

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"	3⅜"	110, 210, 230	16"	17'-2"	15'-8"
			24"	14'-0"	12'-8"
11⅞"	4⅜"	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.



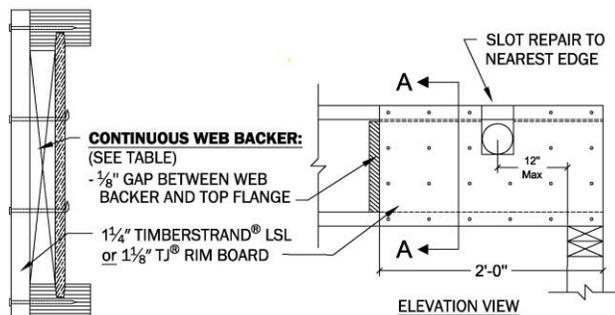
Hole can not overlap inside face of bearing



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.	
TJI® 210	7/8" (net)		
TJI® 230	1" (net)		
TJI® 360	1" (net)		
TJI® 560	1½" (net)	16d (0.162" x 3 ½") @ 4" o.c.	

- [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](#).