

SECTION 05120 - STRUCTURAL STEEL

PART 1 - GENERAL

SUMMARY

This Section includes structural steel.

PERFORMANCE REQUIREMENTS

Structural Performance: Engineer structural-steel connections required by the Contract Documents to be selected or completed by fabricator to withstand design loadings indicated.

Engineering Responsibility: Engage a fabricator who utilizes a qualified professional engineer to prepare calculations, Shop Drawings, and other structural data for structural-steel connections.

STORAGE AND PROTECTION

Store steel members off ground and protect steel members and packaged materials from erosion and deterioration.

Store fasteners in a protected place. Clean and relubricate bolts and nuts that become dry or rusty before use.

PART 2 - PRODUCTS

MATERIALS

Structural-Steel Shapes, Plates, and Bars: ASTM A 36/A 36M, carbon steel.

Cold-Formed Structural-Steel Tubing: ASTM A 500, Grade B.

Anchor Rods, Bolts, Nuts: ASTM A 36/A 36M, unheaded rods, headed bolts, Type 1, heavy hex steel structural bolts and heavy hex carbon-steel nuts].

Nonhigh-Strength Bolts, Nuts, and Washers: **ASTM A 307, Grade A**; carbon-steel, hex-head bolts; carbon-steel nuts; and flat, unhardened steel washers, uncoated.

Primer: Fabricator's standard lead- and chromate-free, nonasphaltic, rust-inhibiting primer.

Nonmetallic, Shrinkage-Resistant Grout: Premixed, ASTM C 1107, of consistency suitable for application.

FABRICATION

Fabricate and assemble structural steel in shop to greatest extent possible. Fabricate structural steel according to AISC specifications referenced in this Section and in Shop Drawings.

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Comply with fabrication tolerance limits in AISC's "Code of Standard Practice for Steel Buildings and Bridges" for structural steel.

Shop install and tighten nonhigh-strength bolts, except where high-strength bolts are indicated.

Shop install and tighten high-strength bolts according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."

Connection Type: Snug tightened, unless indicated as slip-critical, direct-tension, or tensioned shear/bearing connections.

Weld Connections: Comply with AWS D1.1 for procedures, appearance and quality of welds, and methods used in correcting welding work.

Shop Priming: Shop prime steel, except surfaces embedded in concrete or mortar, surfaces to be field welded, surfaces to be high-strength bolted with slip-critical connections, and surfaces to receive sprayed-on fireproofing.

PART 3 - EXECUTION

ERECTION

Examination: Verify elevations of concrete and masonry bearing surfaces and locations of anchorages for compliance with requirements.

Erect structural steel accurately in locations and to elevations indicated and according to AISC specifications referenced in this Section.

Base and Bearing Plates: Clean concrete and masonry bearing surfaces of bond-reducing materials and roughen surfaces before setting base and bearing plates. Clean bottom surface of base and bearing plates and set on wedges, shims, or setting nuts as required.

Tighten anchor bolts, cut off wedges or shims flush with edge of base or bearing plate, and pack grout solidly between bearing surfaces and plates.

Maintain erection tolerances of structural steel and architecturally exposed structural steel within AISC's "Code of Standard Practice for Steel Buildings and Bridges."

Install and tighten nonhigh-strength bolts, except where high-strength bolts are indicated.

Install and tighten high-strength bolts according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."

Connection Type: Snug tightened, unless indicated as slip-critical, direct-tension, or tensioned shear/bearing connections.

Weld Connections: Comply with AWS D1.1 for procedures, appearance and quality of welds, and methods used in correcting welding work.

END OF SECTION 05120