

This Tech Note must be used in conjunction with the appropriate PWT Technical Guide.

Functionally replacing a damaged I-Joist by installing another I-Joist, of the same depth and series, next to the damaged one is the preferred "repair." A qualified design professional must verify that the joist adjacent to damaged joist and on the opposite side of the replacement can support the additional load.

Specifically:

- 1) The joist designs are the same for the damaged joist and both adjacent joists (including but not limited to the spans, bearings, and loads), and
- 2) Verify that the "Critical Joist for Design" can support the additional loads, and
- 3) Adequate connectors must be used to transfer all loads to the replacement joist and both adjacent joists.

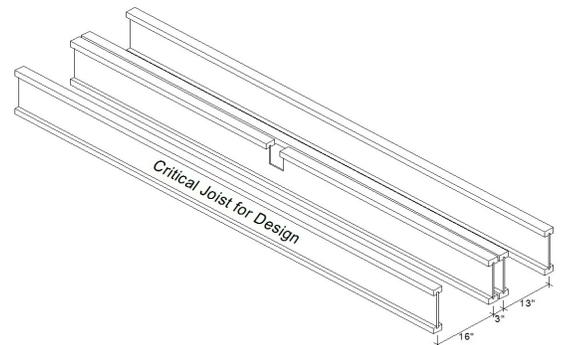
Applications that require special attention and should be sent to PWT for review:

- a) Functionally replacing one span in a multi-span application.
- b) I-Joists with side loads and or non-uniform loading.
- c) Any application that the design professional is not confident of the design.

How to Use

- a) Design the "critical joist" based on the distance between the damaged and replacement joists
- b) Use the table below to find the Maximum Capacity or Stress Indices. Select the row based on the distance in step a) and the column based on the on-center spacing.

Max Capacity or Stress Indices Allowed by Distance between Damaged and Replacement Joist and On-Center Spacing				
Distance between Joists	On-Center Spacing			
	12"	16"	19.2"	24"
3"	88%	91%	92%	94%
4"	85%	88%	90%	92%
5"	82%	86%	88%	90%
6"	80%	84%	86%	88%



Examples based on 3" distance between damaged and replacement joist

11-7/8" PWI 20S at 24" oc Designed to LL/480, TL/240

Analysis Results from Exacte by PWT

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	3498 ft-lb	8' 6"	3755 ft-lb	0.932 (93%)	D+L	L
Shear	836	16' 10-3/8"	1485 lb	0.563 (56%)	D+L	L
LL Defl inch	0.391 (L/513)	8' 6-1/16"	0.418 (L/480)	0.940 (94%)	L	L
TL Defl inch	0.489 (L/411)	8' 6-1/16"	0.836 (L/240)	0.580 (58%)	D+L	L

The damaged joist can be replaced with a new joist 3" away

11-7/8" PWI 20S at 12" oc Designed to LL/480, TL/240

Analysis Results from Exacte by PWT

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	3380 ft-lb	10' 9"	3755 ft-lb	0.900 (90%)	D+L	L
Shear	637	1-5/8"	1485 lb	0.429 (43%)	D+L	L
LL Defl inch	0.524 (L/486)	10' 9-1/16"	0.531 (L/480)	0.990 (99%)	L	L
TL Defl inch	0.786 (L/324)	10' 9-1/16"	1.061 (L/240)	0.740 (74%)	D+L	L

The damaged joist cannot be replaced with a new joist 3" away

Our literature is updated frequently. Please visit www.pwtewp.com for the most current version of our specifications.

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Cal. Prop 65 Warning:

WARNING: Drilling, sawing, sanding or machining wood products can expose you to wood dust, a substance known to the State of California to cause cancer. Avoid inhaling wood dust or use a dust mask or other safeguards for personal protection. For more information go to www.P65Warnings.ca.gov/wood.