

Web Hole Rules and Specifications

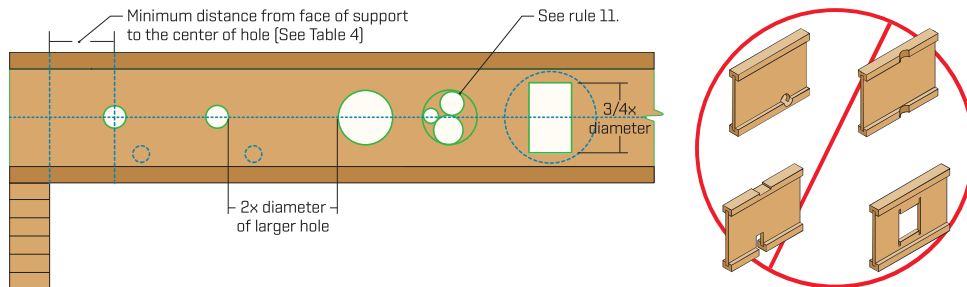
One of the benefits of using P3 Joists in residential floor construction is that holes may be cut in the joist webs to accommodate electrical wiring, plumbing lines, and other mechanical systems, thereby minimizing the depth of the floor system.

Rules for Cutting Holes in P3 Joists

1. The distance between the inside edge of the support and the center line of any hole shall be in compliance with the requirements of Table 4.
2. P3 Joist top and bottom flanges must **NEVER** be cut, notched, or otherwise modified.
3. Whenever possible field-cut holes should be centered on the middle of the web.
4. The maximum size hole that can be cut into a P3 Joist web shall equal the clear distance between the flanges of the P3 Joist minus 1/4". A minimum of 1/8" should always be maintained between the top or bottom of the hole and the adjacent P3 Joist flange.
5. The sides of square holes or longest sides of rectangular holes should not exceed three-fourths of the diameter of the maximum round hole permitted at that location.
6. Where more than one hole is necessary, the distance between adjacent hole edges shall exceed twice the diameter of the largest round hole or twice the size of the largest square hole **(or twice the length of the longest side of the longest rectangular hole)** and each hole must be sized and located in compliance with the requirements of Table 4.
7. Holes measuring 1-1/2" shall be permitted anywhere in a cantilevered section of a P3 Joist. Holes of greater size may be permitted subject to verification.
8. A 1-1/2" hole can be placed anywhere in the web provided that it meets the requirements of rule 6 above.
9. All holes shall be cut in a workman-like manner in accordance with the restrictions listed above and as illustrated in Figure 6.
10. Limit of 3 maximum size holes per span.
11. A group of round holes at approximately the same location shall be permitted if they meet the requirements for a single round hole circumscribed around them.

P3 Joist Typical Holes

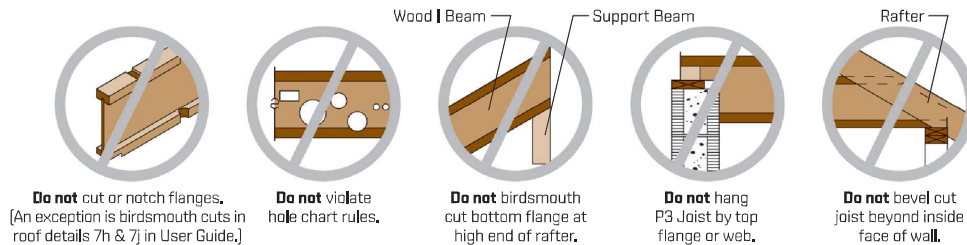
FIGURE 6



Cutting the Holes

- **Never** drill, cut, or notch the flange. **Never** over-cut the web.
- Holes in webs should be cut with a sharp saw.
- For rectangular holes avoid over cutting the corners as this can cause unnecessary stress concentrations. Slightly rounding the corners is recommended. Starting the rectangular hole by drilling a 1" diameter hole in each of the 4 corners and then making the cuts between the holes is another good method to minimize damage to I-Joist.

Do Not Cut or Drill



Web Hole Rules and Specifications (continued)

TABLE 4

Location Of Circular Holes In P3 Joist Webs

Simple or Multiple Span for Dead Load up to 10 psf and Live Load up to 40 psf^{f1,2,3,4}

Depth (in)	Joist Series	Minimum distance from inside face of any support to center of hole [ft-in]														
		Round Hole Diameter (in)														
		SAF ⁵	2	3	4	5	6	6-1/4	7	8	8-5/8	9	10	10-3/4	11	12
9-1/2"	PJI-40	14-6"	0'-7"	0'-8"	1'-2"	2'-9"	4'-5"	4'-11"								
	PJI-60	15-2"	0'-7"	1'-1"	2'-7"	4'-3"	6'-0"	6'-6"								
	PJI-80	16-6"	0'-7"	2'-0"	3'-7"	5'-3"	7'-1"	7'-7"								
11-7/8"	PJI-40	16-6"	0'-7"	0'-8"	0'-8"	1'-2"	2'-8"	3'-0"	4'-2"	5'-9"	6'-11"					
	PJI-60	18-1"	0'-7"	0'-8"	1'-8"	3'-1"	4'-8"	5'-0"	6'-3"	8'-0"	9'-2"					
	PJI-65	18-9"	0'-7"	0'-8"	1'-11"	3'-4"	4'-10"	5'-3"	6'-6"	8'-3"	9'-5"					
	PJI-80	19-8"	0'-7"	1'-4"	2'-10"	4'-4"	5'-11"	6'-4"	7'-7"	9'-5"	10'-8"					
	PJI-90	20-1"	0'-7"	1'-9"	3'-3"	4'-9"	6'-4"	6'-9"	8'-0"	9'-10"	11'-1"					
14"	PJI-40	18-2"	0'-7"	0'-8"	0'-8"	0'-9"	1'-2"	1'-6"	2'-7"	4'-0"	4'-11"	5'-6"	7'-1"	8'-5"		
	PJI-60	20-6"	0'-7"	0'-8"	0'-8"	1'-11"	3'-4"	3'-8"	4'-9"	6'-3"	7'-3"	7'-10"	9'-7"			
	PJI-65	21-3"	0'-7"	0'-8"	0'-11"	2'-3"	3'-7"	3'-11"	5'-1"	6'-7"	7'-7"	8'-2"	9'-11"			
	PJI-80	22-4"	0'-7"	0'-8"	1'-10"	3'-2"	4'-8"	5'-0"	6'-2"	7'-9"	8'-9"	9'-5"	11'-3"			
	PJI-90	22-11"	0'-7"	0'-8"	1'-10"	3'-2"	4'-8"	5'-0"	6'-2"	7'-9"	8'-9"	9'-5"	11'-3"			
16"	PJI-40	19-7"	0'-7"	0'-8"	0'-8"	0'-9"	0'-9"	0'-10"	1'-2"	2'-6"	3'-4"	3'-10"	5'-3"	6'-5"	6'-9"	8'-5"
	PJI-60	21-9"	0'-7"	0'-8"	0'-8"	0'-9"	1'-4"	1'-8"	2'-7"	3'-11"	4'-10"	5'-4"	6'-10"	8'-0"	8'-5"	10'-1"
	PJI-65	23-6"	0'-7"	0'-8"	0'-8"	1'-2"	2'-6"	2'-10"	3'-10"	5'-2"	6'-1"	6'-8"	8'-2"	9'-4"	9'-9"	11'-6"
	PJI-80	24-9"	0'-7"	0'-8"	0'-10"	2'-2"	3'-6"	3'-10"	4'-11"	6'-4"	7'-4"	7'-11"	9'-6"	10'-9"	11'-2"	13'-0"
	PJI-90	25-4"	0'-7"	0'-8"	0'-10"	2'-2"	3'-6"	3'-10"	4'-11"	6'-4"	7'-4"	7'-11"	9'-6"	10'-9"	11'-2"	13'-0"
18"	PJI-80	27-0"	0'-7"	0'-8"	0'-8"	0'-10"	2'-3"	2'-7"	3'-8"	5'-1"	6'-1"	6'-8"	8'-2"	9'-5"	9'-10"	11'-7"
	PJI-90	27-8"	0'-7"	0'-8"	0'-8"	1'-6"	2'-11"	3'-3"	4'-4"	5'-10"	6'-10"	7'-5"	9'-0"	10'-3"	10'-8"	12'-5"
20"	PJI-80	29-3"	0'-7"	0'-8"	0'-8"	0'-9"	1'-8"	2'-0"	3'-0"	4'-4"	5'-3"	5'-9"	7'-2"	8'-3"	8'-8"	10'-2"
	PJI-90	30-0"	0'-7"	0'-8"	0'-8"	0'-9"	1'-11"	2'-3"	3'-3"	4'-8"	5'-6"	6'-0"	7'-5"	8'-7"	8'-11"	10'-6"
24"	PJI-80	31-3"	0'-7"	0'-8"	0'-8"	0'-9"	0'-9"	0'-10"	0'-10"	1'-6"	2'-2"	2'-8"	3'-10"	4'-9"	5'-1"	6'-4"
	PJI-90	31-3"	0'-7"	0'-8"	0'-8"	0'-9"	0'-9"	0'-10"	0'-10"	1'-6"	2'-2"	2'-8"	3'-10"	4'-9"	5'-1"	6'-4"

NOTES

- Above tables may be used for P3 Joist spacing of 24" on center or less.
- Hole location distance is measured from inside face of supports to center of hole.
- Distances in this chart are based on uniformly loaded joists.
- Hole sizes and/or locations that fall outside of the scope of this table may be acceptable based on analysis of actual hole size, span, spacing, and loading conditions.
- SAF stands for Span Adjustment Factor. SAF is used as defined below.

OPTIONAL

Table 4 is based on the P3 Joists being used at their maximum span. If the P3 Joists are placed at less than their full allowable span, the maximum distance from the centerline of the hole to the face of any support [D] as given above may be reduced as follows.

$$D_{\text{reduced}} = \frac{L_{\text{actual}}}{\text{SAF}} \times D$$

Where: D_{reduced} = Distance from the inside face of any support to center of hole is reduced for less-than-maximum span applications [ft]. The reduced distance shall not be less than 6" from the face of support to edge of the hole.

L_{actual} = The actual measured span distance between the inside faces of supports [ft]

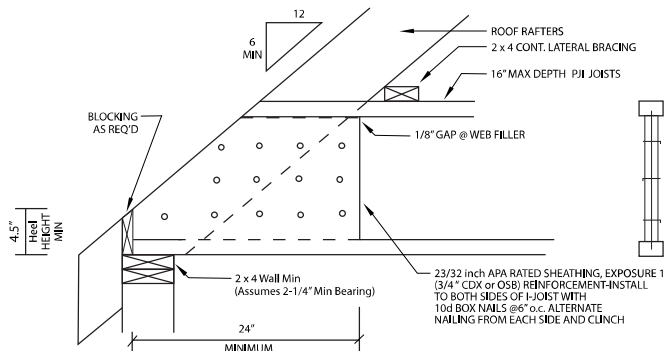
SAF = Span Adjustment Factor is given in the table above.

D = The minimum distance from the inside face of any support to center of hole from Table 4 above

If $\frac{L_{\text{actual}}}{\text{SAF}}$ is greater than 1, use 1 in the above calculation for $\frac{L_{\text{actual}}}{\text{SAF}}$

When calculating hole locations by this optional method, the following minimum distances between the center of the hole and the inside face of the support apply.

Hole Diameter	2	3	4	5	6	6-1/4	7	8	8-5/8	9	10	10-3/4	11	12	12-3/4
inches	(51)	(76)	(101)	(127)	(152)	(159)	(178)	(202)	(219)	(228)	(254)	(273)	(278)	(305)	(324)
Minimum Distance															
in feet	0.5	0.5	1	1	1	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2
(mm)	(150)	(150)	(300)	(300)	(300)	(450)	(450)	(450)	(450)	(450)	(450)	(450)	(450)	(450)	(600)



TAPER CUT JOIST REINFORCEMENT DETAIL

1-1/2" = 1'-0"