structural Welding Code – Sheet Steel".

Comply with the latest editions and applicable provisions of the following specifications and documents:

1. AISC 303 Code of Standard Practice for Structural Steel Buildings and Bridges.
2. AISC 341 and AISC 341s1 Seismic Provisions for Structural Steel Buildings.
3. AISC 360 Specifications for Structural Steel Buildings.
4. RCSC's Specification for Structural Joints Using ASTM A 325 or A 490 Bolts.
5. AISC 325-05 Steel Construction Manual.

Specify submittals to include but not be limited to:

1. Shop drawings.
2. Product data and certificates.
3. Welding certificates.
4. Qualification data for fabricators and installers.
5. Mill test reports.
6. Research/evaluation reports.

Structural Steel

If required by the Design Professional, structural steel primer paint is to be fabricator's standard lead and chromate free, non-asphaltic, rust-inhibiting primer. Galvanizing repair paint to meet ASTM A7890.

Grout to be nonmetallic, Shrinkage-Resistant Grout: ASTM C 1107, factory-packaged, nonmetallic aggregate grout, noncorrosive and non-staining, mixed with water to consistency suitable for application and a 30-minute working time. Grout strength to be specified by Design Professional.

Per OSHA 1926 Regulations, A steel erection contractor shall not erect steel unless it has received written notification that the concrete in the footings, piers, and walls or the mortar in the masonry piers and walls has attained, on the basis of an appropriate ASTM standard test method of field-cured samples, either 75 percent of the intended minimum compressive design strength or sufficient strength to support the loads imposed during steel erection.

Cold Form Metal Framing

Install cold-formed metal framing according to AISI's "Standard for Cold-Formed Steel Framing - General Provisions" and to manufacturer's written instructions unless more stringent requirements are indicated.

Cold-formed metal framing may be shop or field fabricated for installation, or it may be field assembled.

Metal Fabrications

Whenever different metals come in contact with each other, separate the metals with an approved layer of bituminous coating.

Zinc plated fasteners or galvanized metal will not be allowed to secure aluminum or copper. Use copper or aluminum anchors.

Stair treads for public-access stairways shall be concrete with cast metal nosings.

All exterior ferrous metals shall be hot-dip galvanized after fabrication.

Ferrous gratings shall be hot-dip galvanized. Galvanized hardware cloth shall be installed under all areaway gratings.

Specify that the Contractor is responsible for obtaining and retaining welder certifications for any person performing on-site welded steel fabrication or erection. The certifications must be current and validated by welding logs or certification test(s). Welding shall not be performed without the proper certifications.

Pipe and Tube Railings

Handrails and railings design shall comply with the Texas Accessible Standards (TAS).

Obtain each type of railing from single source, and from a single manufacturer.

Verify actual locations of walls and other construction contiguous with metal fabrications by field measurements before fabrication.

After fabrication, apply powder coating system to match campus standard finishes.

Contractor will provide a 5-year warranty on powder coating system and a 20-year warranty on fluoropolymer coating system.

Specify to fabricate steel pipe railings from ASTM A53, of schedule as required by structural loads. Connections in steel railings must be shop welded. No welding shall be allowed in the field. Finish to be hot dip galvanized after fabrication. Weep holes shall be provided in hollow sections.