

Web Stiffeners for PRI-400® I-Joists

A web stiffener is a wood block that is used to reinforce the web of an I-joist at locations where:

- The webs of the I-joist are in jeopardy of buckling out of plane. This usually occurs in deeper I-joists.
- The webs of the I-joist are in jeopardy of “knifing” through the I-joist flanges. This can occur at any I-joist depth when the design reaction loads exceed a specific level.
- The I-joist is supported in a hanger and the sides of the hanger do not extend up to the top flange. With the top flange unsupported by the hanger sides, the joist may deflect laterally, putting a twist in the flange of the joist. The web stiffener supports the I-joist along a vertical axis as designed. (In this application, the web stiffener acts very much like a backer block.)

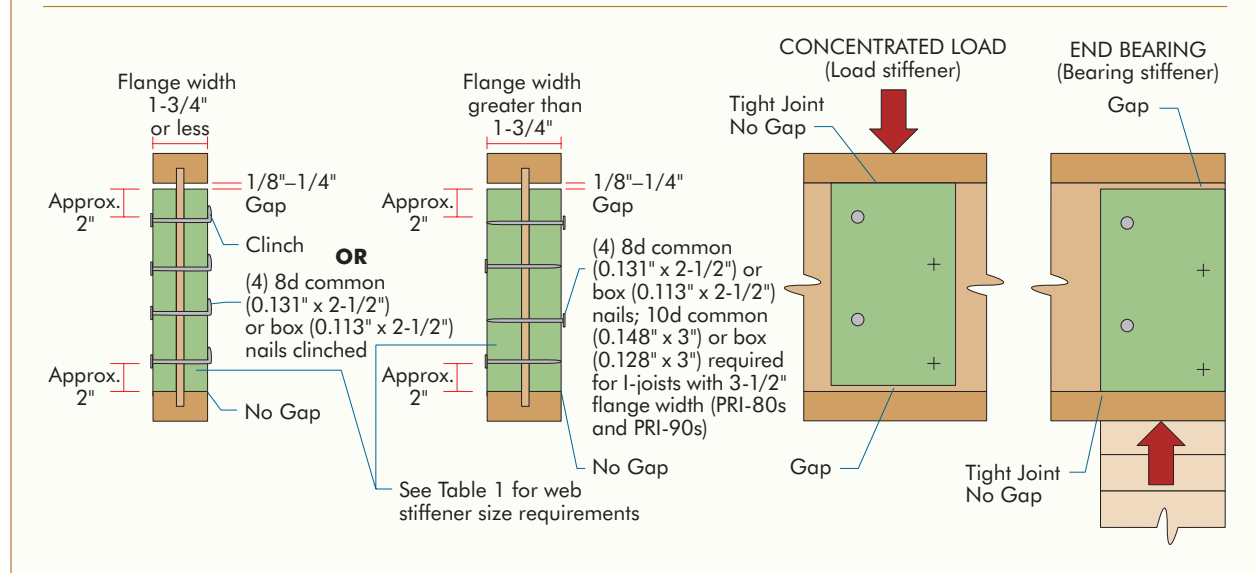
There are two kinds of web stiffeners: *bearing stiffeners* and *load stiffeners*. They are differentiated by the applied load and the location of the gap between the slightly undersized stiffener and the top or bottom flange.

Bearing stiffeners are located at the reactions, both interior and exterior, when required.

Load stiffeners are located between supports where significant point loads are applied to the top flange of an I-joist.

FIGURE 1

WEB STIFFENER INSTALLATION DETAILS FOR PRI-400® I-JOISTS



Physical description:

Web stiffener blocks may be comprised of lumber, APA Rated Rim Board®, or wood structural panels. The minimum grade of wood structural panels is Rated Sheathing; minimum lumber grade is Utility grade SPF (south) or better. Any APA Rated Rim Board product would also work satisfactorily.

Ideally, the depth of the web stiffener should equal the distance between the flanges of the joist minus 1/8 to 1/4 inch. For *bearing stiffeners*, this gap is placed between the stiffener and the bottom of the top flange. For *load stiffeners*, the gap is located at the bottom of the stiffener.

Recommendations for PRI-400 I-joists:

1. A *bearing stiffener* is required in all engineered applications with design end reactions greater than 1550 lbf except for PRI-90, which requires bearing stiffeners when end reaction values exceed 1885 lbf. The gap between the bearing stiffener and the flange is at the top.

2. A *bearing stiffener* is required when the I-joist is supported in a hanger and the sides of the hanger do not extend up to, and support, the top flange. The gap between the bearing stiffener and flange is at the top.

3. A *load stiffener* is required at locations where a concentrated load greater than 1500 lbf is applied to the top flange between supports, or in the case of a cantilever, anywhere between the cantilever tip and the support. The minimum bearing length for concentrated loads is 3-1/2 inches. The gap between the load stiffener and the flange is at the bottom.

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TABLE 1

STIFFENER SIZE REQUIREMENTS

APA PRI Flange Width (in.)	Web Stiffener Size Each Side of Web (in.)
1-1/2	15/32 x 2-5/16 minimum width
1-3/4	19/32 x 2-5/16 minimum width
2-5/16	1 x 2-5/16 minimum width
2-1/2	1 x 2-5/16 minimum width
3-1/2	1-1/2 x 2-5/16 minimum width

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Form Number A745C

Revised November 2010

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