

WVU DESIGN GUIDELINES & CONSTRUCTION STANDARDS

DIVISION 05 – METALS

SECTION 051200 – STRUCTURAL STEEL FRAMING AND STEEL JOIST FRAMING

PART 1: GENERAL

1.1 Scope Of Standard

- A. This standard provides general guidance concerning the specific preferences for the design, fabrication and erection of structural steel building systems and steel joists and steel girders.

1.2 Related Standards

- A. Coatings and Paint Systems

1.3 Reference Standards

- A. AISC Specification for Structural Steel Buildings.
- B. AISC Code of Standard Practice for Steel Buildings and Bridges.
- C. AISC Specification for Structural Joints Using ASTM A325 or A490 Bolts.
- D. AISC Manual of Steel Construction.
- E. American Welding Society (AWS) D1.1 – Structural Welding Code – Steel.
- F. American Society for Testing and Materials (ASTM) – Standard Specifications.

1.4 Quality Control

A. Structural Steel

1. The structural steel fabricator shall provide evidence of successful fabrication of structural steel buildings of similar size and complexity for a continuous period of at least five (5) years immediately prior to the bid date.
2. The structural steel erector shall provide evidence of successful erection of structural steel buildings of similar size and complexity for a continuous period of at least five (5) years immediately prior to the bid date.
3. Qualifications for welding work: All welders and welding processes shall be qualified in accordance with AWS “Standard Qualification Procedure.” All welders shall have passed AWS qualification tests within the past six months. Welding certificates shall be furnished upon request.
4. The steel erector is required to visit the project site at least 30 days prior to start of erection to review existing site conditions such as site access,

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clearances, utilities, adjacent structures, overhead obstructions, site topography and security requirements.

B. Steel Joist and Joist Girders

1. The steel joist fabricator shall provide evidence of successful fabrication of steel joist systems of similar size and complexity for a continuous period of at least five (5) years immediately prior to the bid date.
2. The joist fabricator shall also employ and have on staff a qualified structural engineer licensed in the State of West Virginia to prepare design calculations, shop drawings, and other structural data for steel joists and joist girders.
3. The steel joist erector shall provide evidence of successful erection of steel joist systems of similar size and complexity for a continuous period of at least five (5) years immediately prior to the bid date.
 - a. All steel shall be domestically manufactured, unless foreign sources are accepted by West Virginia University.
 - b. West Virginia University will contract with an independent testing agency to provide inspection services during the course of the project.
 - c. The testing agency may require access to the fabricator's shop at any time during fabrication or just prior to shipment of the structural steel. In the design of structural steel systems, the testing agency and/or design engineer shall take into consideration the future flexibility of the system and the need to make frequent modifications to building systems.
 - d. Field erection test is required.
4. The joist erector is required to visit the project site at least 30 days prior to start of erection to review existing site conditions such as site access, clearances, utilities, adjacent structures, overhead obstructions, site topography and security requirements.
5. Welding procedures and welder qualifications should be specified in accordance with American Welding Society (AWS) qualification procedures. Design documents shall include specifications and drawings, which comply with the provisions of the Steel Joist Institute (SJI) and AWS.

C. Design Considerations

1. In the design of structural steel systems, joist and joist girder systems the design engineer shall take into consideration the future flexibility of the system and the need to make frequent modifications to building systems.

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2. WVU prefers not to use “Weathering Steel sections or sheets”
3. All steel shall be domestically manufactured, unless foreign sources are accepted by West Virginia University.

1.4 Submittals Requirements

- A. Fabricator shall submit, as a minimum, the following:
 1. Mill certificates for all steel members.
 2. Complete shop drawings, including erection plans, member sizes, connections, connection details, bill of materials, and dimensions of members and locations of splices.
 3. All primers, coatings and cleaning methods.
 4. Submit shop drawings and calculations for all structural members signed and sealed by the qualified Registered Professional Engineer (licensed in West Virginia) responsible for their preparation.

PART 2: PRODUCTS

- A. Specifications for structural steel materials shall meet the ANSI and ASTM criteria for each material and shall show compliance with the AISC Code and Specifications. All structural steel products which have an exterior exposure or which are designed for use in an area with high humidity or with possible exposure to caustic chemicals shall be hot dipped galvanized, except where such design has been reviewed and approved by WVU on a case-by-case basis.

PART 3: EXECUTION

- A. The design documents shall require verification surveys by Professional Engineer or Land Surveyor Registered in the State of West Virginia for location of columns, elevation of base plates, and plumbness of columns.

END OF SECTION 051200