

DIVISION 5 - STEEL
SECTION 05 21 00 - STEEL JOISTS AND JOIST GIRDERS
PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Open web steel joists and girders, in place, including bolted and welded joist connections, bridging, chord extensions, etc.
- B. Filed priming.

1.2 REFERENCES

- A. ASTM A307 - Carbon Steel Externally Threaded Standard Fasteners
- B. ASTM A325 - High Strength Bolts for Structural Steel Joints
- C. AWS D1.1 - Structural Welding Code
- D. SJI - Standard Specifications, Load Tables, and Weight Tables for Steel Joists and Joist Girders
- E. Recommended Code of Standard Practice for Steel Joists and Joist Girders
- F. SSPC - Steel Structures Painting Council

1.3 SUBMITTALS

- A. Shop drawings of all joists and girders. Shop drawings shall indicate all joists, girders, loadings, bridging, welding, and erection details. All bridging, chord member and web member sizes shall be indicated. Provide detailed layout drawings.
- B. Primer paint data

1.4 QUALIFICATIONS

- A. Fabricator: A company, with a minimum of 10 years experience, specializing in the manufacture of the specified items.
- B. Erector: A company, with a minimum of 10 years experience, specializing in erecting the specified work.
- C. Design of connections not detailed are to be under direct supervision of a Professional Structural Contractor experienced in design of this work and licensed in the State where the Project is located.
- D. Welders: For all welders, submit a certificate verifying AWS qualifications within the previous 12 months.

1.5 WARRANTY

- A. In accordance with the General Conditions of the Construction Contract.

PART 2 PRODUCTS

2.1 MATERIALS

- A. All steel joints and girders shall be manufactured in accordance with the Standard Specifications for Open-Web Joist Construction, SJI. Joists may be fabricated from either hot rolled or cold-formed sections in accordance with ASTM standards. Series and sizes shall be as indicated on the drawings.
 - 1. The manufacturer shall design for all special loading conditions and point loads

shown on the Drawings, in addition to a 1.0 KIP load placed in any one panel point location.

2. The manufacturer shall verify adequacy of joist sizes shown for the loadings indicated on the Drawings. The manufacturer shall upgrade joists when necessary to meet the given loadings. At no case shall the joist sizes shown be reduced.
 3. Unless specifically noted otherwise, joists and girders shall be fabricated with the minimum approximate camber as recommended by the SJI
- B. Bolts and Nuts at Steel Connections: ASTM A325, with hardened steel washers.
- C. Welding Materials: AWS D1.1; of type as appropriate for materials being welded.

2.2 FABRICATION

- A. All work shall be fabricated in accordance with reviewed shop drawings; review of shop drawings, by the Contractor, is for design intent only. Review of shop drawings does not relieve the subcontractor of his responsibility for correct fabrication as designed.

2.3 BRIDGING

- A. Furnish and install horizontal and diagonal cross-bridging as required by SJI and OSHA for the spans and loads shown or referenced unless a stricter requirement is shown on the Drawings. Where horizontal bridging is used provide diagonal cross-bridging for the two bays adjacent to a wall or steel beam instead of terminating the horizontal bridging directly to walls or beams.

2.4 PAINTING

- A. All open web steel joists and girders and accessories shall be given a shop coat of primer. Rust spots, marred surfaces, and all welds shall be given a coat of the same primer in the field after erection. Unless specifically noted otherwise, SSPC, Type 1, light gray in color.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that field conditions are acceptable and are ready to receive work. Ensure that dimensions agree with drawings.
- B. Special attention shall be given to verification of embedded or other anchorage items, etc.

3.2 ERECTION

- A. All work shall be erected in accordance with SJI standards and reviewed shop drawings; review of shop drawings, by the Contractor, shall be for design intent only. Review of shop drawings shall not relieve the subcontractor of his responsibility for correct erection as designed.
- B. All members shall be set with instruments to assure accuracy of line, and a plumb and level installation.
- C. All temporary supports and bracing shall be provided as necessary to stabilize members, and to safely maintain all loads imposed during erection. Safety during erection is to be the responsibility of this subcontractor.
- D. Decking is not to be installed until bridging is in place.
- E. No alterations shall be made to members without approval of the manufacturer, and the Contractor.

3.3 CONNECTIONS

- A. Welded and bolted connections are to be as detailed and shall conform to appropriate AWS and SJI Requirements.

3.4 FIELD QUALITY CONTROL

- A. Field inspection shall be performed in accordance with the SJI and IBC. See Structural Drawings for additional inspection requirements.
- B. Provide free access to Work and cooperate with the appointed firm. The Testing Laboratory Representative may require, of the subcontractor, any reasonable modification of work which is necessary to allow proper inspection. Provide lift access to the Testing Agency.
- C. Welds shall comply with AWS Standards for Visual Inspection; the Testing Laboratory Representative may, at his discretion, employ any additional, commonly accepted test method which he feels is necessary for a specific situation.
- D. Any necessary corrective measures, and re-inspection, are to be at no extra cost to the Owner.

3.5 TOLERANCES

- A. Maximum allowable variation from plumb, level, and alignment; in accordance with appropriate SJI and/or AISC Requirements.

3.6 FINISH

- A. After erection, areas where prime coat has been damaged shall be touched up.

PART 4 COMPLETION

4.1 CLEANUP

- A. All work shall be left clean and undamaged, ready for finish, as appropriate, under Separate Section.

END OF SECTION