
BULLETIN: MAXIMUM SPACING OF COLD-FORMED STEEL JOISTS FOR DIAPHRAGMS WITH WOOD STRUCTURAL PANELS

PURPOSE

This bulletin is intended to provide notice to design professionals, building manufacturers, and DSA staff to clarify the maximum spacing requirements for cold-formed steel (CFS) joists or rafters for diaphragms sheathed with wood structural panels for projects submitted under the 2016 or 2019 California Building Code (CBC).

BACKGROUND

For years, it has been common practice for relocatable buildings to have CFS joists with a spacing greater than 24 inches on center for diaphragms sheathed with wood structural panels. In many cases, a joist spacing of 48 inches on center has been used, which was not strictly prohibited in past CBC editions. As noted below, the reference standards adopted by the 2019 CBC have changed and now require a maximum CFS joist spacing of 24 inches on center when the diaphragm is sheathed with wood structural panels.

- **2016 CBC:** The adopted reference standard is American Iron and Steel Institute (AISI) S213-07(S1). Section D does not define a joist spacing requirement. Even though the commentary to this section indicates the diaphragm deflection equation is based on a maximum joist spacing of 24 inches on center, a larger joist spacing has traditionally been allowed.
- **2019 CBC:** The adopted reference standards are AISI S400-15/S1-16 and AISI S240-15. AISI S400 Section F2.4.1.1(k) and AISI S240-15 Section B5.4.1(k) both require a maximum joist spacing of 24 inches on center when the diaphragm is sheathed with wood structural panels.

IMPLEMENTATION

DSA shall require compliance with AISI S400 and AISI S240 to limit the maximum CFS joist or rafter spacing to 24 inches on center for diaphragms sheathed with wood structural panels as required below:

1. 2019 PRE-CHECK (PC) PROJECTS

All 2019 PC projects shall have a maximum spacing of 24 inches on center. For any 2019 PC project that was previously approved with a spacing greater than 24 inches on center, a revision to the approved plans shall be submitted to reduce the joist or rafter spacing to 24 inches on center before the PC may be utilized on any site applications submitted after Oct. 1, 2020.

2. 2019 PROJECTS SUBMITTED ON OR AFTER OCT. 1, 2020

For all 2019 projects submitted on or after Oct. 1, 2020, the spacing shall not exceed 24 inches on center.

Exception: This spacing requirement will not be enforced for any site placement projects of buildings submitted utilizing approved 2016 PC plans.

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3. 2016 OR 2019 CBC PROJECTS SUBMITTED BEFORE OCT. 1, 2020

For all 2016 or 2019 CBC projects with a maximum spacing greater than 24 inches on center and submitted before Oct. 1, 2020, the spacing shall be revised as required below:

- **Project is approved prior to Oct. 1, 2020:** No revisions required.
- **Plan check comments have been returned for backcheck but not approved prior to Oct. 1, 2020:** No revisions required. CFS joist spacing up to 48 inches on center may be accepted without modification. This includes any site placement projects of buildings utilizing approved 2016 PC or 2019 PC plans.
- **Project was submitted to DSA prior to Oct. 1, 2020 but plan check comments have not been returned:** Revisions required. A maximum joist or rafter spacing of 24 inches on center will be enforced.

Exception: These requirements will not be enforced for any site placement projects of buildings utilizing approved 2016 PC or 2019 PC plans submitted before Oct. 1, 2020.