

Trus Joist® TJI® Joist Repair Details for Holes Located Within 12" of End Bearing

To ensure optimal performance of TJI® joists, web holes in TJI® joists should be positioned away from support locations in accordance with Weyerhaeuser literature. The table and detail below show how to repair a TJI® joist with a hole located within 12" of an end bearing and the maximum hole diameter allowed in these cases. This repair option assumes typical residential floor framing situations and is allowed **ONLY** if the joist is repaired as shown and does not exceed the maximum span, o.c. spacing, and loads given by Table 1.

TABLE 1: MAXIMUM JOIST SPANS^{[1][2][3]}

Joist Depth	Max Hole Diameter	TJI® Joist Series	Max o.c. Spacing	Max Joist Span (40 PSF Live)	
				10 PSF (Dead)	20 PSF (Dead)
9½"	3¾"	110, 210, 230	16"	17'-2"	15'-8"
			24"	14'-0"	12'-8"
11⅞"	4¾"	110, 210, 230, 360	16"	19'-4"	17'-8"
			24"	15'-9"	14'-4"
		560	16"	26'-3"	26'-3"
			24"	21'-11"	18'-4"
14"	5½"	110, 210, 230, 360	16"	21'-0"	19'-2"
			24"	17'-2"	15'-0"
		560	16"	29'-9"	29'-9"
			24"	24'-4"	20'-4"
16"	6½"	110, 210, 230, 360	16"	22'-6"	20'-7"
			24"	18'-1"	15'-0"
		560	16"	32'-11"	31'-6"
			24"	25'-2"	20'-11"

- [1] Span table and Figure 1 apply only to holes located within the first 12" of the joist end bearing. They DO NOT apply to holes located closer to intermediate bearings than allowed in Table B of *TJI® Joist Specifier's Guide (TJ-4000)*.
 [2] Hole shall NOT overlap inside face of bearing, and no other holes shall be cut inside or within 6" of the repaired area. See DO NOT details below.
 [3] For 12" o.c. spacing, use 16" maximum; for 19.2" o.c., use 24" maximum.

General Notes:

- Table is based on:
 - Uniform Loads
 - More restrictive of simple or continuous span
 - Clear distance between supports
 - Deflection criteria of L/360

The repair option in Figure 1 is not valid for any of the following conditions.



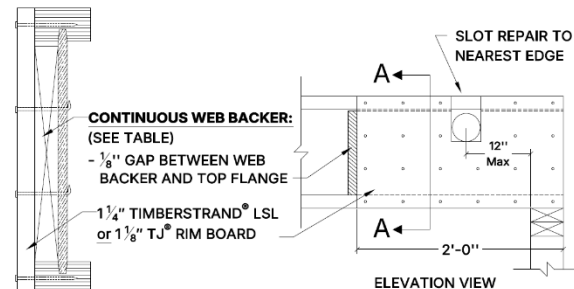
Hole can not overlap inside face of bearing



Hole must only be located in web—do not cut flange



Uniform loads only—no offset bearing walls



SECTION A-A

NOTES:

- REPAIR MAY BE INSTALLED ON EITHER SIDE OF TJI® JOIST
- APPLY CONSTRUCTION ADHESIVE TO ALL CONTACT SURFACES
- MINIMUM BEARING LENGTH OF 2.25"

PRODUCT	WEB BACKER THICKNESS	FLANGE NAIL ^[1]	WEB NAIL ^[2]
TJI® 110	¾" (net)	10d (0.128" x 3") @ 4" o.c.	16d (0.162" x 3 ½") @ 4" o.c.
TJI® 210	¾" (net)		
TJI® 230	1" (net)		
TJI® 360	1" (net)	16d (0.162" x 3 ½") @ 4" o.c.	
TJI® 560	1½" (net)		

[1] Locate flange nail at center of flange.

[2] Locate web nail evenly spaced between flanges; clinch when possible.

Figure 1: Repair detail for holes located within 12" of end bearing.

Alternative Solutions Beyond the Scope of TB-817

For joists with holes within 12" of end bearing that fall outside of the conditions shown, consider these four options:

- Install headers on either side of the TJI® joist.**
Reference Engineered Wood Products Header-off Span Tables in technical bulletin [TB-319](#) for maximum allowable spans.
- Replace the joist or add a new joist beside it.**
 - TJI® joists spaced at 24" o.c. may require an additional TJI® joist on each side of the damaged joist to ensure sheathing span limit requirements are met.
 - Use Weyerhaeuser literature to verify the allowable joist span when adding a new simple span beside a damaged, continuous span joist.
- Analyze joist with Weyerhaeuser design software.**
Web hole may be permitted based on hole provisions specific to [ForteWEB®](#).
- Contact your Weyerhaeuser representative to request a detailed hole analysis.**

Joists with holes that fall within the scope of Table 1 do not require a repair provided the holes;

- are located more than 12" from an end support, and
- maintain the required minimum distance from an intermediate or cantilever support per Table B in [TJ-4000](#) or [TJ-9015](#).