

SECTION 05 12 00
STRUCTURAL STEEL FRAMING

PART 1 - GENERAL

1.1 DESCRIPTION:

This section specifies structural steel shown and classified by Section 2, Code of Standard Practice for Steel Buildings and Bridges.

1.2 RELATED WORK:

- A. Materials testing and inspection during construction: Section 01 45 29, TESTING LABORATORY SERVICES.

1.3 QUALITY ASSURANCE:

- A. Fabricator and erector shall maintain a program of quality assurance in conformance with Section 8, Code of Standard Practice for Steel Buildings and Bridges.
- B. Before authorizing the commencement of steel erection, the controlling contractor shall ensure that the steel erector is provided with the written notification required by 29 CFR 1926.752. Provide copy of this notification to the Resident Engineer.

1.4 TOLERANCES:

Fabrication tolerances for structural steel shall be held within limits established by ASTM A6, by Section 7, Code of Standard Practice for Buildings and Bridges, and by Standard Mill Practice - General Information (AISC ASD Manual, Thirteenth Edition,

1.5 DESIGN:

- A. Connections: Use details consistent with the details shown on the Drawings, supplementing where necessary. Promptly notify the Resident Engineer of any location where the connection design criteria is not clearly indicated. The design of all connections is subject to the review and acceptance of the Resident Engineer.

1.6 REGULATORY REQUIREMENTS:

- A. AISC: Specification for Structural Steel Buildings - Allowable Stress Design.
- B. AISC: Code of Standard Practice for Steel Buildings and Bridges.

1.7 SUBMITTALS:

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Shop and Erection Drawings: Complete
- C. Certificates:

1. Structural steel.
 2. Steel for all connections.
 3. Welding materials.
- D. Test Reports:
1. Welders' qualifying tests.

1.8 APPLICABLE PUBLICATIONS:

- A. Publications listed below form a part of this specification to extent referenced. Publications are referenced in text by basic designation only.
- B. American Institute of Steel Construction (AISC):
1. Specification for Structural Steel Buildings - Allowable Stress Design and Plastic Design (Second Edition, 2005)
 - 2.
 3. Code of Standard Practice for Steel Buildings and Bridges (2010).
- C. American National Standards Institute (ANSI):
- B18.22.1-65(R2008).....Plain Washers
- D. American Society for Testing and Materials (ASTM):
- A6/A6M-09.....Standard Specification for General Requirements
for Rolled Structural Steel Bars, Plates,
Shapes, and Sheet Piling
- A36/A36M-08.....Standard Specification for Carbon Structural
Steel
- A123/A123M-09.....Standard Specification for Zinc (Hot-Dip
Galvanized) Coatings on Iron and Steel Products
- A325-10.....Standard Specification for Structural Bolts,
Steel, Heat Treated, 120/105 ksi Minimum Tensile
Strength
- A992/A992M-06.....Standard Specification for Structural Steel
Shapes
- E. American Welding Society (AWS):
- D1.1/D1.1M-10.....Structural Welding Code-Steel
- F. Research Council on Structural Connections (RCSC) of The Engineering
Foundation:
Specification for Structural Joints Using ASTM A325 or A490 Bolts
- H. Occupational Safety and Health Administration (OSHA):
- 29 CFR Part 1926-2001...Safety Standards for Steel Erection

PART 2 - PRODUCTS

2.1 MATERIALS:

- A. Structural Steel: Wide flange beams: ASTM A992; all other rolled shapes: ASTM A36
- B. Bolts, Nuts and Washers:
 - 1. High-strength bolts, including nuts and washers: ASTM // A325 //
 - 2. Plain washers, other than those in contact with high-strength bolt heads and nuts: ANSI Standard B18.22.1.

PART 3 - EXECUTION

3.1 CONNECTIONS (SHOP AND FIELD):

- A. Welding: Welding in accordance with AWS D1.1. Welds shall be made only by welders and welding operators who have been previously qualified by tests as prescribed in AWS D1.1 to perform type of work required.
- B. High-Strength Bolts: High-strength bolts tightened to a bolt tension not less than proof load given in Specification for Structural Joints Using ASTM A325. Tightening done with properly calibrated wrenches, by turn-of-nut method or by use of direct tension indicators (bolts or washers).

3.2 FABRICATION:

Fabrication in accordance with Chapter M, Specification for Steel Buildings - Allowable Stress Design and Plastic Design

3.3 SHOP PAINTING:

- A. General: Shop paint steel with primer in accordance with Section 6, Code of Standard Practice for Steel Buildings and Bridges.
- B. Do not apply paint to following:
 - 1. Surfaces within 50 mm (2 inches) of joints to be welded in field.
 - 2. Surfaces which will receive sprayed on fireproofing.
- C. Structural steel in the interstitial space that does not receive sprayed on fireproofing shall be painted with primer in accordance with general requirement of shop painting.

3.4 ERECTION:

- A. General: Erection in accordance with Section 7, Code of Standard Practice for Steel Buildings and Bridges.
- B. Temporary Supports: Temporary support of structural steel frames during erection in accordance with Section 7, Code of Standard Practice for Steel Buildings and Bridges.

3.5 FIELD PAINTING:

- A. After erection, touch-up steel surfaces specified to be shop painted. After welding is completed, clean and prime areas not painted due to field welding.

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Renovation
Philadelphia, PA 19104

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