

2021 Virginia Construction Code

CHAPTER 22 STEEL

SECTION 2207 STEEL JOISTS

2207.1 General.

The design, manufacture and use of openweb *steel joists* and joist girders shall be in accordance with either [SJI 100](#) or [SJI 200](#), as applicable.

2207.1.1 Seismic design.

Where required, the seismic design of buildings shall be in accordance with the additional provisions of [Section 2205.2](#) or [2211.1.1](#).

2207.2 Design.

The *registered design professional* shall indicate on the *construction documents* the *steel joist* and *steel joist girder* designations from the specifications listed in [Section 2207.1](#); and shall indicate the requirements for joist and joist girder design, layout, end supports, anchorage, bridging design that differs from the SJI specifications listed in [Section 2207.1](#), bridging termination connections and bearing connection design to resist uplift and lateral loads. These documents shall indicate special requirements as follows:

1. Special loads including:
 - 1.1. Concentrated loads.
 - 1.2. Nonuniform loads.
 - 1.3. Net uplift loads.
 - 1.4. Axial loads.
 - 1.5. End moments.
 - 1.6. Connection forces.
2. Special considerations including:
 - 2.1. Profiles for joist and joist girder configurations that differ from those defined by the SJI specifications listed in [Section 2207.1](#).
 - 2.2. Oversized or other nonstandard web openings.
 - 2.3. Extended ends.
3. Live and total load deflection criteria for joists and joist girder configurations that differ from those defined by the SJI specifications listed in [Section 2207.1](#).

2207.3 Calculations.

The *steel joist* and joist girder manufacturer shall design the *steel joists* and *steel joist girders* in accordance with the SJI specifications listed in [Section 2207.1](#) to support the load requirements of [Section 2207.2](#). The *registered design professional* shall be permitted to require submission of the *steel joist* and joist girder calculations as prepared by a *registered design professional* responsible for the product design. Where requested by the *registered design professional*, the *steel joist* manufacturer shall submit design calculations with a cover letter bearing the seal and signature of the joist manufacturer's *registered design professional*. In addition to the design calculations submitted under seal and signature, the following shall be included:

1. Bridging design that differs from the SJI specifications listed in [Section 2207.1](#), such as cantilevered conditions and net uplift.
2. Connection design for:
 - 2.1. Connections that differ from the SJI specifications listed in [Section 2207.1](#), such as flush-framed or framed connections.
 - 2.2. Field splices.
 - 2.3. Joist headers.

2207.4 Steel joist drawings.

Steel joist placement plans shall be provided to show the *steel joist* products as specified on the *approved construction documents* and are to be utilized for field installation in accordance with specific project requirements as stated in [Section 2207.2](#). *Steel joist* placement plans shall include, at a minimum, the following:

1. Listing of applicable loads as stated in [Section 2207.2](#) and used in the design of the *steel joists* and joist girders as specified in the *approved construction documents*.
2. Profiles for joist and joist girder configurations that differ from those defined by the SJI specifications listed in [Section 2207.1](#).

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3. Connection requirements for:
 - 3.1. Joist supports.
 - 3.2. Joist girder supports.
 - 3.3. Field splices.
 - 3.4. Bridging attachments.
4. Live and total *load* deflection criteria for joists and joist girder configurations that differ from those defined by the SJI specifications listed in [Section 2207.1](#).
5. Size, location and connections for bridging.
6. Joist headers.

Steel joist placement plans do not require the seal and signature of the joist manufacturer's *registered design professional*.

2207.5 Certification.

At completion of manufacture, the *steel joist* manufacturer shall submit a *certificate of compliance* to the owner or the owner's authorized agent for submittal to the *building official* as specified in [Section 1704.5](#) stating that work was performed in accordance with *approved construction documents* and with SJI specifications listed in [Section 2207.1](#).