

SECTION 05 21 00

OPEN WEB STEEL JOISTS

PART 1 GENERAL

1.1 SCOPE

- A. This section shall cover the furnishing, fabrication, erection and connection of all steel joists complete.
- B. Work Included and Furnished
 - 1. All labor, tools, materials, scaffolding, bracing cranes, hoists and other construction equipment required for the completion of the roof and floor structures in accordance with drawings and these specifications.
 - 2. Preparation of shop drawings.
 - 3. Furnishing of all steel joists including bridging, bearing plates, bracing, anchors, headers, joist extensions, shims, welding material and bolting material.
 - 4. Shop and field painting.

1.2 RELATED SECTIONS

- A. Section 01 40 00 – Required Special Inspections

1.3 STANDARDS

- A. Open web steel joist materials and fabrication, connections, anchorage, detailing and erection shall be in accordance with the latest Edition of "Standard Specifications and Load Tables" as published by the Steel Joist Institute, except where additional or more stringent requirements are noted here in these specifications. Fabricator must have SJI certification.

1.4 SHOP DRAWINGS

- A. Shop drawings shall be submitted to the Architect via the Construction Manager and approval received prior to fabrication. Submit as per Section 01 33 00. When corrections are required, copies shall be returned noting such corrections. Fabrication may be done on items not requiring correction even though drawings must be returned.
- B. Steel joist fabricator shall submit a certificate of compliance with the IBC, Sec, 1704, (copy to be included in the close out documents as part of the shop drawing submittal.
- C. Shop drawings must be signed and stamped by a registered structural engineer licensed in the state project is being constructed.
- D. The Contractor shall be responsible for checking of quantities and dimensions before submittals.

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- E. Contract drawings receive precedence over shop drawings unless authorized otherwise in writing.
- F. All connections, including those made in the field, shall be shown and detailed. Welds shall be indicated with American Welding Society symbols.
- G. All materials incorporated into fabrication shall be noted as to grade.

1.5 WORKMANSHIP

- A. All fabrication and erection work shall be performed by skilled workmen working under experienced supervision.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Provide joists as shown on drawings, manufactured by Vulcraft or approved alternate.

PART 3 EXECUTIONS

3.1 FABRICATION

- A. All joists shall be manufactured in accordance with requirements of Steel Joist Institute or requirements of American Institute of Steel Construction. Manufacturing companies who are not members of these Institutes shall submit certification that steel joists furnished meet requirements of Steel Joist Institute previously noted in these specifications prior to fabrication.
- B. All joists shall be painted with one shop coat of red or gray primer of type specified in Steel Joist Institute "Standard Specification and Load Tables".
Where spray-on fireproofing is scheduled, joists to be unprimed.
- C. Joists shall be cambered in accordance with recommended camber as noted in Section 4.7 of Steel Joist Institute "Standard Specification and Load Tables" unless noted otherwise on plans.

3.2 ERECTION

- A. Spacing
 - 1. Joists shall be spaced and located according to contract plans.

B. Bearing and Anchorage

1. Joists shall have a minimum bearing of 4 inches on concrete or masonry and shall be anchored thereto by bolting or welding.
2. Joists bearing on steel shall have a minimum bearing length of 2 1/2 inches and shall be bolted or welded thereto.
3. Joists parallel to walls shall be anchored directly to the wall at lines of bridging. Both top and bottom chords shall be anchored.
4. Joists with welded connections shall be welded on each side with 1/8" x 2-1/2" fillet welds. *Or as shown on the structural plans.* Roof joists shall be welded with 2-1/2 inch long fillet welds each side of joist.

C. Bridging

1. Bridging shall be of size and type indicated on the shop drawings. Bridging shall be installed as soon as joists have been erected and before application of any construction load or service loads.
2. Bridging shall be welded at top and bottom chords, unless noted otherwise.
3. Bridging shall be connected to wall, column or beams at end of bridging lines.
4. In certain locations special bridging conditions may exist to coordinate with ductwork, specialty items, etc. Indicate these bridging conditions on shop drawings.

D. Extensions and Strut Bracing

1. Strut bracing to beam flanges shall be provided where noted on plans.

E. Framing for Openings

1. See details on structural drawings.

3.3 FIELD PAINTING

- A. Damage of shop coat or rusted or exposed metal shall be cleaned, wire brushed and painted before erection with same paint applied by fabricator.
- B. All abrasion or damaged paint marks, including weld areas, shall be touched up with shop paint after erection.

3.4 SPECIAL INSPECTIONS

- A. Inspection of steel joist placement and connections for conformance to the construction documents and the IBC shall be completed by the designated third party Special Inspector.

END OF SECTION

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