

**SECTION 05210
STEEL JOIST FRAMING**

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specifications Sections, apply to work of this Section.

1.02 SCOPE OF WORK

- A. Provide all equipment, labor and perform all work as necessary to fabricate, furnish, deliver, unload, store in locations directed and erect on supports to be provided under another subdivision all open-web steel joists and accessories as specified herein and as indicated.
- B. Related work not specified under this subdivision:
 - 1. Structural Steel
 - 2. Steel and ironwork of a miscellaneous nature
 - 3. Setting anchor bolts
 - 4. Grouting bearing plates

1.03 QUALITY ASSURANCE

- A. Provide joists fabricated in compliance with the following, as herein specified.
- B. Steel Joist Institute (SJI) "Standard Specifications, Load Tables and Weight Table" for:
 - 1. K-Series open web steel joists
- C. Joist fabricator shall be a member of the Steel Joist Institute.
- D. American Institute of Steel Construction (AISC)
- E. American Welding Society (AWS)
- F. Steel Structures Painting Council (SSPC)
- G. Qualification of field welding: Qualify welding processes and welding operators in accordance with American Welding Society "Structural Welding Code", AWS D1.1
- H. See Structural Steel 05120, 3.02 for testing requirements.

1.04 SUBMITTALS

- A. Submit for review complete shop drawings covering, fabrication of all work under

this subdivision including erection of such work on supports furnished under a separate subdivision.

- B. Submitted shop drawings and calculations to bear the seal of a Specialty Engineer who is a Florida licensed Engineer in the structural discipline.
- C. Design techniques, type, and format of supporting calculations, and all submittals must be reviewed by the Engineer-of-Record.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Joist shall be inspected by the manufacturer before shipment to insure compliance of materials and workmanship.
- B. Deliver, unload, store in locations directed, and handle steel joists as recommended in SJI "Specifications". Handle and store joists in a manner to avoid deforming members and to avoid excessive stresses.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Chord members: 50 ksi yield
- B. Web members: 36 ksi or 50 ksi yield
- C. If requested by owner's representative, evidence that the steel meets design yield strength shall be provided in the form of certified test reports.
- D. Bearing plates ASTM A36.
- E. High strength bolts ASTM A325.
- F. Steel prime paint:
 - 1. Steel Structures Painting Council specification 15-68T, Type I. Asphalt paint shall not be used.

2.02 FABRICATIONS

- A. General: The design and manufacture of steel joists shall conform to the latest standard specifications and load tables for open web steel joists, as adopted by the Steel Joist Institute.
- B. Holes in chord members: Provide holes in chord members where shown for securing other work to steel joists; however, deduct area holes from the area of chord when calculating strength member.

- C. Extend ends: Provide extended ends on joists where shown, complying with manufacturer's standards and requirements of applicable SJI "Specification" and load tables.
- D. Bridging: Provide horizontal or diagonal type bridging for joists and joist girders, complying with SJI "Specifications".
- E. Provide bridging anchors for ends of bridging lines terminating at walls or beams.
- F. Splices: May occur at any point in the chord members and shall be butt welded splices developing 100% of the cross sectional area of the member splices, and shall develop a minimum tensile strength of 57,000 psi on the full cross sectional area.
- G. Deflection: Live load deflections shall not exceed: 1/240 of span for roofs and 1/360 of span for floors.
- H. Camber: See SJI specifications for required camber.
- I. Shop painting: Prior to shipping, all joists shall be cleaned of rust and mill scale by brushing with steel bristle brushes and shall have one shop coat of paint meeting Steel Structures Painting Council Specification (SSPC) 15-68T, Type I, grey applied by either dipping and/or spraying.

PART 3 EXECUTION

3.01 ERECTION

- A. Place and secure steel joists in accordance with SJI "Specifications", final shop drawings, and as herein specified.
- B. Anchors: Furnish anchor bolts, bearing plates, and other devices to be built into concrete and masonry construction.
- C. Refer to Division 4 sections for installation of anchors set in masonry.
- D. Placing joist: Do not start placement of steel joists until supporting work is in place and secured. Place joists on supporting work, adjust and align in accurate locations and spacing before permanently fastening.
- E. Provide temporary bridging, connections, and anchors to ensure lateral stability during construction.
- F. Where "open web" joist lengths are 40 feet and longer, install a center row of bolted bridging to provide lateral stability before slackening of hoisting lines.
- G. Bridging: Install bridging simultaneously with joist erection, before construction loads

are applied. Anchor ends of bridging lines at top and bottom chords where terminating at walls or beams.

- H. Uplift: See plan for net wind load uplifts on roofs. Steel joist bottom chords must safely resist the wind uplift. A single line of bottom chord bridging must be provided at the first panel point from each support.
- I. Temporary bracing: Contractor shall provide any temporary bracing required to adequately distribute erection loads so that the carrying capacity of any individual joist is not exceeded.
- J. Field weld or bolt joists to supporting steel framework in accordance with SJI "Specifications" for type of joists used. Coordinate welding sequence and procedure with placing of joists.
- K. Damaged joists: Shall be replaced at no additional cost to Owner.
- L. Touch-up painting: After joist installation, paint field bolt heads and nuts, and welded areas, abraded or rusty surfaces on joists and steel supporting members. Wire brush surfaces and clean with solvent before painting. Use same type of paint as used for shop painting.
- M. Do not permit any application of construction loads to joists unless all joists are fastened in place and permanent bridging installed.
- O. Fasten joist and joist girders to structural steel at column lines by bolting per SJI standard specification provisions.

END OF SECTION 05210