SECTION 052100 – STEEL JOIST FRAMING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification sections, apply to this section.

1.2 SUMMARY

A. Section includes the design, furnishing and installation of steel joist framing and accessories.

1.3 REFERENCES

A. Except as herein specified or as indicated on the Drawings, the work of this section shall comply with the following:

1. AISC - American Institute for Steel Construction:

a. Specification for the Design, Fabrication and Erection of Structural Steel for Buildings.

2. ASTM Standards:

a. A36 - Carbon Structural Steel.

3. SJI - Steel Joist Institute:

a. Standard Specifications, Load Tables & Weight Tables for Steel Joists & Joist Girders.

4. UL Fire Resistance Directory.

1.4 STEEL JOIST DESIGN REQUIREMENTS

A. Joist Manufacturer: Responsible for the structural design of steel joists and joist girders.

B. Design:

1. In accordance with SJI and AISC references listed in 1.3.

2. For the design loads listed in the SJI references for the particular joist framing size as indicated on the Drawings.

3. For Joist Framing Occurring at Column Lines:

a. Design for the end moments due to wind in combination with live and dead loads, if so indicated on the Drawings.

b. Refer to notes on Drawings.

4. For extended ends or top chord extensions: Design for live and dead loads.

5. Rollover design capacity for diaphragm conditions for “K” Series and “LH” Series joists shall be as indicated on the Drawings at joist seat.

6. Performed under the responsibility of a registered professional engineer.

C. UL Designs: Supply and install joist framing in conformance with UL designs as indicated on the Drawings.

1.5 SUBMITTALS

A. Shop Drawings: For steel joist framing to include:

1. Sizes.
2. Lengths.
3. Locations.
4. Details of fabrication and erection.

B. Submit proof of acceptable certification quality control program.

1.6 QUALITY ASSURANCE

A. Fabrication and Installation Personnel Qualifications:

1. Trained and experienced in the fabrication and installation of the steel joist framing.
2. Knowledgeable of the design and the reviewed Shop Drawings.

B. Fabricator:

1. Member in good standing of Steel Joist Institute.

2. Certified under the SJI Plant Certification Program, or under other quality control program acceptable to building official, in accordance with building code, prior to fabrication.

3. Employs a registered professional engineer responsible for joist framing design.

1.7 DELIVERY, STORAGE AND HANDLING

A. Deliver, unload, handle, and store steel joist framing so as to not distort or damage. Store off the ground.

B. Reject damaged, deteriorated or distorted material and immediately remove from the site. Replace rejected materials with new materials at no additional cost to Owner.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Materials used in the manufacture of steel joist framing: In accordance with SJI and AISC references listed in Article 1.3.

2.2 FABRICATION

A. Welding:

1. Production welding techniques which develop joints and connections having at least same factor of safety as material used.

2. Verify factor of safety by load tests.

B. Horizontal and Diagonal Bridging:

1. In Accordance With:

a. Steel Joist Institute Specifications.
b. UL designs, as applicable.

2. As indicated on the Drawings.

C. Extended Ends and Top Chord Extensions: As indicated on the Drawings.

D. Shop Painting:

1. Remove mill scale, rust, grease, dirt, debris and residue from cleaning.

2. Dip or spray with a minimum of a 2-3 mil coating dry film thickness rust inhibitive paint in accordance with Steel Joist Institute Specifications.

3. Coating shall be lead and chromate free and comply with federal and state regulation limiting V.O.C. content.

PART 3 - EXECUTION

3.1 ERECTION

A. Protection:

1. Exercise care at all times to avoid damage as a result of careless handling.

2. Exercise care to avoid excessive concentrated loads.

3. Provide means for adequate distribution of loads so that the capacity of joist framing is not exceeded.

B. Bridging: As soon as joist framing are erected, completely install bridging and permanently fasten framing into place before applying loads.

C. Setting:

1. Set joist framing accurately in place to the spacing indicated on the Drawings.

2. Provide proper length of bearing at each end.

3. Framing shall have full contact between bearing surfaces.

4. Fasten framing to supporting members by field welding unless otherwise indicated on the Drawings or specified herein.

D. Joist Framing at Column Lines:

1. Fasten top chord of framing occurring at column lines to supporting beams or columns by bolting, and extend bottom chords of joist framing to stabilizer plate supporting member. Do not weld or bolt unless specifically indicated.

2. Where top chord bolts are installed in slotted holes, weld top chords to supporting structure after erection.

E. Touch Up Paint:

1. Immediately after erection, touch up areas where the shop coat has broken down or been damaged.

2. Use paint of the same type as used for shop painting.

3.2 CLEANING

A. Prior to acceptance of the work of this section, thoroughly clean the joist framing and all affected areas in accordance with Division 01 requirements.

END OF SECTION 052100