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PINKWOOD® I-JOISTS AND WEBSHIELD® PANELS

CSI Sections:
06 05 23 Wood, Plastic and Composite Fastenings
06 17 33 Wood I-Joists

1.0 RECOGNITION

Pinkwood® Ltd Joists and Panels have been evaluated for use as floor joists, rim joists, and rafters. WEBSHIELD® Panels recognized in this report have been evaluated for use as protective panels to enhance the fire performance of Pinkwood® prefabricated wood I-Joists in FRI Assemblies. The structural and fire resistance properties of the I-Joists and FRI Assemblies comply with the intent of the provisions of the following codes:

- 2024, 2021, 2018, 2015, and 2012 International Building Code® (IBC)
- 2024, 2021, 2018, 2015, and 2012 International Residential Code® (IRC)
- 2026 and 2023 City of Los Angeles Building Code (LABC) – Supplement attached
- 2026 and 2023 City of Los Angeles Residential Code (LARC) – Supplement attached

2.0 LIMITATIONS

Use of Pinkwood® I-Joists and WEBSHIELD® Panels recognized in this report is subject to the following limitations:

2.1 Cuts and notches in the flanges of the I-Joists are not permitted. Where such alterations occur, the cuts and notches shall be reviewed by a registered design professional, and repair actions may be required and are subject to the approval of the building official.

2.2 The I-Joists shall be properly braced in accordance with the Pinkwood® installation instructions and the applicable building code.

2.3 Complete construction documents, including plans and calculations verifying compliance with this report, shall be submitted to the building official for approval. The construction documents shall be prepared and sealed by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed.

2.4 The in-service moisture content of the I-Joists and WEBSHIELD® Panels shall be 16 percent or less.

2.5 Repetitive member factor for use with allowable bending moment calculations shall be 1.0.

2.6 Except as prescribed in Section 3.5 of this report, cutting through, drilling, or otherwise altering the WEBSHIELD® Panels is outside the scope of recognition. Partial panels are permitted as described in this report.

2.7 The Pinkwood® I-Joists and WEBSHIELD® Panels recognized in this report are manufactured in Calgary, Alberta, Canada.

3.0 PRODUCT USE

3.1 General

3.1.1 Pinkwood® I-Joists: Pinkwood® wood I-Joists are used as floor joists, rim joists, and rafters in lieu of sawn lumber joists in combustible construction, and comply with IBC Section 2303.1.2; 2024, 2021, 2018 and 2015 IRC Section R502.1.2; 2024 IRC Section R802.1.7; 2021 and 2018 IRC Section 802.1.8, and 2012 IRC Section R502.1.4. Pinkwood® I-Joists may be used in lieu of sawn lumber in diaphragms to resist lateral loads when installed as required by the manufacturer's published instructions.

3.1.2 WEBSHIELD® Panels: WEBSHIELD® Panels are used to protect the webs of Pinkwood® PKI Series I-Joists (10, 20, 23, 35 Plus, 40, 50 only) to provide equivalent fire performance to 2-inch by 10-inch nominal dimension lumber (38.1 mm by 235 mm) in residential floor applications under the IRC. The patented FRI Assemblies (consisting of Pinkwood® I-Joists and WEBSHIELD® Panels) are recognized for installation without the prescribed minimum ½-inch-thick (12.7 mm) gypsum board or ⅝-inch-thick (15.9 mm) wood structural panel membranes in accordance with Exception 4 to 2012 IRC Section R501.3 or 2015, 2018, 2021, and 2024 IRC Section R302.13. Recognition for this application is limited to designs in accordance with Section 3.2.3 of this report and installation in accordance with Section 3.3.2 of this report.

The product described in this Uniform Evaluation Service (UES) Report has been evaluated as an alternative material, design or method of construction in order to satisfy and comply with the intent of the provision of the code, as noted in this report, and for at least equivalence to that prescribed in the code in quality, strength, effectiveness, fire resistance, durability and safety, as applicable, in accordance with Section 104.2.3 of the 2024 IBC and Section 104.11 of previous editions. This document shall only be reproduced in its entirety.

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3.2 Design

3.2.1 Pinkwood® I-Joist Design: The design of Pinkwood® I-Joists described in this report is governed by the applicable building code and the corresponding edition of the ANSI/AWC National Design Specification for Wood Construction (NDS). The allowable design properties for Pinkwood® I-Joists are listed in Table 2 and Table 3 of this report. For wood diaphragm applications, the design shall be in accordance with the applicable code, using allowable shear capacities specified in Table 8 of this report for wind or seismic design of horizontal wood structural panel diaphragms framed with Pinkwood® I-Joists.

3.2.2 Fasteners: The design of fasteners driven into the flanges of Pinkwood® I-Joists shall comply with the applicable code and this section. Table 5 of this report specifies the equivalent specific gravity of the flanges for fastener design. Table 6 of this report specifies the requirements for the spacing of nails driven into the flange faces of the I-Joist.

3.2.3 FRI Design: FRI Assemblies shall be designed in accordance with Figures 6, 7, and 8 of this report based on the I-Joist series and flange size used. WEBSHIELD® Panels installed using fasteners or adhesives in accordance with this report do not decrease the structural properties of the I-Joists. Any increase in sectional properties due to the addition of the WEBSHIELD® Panels shall not be considered in the design. FRI Assemblies are for use with Pinkwood I-Joists designed for applications having a maximum allowable uniform live load of 40 psf (1,915 N/m^2) and a maximum allowable uniform dead load of 20 psf (958 N/m^2). Loading conditions other than those described shall be analyzed by a registered design professional and approved by the building official.

3.3 Installation

3.3.1 Pinkwood® I-Joist: Installation of Pinkwood® I-Joists shall conform to the Pinkwood® I-Joist installation details, this evaluation report, and the applicable provisions of the IBC or IRC. Where there is a conflict between these documents, the more restrictive provisions shall govern. The manufacturer's installation instructions and this report are available for download at www.PinkWood.ca and www.XP-EWP.com.

3.3.1.1 Lateral Support: The compression flanges of I-Joists shall have continuous lateral support, and the joists shall be restrained at supports to prevent rollover. Methods specified in the applicable code for the lateral support of sawn lumber are acceptable. Bridging and mid-span blocking are not required for floor and roof joist applications, unless specified by the designer. Blocking panel rollover restraint shall be as specified by the design professional.

3.3.1.2 Bearing Stiffeners: Field-installed bearing stiffeners for I-Joists shall be provided at end bearings when end reactions exceed those permitted by Table 3 of this report for unstiffened webs. Bearing stiffeners shall be installed at interior supports when intermediate reactions exceed those permitted by Table 3 of this report for unstiffened webs. The stiffeners shall be installed as shown in Figure 1 and shall be the dimensions shown in Table 4 of this report.

3.3.1.3 Web Stiffeners: Field-installed web stiffeners are required at points of concentrated loads exceeding 1,500 lbs. (6672 N) on a single joist and shall be installed in accordance with Figure 1 of this report. Concentrated loads exceeding 1,500 lbs. (6672 N) applied to a single or to multiple joists are permitted, provided the joists are laterally supported, and such support and conditions are analyzed by a registered design professional and approved by the building official.

3.3.1.4 Blocking Panels and Rim Joists: Pinkwood® I-Joists are permissible for use as boundary members in horizontal wood-framed diaphragms in accordance with Section 2308 of the IBC and Chapters 5 and 8 of the IRC. The allowable design properties for blocking panel and rim joist applications are listed in Table 7 of this report.

3.3.1.5 Topical Treatments: Pinkwood® I-Joists are allowed for use with the application of topical treatments such as paints, stains, waxes, and penetrants to enhance certain properties such as appearance, mold resistance, insect resistance, flame spread resistance, or fire resistance. These treatments are permitted provided that such enhancements do not affect the design properties of the I-Joist, and the topical treatment manufacturer has a current evaluation services report from an approved agency.

3.3.2 WEBSHIELD® Panels: WEBSHIELD® Panels shall be installed as outlined by Pinkwood's installation guidelines in accordance with the applicable code, the manufacturer's published installation instructions, and this report. Where there is a conflict, the more restrictive requirements shall govern. WEBSHIELD® Panels shall be installed under the supervision of installers certified by Pinkwood® Ltd. The certifications may be verified at www.PinkWood.ca or www.XP-EWP.com. When WEBSHIELD® Panels are installed without the supervision of certified installers, special inspection in accordance with IBC Section 1705.1.1 may be required as determined by the building official.

3.3.2.1 Installation with Adhesives: The WEBSHIELD® Panels may be pre-installed by the manufacturer using wet-use adhesives complying with ASTM D2559 and ASTM D7247 as described and specified in the manufacturer's approved quality documentation.

3.3.2.2 Installation with Fasteners: The WEBSHIELD® Panels may be pre-installed by the manufacturer or installed on-site by certified installers using No. 16 gauge, minimum $^7/_{16}$-inch crown staples in accordance with Figure 7 and Figure 8 of this report. Alternative fasteners may be used as described and installed in accordance with the manufacturer's published installation instructions.

3.4 Resistance to Fire

3.4.1 Fire-Resistance-Rated Floor-Ceiling Assemblies:

3.4.1.1 Recognized Assemblies: Pinkwood® I-Joists are recognized for use in fire-resistance-rated floor-ceiling assemblies constructed in accordance with the prescriptive details in Item Numbers 21-1.1, 23-1.1, 26-1.1, 27-1.1, 28-1.1, and 30-1.1 of IBC Table 721.1(3). For Items 24.1.1 and 25.1.1, the PKI Series 60L, 70L, 80L, and 90L are excluded. Pinkwood® I-Joists are also permitted as components of one-hour roof-ceiling and floor-ceiling assemblies when constructed in accordance with Figures 3a, 3b, and 4 of this report. Two-hour roof-ceiling and floor-ceiling assemblies are permitted when constructed in accordance with Figure 5 of this report. Where a floor-ceiling assembly is installed in accordance with Figures 3 or 4 over an unusable crawlspace, the ceiling membrane may be omitted. When used in connection with unusable attic space, the floor membrane may be omitted, provided adequate lateral support is utilized in accordance with Section 3.3.1.2 of this report. Either Gypsum concrete or Lightweight concrete is permitted for use with the assemblies in Figures 3, 4, and 5 of this report. Cavity recesses that penetrate the assemblies listed in Figures 3, 4, and 5 of this report are permitted, provided that they are constructed to withstand the burn time listed for the rated assembly. Allowable components, items, and listed time ratings are outlined in AWC DCA 4, *Design for Code Acceptance No. 4 (DCA 4) Component Additive Method (CAM) for Calculating and Demonstrating Assembly Fire Endurance*. Dropped and suspended ceilings are permitted as additional components to the assemblies in Figures 3, 4, and 5 of this report.

3.4.1.2 Alternative Fire-Resistance-Rated Assemblies: The Pinkwood® I-Joists are permitted to be used as a component of a fire-resistance-rated assembly in accordance with IBC Section 703.2, based on testing conforming to ASTM E119 or UL 263. Alternative methods in IBC Section 703.2.2 are also permitted. Fire resistance based on testing in accordance with ASTM E119 or UL 263 may be established when the registered design professional specifies and then the building official approves, a fire-resistance-rated assembly with the Pinkwood® I-Joists in a documented design from approved sources. Evidence of compliance may be in the form of evaluation reports issued by approved sources.

3.4.2 Fire Protection of Floors: Pinkwood® PKI Series I-Joists (10, 20, 23, 35 Plus, 40, 50 only) offer equivalent fire performance to 2-inch by 10-inch nominal dimension lumber and are recognized for installation without the prescribed minimum ½-inch-thick (12.7 mm) gypsum wallboard or ⅝-inch-thick (15.9 mm) wood structural panel membrane in accordance with Exception 4 to 2024, 2021, 2018, and 2015 IRC Section R302.13 or 2012 IRC Section R501.3 when:

a. Pinkwood® WEBSHIELD® Panels are installed as described in Figure 6 and attached as described in Figures 7 or 8 of this report, as applicable, or
b. When the I-Joists are protected with a fire-protective coating approved for use as an equivalent to 2-inch by 10-inch nominal dimensional lumber in accordance with Exception 4 to 2024, 2021, 2018, and 2015 IRC Section R302.13 or 2012 IRC Section R501.3, reduce the design properties of the I-Joist.

3.5 Holes in the Web

3.5.1 I-Joists: Round, square, rectangular, and grouped smaller holes are permitted in the I-Joists in accordance with the limitations set forth in Figure 2 of this report. Holes located within the web of the I-Joist, as outlined in Figure 2 of this report, are permitted to be used in the fire-resistance-rated assemblies as shown in Figures 3, 4, 5, and 6 of this report. Table 9 of this report outlines the allowed holes and hole locations for uniformly loaded Pinkwood® I-Joists. Live load and Dead load limitations are outlined in Table 9 of this report.

3.5.2 Web Holes in FRI Assemblies: Holes in the webs of wood I-Joists used in FRI Assemblies are subject to the maximum size and location requirements specified in this evaluation report for the wood I-Joist complying with Section 3.4.2.a of this report. Additionally, where the desired hole coincides with the location of a WEBSHIELD® Panel, the following rules apply: A hole not exceeding 1½ inches (38.1 mm) in diameter may be located anywhere within a WEBSHIELD® Panel. For adjacent maximum 1½-inch-diameter (38.1 mm) holes, the spacing between holes shall be at least three times the largest hole diameter.

a. When a 1½-inch-diameter (38.1 mm) hole is insufficient for the specific end-use application, a single maximum 6-inch-diameter (152 mm) hole may be cut in a WEBSHIELD® Panel section. When such a hole is cut, additional 6-inch-wide (152 mm) full-depth partial WEBSHIELD® Panels shall be installed back-to-back adjacent to the penetrated panels and fastened to the web as described in Figure 7 and Figure 8 of this report, using fasteners at the top and bottom of each panel in accordance with the installation instructions.
b. When multiple 1½-inch-diameter (38.1 mm) holes, maximum, are in a closely grouped area, the inscribed area shall not exceed a 6-inch-diameter (152 mm) circle.

When hole dimensions, shapes, and sizes differ from those listed in this section, an analysis from a registered design professional is required and is subject to the approval of the building official.

3.6 Sound Transmission: The airborne (STC) and structure-borne (IIC) sound-transmission ratings for floor-ceiling assemblies using Pinkwood® I-Joists are provided in Table 10 of this report.

4.0 PRODUCT DESCRIPTION

4.1 Pinkwood® I-Joists and Rim Joists: Pinkwood® I-Joists are prefabricated wood I-Joists conforming to the requirements of IBC Section 2303.1.2; 2024, 2021, 2018, and 2015 IRC Section R502.1.2; and 2012 IRC Section R502.1.4. The flanges are made of proprietary finger-jointed sawn lumber with a minimum specific gravity of 0.42. The webs are made of nominally $^{3}/_{8}$- or $^{7}/_{16}$-inch-thick (9.53 mm or 11.1 mm) Exposure 1 OSB, depending on the I-Joist series. The adhesives used to make the web-to-web, web-to-flange, and flange-to-flange connections comply with ASTM D2559 and ASTM D7247 for heat durability. Pinkwood® I-Joists are manufactured in ten I-Joist series: PKI10, PKI20, PKI23, PKI35Plus, PKI40, PKI50, PKI60L, PKI70L, PKI80L, and PKI90L. I-Joists and Rim Joists are available in various depths as described in Table 1 of this report. The Pinkwood® PKI Series I-Joists (10, 20, 23, 35 Plus, 40, 50, 60L, 70L, 80L, and 90L) are available in lengths up to 60 feet (18.2 m).

TABLE 1 - PINKWOOD® I-JOIST SERIES AND SIZES[1]

Series	I-Joist Depths, (inches)	Solid Sawn Flange Size (w x h), (inches)	LVL Flange Size (w x h), (inches)	Web Thickness, (inches)
PKI10	9½ to 14	2½ x 1½	N/A	⅜ or $^{7}/_{16}$ OSB
PKI20	9½ to 16	2½ x 1½	N/A	⅜ or $^{7}/_{16}$ OSB
PKI23	9½ to 16	2½ x 1½	N/A	⅜ or $^{7}/_{16}$ OSB
PKI35Plus	9½ to 16	3½ x 1½	N/A	⅜ or $^{7}/_{16}$ OSB
PKI40	9½ to 16	3½ x 1½	N/A	⅜ or $^{7}/_{16}$ OSB
	18 to 24		N/A	$^{7}/_{16}$ OSB
PKI50	11⅞ to 24	3½ x 1½	N/A	$^{7}/_{16}$ OSB
PKI60L	9½ to 16	N/A	2” x 1⅛	⅜ OSB
PKI70L	9½ to 16	N/A	2$^{5}/_{16}$ x 1⅛	⅜ OSB
PKI80L	9½ to 20	N/A	2$^{5}/_{16}$ x 1⅜	⅜ OSB
PKI90L	9½ to 20	N/A	3½ x 1⅜	$^{7}/_{16}$ OSB

For **S.I.**: 1 inch = 25.4 mm

[1] Listed Dimensions apply to the Nominal Width of Framing Members column in Table 8 of this report.

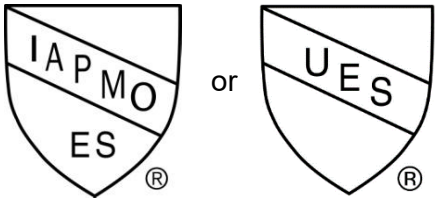
4.2 WEBSHIELD® Panels: WEBSHIELD® Panels are Exposure 1 OSB panels, nominally $^{15}/_{32}$ inch (11.9 mm) thick by 24 inches (610 mm) long, and manufactured to fit between the top and bottom flanges of eligible I-Joists to protect the webs in FRI Assemblies. The panels are designated as ws-10 for use with 9½-inch-deep (241 mm) I-Joists; ws-12 for use with 11⅞-inch-deep (302 mm) I-Joists; ws-14 for use with 14-inch-deep (356 mm) I-Joists; and ws-16 for use with 16-inch-deep (406 mm) I-Joists. Six-inch (152 mm) and 12-inch (305 mm) width, full-depth WEBSHIELD® partial panels may be cut from undamaged WEBSHIELD® Panels.

5.0 IDENTIFICATION

Pinkwood® I-Joists are identified with the manufacturer’s name (Pinkwood Ltd.), the product name (PKI), the series name, the I-Joist depth, and the evaluation report number (IAPMO UES ER-431). Bundles of I-Joists are identified with the series, depth, and length of the I-Joists.

WEBSHIELD® Panels are identified by the product name (WEBSHIELD®), and the evaluation report number (IAPMO UES ER-431) printed on both ends. Pallets of WEBSHIELD® Panels are identified with the designation corresponding to the I-joist depth (ws-10, ws-12, ws-14, or ws-16).

Either IAPMO UES Mark of Conformity may also be used as shown below:



IAPMO UES ER-431

6.0 SUBSTANTIATING DATA

6.1 Data and analysis in accordance with IBC Section 2303.1.2; 2024, 2021, 2018, and 2015 IRC Section R502.1.2; 2024 IRC Section R802.1.7; 2021 and 2018 IRC Section R802.1.8, and 2012 IRC Section R502.1.4; ICC-ES Acceptance Criteria for Prefabricated Wood I–Joists (AC14) - Approved June 2019, editorially revised January 2025; and ASTM D5055, Standard Specification for Establishing and Monitoring Structural Capacities of Prefabricated Wood I-Joists.

6.2 Reports of full-scale diaphragm testing in accordance with AC14, Section A2.3.2.

6.3 Documentation describing the manufacturer’s quality management system in accordance with AC14 Appendix B.

6.4 Pinkwood® I-Joist Floor Installation Details and product descriptive literature.

6.5 Reports of fire performance testing demonstrating equivalent fire performance to 2-inch by 10-inch nominal dimension lumber in accordance with IRC Section R302.13 and AC14, Section A4.4 – Fire Protection of Floors.

6.6 Data and analysis in accordance with ICC-ES Acceptance Criteria for Rim Board Products (AC-124) - Approved June 2019, editorially revised January 2025.

6.7 Reports of fire-resistance testing on assemblies in accordance with IBC Section703.2.1, IRC Section R302.3.2, ASTM E119, and UL 263.

6.8 Engineering analysis of fire-resistance ratings in accordance with IBC Section 703.3 and AWC FDS.

6.9 Sound Transmission Class and Impact Insulation Class Ratings (STC/IIC) are described in Table 10 of this report. Calculated STC/IIC ratings are as allowed in accordance with Sections 1206.2 and 1206.3 of the 2024, 2021, and 2018 IBC, and AWC Technical Report 15.

6.10 Test reports are from laboratories in compliance with ISO/IEC 17025.

7.0 STATEMENT OF RECOGNITION

This report describes the results of research completed by the IAPMO Uniform Evaluation Service on Pinkwood® I-Joists, Pinkwood® Rim Joists, and WEBSHIELD® Panels to assess their conformance to the codes and standards listed in Section 1.0 and serves as documentation of the product certification. The products are manufactured at locations noted in Section 2.7 of this report under a quality control program with periodic inspection under the supervision of IAPMO UES.

For additional information about this evaluation report please visit www.uniform-es.org or email us at info@uniform-es.org

TABLE 2 – DESIGN PROPERTIES FOR PINKWOOD® I-JOISTS (ALLOWABLE STRESS DESIGN)[1]

Joist Series	Joist Type	Joist Depth (inches)	Bending Stiffness EI ($x10^6$ lbf-in^2)	Allowable Moment, M (lbf-ft)	Shear (lbf)	Shear Deflection Coefficient, K[(2)] ($x10^6$lbf)
PKI10	PKI10-10	9½	168	2,365	1,260	4.94
	PKI10-12	11⅞	286	3,100	1,485	6.18
	PKI10-14	14	420	3,720	1,680	7.28
PKI20	PKI20-10	9½	193	2,810	1,260	4.94
	PKI20-12	11⅞	327	3,755	1,485	6.18
	PKI20-14	14	479	4,405	1,680	7.28
	PKI20-16	16	652	5,060	1,870	8.32
PKI23	PKI23-10	9½	226	3,330	1,260	4.94
	PKI23-12	11⅞	380	4,320	1,485	6.18
	PKI23-14	14	555	5,200	1,680	7.28
	PKI23-16	16	752	6,030	1,870	8.32
PKI35Plus	PKI35Plus-10	9½	234	3,395	1,260	4.94
	PKI35Plus-12	11⅞	396	4,395	1,485	6.18
	PKI35Plus-14	14	580	5,270	1,680	7.28
	PKI35Plus-16	16	787	5,990	1,870	8.32
PKI40	PKI40-10	9½	328	5,390	1,340	4.94
	PKI40-12	11⅞	553	6,970[(2)]	1,625	6.18
	PKI40-14	14	807	8,395	1,875	7.28
	PKI40-16	16	1,092	9,730	2,115	8.32
	PKI40-18	18	1,421	11,005	2,535	9.36
	PKI40-20	20	1,799	12,175	2,680	10.40
	PKI40-22	22	2,224	13,335	2,815	11.44
	PKI40-24	24	2,698	14,480	2,945	12.48
PKI50	PKI50-12	11⅞	608	7,955	2,135	6.18
	PKI50-14	14	879	9,200	2,280	7.28
	PKI50-16	16	1,182	10,655	2,415	8.32
	PKI50-18	18	1,539	12,770	2,535	9.36
	PKI50-20	20	1,839	14,175	2,680	10.40
	PKI50-22	22	2,273	14,590	2,815	11.44
	PKI50-24	24	2,757	15,845	2,945	12.48

TABLE 2 (continued) – DESIGN PROPERTIES FOR PINKWOOD® I-JOISTS (ALLOWABLE STRESS DESIGN)[1]						
Joist Series	**Joist Type**	**Joist Depth (inches)**	**Bending Stiffness EI ($x10^6$ lbf-in^2)**	**Allowable Moment, M (lbf-ft)**	**Shear (lbf)**	**Shear Deflection Coefficient, K[(2)] ($x10^6$lbf)**
PKI60L	PKI60L-10	9½	194	3,300	1,580	4.94
	PKI60L-12	11⅞	323	4,235	1,800	6.18
	PKI60L-14	14	470	5,020	1,950	7.28
	PKI60L-16	16	635	5,730	2,195	8.32
PKI70L	PKI70L-10	9½	221	3,750	1,580	4.94
	PKI70L-12	11⅞	370	4,810	1,800	6.18
	PKI70L-14	14	540	5,700	1,950	7.28
	PKI70L-16	16	730	6,510	2,195	8.32
PKI80L	PKI80L-10	9½	265	4,815	1,600	4.94
	PKI80L-12	11⅞	450	6,235	1,800	6.18
	PKI80L-14	14	660	7,440	1,975	7.28
	PKI80L-16	16	895	8,520	2,200	8.32
	PKI80L-18	18	1,170	9,590	2,450	9.36
	PKI80L-20	20	1,475	10,650	2,700	10.40
PKI90L	PKI90L-10	9½	400	7,370	1,700	4.94
	PKI90L-12	11⅞	675	9,550	2,175	6.18
	PKI90L-14	14	980	11,390	2,400	7.28
	PKI90L-16	16	1,330	13,050	2,750	8.32
	PKI90L-18	18	1,730	14,690	3,050	9.36
	PKI90L-20	20	2,190	16,310	3,360	10.40

For **SI**: 1 inch = 25.4 mm; 1 lbf = 4.4 N; 1 lbf-in^2 = 2870 N-mm^2; 1 lbf-ft = 1356 N-mm; 1 lbf/inch = 0.175 N/mm

Footnotes to Table 2:

1. The tabulated values are ASD design values for normal duration of load (C_D = 1.0). All values, except for EI and K, shall be permitted to be adjusted for other load durations as permitted by the ANSI/AWC National Design Specification (NDS) Section 2.3.2.
2. For calculating the maximum (center of span) uniform load and center point load deflections of an I-Joist in a simple-span application, Eq. 1 and Eq. 2 shall be used.

Uniform Load: $$\delta = \frac{5w\ell^4}{384EI} + \frac{w\ell^2}{K}$$ [Eq. 1]

Center-Point Load: $$\delta = \frac{P\ell^3}{48EI} + \frac{2P\ell}{K}$$ [Eq. 2]

Where:

- δ = calculated deflection (in.)
- w = uniform load (lbf/in.)
- P = concentrated load (lbf)
- ℓ = design span (in.)
- EI = bending stiffness of the I-Joist (lbf-in.^{2})
- K = coefficient of shear deflection (lbf)

TABLE 3a - REACTION CAPACITIES FOR PINKWOOD® SSL & LVL I-JOISTS - (ALLOWABLE STRESS DESIGN)[1,2,3]

Joist Series	Joist Type	Joist Depth (inches)	End Reaction (lbf)				Intermediate Reaction (lbf)				Flange Bearing Capacities (lbf/in)
			1 1/2" or 2 1/2" Bearing[4]		4" Bearing		3 1/2" Bearing		5 1/2" Bearing		
			Web Stiff.		Web Stiff.		Web Stiff.		Web Stiff.		
			No	Yes	No	Yes	No	Yes	No	Yes	
PKI10	PKI10-10	9 ½	900	1,140	1,110	1,260	2,195	2,280	2,450	2,520	955
	PKI10-12	11 ⅞	900	1,275	1,160	1,485	2,195	2,485	2,525	2,810	955
	PKI10-14	14	900	1,395	1,200	1,680	2,195	2,665	2,585	2,960	955
PKI20	PKI20-10	9 ½	970	1,140	1,110	1,260	2,195	2,375	2,450	2,635	955
	PKI20-12	11 ⅞	970	1,275	1,160	1,485	2,330	2,525	2,595	2,830	955
	PKI20-14	14	970	1,395	1,200	1,680	2,455	2,665	2,725	3,005	955
	PKI20-16	16	970	1,510	1,240	1,870	2,570	2,795	2,850	3,175	955
PKI23	PKI23-10	9 ½	970	1,140	1,110	1,260	2,195	2,375	2,450	2,635	955
	PKI23-12	11 ⅞	970	1,275	1,160	1,485	2,330	2,525	2,595	2,830	955
	PKI23-14	14	970	1,395	1,200	1,680	2,455	2,665	2,725	3,005	955
	PKI23-16	16	970	1,510	1,240	1,870	2,570	2,795	2,850	3,175	955
PKI35Plus	PKI35Plus-10	9 ½	900	1,140	1,110	1,260	2,195	2,280	2,450	2,520	1,380
	PKI35Plus-12	11 ⅞	900	1,275	1,160	1,485	2,195	2,485	2,525	2,810	1,380
	PKI35Plus-14	14	900	1,395	1,200	1,680	2,195	2,665	2,585	2,960	1,380
	PKI35Plus-16	16	900	1,510	1,240	1,865	2,195	2,880	2,645	3,105	1,380
PKI40	PKI40-10	9 ½	1,185	1,340	1,305	1,340	2,900	3,095	2,940	3,195	1,705
	PKI40-12	11 ⅞	1,245	1,510	1,595	1,625	3,025	3,340	3,120	3,515	1,705
	PKI40-14	14	1,280	1,660	1,595	1,875	3,085	3,565	3,280	3,805	1,705
	PKI40-16	16	1,295	1,800	1,595	2,115	3,145	3,775	3,435	4,080	1,705
	PKI40-18	18	1,310	2,060	1,680	2,550	2,850	4,285	3,435	4,970	1,705
	PKI40-20	20	1,310	2,185	1,680	2,640	2,850	4,410	3,435	4,970	1,705
	PKI40-22	22	1,310	2,310	1,680	2,735	2,850	4,530	3,435	4,970	1,705
	PKI40-24	24	1,310	2,440	1,680	2,830	2,850	4,640	3,435	4,970	1,705
PKI50	PKI50-12	11 ⅞	1,245	1,510	1,595	1,625	3,025	3,340	3,120	3,515	1,995
	PKI50-14	14	1,280	1,660	1,595	1,875	3,085	3,565	3,280	3,805	1,995
	PKI50-16	16	1,295	1,800	1,595	2,115	3,145	3,775	3,435	4,080	1,995
	PKI50-18	18	1,310	2,060	1,680	2,550	2,850	4,285	3,435	4,970	1,995
	PKI50-20	20	1,310	2,185	1,680	2,640	2,850	4,410	3,435	4,970	1,995
	PKI50-22	22	1,310	2,310	1,680	2,735	2,850	4,530	3,435	4,970	1,995
	PKI50-24	24	1,310	2,440	1,680	2,830	2,850	4,640	3,435	4,970	1,995
PKI60L	PKI60L-10	9½	1,175	1400	1,400	1,450	2,300	2,650	2,850	2,900	1,600
	PKI60L-12	11⅞	1,175	1450	1,500	1,700	2,400	2,850	3,000	3,200	1,600
	PKI60L-14	14	1,175	1550	1,550	1,900	2,490	3,085	3,065	3,400	1,600
	PKI60L-16	16	1,175	1650	1,550	1,990	2,570	3,250	3,090	3,550	1,600
PKI70L	PKI70L-10	9½	1,175	1400	1,400	1,450	2,410	2,650	2,950	3,400	1,850
	PKI70L-12	11⅞	1,175	1450	1,500	1,700	2,500	2,850	3,050	3,450	1,850
	PKI70L-14	14	1,175	1550	1,550	1,900	2,600	3,150	3,100	3,500	1,850
	PKI70L-16	16	1,175	1650	1,550	1,990	2,650	3,350	3,150	3,550	1,850

For **SI**: 1 inch = 25.4 mm; 1 lbf = 4.4 N; 1 lbf/inch = 0.175 N/mm

Footnotes to Table 3:

1. Reaction capacity shall be limited by the flange bearing capacity or the bearing capacity of the support material, whichever is less. The flange bearing capacity, per inch of bearing length, is based on the allowable compression perpendicular-to-grain of the I-Joist flange, accounting for eased edges.
2. Reaction capacity is for a normal duration of load and shall be permitted to be adjusted for other load durations, provided that the adjusted reaction capacity is not greater than the flange bearing capacity or the bearing capacity of the support material, which shall not be increased for any load durations.
3. Reaction capacity shall be permitted to be increased over that tabulated for the minimum bearing length by linear interpolation of the reaction capacity between the minimum and maximum bearing lengths. Extrapolation beyond the minimum and maximum bearing lengths is beyond the scope of this table.
4. For the I-Joists with a depth equal to or less than 16 inches, the minimum bearing length of the end reaction is 1½ inches; For the I-Joists with a depth equal to or larger than 18 inches, the minimum bearing length of the end reaction is 2½ inches.

TABLE 3b - REACTION CAPACITIES FOR PINKWOOD® LVL I-JOISTS - (ALLOWABLE STRESS DESIGN)[1,2,3]											
Joist Series	Joist Type	Joist Depth (inches)	End Reaction (lbf)				Intermediate Reaction (lbf)				Flange Bearing Capacities (lbf/in)
			1 1/2" Bearing		3 1/2" Bearing		3 1/2" Bearing		5 1/2" Bearing		
			Web Stiff.		Web Stiff.		Web Stiff.		Web Stiff.		
			No	Yes	No	Yes	No	Yes	No	Yes	
PKI80L	PKI80L-10	9½	1,200	1,550	1,525	1,600	2,675	3,200	3,150	3,300	1,830
	PKI80L-12	11⅞	1,200	1,700	1,525	1,800	2,675	3,400	3,250	3,450	1,830
	PKI80L-14	14	1,200	1,800	1,525	2,000	2,675	3,600	3,300	3,900	1,830
	PKI80L-16	16	1,200	1,900	1,525	2,150	2,675	3,800	3,325	4,300	1,830
	PKI80L-18	18	1,200	2,000	1,525	2,300	2,675	4,000	3,350	4,650	1,830
	PKI80L-20	20	1,200	2,200	1,525	2,450	2,675	4,200	3,375	4,900	1,830
PKI90L	PKI90L-10	9½	1,300	1,550	1,900	1,725	3,400	3,400	3,525	3,600	2,772
	PKI90L-12	11⅞	1,300	1,850	1,900	2,100	3,500	3,700	4,200	4,500	2,772
	PKI90L-14	14	1,300	2,000	1,900	2,450	3,600	4,000	4,200	4,700	2,772
	PKI90L-16	16	1,300	2,200	1,900	2,750	3,600	4,300	4,200	4,900	2,772
	PKI90L-18	18	1,300	2,400	1,900	3,000	3,600	4,600	4,200	5,100	2,772
	PKI90L-20	20	1,300	2,600	1,900	3,000	3,600	4,900	4,200	5,300	2,772

For **S.I.**: 1 inch = 25.4 mm; 1 lbf = 4.4 N; 1 lbf/inch = 0.175 N/mm

Footnotes to Table 3:

1. Reaction capacity shall be limited by the flange bearing capacity or the bearing capacity of the support material, whichever is less. The flange bearing capacity, per inch of bearing length, is based on the allowable compression perpendicular-to-grain of the I-Joist flange, accounting for eased edges.
2. Reaction capacity is for a normal duration of load and shall be permitted to be adjusted for other load durations, provided that the adjusted reaction capacity is not greater than the flange bearing capacity or the bearing capacity of the support material, which shall not be increased for any load durations.
3. Reaction capacity shall be permitted to be increased over that tabulated for the minimum bearing length by linear interpolation of the reaction capacity between the minimum and maximum bearing lengths. Extrapolation beyond the minimum and maximum bearing lengths is beyond the scope of this table.

TABLE 4 - WEB AND BEARING STIFFENER SIZE REQUIREMENTS

Minimum Web Stiffener Width (inches)				
	Flange Width (inches)			
	2	2 5/16	2½	3½
	Web Thickness (inches)			
	⅜		⅜	7/16
	Minimum Web Stiffener Thickness (inches)			
	⅝	¾	1	1½
	Minimum Nail Size			
	8d Box (2-1/2" x 0.113")		10d Box (3" x 0.128")	
	Total Nails Required			
2 5/16	4			

For **S.I.:** 1 inch = 25.4 mm

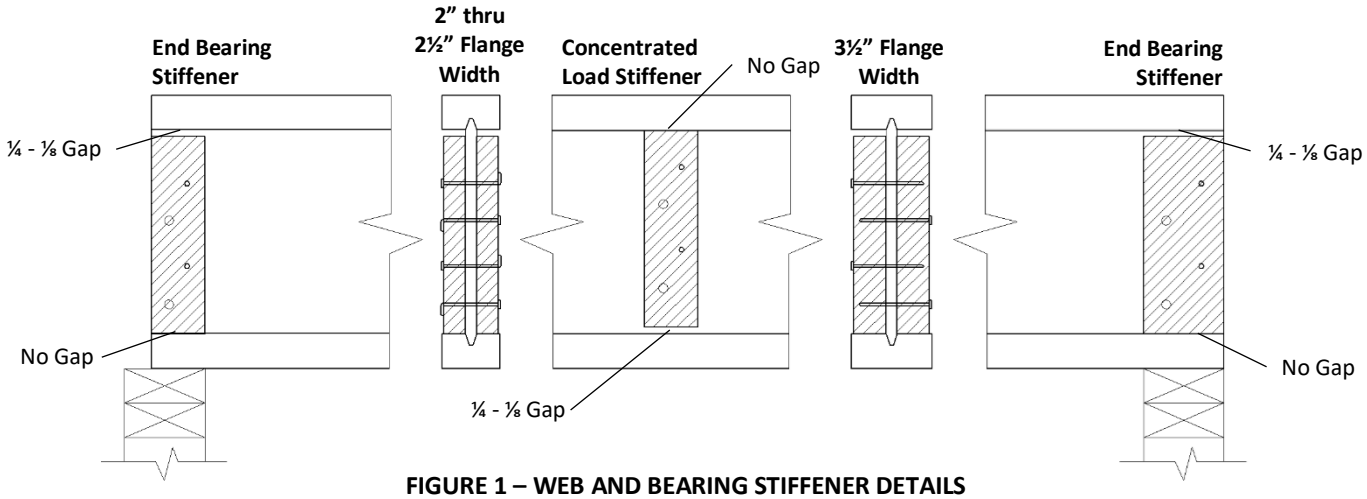


FIGURE 1 – WEB AND BEARING STIFFENER DETAILS

TABLE 5 - MINIMUM EQUIVALENT SPECIFIC GRAVITY FOR DESIGN OF NAIL CONNECTIONS

Joist Series	Minimum Equivalent Specific Gravity for Design of Nail Connections[1,2]	
	Side of Flange	Face of Flange
PKI10	0.42	0.42
PKI20	0.42	0.42
PKI23	0.46	0.46
PKI35Plus[3]	0.42	0.42
PKI40	0.46	0.46
PKI50	0.50	0.50
PKI60L	0.49	0.55[4]
PKI70L	0.49	0.55[4]
PKI80L	0.49	0.56[4]
PKI90L	0.49	0.56[4]

Footnotes to Table 5

[1]. Equivalent specific gravity of Pinkwood® I-joists is for uses in accordance with ANSI/AWC NDS.

[2]. The Specific Gravities listed are minimum values. Increased values may be available upon request.

[3]. For the PKI35Plus series, a specific gravity of 0.50 is available for its flange material if required.

[4]. Nail dowel bearing capacity into the face of the flange is equivalent to a Specific Gravity of 0.62.

TABLE 6 - ALLOWABLE MINIMUM NAIL SPACING FOR PINKWOOD® I-JOISTS[1,2]

Joist Series	Nail Type	NAILS INTO FACE OF FLANGE		NAILS INTO SIDE OF FLANGE	
		O.C. SPACING (inches)	END OF JOIST (inches)	O.C. SPACING (inches)	END OF JOIST (inches)
PKI10 PKI20 PKI23 PKI35Plus PKI40 PKI50	8d BOX	2	1	2	1
	8d COMMON	2	1	2	1
	10d & 12d BOX	2	1	2	1
	16d BOX	4	1.5	4	1.5
	10d & 12d COMMON	3	1.5	3	1.5
	16d SINKER	3	1.5	3	1.5
	16d COMMON	4	1.5	4	1.5
PKI60L PKI70L PKI80L PKI90L	8d BOX	2	1.5	4	1.5
	8d COMMON	2	1.5	4	3
	10d & 12d BOX	2	1.5	4	3
	16d BOX	2	1.5	4	3
	10d & 12d COMMON	3	2	6	4
	16d SINKER	3	2	6	4
	16d COMMON	3	2	6	4

For **SI**: 1 inch = 25.4 mm

Footnotes to Table 6

[1.] If more than one row of nails is required, the rows shall be offset a minimum of ½ inch and staggered.

[2.] Nails into the sides of Pinkwood® I-joist flanges may be spaced in accordance with Table 6 of this report.

TABLE 7 – I-JOIST RIM JOIST AND BLOCKING PANEL CAPACITIES[1,2,3]

Joist Depth (inches)	Uniform Vertical Load Capacity (lbf/ft)									
	PKI10	PKI20	PKI23	PKI35Plus	PKI40	PKI50	PKI60L	PKI70L	PKI80L	PKI90L
$9^1/_2$	2,000	2,000	2,000	2,000	2,000	2,000	2,300	2,300	2,500	2,500
$11^7/_8$	2,000	2,000	2,000	2,000	2,000	2,000	2,150	2,150	2,500	2,500
14	2,000	2,000	2,000	2,000	2,000	2,000	2,100	2,100	2,400	2,400
16	-	2,000	2,000	2,000	2,000	2,000	2,100	2,100	2,200	2,300
18	-	-	-	-	1,800	1,800			1,550	1,550
20	-	-	-	-	1,600	1,600			1,550	1,550
22	-	-	-	-	1,300	1,300				
24	-	-	-	-	1,100	1,100				

For **SI**: 1 inch = 25.4mm; 1 lbf/ft = 14.5939 N/m

Footnotes to Table 7:

[1]. Table 7 of this report provides the allowable uniform vertical load capacities of Pinkwood I-joists when used for blocking panels.

[2]. The allowable shear capacities of horizontal wood structural panel diaphragms framed with Pinkwood I-joists for wind and seismic design are provided in Table 8 of this report.

[3]. PKI joists used as rim joists shall be limited to a maximum shear load of 230 lbf/ft for I-Joists with sawn lumber flanges. These limits are permitted to be multiplied by 1.4 for wind load applications and shall be multiplied by 0.63 and 0.56 for shear loads of normal and permanent load durations, respectively. The minimum nail spacing and end distances shall not be less than those given in Table 8 of this report.

TABLE 8 - ALLOWABLE SHEAR (POUNDS PER FOOT) FOR HORIZONTAL WOOD STRUCTURAL PANEL DIAPHRAGMS FRAMED WITH PINKWOOD® I-JOISTS FOR WIND OR SEISMIC LOADING [1,2,3]

Panel Grade	Common Nail Size	Minimum Nominal Panel Thickness[4] (inch)	Minimum Nominal Width of Framing Members at Adjoining Panel Edges and Boundaries[5,6,10] (inches)	Blocked Diaphragms				Unblocked Diaphragms	
				Nail spacing (inches) at diaphragm boundaries (all cases) at continuous panel edges parallel to load (Cases 3, 4), and at all panel edges (Cases 5, 6)[7,8]				Nails spaced 6" max. at supported edges[7]	
				SS/LVL Flange		SS	LVL	Case 1 (No unblocked edges or continuous joints parallel to the load)	All other configurations (Cases 2, 3, 4, 5, and 6)
				6	4	2.5	2.5		
				Nail spacing (inches) at other panel edges (Cases 1, 2, 3, and 4)[7]					
				SS/LVL Flange		SS	LVL		
				6	6	4	4		
Structural I Grades	6d [9]	5/16	2	185	250	375	–	165	125
			3	210	280	420	385	185	140
	8d	3/8	2	270	360	530	–	240	180
			3	300	400	600	540	265	200
	10d	15/32	2	320	425	640	–	285	215
			3	360	480	720	675	320	240
Sheathing, single floor, and other grades covered in DOC PS 1 and PS 2	6d[9]	5/16	2	170	225	335	–	150	110
			3	190	250	380	346	170	125
		3/8	2	185	250	375	–	165	125
			3	210	280	420	360	185	140
	8d	3/8	2	240	320	480	–	215	160
			3	270	360	540	485	240	180
		7/16	2	255	340	505	–	230	170
			3	285	380	570	500	255	190
		15/32	2	270	360	530	–	240	180
			3	300	400	600	510	265	200
	10d	15/32	2	290	385	575	–	255	190
			3	325	430	650	610	290	215
		19/32	2	320	425	640	–	285	215
			3	360	480	720	650	320	240

For **SI**: 1 inch = 25.4, 1 pound foot = 14.5939 N/m

Footnotes to Table 8:

[1]. Data excerpted from ANSI/AWC SDPWS Tables 4.2A & 4.2C for ASD design. For wind design, the allowable shear capacity in the table above may be increased by 40 percent.

[2]. For shear loads of normal or permanent load duration as defined by the ANSI/AWC NDS, the values in Table 8 of this report shall be multiplied by 0.63 or 0.56, respectively.

[3]. The tabulated allowable shear capacities are for the I-Joist series with flanges having a specific gravity (G) of 0.50 or higher. For G < 0.50, the allowable shear capacities shall be reduced by multiplying the allowable shear capacities by the Specific Gravity Adjustment Factor =[1-(0.5-G)], where the specific gravities are in Table 5 of this report. The Specific Gravity Adjustment Factor shall not exceed 1.0.

[4]. The panel shall not be less than 4 feet x 8 feet except at boundaries and changes in framing, where the minimum panel dimension shall be 24 inches unless all edges of the undersized panel are supported by and fastened to framing members or blocking members.

[5]. The nominal widths of framing members for Pinkwood® I-Joists are as follows; PKI10, 20, 23, 60L are nominal 2inches, PKI35 Plus, 40, 50, 70L, 80L, and 90L are nominal 3 inches.

[6]. The minimum nominal width of framing members not located at boundaries or adjoining panel edges shall be 2 inches.

[7]. The nail spacing is a maximum of 12 inches on center along intermediate framing members (6 inches on center where supports are spaced 48 inches on center or greater). Nails shall be located at least $^3/_8$ inch from the edge of the panels.

[8]. When nail spacing is less than 6 inches on center at diaphragm boundaries, adjacent nails within a row shall be offset (staggered) ½ inch.

[9]. 8d nails are the minimum recommended for roofs due to the negative pressures of high wind speeds.

[10]. The width of the nailed face of the framing member shall comply with ANSI/AWC SDPWS Section 4.2.7.1.3.

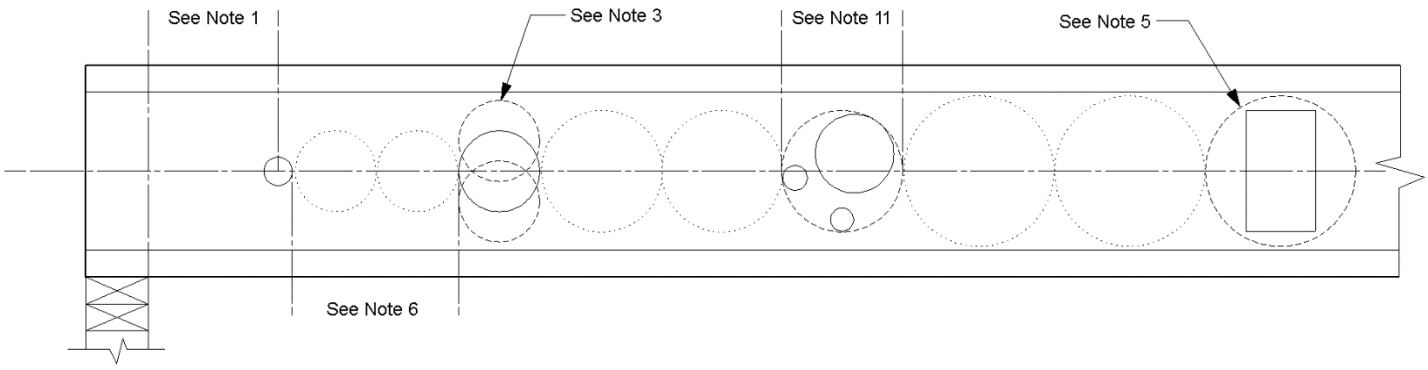


FIGURE 2 – ALLOWABLE HOLES IN WEBS

Rules for cutting holes in PKI Joists

1. The distance between the inside edge of the support and the centerline of any hole shall comply with the requirements of Table 9 of this report.
2. I-Joist top and bottom flanges shall NEVER be cut, notched, or otherwise modified.
3. Holes may be located anywhere in the web provided they maintain a minimum ⅛ inch edge distance from the flange.
4. The maximum size hole that may be cut into an I-Joist web shall equal the clear distance between the flanges of the I-Joist minus ¼ inch. A minimum of ⅛ inch shall always be maintained between the top or bottom of the hole and the adjacent I-Joist flange.
5. The sides of square holes or the longest sides of rectangular holes shall 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 equal or 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 shall be sized and located in compliance with the requirements of Table 9 of this report.
7. Holes measuring 1½ inches in diameter or smaller shall be permitted anywhere in a cantilevered section of a PKI Joist. Holes of greater size may be permitted subject to verification.
8. A 1½-inch-diameter or smaller hole may be placed anywhere in the web provided the position complies with the requirements of rule No.6.
9. All holes shall be cut in a workmanlike manner in accordance with the restrictions listed above and as illustrated in Figure 2 of this report.
10. Up to three maximum-size holes are permitted 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.

HOLE SHEAR EQUATIONS

The reduced shear capacity at the location of a hole in an I-Joist is calculated as follows:

Round Holes, Other Hole Shapes, and Clustered Small Holes that may be circumscribed by a round hole:

$$V_{hole} = V_r (D-Ø)/D$$

Where: V_r = I-Joist shear capacity (with and without web stiffeners, same value)
D = Depth of I-Joist (inches)
Ø = Hole Diameter (inches)
And $Ø_{max} = D-2(t_{flange})-0.25$
Where:
t_{flange} = I-Joist flange thickness (inches)

Square, Rectangular, Oblong, and Clustered Small Holes that may not be circumscribed by a round hole:

$$V_{hole} = V_r (D-{}^4/_3(h_{hole,max}))/D$$

Where: V_r = I-Joist shear capacity (with and without web stiffeners, same value)
$h_{hole,max}$ = max hole height = $0.75(D-2(t_{flange})-0.25)$
And $w_{hole,max}$ = max hole width with
- 24”max for PKI 35Plus, PKI40 and PKI50
- 20” max for PKI10, PKI20 and PKI23

t_{flange} = I-Joist flange thickness (inches)

TABLE 9 - ALLOWABLE LOCATION OF HOLES IN PKI JOIST WEBS

Simple Span for Live Loads up to 40 psf, and Dead Loads up to 25 psf

Series	Depth	Clear Span	O.C. Spacing	Minimum Distance from Inside Face of Bearing to Center of Hole									
				Round and Clustered Round Hole Size (inches)					Square or Rectangular Hole Size (inches)				
				4	6¼	8⅝	10¾	12¾	4	6¼	8⅝	10¾	12¾
PKI10	9-1/2"	8'	24"	1'-0"	1'-0"				1'-0"	1'-4"			
		10'		1'-0"	1'-6"				1'-0"	2'-5"			
		12'		1'-0"	2'-7"				1'-9"	3'-7"			
		13'	19.2"	1'-0"	2'-3"				1'-2"	3'-4"			
		15'	16"	1'-0"	2'-5"				1'-1"	3'-7"			
		17'	12"	1'-0"	1'-8"				1'-0"	3'-2"			
	11-7/8"	8'	24"	1'-0"	1'-0"	1'-0"			1'-0"	1'-0"	1'-8"		
		10'		1'-0"	1'-0"	1'-9"			1'-0"	1'-8"	3'-9"		
		12'		1'-0"	1'-0"	2'-10"			1'-0"	2'-9"	3'-11"		
		14'		1'-0"	1'-5"	4'-0"			1'-0"	3'-11"	5'-1"		
		15'	19.2"	1'-0"	1'-0"	3'-7"			1'-0"	3'-6"	4'-10"		
		17'	16"	1'-0"	1'-0"	3'-10"			1'-0"	3'-7"	5'-3"		
		19'	12"	1'-0"	1'-0"	3'-2"			1'-0"	2'-10"	4'-10"		
	14"	8'	24"	1'-0"	1'-0"	1'-0"	1'-0"		1'-0"	1'-0"	1'-8"	1'-11"	
		10'		1'-0"	1'-0"	1'-0"	1'-10"		1'-0"	1'-0"	2'-9"	3'-1"	
		12'		1'-0"	1'-0"	1'-0"	3'-0"		1'-0"	1'-0"	3'-11"	4'-3"	
		14'		1'-0"	1'-0"	1'-10"	4'-2"		1'-0"	1'-10"	5'-1"	5'-5"	
		15'		1'-0"	1'-0"	2'-5"	4'-9"		1'-0"	2'-5"	5'-8"	6'-0"	
		17'	19.2"	1'-0"	1'-0"	2'-2"	5'-0"		1'-0"	2'-0"	6'-0"	6'-5"	
		18'	16"	1'-0"	1'-0"	1'-4"	4'-8"		1'-0"	1'-2"	5'-10"	6'-3"	
		19'	12"	1'-0"	1'-0"	1'-0"	3'-5"		1'-0"	1'-0"	4'-10"	5'-5"	
		21'		1'-0"	1'-0"	1'-0"	4'-7"		1'-0"	1'-0"	6'-0"	6'-7"	
PKI20	9-1/2"	8'	24"	1'-0"	1'-0"				1'-0"	1'-4"			
		10'		1'-0"	1'-6"				1'-0"	2'-5"			
		12'		1'-0"	2'-7"				1'-9"	3'-7"			
		13'		1'-0"	3'-2"				2'-3"	4'-2"			
		15'	19.2"	1'-0"	3'-4"				2'-2"	4'-5"			
		16'	16"	1'-0"	2'-11"				1'-7"	4'-2"			
		18'	12"	1'-0"	2'-2"				1'-0"	3'-9"			
	11-7/8"	8'	24"	1'-0"	1'-0"	1'-0"			1'-0"	1'-0"	1'-8"		
		10'		1'-0"	1'-0"	1'-9"			1'-0"	1'-8"	2'-9"		
		12'		1'-0"	1'-0"	2'-10"			1'-0"	2'-9"	3'-11"		
		14'		1'-0"	1'-5"	4'-0"			1'-0"	3'-11"	5'-1"		
		15'		1'-0"	1'-11"	4'-7"			1'-2"	4'-6"	5'-8"		
		17'	19.2"	1'-0"	1'-6"	4'-9"			1'-0"	4'-7"	6'-0"		
		19'	16"	1'-0"	1'-2"	3'-11"			1'-0"	4'-9"	6'-5"		
		21'	12"	1'-0"	1'-0"	4'-3"			1'-0"	3'-11"	6'-0"		
	14"	8'	24"	1'-0"	1'-0"	1'-0"	1'-0"		1'-0"	1'-0"	1'-8"	1'-11"	
		10'		1'-0"	1'-0"	1'-0"	1'-10"		1'-0"	1'-0"	2'-9"	3'-1"	
		12'		1'-0"	1'-0"	1'-0"	3'-0"		1'-0"	1'-0"	3'-11"	4'-3"	
		14'		1'-0"	1'-0"	1'-10"	4'-2"		1'-0"	1'-10"	5'-1"	5'-5"	
		16'		1'-0"	1'-0"	3'-0"	5'-4"		1'-0"	2'-11"	6'-3"	6'-7"	
		18'	19.2"	1'-0"	1'-0"	2'-8"	5'-7"		1'-0"	2'-7"	6'-7"	7'-0"	
		20'	16"	1'-0"	1'-0"	2'-5"	5'-9"		1'-0"	2'-3"	7'-0"	7'-5"	
		22'	12"	1'-0"	1'-0"	1'-0"	5'-2"		1'-0"	1'-0"	6'-7"	7'-2"	
		23'		1'-0"	1'-0"	1'-4"	5'-8"		1'-0"	1'-1"	7'-2"	7'-8"	
	16"	10'	24"	1'-0"	1'-0"	1'-0"	1'-0"	1'-11"	1'-0"	1'-0"	1'-1"	3'-1"	3'-4"
		12'		1'-0"	1'-0"	1'-0"	1'-1"	3'-1"	1'-0"	1'-0"	2'-2"	4'-3"	4'-6"
		14'		1'-0"	1'-0"	1'-0"	2'-2"	4'-3"	1'-0"	1'-0"	3'-3"	5'-5"	5'-9"
		16'		1'-0"	1'-0"	1'-2"	3'-3"	5'-5"	1'-0"	1'-2"	4'-5"	6'-7"	6'-11"
		18'		1'-0"	1'-0"	2'-2"	4'-4"	6'-7"	1'-0"	2'-2"	5'-6"	7'-10"	8'-1"
		20'	19.2"	1'-0"	1'-0"	1'-6"	4'-1"	6'-10"	1'-0"	1'-5"	5'-6"	8'-2"	8'-7"
		22'	16"	1'-0"	1'-0"	1'-0"	3'-11"	7'-1"	1'-0"	1'-0"	5'-5"	8'-7"	9'-1"
		24'	12"	1'-0"	1'-0"	1'-0"	2'-5"	6'-5"	1'-0"	1'-0"	4'-3"	8'-4"	8'-10"
		25'		1'-0"	1'-0"	1'-0"	2'-11"	7'-0"	1'-0"	1'-0"	4'-9"	8'-11"	9'-5"

TABLE 9 (continued) - ALLOWABLE LOCATION OF HOLES IN PKI JOIST WEBS

Simple Span for Live Loads up to 40 psf, and Dead Loads up to 25 psf

Series	Depth	Clear Span	O.C. Spacing	Minimum Distance from Inside Face of Bearing to Center of Hole									
				Round and Clustered Round Hole Size (inches)					Square or Rectangular Hole Size (inches)				
				4	6¼	8¾	10¾	12¾	4	6¼	8¾	10¾	12¾
PKI23	9-1/2"	8'	24"	1'-0"	1'-0"				1'-0"	1'-4"			
		10'		1'-0"	1'-0"				1'-0"	2'-5"			
		12'		1'-0"	1'-8"				1'-0"	3'-7"			
		14'		1'-0"	2'-9"				1'-7"	4'-9"			
		16'	19.2"	1'-0"	2'-8"				1'-3"	5'-0"			
		17'	16"	1'-0"	2'-1"				1'-0"	4'-9"			
		19'	12"	1'-0"	1'-0"				1'-0"	4'-3"			
	11-7/8"	8'	24"	1'-0"	1'-0"	1'-0"			1'-0"	1'-0"	1-8"		
		10'		1'-0"	1'-0"	1'-0"			1'-0"	1'-0"	2'-9"		
		12'		1'-0"	1'-0"	2'-1"			1'-0"	1'-11"	3'-11"		
		14'		1'-0"	1'-0"	3'-2"			1'-0"	3'-1"	5'-1"		
		16'		1'-0"	1'-2"	4'-4"			1'-0"	4'-2"	6'-3"		
		18'	19.2"	1'-0"	1'-0"	4'-4"			1'-0"	4'-1"	6'-7"		
		20'	16"	1'-0"	1'-0"	4'-4"			1'-0"	4'-0"	7'-0"		
		22'	12"	1'-0"	1'-0"	3'-4"			1'-0"	2'-10"	6'-7'		
	14"	8'	24"	1'-0"	1'-0"	1'-0"	1'-0"		1'-0"	1'-0"	1'-8"	1'-11"	
		10'		1'-0"	1'-0"	1'-0"	1'-3"		1'-0"	1'-0"	2'-9"	3'-1"	
		12'		1'-0"	1'-0"	1'-0"	2'-4"		1'-0"	1'-0"	3'-11"	4'-3"	
		14'		1'-0"	1'-0"	1'-0"	3'-5"		1'-0"	1'-0"	5'-1"	5'-5"	
		16'		1'-0"	1'-0"	1'-11"	4'-7"		1'-0"	1'-10"	6'-3"	6'-7"	
		18'		1'-0"	1'-0"	3'-0"	5'-9"		1'-0"	2'-11"	7'-5"	7'-10"	
		20'	19.2"	1'-0"	1'-0"	2'-5"	5'-10"		1'-0"	2'-3"	7'-10"	8'-2"	
		22'	16"	1'-0"	1'-0"	1'-11"	5'-11"		1'-0"	1'-8"	8'-2"	8'-7"	
		24'	12"	1'-0"	1'-0"	1'-0"	4'-11"		1'-0"	1'-0"	7'-9"	8'-4"	
		25'		1'-0"	1'-0"	1'-0"	5'-6"		1'-0"	1'-0"	8'-4"	8'-11"	
	16"	10'	24"	1'-0"	1'-0"	1'-0"	1'-0"	1'-5"	1'-0"	1'-0"	1'-0"	3'-1"	3'-4"
		12'		1'-0"	1'-0"	1'-0"	1'-0"	2'-6"	1'-0"	1'-0"	1'-5"	4'-3"	4'-6"
		14'		1'-0"	1'-0"	1'-0"	1'-3"	3'-8"	1'-0"	1'-0"	2'-6"	5'-5"	5'-9"
		16'		1'-0"	1'-0"	1'-0"	2'-4"	4'-9"	1'-0"	1'-0"	3'-7"	6'-7"	6'-11"
		18'		1'-0"	1'-0"	1'-0"	3'-5"	5'-11"	1'-0"	1'-0"	4'-8"	7'-10"	8'-1"
		19'		1'-0"	1'-0"	1'-6"	4'-0"	6'-7"	1'-0"	1'-6"	5'-3"	8'-5"	8'-9"
		21'	19.2"	1'-0"	1'-0"	1'-0"	3'-6"	6'-8"	1'-0"	1'-0"	5'-0"	8'-10"	9'-2"
		23'	16"	1'-0"	1'-0"	1'-0"	3'-1"	6'-9"	1'-0"	1'-0"	4'-9"	9'-3"	9'-8"
		24'		1'-0"	1'-0"	1'-0"	3'-8"	7'-4"	1'-0"	1'-0"	5'-4"	9'-10"	10'-3"
		26'	12"	1'-0"	1'-0"	1'-0"	1'-9"	6'-5"	1'-0"	1'-0"	3'-9"	9'-6"	10'-0"
		27'		1'-0"	1'-0"	1'-0"	2'-3"	7'-0"	1'-0"	1'-0"	4'-4"	10'-1"	10'-7"
PKI35Plus	9-1/2"	8'	24"	1'-0"	1'-0"				1'-0"	1'-0"			
		10'		1'-0"	1'-6"				1'-0"	1'-8"			
		12'		1'-0"	2'-7"				1'-9"	2'-10"			
		14'		1'-2"	3'-9"				2'-10"	3'-11"			
		16'	19.2"	1'-0"	3'-11"				2'-9"	4'-1"			
		17'	16"	1'-0"	3'-6"				2'-1"	3'-8"			
		19'	12"	1'-0"	2'-9"				1'-0"	2'-10"			
	11-7/8"	8'	24"	1'-0"	1'-0"	1'-0"			1'-0"	1'-0"	1'-0"		
		10'		1'-0"	1'-0"	1'-9"			1'-0"	1'-8"	2'-0"		
		12'		1'-0"	1'-0"	2'-10"			1'-0"	2'-9"	3'-2"		
		14'		1'-0"	1'-5"	4'-0"			1'-0"	3'-11"	4'-4"		
		16'		1'-0"	2'-6"	5'-2"			1'-8"	5'-1"	5'-6"		
		18'	19.2"	1'-0"	2'-1"	5'-4"			1'-1"	5'-2"	5'-8"		
		20'	16"	1'-0"	1'-8"	5'-7"			1'-0"	5'-4"	5'-10"		
		22'	12"	1'-0"	1'-0"	4'-10"			1'-0'	4'-5"	5'-1"		
		23'		1'-0"	1'-0"	5'-5"			1'-0"	5'-0"	5'-8"		
	14"	8'	24"	1'-0"	1'-0"	1'-0"	1'-0"		1'-0"	1'-0"	1'-0"	1'-3"	
		10'		1'-0"	1'-0"	1'-0"	1'-10"		1'-0"	1'-0"	2'-0"	2'-4"	
		12'		1'-0"	1'-0"	1'-0"	3'-0"		1'-0"	1'-0"	3'-2"	3'-6"	
		14'		1'-0"	1'-0"	1'-10"	4'-2"		1'-0"	1'-10"	4'-4"	4'-8"	
		16'		1'-0"	1'-0"	3'-0"	5'-4"		1'-0"	2'-11"	5'-6"	5'-10"	
		18'		1'-0"	1'-0"	4'-1"	6'-6"		1'-0"	4'-0"	6'-8"	7'-0"	
		20'	19.2"	1'-0"	1'-0"	3'-9"	6'-9"		1'-0"	3'-8"	6'-10"	7'-3"	
		22'	16"	1'-0"	1'-0"	3'-6"	6'-11"		1'-0"	3'-4"	7'-0"	7'-5"	
		24'	12"	1'-0"	1'-0"	1'-10"	6'-3"		1'-0"	1'-7"	6'-3"	6'-9"	
		25'		1'-0"	1'-0"	2'-5"	6'-10"		1'-0"	2'-1"	6'-10"	7'-4"	
	16"	10'	24"	1'-0"	1'-0"	1'-0"	1'-0"	1'-11"	1'-0"	1'-0"	1'-1"	2'-4"	2'-8"
		12'		1'-0"	1'-0"	1'-0"	1'-1"	3'-1"	1'-0"	1'-0"	2'-2"	3'-6"	3'-9"
		14'		1'-0"	1'-0"	1'-0"	2'-2"	4'-3"	1'-0"	1'-0"	3'-3"	4'-8"	4'-11"
		16'		1'-0"	1'-0"	1'-2"	3'-3"	5'-5"	1'-0"	1'-2"	4'-5"	5'-10"	6'-1"
		18'		1'-0"	1'-0"	2'-2"	4'-4"	6'-7"	1'-0"	2'-2"	5'-6"	7'-0"	7'-4"
		19'		1'-0"	1'-0"	2'-9"	4'-11"	7'-2"	1'-0"	2'-9"	6'-1"	7'-7"	7'-11"
		21'	19.2"	1'-0"	1'-0"	2'-0"	4'-8"	7'-5"	1'-0"	1'-11"	6'-0"	7'-10"	8'-2"
		23'	16"	1'-0"	1'-0"	1'-4"	4'-5"	7'-8"	1'-0"	1'-2"	6'-0"	8'-0"	8'-6"
		25'	12"	1'-0"	1'-0"	1'-0"	2'-11"	7'-0"	1'-0"	1'-0"	4'-9"	7'-4"	7'-11"
		27'		1'-0"	1'-0"	1'-0"	4'-0"	8'-2"	1'-0"	1'-0"	5'-10"	8'-6"	9'-1"

TABLE 9 (continued) - ALLOWABLE LOCATION OF HOLES IN PKI JOIST WEBS

Simple Span for Live Loads up to 40 psf, and Dead Loads up to 25 psf

Series	Depth	Clear Span	O.C. Spacing	Minimum Distance from Inside Face of Bearing to Center of Hole									
				Round and Clustered Round Hole Size (inches)					Square or Rectangular Hole Size (inches)				
				4	6¼	8⅝	10¾	12¾	4	6¼	8⅝	10¾	12¾
PKI40	9-1/2"	8'	24"	1'-0"	1'-0"				1'-0"	1'-0"			
		10'		1'-0"	1'-3"				1'-0"	1'-8"			
		12'		1'-0"	2'-5"				1'-5"	2'-10"			
		14'		1'-0"	3'-6"				2'-6"	3'-11"			
		16'		1'-10"	4'-8"				3'-8"	5'-1"			
		17'		2'-5"	5'-3"				4'-2"	5'-8"			
		18'	19.2"	1'-4"	4'-9"				3'-5"	5'-3"			
		19'	16"	1'-0"	4'-3"				2'-9"	4'-9"			
		21'	12"	1'-0"	3'-4"				1'-5"	3'-11"			
	11-7/8"	8'	24"	1'-0"	1'-0"	1'-0"			1'-0"	1'-0"	1'-0"		
		10'		1'-0"	1'-0"	1'-5"			1'-0"	1'-4"	2'-0"		
		12'		1'-0"	1'-0"	2'-6"			1'-0"	2'-5"	3'-2"		
		14'		1'-0"	1'-0"	3'-8"			1'-0"	3'-6"	4'-4"		
		16'		1'-0"	1'-11"	4'-9"			1'-1"	4'-8"	5'-6"		
		18'		1'-0"	3'-0"	5'-11"			2'-1"	5'-10"	6'-8"		
		20'		1'-6"	4'-1"	7'-2"			3'-2"	7'-0"	7'-10"		
		22'	19.2"	1'-0"	3'-6"	7'-3"			2'-5"	7'-0"			
		23'	16"	1'-0"	2'-5"	6'-9"			1'-1"	6'-5"	7'-7"		
		25'	12"	1'-0"	1'-0"	5'-10"			1'-0"	5'-5"	6'-10"		
	14"	8'	24"	1'-0"	1'-0"	1'-0"	1'-0"		1'-0"	1'-0"	1'-0"	1'-3"	
		10'		1'-0"	1'-0"	1'-0"	1'-6"		1'-0"	1'-0"	2'-0"	2'-4"	
		12'		1'-0"	1'-0"	1'-0"	2'-7"		1'-0"	1'-0"	3'-2"	3'-6"	
		14'		1'-0"	1'-0"	1'-3"	3'-9"		1'-0"	1'-2"	4'-4"	4'-8"	
		16'		1'-0"	1'-0"	2'-4"	4'-11"		1'-0"	2'-3"	5'-6"	5'-10"	
		18'		1'-0"	1'-0"	3'-5"	6'-1"		1'-0"	3'-4"	6'-8"	7'-0"	
		20'		1'-0"	1'-10"	4'-6"	7'-3"		1'-0"	4'-5"	7'-10"	8'-2"	
		22'		1'-0"	2'-11"	5'-8"	8'-5"		2'-0"	5'-7"	9'-0"	9'-4"	
		23'		1'-0"	3'-5"	6'-3"	9'-0"		2'-7"	6'-2"	9'-7"	10'-0"	
		24'	19.2"	1'-0"	1'-10"	5'-2"	8'-6"		1'-0"	5'-0"	9'-2"	9'-7"	
		26'	16"	1'-0"	1'-0"	4'-9"	8'-8"		1'-0"	4'-6"	9'-4"	9'-10"	
		28'	12"	1'-0"	1'-0"	2'-9"	7'-9"		1'-0"	2'-5"	8'-6"	9'-1"	
	16"	10'	24"	1'-0"	1'-0"	1'-0"	1'-0"	1'-6"	1'-0"	1'-0"	1'-0"	2'-4"	2'-8"
		12'		1'-0"	1'-0"	1'-0"	1'-0"	2'-8"	1'-0"	1'-0"	1'-7"	3'-6"	3'-9"
		14'		1'-0"	1'-0"	1'-0"	1'-6"	3'-9"	1'-0"	1'-0"	2'-8"	4'-8"	4'-11"
		16'		1'-0"	1'-0"	1'-0"	2'-7"	4'-11"	1'-0"	1'-0"	3'-9"	5'-10"	6'-1"
		18'		1'-0"	1'-0"	1'-3"	3'-8"	6'-1"	1'-0"	1'-3"	4'-11"	7'-0"	7'-4"
		20'		1'-0"	1'-0"	2'-4"	4'-9"	7'-3"	1'-0"	2'-3"	6'-1"	8'-2"	8'-6"
		22'		1'-0"	1'-0"	3'-5"	5'-11"	8'-6"	1'-0"	3'-4"	7'-3"	9'-4"	9'-8"
		24'		1'-0"	1'-11"	4'-6"	7'-1"	9'-8"	1'-1"	4'-5"	8'-5"	10'-7"	10'-11"
		26'	19.2"	1'-0"	1'-0"	3'-6"	6'-7"	9'-9"	1'-0"	3'-5"	8'-1"	10'-9"	11'-2"
		27'		1'-0"	1'-0"	4'-1"	7'-2"	10'-4"	1'-0"	3'-11"	8'-8"	11'-0"	11'-9"
		29'	16"	1'-0"	1'-0"	3'-1"	6'-9"	10'-6"	1'-0"	2'-11"	8'-5"	11'-7"	12'-0"
		31'	12"	1'-0"	1'-0"	1'-0"	4'-10"	9'-7"	1'-0"	1'-0"	6'-11"	10'-10"	11'-5"
PKI50	11-7/8"	8'	24"	1'-0"	1'-0"	1'-0"			1'-0"	1'-0"	1'-0"		
		10'		1'-0"	1'-0"	1'-0"			1'-0"	1'-0"	2'-0"		
		12'		1'-0"	1'-0"	1'-4"			1'-0"	1'-2"	3'-2"		
		14'		1'-0"	1'-0"	2'-5"			1'-0"	2'-2"	4'-4"		
		16'		1'-0"	1'-0"	3'-6"			1'-0"	3'-4"	5'-6"		
		18'		1'-0"	1'-0"	4'-8"			1'-0"	4'-5"	6'-8"		
		20'		1'-0"	2'-0"	5'-9"			1'-0"	5'-7"	7'-10"		
		22'	19.2"	1'-0"	1'-1"	5'-7"			1'-0"	5'-3"	8'-0"		
		23'	16"	1'-0"	1'-0"	4'-10"			1'-0"	4'-5"	7'-7"		
		25'	12"	1'-0"	1'-0"	3'-5"			1'-0"	2'-10"	6'-10"		
	14"	8'	24"	1'-0"	1'-0"	1'-0"	1'-0"		1'-0"	1'-0"	1'-0"	1'-3"	
		10'		1'-0"	1'-0"	1'-0"	1'-0"		1'-0"	1'-0"	2'-0"	2'-4"	
		12'		1'-0"	1'-0"	1'-0"	1'-9"		1'-0"	1'-0"	3'-2"	3'-6"	
		14'		1'-0"	1'-0"	1'-0"	2'-10"		1'-0"	1'-0"	4'-4"	4'-8"	
		16'		1'-0"	1'-0"	1'-0"	4'-0"		1'-0"	1'-0"	5'-6"	5'-10"	
		18'		1'-0"	1'-0"	2'-1"	5'-2"		1'-0"	2'-0"	6'-8"	7'-0"	
		20'		1'-0"	1'-0"	3'-2"	6'-4"		1'-0"	3'-0"	7'-10"	8'-2"	
		22'		1'-0"	1'-1"	4'-3"	7'-6"		1'-0"	4'-2"	9'-0"	9'-4"	
		23'		1'-0"	1'-7"	4'-10"	8'-1"		1'-0"	4'-8"	9'-7"	10'-0"	
		24'	19.2"	1'-0"	1'-0"	3'-6"	7'-5"		1'-0"	3'-3"	9'-2"	9'-7"	
		26'	16"	1'-0"	1'-0"	2'-9"	7'-3"		1'-0"	2'-5"	9'-4"	9'-10"	
		28'	12"	1'-0"	1'-0"	1'-0"	6'-0"		1'-0"	1'-0"	8'-6"	9'-1"	
	16"	10'	24"	1'-0"	1'-0"	1'-0"	1'-0"	1'-1"	1'-0"	1'-0"	1'-0"	2'-4"	2'-8"
		12'		1'-0"	1'-0"	1'-0"	1'-0"	2'-1"	1'-0"	1'-0"	1'-0"	3'-6"	3'-9"
		14'		1'-0"	1'-0"	1'-0"	1'-0"	3'-3"	1'-0"	1'-0"	1'-11"	4'-8"	4'-11"
		16'		1'-0"	1'-0"	1'-0"	1'-9"	4'-4"	1'-0"	1'-0"	3'-0"	5'-10"	6'-1"
		18'		1'-0"	1'-0"	1'-0"	2'-10"	5'-6"	1'-0"	1'-0"	4'-2"	7'-0"	7'-4"
		20'		1'-0"	1'-0"	1'-3"	3'-11"	6'-8"	1'-0"	1'-1"	5'-3"	8'-2"	8'-6"
		22'		1'-0"	1'-0"	2'-3"	5'-0"	7'-10"	1'-0"	2'-2"	6'-5"	9'-4"	9'-8"
		24'		1'-0"	1'-0"	3'-4"	6'-2"	9'-1"	1'-0"	3'-6"	7'-7"	10-7"	10'-11"
		26'	19.2"	1'-0"	1'-0"	2'-1"	5'-6"	9'-0"	1'-0"	1'-11"	7'-2"	10'-9"	11'-2"
		27'		1'-0"	1'-0"	2'-8"	6'-1"	9'-7"	1'-0"	1'-0"	6'-9"	11'-5"	11'-9"
		29'	16"	1'-0"	1'-0"	1'-5"	5'-5"	9'-7"	1'-0"	1'-2"	7'-4"	11'-7"	12'-0"
		31'	12"	1'-0"	1'-0"	1'-0"	3'-2"	8'-5"	1'-0"	1'-0"	5'-5"	10'-10"	11'-5"

TABLE 9 (continued) - ALLOWABLE LOCATION OF HOLES IN PKI JOIST WEBS

Simple Span for Live Loads up to 40 psf, and Dead Loads up to 25 psf

Series	Depth	Clear Span	O.C. Spacing	Minimum Distance from Inside Face of Bearing to Center of Hole									
				Round and Clustered Round Hole Size (inches)					Square or Rectangular Hole Size (inches)				
				8¾	14¾	16¾	18¾	20¾	8¾	14¾	16¾	18¾	20¾
PKI40	18"	12'	24"	1'-0"	2'-5"				1'-0"	4'-1"			
		14'		1'-0"	3'-6"				1'-0"	5'-3"			
		16'		1'-0"	4'-8"				1'-3"	6'-5"			
		18'		1'-0"	5'-10"				2'-4"	7'-8"			
		20'		1'-0"	7'-0"				3'-5"	8'-10"			
		22'		1'-0"	8'-2"				4'-6"	10'-0"			
		24'		1'-9"	9'-5"				5'-7"	11'-3"			
		26'		2'-10"	10'-7"				6'-9"	12'-6"			
		28'	19.2"	1'-3"	10'-7"				5'-11"	12'-9"			
		29'		1'-9"	11'-3"				6'-5"	13'-5"			
		31'	16"	1'-0"	11'-3"				5'-7"	13'-8"			
		33'	12"	1'-0"	10'-2"				2'-11"	13'-2"			
		34'		1'-0"	10'-9"				3'-6"	13'-9"			
	20"	14'	24"	1'-0"	1'-5"	3'-9"			1'-0"	5'-3"	5'-7"		
		16'		1'-0"	2'-6"	4'-11"			1'-0"	6'-5"	6'-9"		
		18'		1'-0"	3'-7"	6'-1"			1'-0"	7'-8"	8'-0"		
		20'		1'-0"	4'-8"	7'-3"			1'-7"	8'-10"	10'-2"		
		22'		1'-0"	5'-10"	8'-5"			2'-7"	10'-0"	10'-4"		
		24'		1'-0"	7'-0"	9'-7"			3'-8"	11'-3"	11'-7"		
		26'		1'-2"	8'-2"	10'-10"			4'-9"	12'-6"			
		27'		1'-8"	8'-9"	11'-5"			5'-4"	13'-1"			
		29'	19.2"	1'-0"	8'-3"	11'-6"			4'-0"	13'-5"	13'-9"		
		31'		1'-0"	9'-5"	12'-7"			5'-1"	14'-7"	15'-0"		
		33'	16"	1'-0"	8'-11"	12'-9"			3'-10"	14'-11"	15'-4"		
		35'	12"	1'-0"	6'-10"	11'-10"			1'-0"	14'-4"	14'-11"		
		37'		1'-0"	8'-0"	13'-0"			1'-5"	15'-7"	16'-2"		
	22"	16'	24"	1'-0"	1'-2"	2'-9"	5'-1"		1'-0"	6'-5"	6'-9"	7'-1"	
		18'		1'-0"	1'-8"	3'-10"	6'-3"		1'-0"	7'-8"	8'-0"	8'-4"	
		20'		1'-0"	2'-9"	5'-0"	7'-5"		1'-0"	8'-10"	9'-2"	9'-6"	
		22'		1'-0"	3'-10"	6'-1"	8'-7"		1'-0"	10'-0"	10'-5"	11'-0"	
		24'		1'-0"	4'-11"	7'-3"	9'-10"		2'-0"	11'-3"	11'-7"		
		26'		1'-0"	6'-1"	8'-5"	11'-0"		3'-0"	12'-6"			
		28'		1'-0"	7'-2"	9'-7"	12'-3"		4'-1"	13'-8"			
		29'		1'-0"	7'-9"	10'-3"	12'-10"		4'-8"				
		31'	19.2"	1'-0"	6'-10"	9'-9"	12'-11"		3'-0"	14'-7"	15'-0"		
		32'		1'-0"	7'-4"	10'-4"	13'-7"		3'-6"	15'-2"	15'-7"		
		33'	16"	1'-0"	5'-11"	9'-4"	13'-1"		1'-4"	14'-11"	15'-4"	15'-10"	
		35'		1'-0"	7'-0"	10'-6"	14'-3"		2'-5"	16'-1"	16'-7"	17'-1"	
		37'	12"	1'-0"	4'-1"	8'-6"	13'-4"		1'-0"	15'-7"	16'-2"	16'-9"	
		39'		1'-0"	5'-2"	9'-8"	14'-7"		1'-0"	16'-9"	17'-4"	17'-11"	
		40'		1'-0"	5'-9"	10'-3"	15'-2"		1'-0"	17'-4"	17'-11"	18'-6"	
	24"	16'	24"	1'-0"	1'-2"	1'-3"	3'-0"	5'-3"	1'-0"	4'-7"	6'-9"	7'-1"	7'-5"
		18'		1'-0"	1'-2"	2'-0"	4'-1"	6'-5"	1'-0"	5'-9"	8'-0"	8'-4"	8'-8"
		20'		1'-0"	1'-2"	3'-1"	5'-3"	7'-7"	1'-0"	6'-11"	9'-2"	9'-6"	
		22'		1'-0"	2'-1"	4'-2"	6'-5"	8'-10"	1'-0"	8'-1"	10'-5"	10'-9"	
		24'		1'-0"	3'-2"	5'-3"	7'-7"	10'-0"	1'-0"	9'-3"	11'-7"		
		26'		1'-0"	4'-3"	6'-5"	8'-9"	11'-2"	1'-6"	10'-5"			
		28'		1'-0"	5'-4"	7'-7"	9'-11"	12'-5"	2'-6"	11'-8"			
		30'		1'-0"	6'-5"	8'-8"	11'-1"	13'-7"	3'-7"	12'-10"			
		32'	19.2"	1'-0"	5'-1"	7'-10"	10'-8"	13'-9"	1'-7"	12'-8"	15'-7"		
		33'		1'-0"	5'-8"	8'-4"	11'-3"	14'-5"	2'-1"	13'-3"	16'-3"		
		35'	16"	1'-0"	4'-4"	7'-6"	10'-11"	14'-6"	1'-0"	13'-2"	16'-7"	17'-1"	
		36'		1'-0"	4'-10"	8'-1"	11'-6"	15'-2"	1'-0"	13'-9"	17'-2"	17'-8"	
		38'	12"	1'-0"	1'-4"	5'-4"	9'-7"	14'-4"	1'-0"	12'-4"	16'-9"	17'-4"	17'-11"
		40'		1'-0"	2'-4"	6'-5"	10'-9"	15'-6"	1'-0"	13'-6"	17'-11"	18'-6"	19'-1"
		42'		1'-0"	3'-4"	7'-6"	11'-11"	16'-8"	1'-0"	14'-8"	19'-2"	19'-9"	20'-4"

TABLE 9 (continued) - ALLOWABLE LOCATION OF HOLES IN PKI JOIST WEBS

Simple Span for Live Loads up to 40 psf, and Dead Loads up to 25 psf														
Series	Depth	Clear Span	O.C. Spacing	Minimum Distance from Inside Face of Bearing to Center of Hole										
				Round and Clustered Round Hole Size (inches)					Square or Rectangular Hole Size (inches)					
				8¾	14¾	16¾	18¾	20¾	8¾	14¾	16¾	18¾	20¾
PKI50	18"	12'	24"	1'-0"	2'-5"				1'-0"	4'-1"			
		14'		1'-0"	3'-6"				1'-0"	5'-3"			
		16'		1'-0"	4'-8"				1'-3"	6'-5"			
		18'		1'-0"	5'-10"				2'-4"	7'-8"			
		20'		1'-0"	7'-0"				3'-5"	8'-10"			
		22'		1'-0"	8'-2"				4'-6"	10'-0"			
		24'		1'-9"	9'-5"				5'-7"	11'-3"			
		26'		2'-10"	10'-7"				6'-9"	12'-6"			
		28'		3'-11"	11'-9"				6'-11"				
		29'	19.2"	1'-9"	11'-3"				6'-5"	13'-5"			
		31'	16"	1'-0"	11'-3"				5'-7"	13'-8"			
		33'	12"	1'-0"	10'-2"				2'-11"	13'-2"			
		35'		1'-0"	11'-4"				4'-0"				
	20"	14'	24"	1'-0"	1'-5"	3'-9"			1'-0"	5'-3"	5'-7"		
		16'		1'-0"	2'-6"	4'-11"			1'-0"	6'-5"	6'-9"		
		18'		1'-0"	3'-7"	6'-1"			1'-0"	7'-8"	8'-0"		
		20'		1'-0"	4'-8"	7'-3"			1'-7"	8'-10"	9'-2"		
		22'		1'-0"	5'-10"	8'-5"			2'-7"	10'-0"	10'-5"		
		24'		1'-0"	7'-0"	9'-7"			3'-8"	11'-3"	11'-7"		
		26'		1'-2"	8'-2"	10'-10"			4'-9"	12'-6"			
		28'		2'-3"	9'-4"	12'-0"			5'-10"	13'-8"			
		29'		2'-9"	9'-11"	12'-8"			6'-5"				
		31'	19.2"	1'-0"	9'-5"	12'-8"			5'-1"	14'-7"	15'-0"		
		32'		1'-3"	10'-0"	13'-4"			5'-8"	15'-2"	15'-7"		
		34'	16"	1'-0"	9'-6"	13'-4"			4'-5"	15'-6"	16'-0"		
		36'	12"	1'-0"	7'-5"	12'-5"			1'-0"	14'-11"	15'-6"		
		37'		1'-0"	8'-0"	13'-0"			1'-5"	15'-7"	16'-2"		
	22"	16'	24"	1'-0"	1'-2"	2'-9"	5'-1"		1'-0"	6'-5"	6'-9"	7'-1"	
		18'		1'-0"	1'-8"	3'-10"	6'-3"		1'-0"	7'-8"	8'-0"	8'-4"	
		20'		1'-0"	2'-9"	5'-0"	7'-5"		1'-0"	8'-10"	9'-2"	9'-6"	
		22'		1'-0"	3'-10"	6'-1"	8'-7"		1'-0"	10'-0"	10'-5"	10'-9"	
		24'		1'-0"	4'-11"	7'-3"	9'-10"		2'-0"	11'-3"	11'-7"		
		26'		1'-0"	6'-1"	8'-5"	11'-0"		3'-0"	12'-6"			
		28'		1'-0"	7'-2"	9'-7"	12'-3"		4'-1"	13'-8"			
		30'		1'-9"	8'-4"	10'-10"	13'-5"		5'-2"				
		32'	19.2"	1'-0"	7'-4"	10'-4"	13'-7"		3'-6"	15'-2"	15'-7"		
		33'		1'-0"	7'-11"	10'-11"	14'-2"		4'-0"	15'-10"	16'-3"		
		35'	16"	1'-0"	7'-0"	10'-6"	14'-3"		2'-5"	16'-1"	16'-7"	17'-1"	
		36'		1'-0"	7'-7"	11'-1"	14'-10"		2'-11"	16'-9"	17'-2"	17'-8"	
		38'	12"	1'-0"	4'-8"	9'-1"	13'-11"		1'-0"	16'-2"	16'-9"	17'-4"	
		40'		1'-0"	5'-9"	10'-3"	15'-2"		1'-0"	17'-4"	17'-11"	18'-6"	
	24"	16'	24"	1'-0"	1'-2"	1'-3"	3'-0"	5'-3"	1'-0"	4'-7"	6'-9"	7'-1"	7'-5"
		18'		1'-0"	1'-2"	2'-0"	4'-1"	6'-5"	1'-0"	5'-9"	8'-0"	8'-4"	8'-8"
		20'		1'-0"	1'-2"	3'-1"	5'-3"	7'-7"	1'-0"	6'-11"	9'-2"	9'-6"	
		22'		1'-0"	2'-1"	4'-2"	6'-5"	8'-10"	1'-0"	8'-1"	10'-5"	10'-9"	
		24'		1'-0"	3'-2"	5'-3"	7'-7"	10'-0"	1'-0"	9'-3"	11'-7"		
		26'		1'-0"	4'-3"	6'-5"	8'-9"	11'-2"	1'-6"	10'-5"			
		28'		1'-0"	5'-4"	7'-7"	9'-11"	12'-5"	2'-6"	11'-8"			
		30'		1'-0"	6'-5"	8'-8"	11'-1"	13'-7"	3'-7"	12'-10"			
		31'		1'-0"	7'-0"	9'-3"	11'-8"	14'-3"	4'-1"	13'-5"			
		33'	19.2"	1'-0"	5'-8"	8'-4"	11'-3"	14'-5"	2'-1"	13'-3"	16'-3"		
		35'		1'-0"	6'-9"	9'-6"	12'-5"	15'-7"	3'-2"	14'-6"			
		37'	16"	1'-0"	5'-5"	8'-7"	12'-1"	15'-9"	1'-2"	14'-4"	17'-10"		
		38'		1'-0"	5'-11"	9'-2"	12'-8"	16'-4"	1'-8"	14'-11"	18'-5"		
		40'	12"	1'-0"	2'-4"	6'-5"	10'-9"	15'-6"	1'-0"	13'-6"	17'-11"	18'-6"	19'-1"
		42'		1'-0"	3'-4"	7'-6"	11'-11"	16'-8"	1'-0"	14'-8"	19'-2"	19'-9"	20'-4"
		43'		1'-0"	3'-11"	8'-0"	12'-6"	17'-3"	1'-0"	15'-3"	19'-9"	20'-4"	21'-3"

TABLE 9 (continued) - ALLOWABLE LOCATION OF HOLES IN PKI JOIST WEBS

Simple Span for Live Loads up to 40 psf, and Dead Loads up to 25 psf

Series	Depth	Clear Span	O.C. Spacing	Minimum Distance from Inside Face of Bearing to Center of Hole									
				Round and Clustered Round Hole Size (inches)					Square or Rectangular Hole Size (inches)				
				4	7	9⅝	11½	13½	4	7	9⅝	11½	13½
PKI60L	9-1/2"	8'	24"	1'-0"	1'-0"				1'-0"	2'-0"			
		10'		1'-0"	1'-7"				1'-0"	3'-1"			
		12'		1'-0"	3'-9"				1'-0"	4'-3"			
		14'		1'-0"	3'-11"				1'-7"	5'-6"			
		16'	19.2"	1'-0"	4'-1"				1'-3"	5'-10"			
		17'	16"	1'-0"	3'-8"				1'-0"	5'-10"			
		18'	12"	1'-0"	2'-5"				1'-0"	5'-1"			
	11-7/8"	8'	24"	1'-0"	1'-0"	1'-0"			1'-0"	1'-1"	2'-4"		
		10'		1'-0"	1'-0"	1'-11"			1'-0"	2'-2"	3'-6"		
		12'		1'-0"	1'-0"	3'-1"			1'-0"	3'-4"	4'-8"		
		14'		1'-0"	1'-1"	4'-3"			1'-0"	4'-6"	5'-10"		
		16'		1'-0"	2'-2"	5'-5"			1'-0"	5'-8"	7'-0"		
		18'	19.2"	1'-0"	1'-8"	5'-8"			1'-0"	5'-10"	7'-7"		
		20'	16"	1'-0"	1'-2"	5'-11"			1'-0"	6'-1"	8'-1"		
		21'	12"	1'-0"	1'-0"	4'-9"			1'-0"	4'-11"	7'-5"		
	14"	8'	24"	1'-0"	1'-0"	1'-0"	1'-1"		1'-0"	1'-0"	2'-3"	2'-8"	
		10'		1'-0"	1'-0"	1'-0"	2'-3"		1'-0"	1'-0"	3'-5"	3'-9"	
		12'		1'-0"	1'-0"	1'-0"	3'-4"		1'-0"	1'-0"	4'-7"	5'-0"	
		14'		1'-0"	1'-0"	1'-10"	4'-6"		1'-0"	2'-1"	5'-10"	6'-2"	
		16'		1'-0"	1'-0"	2'-11"	5'-8"		1'-0"	3'-2"	7'-0"	7'-4"	
		18'		1'-0"	1'-0"	4'-1"	6'-11"		1'-0"	4'-4"	8'-3"	8'-7"	
		20'	19.2"	1'-0"	1'-0"	3'-9"	7'-2"		1'-0"	4'-0"	8'-9"	9'-2"	
		22'	16"	1'-0"	1'-0"	3'-5"	7'-6"		1'-0"	3'-8"	9'-3"	9'-9"	
		24'	12"	1'-0"	1'-0"	1'-10"	7'-0"		1'-0"	2'-0"	9'-2"	9'-9"	
	16"	10'	24"	1'-0"	1'-0"	1'-0"	1'-0"	2'-3"	1'-0"	1'-0"	1'-6"	3'-9"	4'-1"
		12'		1'-0"	1'-0"	1'-0"	1'-0"	3'-5"	1'-0"	1'-0"	2'-7"	5'-0"	5'-3"
		14'		1'-0"	1'-0"	1'-0"	2'-1"	4'-7"	1'-0"	1'-0"	3'-8"	6'-2"	6'-6"
		16'		1'-0"	1'-0"	1'-0"	3'-2"	5'-9"	1'-0"	1'-0"	4'-10"	7'-4"	7'-8"
		18'		1'-0"	1'-0"	1'-0"	4'-4"	6'-10"	1'-0"	2'-0"	6'-0"	8'-7"	
		19'		1'-0"	1'-0"	1'-6"	4'-11"	7'-7"	1'-0"	2'-7"	6'-7"	9'-2"	
		21'	19.2"	1'-0"	1'-0"	1'-0"	4'-7"	7'-10"	1'-0"	1'-9"	6'-7"	9'-9"	10'-2"
		23'	16"	1'-0"	1'-0"	1'-0"	4'-4"	8'-2"	1'-0"	1'-0"	6'-7"	10'-4"	10'-10"
		24'	12"	1'-0"	1'-0"	1'-0"	2'-3"	7'-1"	1'-0"	1'-0"	5'-0"	9'-9"	10'-3"
		26'		1'-0"	1'-0"	1'-0"	3'-4"	8'-3"	1'-0"	1'-0"	6'-1"	10'-11"	11'-6"
		27'		1'-0"	1'-0"	1'-0"	3'-11"	8'-11"	1'-0"	1'-0"	6'-8"	11'-7"	12'-1"
PKI70L	9-1/2"	8'	24"	1'-0"	1'-0"				1'-0"	1'-5"			
		10'		1'-0"	1'-7"				1'-0"	2'-6"			
		12'		1'-0"	2'-9"				1'-0"	3'-8"			
		14'		1'-0"	3'-11"				1'-7"	4'-10"			
		16'	19.2"	1'-0"	4'-1"				1'-3"	5'-2"			
		17'	16"	1'-0"	3'-8"				1'-0"	4'-11"			
		19'	12"	1'-0"	3'-0"				1'-0"	4'-5"			
	11-7/8"	8'	24"	1'-0"	1'-0"	1'-0"			1'-0"	1'-1"	1'-9"		
		10'		1'-0"	1'-0"	1'-11"			1'-0"	2'-2"	2'-10"		
		12'		1'-0"	1'-0"	3'-1"			1'-0"	3'-4"	4'-0"		
		14'		1'-0"	1'-1"	4'-3"			1'-0"	4'-6"	5'-2"		
		16'		1'-0"	2'-2"	5'-5"			1'-0"	5'-8"	6'-4"		
		18'	19.2"	1'-0"	1'-8"	5'-8"			1'-0"	5'-10"	6'-9"		
		20'	16"	1'-0"	1'-2"	5'-11"			1'-0"	6'-1"	7'-1"		
		22'	12"	1'-0"	1'-0"	5'-4"			1'-0'	5'-6"	6'-9"		
	14"	8'	24"	1'-0"	1'-0"	1'-0"	1'-1"		1'-0"	1'-0"	1'-9"	2'-0"	
		10'		1'-0"	1'-0"	1'-0"	2'-3"		1'-0"	1'-0"	2'-10"	3'-2"	
		12'		1'-0"	1'-0"	1'-0"	3'-4"		1'-0"	1'-0"	4'-0"	4'-4"	
		14'		1'-0"	1'-0"	1'-10"	4'-6"		1'-0"	2'-1"	5'-2"	5'-6"	
		16'		1'-0"	1'-0"	2'-11"	5'-8"		1'-0"	3'-2"	6'-4"	6'-8"	
		18'		1'-0"	1'-0"	4'-1"	6'-11"		1'-0"	4'-4"	7'-7"	7'-11"	
		19'		1'-0"	1'-0"	4'-8"	7'-6"		1'-0"	4'-10"	8'-2"	8'-6"	
		21'	19.2"	1'-0"	1'-0"	4'-4"	7'-11"		1'-0"	4'-6"	8'-6"	8'-11"	
		23'	16"	1'-0"	1'-0"	4'-0"	8'-1"		1'-0"	4'-3"	8'-11"	9'-4"	
		25'	12"	1'-0"	1'-0"	2'-4"	7'-7"		1'-0"	2'-7"	8'-6"	9'-1"	
	16"	10'	24"	1'-0"	1'-0"	1'-0"	1'-0"	2'-3"	1'-0"	1'-0"	1'-6"	3'-2"	3'-6"
		12'		1'-0"	1'-0"	1'-0"	1'-0"	3'-5"	1'-0"	1'-0"	2'-7"	4'-4"	4'-8"
		14'		1'-0"	1'-0"	1'-0"	2'-1"	4'-7"	1'-0"	1'-0"	3'-8"	5'-6"	5'-10"
		16'		1'-0"	1'-0"	1'-0"	3'-2"	5'-9"	1'-0"	1'-0"	4'-10"	6'-8"	7'-0"
		18'		1'-0"	1'-0"	1'-9"	4'-4"	6'-10"	1'-0"	2'-0"	6'-0"	7'-11"	8'-3"
		20'		1'-0"	1'-0"	2'-10"	5'-5"	8'-2"	1'-0"	3'-1"	7'-2"	9'-1"	9'-5"
		22'	19.2"	1'-0"	1'-0"	2'-0"	5'-2"	8'-6"	1'-0"	2'-3"	7'-2"	9'-6"	9'-11"
		24'	16"	1'-0"	1'-0"	1'-3"	4'-10"	8'-9"	1'-0"	1'-5"	7'-2"	9'-11"	10'-5"
		25'		1'-0"	1'-0"	1'-9"	5'-6"	9'-5"	1'-0"	2'-0"	7'-9"	10'-7"	11'-0"
		26'	12"	1'-0"	1'-0"	1'-0"	3'-4"	8'-3"	1'-0"	1'-0"	6'-1"	9'-8"	10'-2"
		28'		1'-0"	1'-0"	1'-0"	4'-5"	9'-5"	1'-0"	1'-0"	7'-3"	10'-10"	11'-5"

TABLE 9 (continued) - ALLOWABLE LOCATION OF HOLES IN PKI JOIST WEBS

Simple Span for Live Loads up to 40 psf, and Dead Loads up to 25 psf

Series	Depth	Clear Span	O.C. Spacing	Minimum Distance from Inside Face of Bearing to Center of Hole									
				Round and Clustered Round Hole Size (inches)					Square or Rectangular Hole Size (inches)				
				4	6½	8⅞	11	13	4	6½	8⅞	11	13
PKI-80L	9-1/2"	8'	24"	1'-0"	1'-0"				1'-0"	1'-4"			
		10'		1'-0"	1'-0"				1'-0"	2'-5"			
		12'		1'-0"	1'-11"				1'-0"	3'-7"			
		14'		1'-0"	3'-1"				1'-6"	4'-9"			
		16'		1'-0"	4'-2"				2'-7"	5'-11"			
		17'	19.2"	1'-0"	3'-7"				1'-8"	5'-8"			
		18'	16"	1'-0"	3'-1"				1'-0"	5'-4"			
		19'	12"	1'-0"	1'-6"				1'-0"	4'-4"			
		20'		1'-0"	2'-0"				1'-0"	4'-10"			
	11-7/8"	8'	24"	1'-0"	1'-0"	1'-0"			1'-0"	1'-0"	1'-8"		
		10'		1'-0"	1'-0"	1'-3"			1'-0"	1'-4"	2'-9"		
		12'		1'-0"	1'-0"	2'-5"			1'-0"	2'-5"	3'-11"		
		14'		1'-0"	1'-0"	3'-6"			1'-0"	3'-6"	5'-1"		
		16'		1'-0"	1'-6"	4'-8"			1'-0"	4'-8"	6'-3"		
		18'		1'-0"	2'-7"	5'-10"			1'-3"	5'-10"	7'-6"		
		19'		1'-0"	3'-1"	6'-5"			1'-10"	6'-5"	8'-1"		
		20'	19.2"	1'-0"	1'-11"	5'-11"			1'-0"	5'-10"	7'-10"		
		22'	16"	1'-0"	1'-4"	6'-0"			1'-0"	5'-10"			
		24'	12"	1'-0"	1'-0"	5'-1"			1'-0"	4'-9"	8'-7"		
	14"	8'	24"	1'-0"	1'-0"	1'-0"	1'-0"		1'-0"	1'-0"	1'-8"	1'-11"	
		10'		1'-0"	1'-0"	1'-0"	1'-7"		1'-0"	1'-0"	2'-9"	3'-1"	
		12'		1'-0"	1'-0"	1'-0"	2'-8"		1'-0"	1'-0"	3'-11"	4'-3"	
		14'		1'-0"	1'-0"	1'-2"	3'-10"		1'-0"	1'-3"	5'-1"	5'-5"	
		16'		1'-0"	1'-0"	2'-3"	5'-0"		1'-0"	2'-3"	6'-3"	6'-7"	
		18'		1'-0"	1'-0"	3'-4"	6'-2"		1'-0"	3'-5"	7'-6"	7'-10"	
		20'		1'-0"	1'-7"	4'-6"	7'-4"		1'-0"	4'-6"	8'-8"	9'-0"	
		21'		1'-0"	2'-2"	5'-1"	7'-11"		1'-0"	5'-1"	9'-3"	9'-8"	
		23'	19.2"	1'-0"	1'-1"	4'-7"	8'-1"		1'-0"	4'-6"	9'-8"	10'-0"	
		24'	16"	1'-0"	1'-0"	3'-6"	7'-7"		1'-0"	3'-5"	9'-5"	9'-10"	
		26'	12"	1'-0"	1'-0"	1'-7"	6'-9"		1'-0"	1'-5"	8'-11"	9'-6"	
		27'		1'-0"	1'-0"	2'-2"	7'-4"		1'-0"	1'-11"	9'-6"	10'-1"	
	16"	10'	24"	1'-0"	1'-0"	1'-0"	1'-0"	1'-8"	1'-0"	1'-0"	1'-0"	3'-1"	3'-5"
		12'		1'-0"	1'-0"	1'-0"	1'-0"	2'-9"	1'-0"	1'-0"	1'-9"	4'-3"	4'-7"
		14'		1'-0"	1'-0"	1'-0"	1'-6"	3'-11"	1'-0"	1'-0"	2'-10"	5'-5"	5'-9"
		16'		1'-0"	1'-0"	1'-0"	2'-7"	5'-1"	1'-0"	1'-0"	3'-11"	6'-7"	6'-11"
		18'		1'-0"	1'-0"	1'-2"	3'-8"	6'-3"	1'-0"	1'-3"	5'-1"	7'-10"	8'-2"
		20'		1'-0"	1'-0"	2'-3"	4'-10"	7'-5"	1'-0"	2'-4"	6'-3"	9'-0"	9'-4"
		22'		1'-0"	1'-0"	3'-4"	5'-11"	8'-8"	1'-0"	3'-4"	7'-5"	10'-3"	10'-7"
		23'		1'-0"	1'-2"	3'-11"	6'-6"	9'-3"	1'-0"	3'-11"	8'-0"	10'-10"	11'-2"
		25'	19.2"	1'-0"	1'-0"	2'-11"	6'-1"	9'-4"	1'-0"	2'-10"	7'-9"	11'-3"	11'-8"
		26'		1'-0"	1'-0"	3'-5"	6'-8"	10'-0"	1'-0"	3'-5"			
		27'	16"	1'-0"	1'-0"	1'-11"	5'-8"	9'-6"	1'-0"	1'-10"	7'-7"	11'-8"	12'-1"
		29'	12"	1'-0"	1'-0"	1'-0"	3'-9"	8'-8"	1'-0"	1'-0"	6'-1"	11'-3"	11'-10"
		30'		1'-0"	1'-0"	1'-0"	4'-4"	9'-3"	1'-0"	1'-0"	6'-8"	11'-11"	12'-5"
PKI-90L	9-1/2"	8'	24"	1'-0"	1'-0"				1'-0"	1'-0"			
		10'		1'-0"	1'-0"				1'-0"	1'-9"			
		12'		1'-0"	1'-8"				1'-0"	2'-10"			
		14'		1'-0"	2'-9"				1'-2"	3'-11"			
		16'		1'-0"	3'-11"				2'-3"	5'-1"			
		17'		1'-0"	4'-6"				2'-9"	5'-8"			
		19'	19.2"	1'-0"	4'-5"				2'-3"	5'-11"			
		20'	16"	1'-0"	3'-9"				1'-3"	5'-4"			
		22'	12"	1'-0"	2'-7"				1'-0"	4'-6"			
	11-7/8"	8'	24"	1'-0"	1'-0"	1'-0"			1'-0"	1'-0"	1'-0"		
		10'		1'-0"	1'-0"	1'-0"			1'-0"	1'-0"	2'-0"		
		12'		1'-0"	1'-0"	1'-7"			1'-0"	1'-6"	3'-2"		
		14'		1'-0"	1'-0"	2'-8"			1'-0"	2'-7"	4'-4"		
		16'		1'-0"	1'-0"	3'-9"			1'-0"	3'-9"	5'-6"		
		18'		1'-0"	1'-0"	4'-11"			1'-0"	4'-10"	6'-8"		
		20'		1'-0"	2'-3"	6'-1"			1'-0"	6'-0"	7'-11"		
		21'		1'-0"	2'-9"	6'-8"			1'-2"	6'-7"	8'-5"		
		22'	19.2"	1'-0"	1'-3"	5'-11"			1'-0"	5'-9"	8'-0"		
		24'	16"	1'-0"	1'-0"	5'-10"			1'-0"	5'-7"	8'-2"		
		26'	12"	1'-0"	1'-0"	4'-6"			1'-0"	4'-1"	7'-5"		
		27'		1'-0"	1'-0"	5'-1"			1'-0"	4'-8"	8'-0"		
	14"	8'	24"	1'-0"	1'-0"	1'-0"	1'-0"		1'-0"	1'-0"	1'-0"	1'-3"	
		10'		1'-0"	1'-0"	1'-0"	1'-0"		1'-0"	1'-0"	2'-0"	2'-4"	
		12'		1'-0"	1'-0"	1'-0"	1'-9"		1'-0"	1'-0"	3'-2"	3'-6"	
		14'		1'-0"	1'-0"	1'-0"	2'-10"		1'-0"	1'-0"	4'-4"	4'-8"	
		16'		1'-0"	1'-0"	1'-0"	4'-0"		1'-0"	1'-0"	5'-6"	5'-10"	
		18'		1'-0"	1'-0"	2'-0"	5'-2"		1'-0"	2'-0"	6'-8"	7'-0"	
		20'		1'-0"	1'-0"	3'-1"	6'-5"		1'-0"	3'-1"	7'-10"	8'-2"	

		22'		1'-0"	1'-0"	4'-3"	7'-7"		1'-0"	4'-2"	9'-0"	9'-5"	
		24'		1'-0"	1'-10"	5'-4"	8'-9"		1'-0"	5'-3"	10'-3"	10'-7"	
		26'	19.2"	1'-0"	1'-0"	4'-6"	8'-8"		1'-0"	4'-5"	10'-5"	10'-10"	
		27'	16"	1'-0"	1'-0"	3'-2"	8'-0"		1'-0"	3'-0"	9'-11"	10'-5"	
		29'	12"	1'-0"	1'-0"	1'-0"	6'-10"		1'-0"	1'-0"	9'-2"	9'-9"	
		30'		1'-0"	1'-0"	1'-2"	7'-4"		1'-0"	1'-0"	9'-9"	10'-4"	
		10'		1'-0"	1'-0"	1'-0"	1'-0"	1'-1"	1'-0"	1'-0"	1'-0"	2'-4"	2'-8"
		12'		1'-0"	1'-0"	1'-0"	1'-0"	1'-10"	1'-0"	1'-0"	1'-0"	3'-6"	3'-10"
		14'		1'-0"	1'-0"	1'-0"	1'-0"	3'-0"	1'-0"	1'-0"	1'-7"	4'-8"	5'-0"
		16'		1'-0"	1'-0"	1'-0"	1'-2"	4'-1"	1'-0"	1'-0"	2'-8"	5'-10"	6'-2"
		18'	24"	1'-0"	1'-0"	1'-0"	2'-2"	5'-3"	1'-0"	1'-0"	3'-10"	7'-0"	7'-4"
		20'		1'-0"	1'-0"	1'-0"	3'-3"	6'-5"	1'-0"	1'-0"	5'-0"	8'-2"	8'-6"
	16"	22'		1'-0"	1'-0"	1'-4"	4'-5"	7'-7"	1'-0"	1'-4"	6'-1"	9'-5"	9'-9"
		24'		1'-0"	1'-0"	2'-4"	5'-6"	8'-9"	1'-0"	2'-4"	7'-2"	10'-7"	10'-11"
		26'		1'-0"	1'-0"	3'-5"	6'-8"	10'-0"	1'-0"	3'-5"	8'-4"	11'-10"	12'-2"
		28'	19.2"	1'-0"	1'-0"	2'-0"	5'-10"	9'-10"	1'-0"	1'-10"	7'-10"	12'-0"	12'-5"
		30'	16"	1'-0"	1'-0"	1'-0"	5'-1"	9'-9"	1'-0"	1'-0"	7'-4"	12'-3"	12'-8"
		32'	12"	1'-0"	1'-0"	1'-0"	2'-6"	8'-6"	1'-0"	1'-0"	5'-3"	11'-6"	12'-0"
		33'		1'-0"	1'-0"	1'-0"	3'-1"	9'-1"	1'-0"	1'-0"	5'-10"	12'-1"	12'-8"

TABLE 9 (continued) - ALLOWABLE LOCATION OF HOLES IN PKI JOIST WEBS

Simple Span for Live Loads up to 40 psf, and Dead Loads up to 25 psf													
Series	Depth	Clear Span	O.C. Spacing	Minimum Distance from Inside Face of Bearing to Center of Hole									
				Round and Clustered Round Hole Size (inches)					Square or Rectangular Hole Size (inches)				
				9	11	13	15	17	9	11	13	15	17
PKI-80L	18"	12'	24"	1'-0"	1'-0"	1'-1"	2'-10"		1'-0"	2'-10"	4'-7"	4'-10"	
		14'		1'-0"	1'-0"	1'-7"	3'-11"		1'-0"	4'-0"	5'-9"	6'-1"	
		16'		1'-0"	1'-0"	2'-8"	5'-1"		1'-10"	5'-2"	6'-11"	7'-3"	
		18'		1'-0"	1'-5"	3'-9"	6'-4"		2'-11"	6'-4"	8'-2"	8'-6"	
		20'		1'-0"	2'-6"	4'-10"	7'-6"		4'-0"	7'-6"	9'-4"	9'-8"	
		22'		1'-4"	3'-7"	6'-0"	8'-8"		5'-2"	8'-8"	10'-7"		
		24'		2'-4"	4'-8"	7'-2"	9'-10"		6'-3"	9'-10"			
		26'	19.2"	1'-0"	3'-9"	6'-9"	10'-0"		5'-7"	9'-11"	12'-3"	12'-8"	
		27'		1'-5"	4'-3"	7'-4"	10'-7"		6'-1"	10'-6"	12'-10"	13'-3"	
		29'	16"	1'-0"	3'-4"	6'-10"	10'-9"		5'-5"	10'-7"	13'-4"	13'-9"	
		30'		1'-0"	3'-10"	7'-5"	11'-4"		6'-0"				
		31'	12"	1'-0"	1'-0"	5'-0"	9'-11"		3'-1"	9'-6"	13'-0"	13'-7"	
		32'		1'-0"	1'-0"	5'-6"	10'-6"		3'-7"	10'-1"	13'-8"	14'-2"	
	20"	14'	24"	1'-0"	1'-0"	1'-1"	1'-7"	4'-0"	1'-0"	1'-8"	5'-9"	6'-1"	6'-5"
		16'		1'-0"	1'-0"	1'-1"	2'-8"	5'-2"	1'-0"	2'-9"	6'-11"	7'-3"	7'-7"
		18'		1'-0"	1'-0"	1'-6"	3'-9"	6'-4"	1'-0"	3'-10"	8'-2"	8'-6"	
		20'		1'-0"	1'-0"	2'-7"	4'-11"	7'-6"	1'-10"	5'-0"	9'-4"	9'-8"	
		22'		1'-0"	1'-5"	3'-8"	6'-1"	8'-9"	2'-10"	6'-1"	10'-7"		
		24'		1'-0"	2'-5"	4'-9"	7'-3"	9'-11"	3'-11"	7'-3"			
		26'		1'-3"	3'-6"	5'-10"	8'-5"	11'-1"	5'-0"	8'-5"			
		27'	19.2"	1'-0"	1'-6"	4'-4"	7'-4"	10'-8"	3'-3"	7'-4"	12'-10"		
		29'		1'-0"	2'-7"	5'-5"	8'-6"	11'-10"	4'-4"	8'-5"	14'-1"		
		31'	16"	1'-0"	1'-2"	4'-6"	8'-1"	12'-0"	3'-2"	7'-11"	14'-6"	15'-0"	
		33'	12"	1'-0"	1'-0"	1'-8"	6'-2"	11'-2"	1'-0"	5'-10"	14'-3"	14'-10"	15'-4"
		35'		1'-0"	1'-0"	2'-8"	7'-3"	12'-4"	1'-0"	6'-11"	15'-5"	16'-0"	16'-7"
PKI-90L	18"	16'	24"	1'-0"	1'-0"	1'-3"	4'-2"		1'-0"	4'-1"	6'-2"	6'-6"	
		18'		1'-0"	1'-0"	2'-4"	5'-4"		1'-3"	5'-3"	7'-4"	7'-8"	
		20'		1'-0"	1'-0"	3'-5"	6'-3"		2'-4"	6'-5"	8'-6"	8'-10"	
		22'		1'-0"	1'-7"	4'-6"	7'-8"		3'-5"	7'-7"	9'-9"	10'-1"	
		24'		1'-0"	2'-8"	5'-7"	8'-10"		4'-6"	8'-9"	10'-11"	11'-3"	
		26'		1'-0"	3'-9"	6'-9"	10'-1"		5'-7"	9'-11"	12'-2"	12'-6"	
		28'		2'-0"	4'-10"	7'-11"	11'-3"		6'-9"	11'-1"	13'-4"	13'-8"	
		29'		2'-6"	5'-6"	8'-6"	11'-10"		7'-3"	11'-9"	14'-0"		
		30'	19.2"	1'-0"	3'-5"	7'-1"	11'-2"		5'-7"	10'-11"	13'-7"	14'-0"	
		31'		1'-0"	3'-11"	7'-8"	11'-9"		6'-2"	11'-6"	14'-3"	14'-7"	
		32'	16"	1'-0"	2'-0"	6'-4"	11'-1"		4'-6"	10'-8"	13'-10"	14'-4"	
		33'		1'-0"	2'-7"	6'-11"	11'-8"		5'-1"	11'-3"	14'-6"	14'-11"	
		34'	12"	1'-0"	1'-0"	3'-9"	9'-9"		1'-5"	9'-2"	13'-3"	13'-10"	
		36'		1'-0"	1'-0"	4'-10"	10'-11"		2'-5"	10'-4"	14'-5"	15'-0"	
	20"	16'	24"	1'-0"	1'-0"	1'-1"	1'-3"	4'-3"	1'-0"	1'-4"	6'-2"	6'-6"	6'-10"
		18'		1'-0"	1'-0"	1'-1"	2'-4"	5'-4"	1'-0"	2'-4"	7'-4"	7'-8"	8'-0"
		20'		1'-0"	1'-0"	1'-1"	3'-5"	6'-6"	1'-0"	3'-5"	8'-6"	8'-10"	9'-2"
		22'		1'-0"	1'-0"	1'-8"	4'-7"	7'-9"	1'-0"	4'-6"	9'-9"	10'-1"	10'-5"
		24'		1'-0"	1'-0"	2'-9"	5'-8"	8'-11"	1'-9"	5'-8"	10'-11"	11'-3"	11'-7"
		26'		1'-0"	1'-1"	3'-10"	6'-10"	10'-1"	2'-10"	6'-9"	12'-2"	12'-6"	
		28'		1'-0"	2'-1"	4'-11"	8'-0"	11'-3"	3'-10"	7'-11"	13'-4"	13'-8"	
		30'		1'-0"	3'-2"	6'-1"	9'-2"	12'-6"	4'-11"	9'-1"	14'-7"		
		31'		1'-0"	3'-8"	6'-7"	9'-9"	13'-1"	5'-6"	9'-8"	15'-2"		
		33'	19.2"	1'-0"	1'-8"	5'-2"	8'-11"	13'-0"	3'-9"	8'-8"	15'-5"	15'-10"	16'-3"
		34'		1'-0"	2'-2"	5'-8"	9'-6"	13'-7"	4'-3"	9'-3"	16'-0"	16'-5"	
		36'	16"	1'-0"	1'-0"	4'-3"	8'-8"	13'-6"	2'-7"	8'-4"	16'-3"	16'-9"	17'-3"
		38'	12"	1'-0"	1'-0"	1'-1"	6'-1"	12'-2"	1'-0"	5'-7"	15'-7"	16'-2"	16'-9"
		39'		1'-0"	1'-0"	1'-1"	6'-7"	12'-9"	1'-0"	6'-1"	16'-2"	16'-9"	17'-4"

For **SI:** 1 foot = 304.8 mm, 1 inch = 25.4 mm

Notes:

(a) This table may be used for I-joist spacing of 24 inches on center, or less.

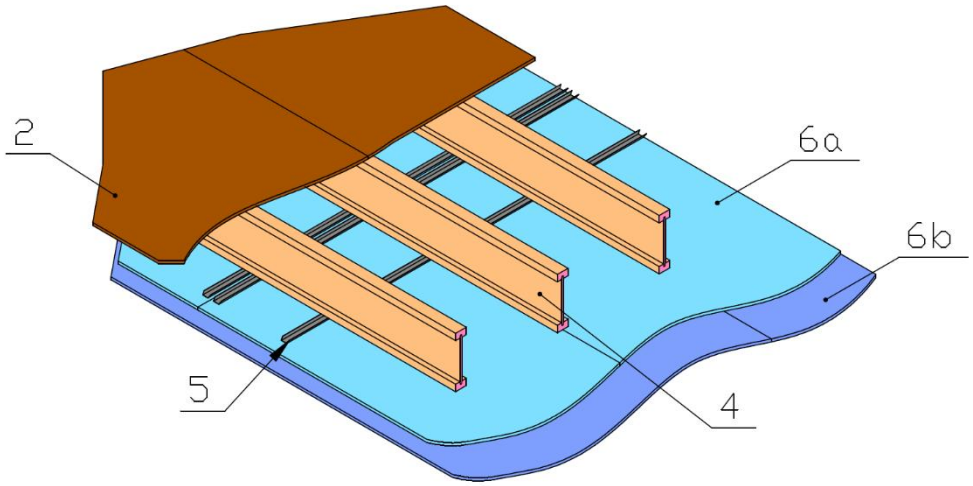
(b) Hole location distance is measured from the inside face of the supports to the center of the hole.

(c) Distances in this chart are based on uniformly loaded joists.

(d) Hole sizes and/or locations that fall outside the scope of this table may be acceptable based on analysis of actual hole size, span, spacing, and loading conditions. The analysis is subject to the approval of the building official. The I-Joist shear capacity at the location of a circular web hole (V_{rh}) is calculated using Equation Eq. 9-1:

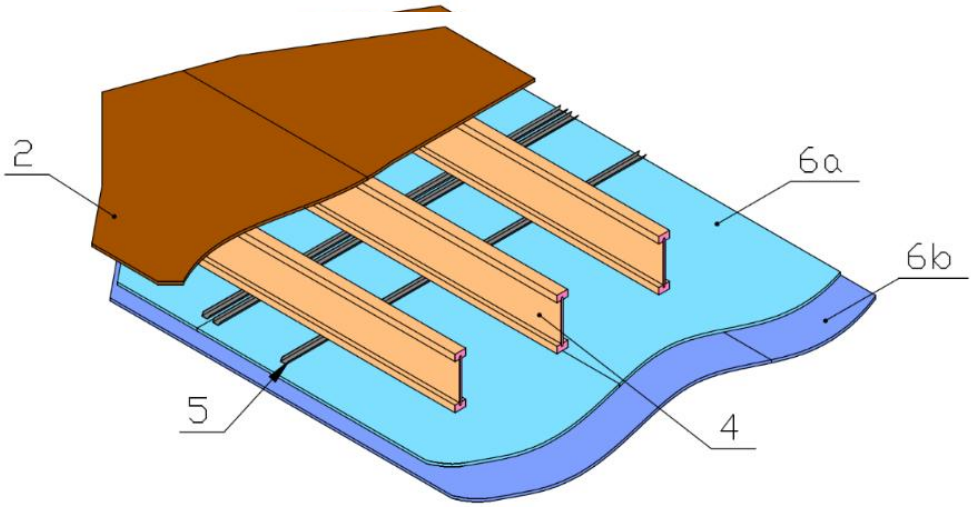
V_{rh} = Published Shear Value x [(Joist Depth – Hole Diameter) / Joist Depth] (lbf or N) (Eq. 9-1)

FIGURE 3a – 1-Hour Fire-Rated Floor-Ceiling or Roof-Ceiling Assembly, Design No. 60-01



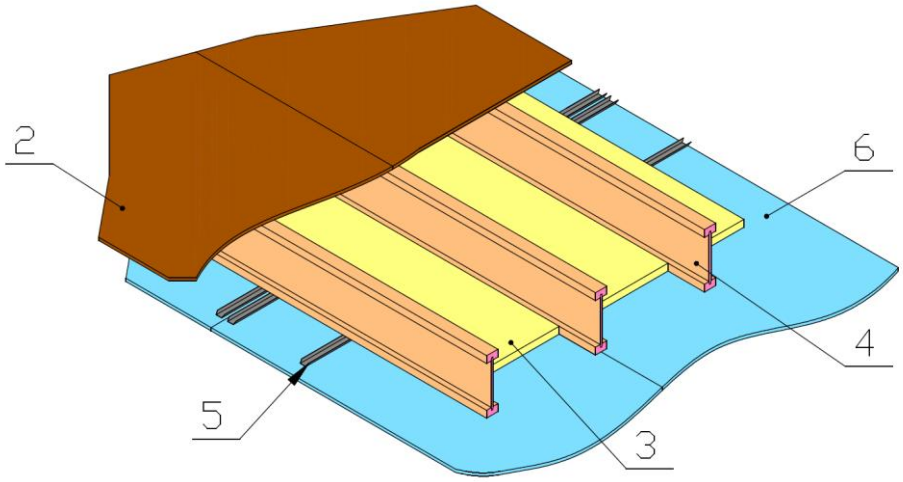
1 Hour Fire-Resistance-Rated Floor and Roof Assembly, Design No. 60-01	
Material	**Specification**
(1) Floor Topping (Optional)	**Varies (Not Shown)**
Gypsum concrete, lightweight or normalweight concrete topping. When used as a roof assembly, materials for a built-up roof covering that are described in an assembly that provides a Class A, B, or C rating on combustible wood decks may be used. Reference sound rating, if applicable.	
(2) Floor Sheathing	**Minimum ⅝ in. T&G Thick Wood Sheathing, Designed and Installed Per IBC or IRC**
Blocked or unblocked diaphragm where specified. When used as a roof assembly, minimum ½-inch-thick wood sheathing may be used when designed and installed per IBC or IRC requirements.	
(3) Insulation	**Optional (not shown)**
When installed, insulation shall be installed above the joist flanges and supported by stay wires spaced 12 in. on center (o.c.).	
(4) Structural Member	**Pinkwood® Ltd. Wood I-Joists**
Certified Models: PKI10, PKI20, PKI23, PKI35Plus, PKI40, and PKI50, I-Joists Series. 9½ in. minimum deep joists spaced a maximum of 24 in. o.c. Installed in accordance with the Code. The maximum spacing may be increased to 48 in. o.c., when the ceiling is applied to stripping spaced a max of 24 in. o.c., The stripping shall be a nominal 2x4 construction-grade lumber attached to the joist's bottom flange using two 10d nails.	
(5) Resilient Channels	**(Optional) Min. 0.019 in thick galvanized steel resilient channels**
Channel attached perpendicular to the bottom flange of the joists with one 1¼ in. drywall screws. Channels spaced at a max. of 16 in. o.c. The max channel spacing may be increased to 24 in. o.c. when joists are spaced a max. of 16 in. o.c.	
(6) Gypsum Wallboard	**Two layers of min ½ in. type X gypsum wallboard**
Attached with the long dimension perpendicular to the resilient channels (or joists) as follows: **6a**. **WALLBOARD BASE LAYER** - The base layer of the wallboard is attached to resilient channels (or joists) using 1¼ in. Type S drywall screws at 12 in. o.c. When resilient channels are installed, edge joints shall be centered on joists. End joints of wallboard shall be staggered a min. of one channel (or joist) spacing.	
6b. **WALLBOARD FACE LAYER** - The face layer of the wallboard is attached to resilient channels (or joists) through the base layer using 1⅝ in. Type S drywall screws spaced 12 in. o.c. Edge joints shall be offset from base layer joints by a min of one channel (or joist) spacing. Additionally, the wallboard face layer is attached to the base layer with 1½ in. Type G drywall screws spaced 8 in. o.c., placed 1½ in. from face layer end joints.	
(7) Finish System	**(Not Shown)**
Face layer joints shall be covered with tape and coated with joint compound. Screw heads shall be covered with joint compound.	

FIGURE 3b – 1-Hour Fire-Rated Floor-Ceiling or Roof-Ceiling Assembly



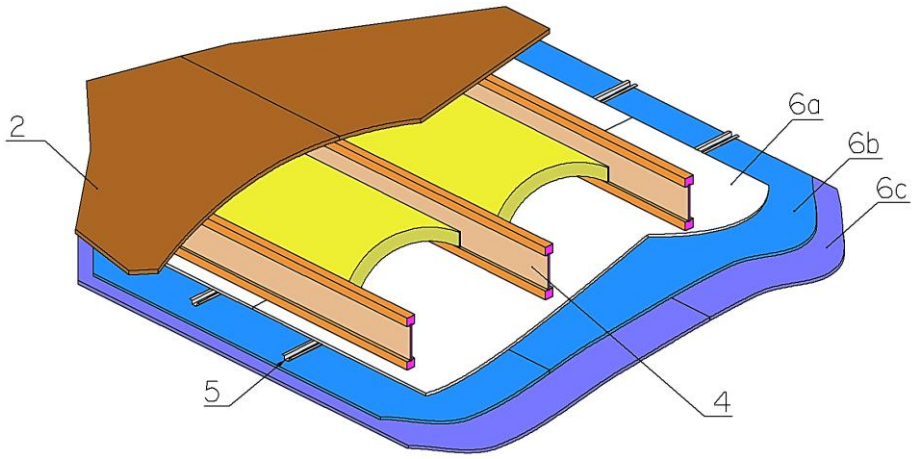
1 Hour Fire-Resistance-Rated Floor and Roof Assembly	
Material	**Specification**
(1) Floor Topping (Optional)	**Varies (Not Shown)**
Gypsum concrete, lightweight or normalweight concrete topping. When used as a roof assembly, materials for a built-up roof covering that are described in an assembly that provides a Class A, B, or C rating on combustible wood decks may be used. Reference sound rating, if applicable.	
(2) Floor Sheathing	**Minimum ⅝ in. T&G Thick Wood Sheathing, Designed and Installed Per IBC or IRC**
Blocked or unblocked diaphragms where specified. When used as a roof assembly, minimum ½-inch-thick wood sheathing may be used when designed and installed per IBC or IRC requirements.	
(3) Insulation	**Optional (not shown)**
When installed, insulation shall be installed above the joist flanges and supported by stay wires spaced 12 in. on center (o.c.).	
(4) Structural Member	**Pinkwood® Ltd. Wood I-Joists**
Certified Models: PKI60L, PKI70L, PKI80L, and PKI90L, I-Joists Series. 9½ in. minimum deep joists spaced a maximum of 24 in. o.c. shall have fastener spacing of 8" o.c. maximum. Joist spacing of 16 in o.c. shall have fastener spacing of 12" o.c. maximum.	
(5) Resilient Channels (RC)	**(Optional) Minimum 0.019-inch-thick galvanized steel resilient channels**
Channel attached perpendicular to the bottom flange of the I-joists with one 1¼ in. long drywall screw. Channels are spaced at a max. of 16 in. o.c. The maximum channel spacing may be increased to 24 in. o.c. When I-joists are spaced a maximum of 16 in. o.c.	
(6) Gypsum Wallboard	**Two layers of minimum ½-inch thick Type X gypsum wallboard**
Where no resilient channels (RC) are used, panels shall be attached with the long dimension perpendicular to the joists. Where (RC) are used, panels shall be attached with the long dimension perpendicular to the channel. For spacing of 12" or 16", the maximum fastener spacing shall be 12". For joist spacing of 19.2" o.c. or 24" o.c., the max. fastener spacing shall be 8".	
6a. **WALLBOARD BASE LAYER** – The base layer shall be attached to the joists (When no RC used) or to the RC (when used) using 1-1/2" inch Type S drywall screws at 12" o.c. In all cases, adjoining panel end joint edges shall be centered on the supporting joist (when no RC is used) or RC (when used). End joints shall be staggered a minimum of one joist or RC spacing.	
6b. **WALLBOARD FACE LAYER** – The face layer shall be attached through the base layer and into the joist or RC with 2"inch long Type S drywall screws spaced as follows: for joists or RC spacing of 12" o.c. or 16" o.c., the maximum fastener spacing shall be 12". For joist or RC spacing of 19.2" o.c. or 24" o.c., the max fastener spacing shall be 8". Adjoining panel end joints occurring over supporting joist or RC shall be staggered at least one framing spacing from those of the adjacent underlying layer and attached to framing (joist or RC when used) with fasteners offset by at least 4" from the fastener in the underlying layer. Unbacked adjoining panel edges shall be offset by at least 12" from those of the adjacent underlying layer.	
(7) Finish System	**(Not Shown)**
Face layer joints shall be covered with tape and coated with joint compound. Screw heads shall be covered with joint compound. The gypsum panel membrane shall be installed such that the ceiling gypsum panel membrane is installed first, followed by the wall gypsum panel membrane, to ensure that the ceiling gypsum panel membrane is supported by each layer of the wall gypsum panel membrane.	

FIGURE 4 – 1-Hour Fire-Rated Floor-Ceiling or Roof-Ceiling Assembly, Design No. 60-02



1 Hour Fire-Resistance-Rated Floor and Roof Assembly, Design No. 60-02	
Material	**Specification**
(1) Floor Topping (Optional)	**Varies (Not Shown)**
Gypsum concrete, lightweight or normalweight concrete topping. When used as a roof assembly, materials for a built-up roof covering that are described in an assembly that provides a Class A, B, or C rating on combustible wood decks may be used. Reference sound rating, if applicable.	
(2) Floor Sheathing	**Minimum ⅝ in. Thick Wood Sheathing, Designed and Installed Per Code**
When used as a roof assembly, minimum 1/2-inch-thick wood sheathing may be used when designed and installed per Code requirements.	
(3) Insulation	**Min. 1½ in thick mineral wool batts – 2.5 pcf (min.)**
When installed, insulation shall be friction-fitted between the bottom flanges and supported by resilient channels. The ends of the batts shall be centered over resilient channels and tightly butted.	
(4) Structural Member	**Pinkwood® Ltd. Wood I-Joists**
Certified Models: PKI35Plus, PKI40, and PKI50 I-Joists Series. 9½ in. minimum deep joists spaced a maximum of 24 in. o.c., installed in accordance with the IBC or IRC. The maximum spacing may be increased to 48 in. o.c., when the ceiling is applied to stripping spaced a max. of 24 in. o.c. The stripping shall be a nominal 2x4 construction-grade lumber attached to the joist's bottom flange using two 10d nails.	
(5) Resilient Channels	**Min. 0.019 in. thick galvanized steel resilient channels**
Channels attached perpendicular to the bottom flange of the joists using 1⅝ in. long drywall screws. Channels spaced a max. of 16 in. o.c. Additional channels are required at gypsum board end joints so that each board is attached to a separate channel. These additional channels shall extend to the next joist on each side of the board end joint.	
(6) Gypsum Wallboard	**Min. ⅝ in. Thick type C gypsum wallboard**
Installed with the long dimension perpendicular to resilient channels and fastened to each channel with min. 1 in. long Type S drywall screws. Fasteners spaced 12 in. o.c. in the field of the wallboard, 8 in. o.c. at wallboard end joints, and 1-1/2 in. from panel edges and ends. Edge joints shall be centered between joists. End joints shall be staggered one channel spacing.	
(7) Finish System	**(Not Shown)**
Face layer joints shall be covered with tape and coated with joint compound. Screw heads shall be covered with joint compound.	

FIGURE 5 – 2 Hour Fire-Rated Floor-Ceiling Assembly, Design No. 120-01



2 Hour Fire-Resistance-Rated Floor and Roof Assembly, Design No. 120-01	
Material	**Specification**
(1) Floor Topping (Optional)	**Varies (Not Shown)**
Gypsum concrete, lightweight or normalweight concrete topping. When used as a roof assembly, materials for a built-up roof covering that are described in an assembly that provides a Class A, B, or C rating on combustible wood decks may be used. Reference sound rating, if applicable.	
(2) Floor Sheathing	**Minimum ⅝ in. Thick Wood Sheathing, Designed and Installed Per IBC or IRC**
When used as a roof assembly, minimum ½-inch-thick wood sheathing may be used when designed and installed per IBC or IRC requirements.	
(3) Insulation	**Optional for sound (shown)**
Minimum 3½ in. thick unfaced fiberglass insulation fitted between I-Joists supported by stay wires spaced 12 in. on center (o.c.).	
(4) Structural Member	**Pinkwood® Ltd. Wood I-Joists**
Certified Models: PKI10, PKI20, PKI23, PKI35Plus, PKI40, PKI50, PKI60L, PKI70L, PKI80L, and PKI90L I-Joists Series. 9½ in. minimum deep joists spaced a max. of 24 in. o.c., installed in accordance with the Code.	
(5) Resilient Channels	**Min. 0.019 in thick galvanized steel resilient channels**
Channels attached perpendicular to the bottom flange of the joists using 1⅝ in. long drywall screws. Channels spaced a maximum of 16 in. o.c. Additional channels are required at gypsum board end joints so that each board is attached to a separate channel. These additional channels shall extend to the next joist on each side of the board end joint.	
(6) Gypsum Wallboard	**Min. ⅝ in. Thick type C gypsum wallboard**
6a. WALLBOARD BASE LAYER – The base layer of the wallboard is installed perpendicular to the joists and directly attached to the bottom flange using 1⅝ in. Type S drywall screws at 12 in. o.c. End joints of the wallboard are centered on the bottom flange and staggered a min. of one joist spacing. **6b. WALLBOARD MIDDLE LAYER** – Middle layer of wallboard attached to resilient channels using 1 in. Type S drywall screw spaced 12 in. o.c., with the long dimension of wallboard perpendicular to resilient channels. Edge joints shall be centered on joists and offset a min. of one joist space from base layer end joints. End joints shall be staggered a minimum of one channel spacing and offset from the edge joints in the base layer a min. of one channel spacing. **6c. WALLBOARD FACE LAYER** – The face layer of the wallboard is attached to channels through the middle layer using 1⅝ in. Type S drywall screws spaced 8 in. o.c. Edge joints of the face layer of the wallboard shall be centered on the joists and offset a minimum distance equal to the joist spacing from those of the middle layer. End joints of the face layer of the wallboard shall be staggered a minimum of one channel spacing with respect to the middle layer end joint and base layer edge joint.	
(7) Finish System	**(Not Shown)**
Face layer joints are covered with tape and coated with joint compound. Screw heads covered with joint compound.	

FIGURE 6 – IRC Compliant Fire-Rated Floor-Ceiling Assemblies

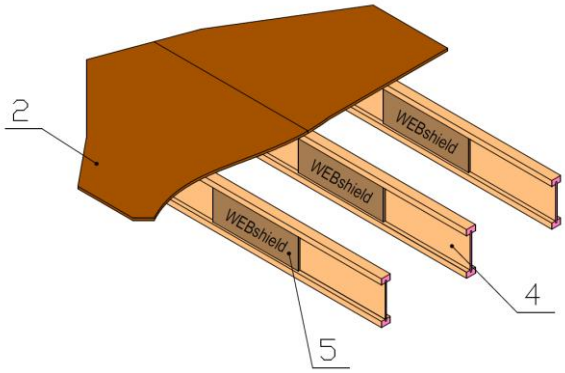


Figure b: PKI10-50

IRC Compliant Fire Protected Floor Assembly	
Material	**Specification**
(1) Floor Topping (Optional)	**Varies (Not Shown)**
Gypsum concrete, lightweight or normalweight concrete topping. When used as a roof assembly, materials for a built-up roof covering that are described in an assembly that provides a Class A, B, or C rating on combustible wood decks may be used. Reference sound rating, if applicable.	
(2) Floor Sheathing	**Minimum ⅝ in. Thick Wood Sheathing, Designed and Installed Per IBC or IRC**
When used as a roof assembly, min. ½ in. thick wood sheathing may be used when designed and installed per IBC or IRC requirements.	
(3) Insulation	**Optional (not shown)**
When installed, insulation shall be installed above the joist flanges and supported by stay wires spaced 12 in. on center (o.c.).	
(4) Structural Member	**Pinkwood® Ltd. Wood I-Joists**
Certified Models: **Figure b**. PKI10, PKI20, PKI23, PKI35Plus, PKI40, and PKI50 series I-Joists 9½ in. to 16 in. depths spaced a max of 24 in. o.c., installed in accordance with the IBC or IRC with WEBSHIELD® Panels.	
(5) Fire Protection Member	**Pinkwood® Ltd. WEBSHIELD® Panels**
Certified Panels: WEBSHIELD® Panels applied to PKI10, PKI20, PKI23, PKI35Plus, PKI40, and PKI50 I-Joists. WEBSHIELD® Panels consist of $^{15}/_{32}$ in. thick Certified OSB panels with No. 16 gauge minimum $^{7}/_{16}$-inch crown staples attached at minimum of four (4) corners of the panel at maximum spacing of 48 in. o.c. down the length of the joist span. Panels shall be on both sides of the I-Joists.	

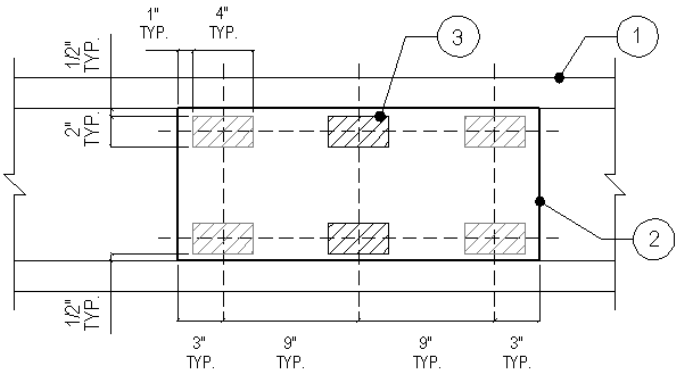
TABLE 10– STC AND IIC - FLOOR-CEILING ASSEMBLY SOUND RATINGS [1,2,3]

Additional Assembly Details				Design No. [4]					
				60-01		60-02		120-01	
Components	Acoustic Mat	Floor Topping	Insulation Thickness	STC[1]	IIC[1]	STC[1]	IIC[1]	STC[1]	IIC[1]
Ceramic tile bonded with thinset adhesive	5 mm Recycled Rubber Underlayment	1 in. thick Gypsum Concrete	3½ in. thick fiberglass or 1 1/2 in. thick mineral wool insulation	65	53	62	50	-	-
Ceramic tile bonded with thinset adhesive	5 mm Recycled Rubber Underlayment	1½ in. thick lightweight Concrete	3½ in. thick fiberglass or 1 1/2 in. thick mineral wool insulation	66	54	63	52	-	-
Ceramic tile bonded with thinset adhesive	5 mm Recycled Rubber Underlayment	None	3½ in. thick fiberglass or 1 1/2 in. thick mineral wool insulation	55	49	51	47	-	-
Hardwood	2 mm Foam Underlayment	1 in. thick Gypsum Concrete	3½ in. thick fiberglass or 1 1/2 in. thick mineral wool insulation	65	55	62	53	-	-
Hardwood	2 mm Foam Underlayment	1½ in. thick lightweight Concrete	3½ in. thick fiberglass or 1 1/2 in. thick mineral wool insulation	66	56	64	54	-	-
Hardwood	2 mm Foam Underlayment	None	3½ in. thick fiberglass or 1 1/2 in. thick mineral wool insulation	55	47	51	45	-	-
Cushioned Vinyl	None	1 in. thick Gypsum Concrete	3½ in. thick fiberglass or 1 1/2 in. thick mineral wool insulation	65	55	62	52	58	45
Cushioned Vinyl	None	1½ in. thick lightweight Concrete	3½ in. thick fiberglass or 1 1/2 in. thick mineral wool insulation	66	56	63	55	-	-
Cushioned Vinyl	None	None	3½ in. thick fiberglass or 1½ in. thick mineral wool insulation	55	46	51	44	-	-
Carpet with Pad	None	1 in. thick Gypsum Concrete	3½ in. thick fiberglass or 1½ in. thick mineral wool insulation	65	59	62	57	58	64
Carpet with Pad	None	1½ in. thick lightweight Concrete	3½ in. thick fiberglass or 1 1/2 in. thick mineral wool insulation	66	62	63	60	-	-
Carpet with Pad	None	None	3½ in. thick fiberglass or 1½ in. thick mineral wool insulation	55	48	51	46	49	54

For SI: 1 inch = 25.4 mm

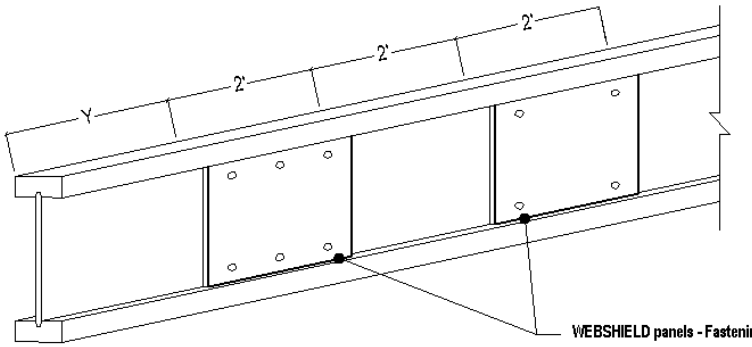
Footnotes to Table 10:

1. Sound (STC) and Impact (IIC) class ratings listed in the table are per IBC Sections 1206.2 and 1206.3 and from tested assemblies in accordance with ASTM E90 – "Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements" and ASTM E492 – "Standard Test Method for Laboratory Measurement of Impact Sound Transmission Through Floor-Ceiling Assemblies Using the Tapping Machine".
2. An analysis to determine the STC or IIC rating is permitted in accordance with IBC Sections 1206.2 and 1206.3. Methods include ASTM E413 – "Classification for Rating Sound Insulation" and ASTM E989 – "Standard Classification Determination of Single-Number Metrics for Impact Noise".
3. Modeled STC and IIC ratings are permitted per AWC Technical Report 15 – "Calculation of Sound Transmission Parameters for Wood-Frame Assemblies".
4. Design Numbers correspond to the assemblies in Figures 3 to 5.



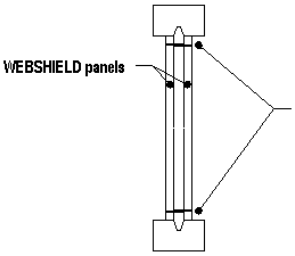
1) PKI Series 10, 20, 23, 35Plus, 40 and 50
2) WEBSHIELD panels
3) Fastener zones - one fastener to be installed in each of the required zones

WEBSHIELD panels shall be installed tightly against the I-joist web at prescribed intervals, back-to-back on each side, to protect the web against exposure to flame. Fasten each panel according to Option A or Option B.



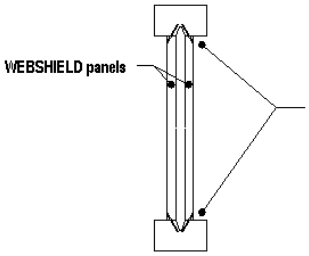
WEBSHIELD panels shall be installed at 4-foot-on center spacing intervals with a maximum 0.5" spacing tolerance. End panels shall begin with the panel edge within 2 feet from the ends of the I-joists (dimension Y).

WEBSHIELD panels - Fastening option A and B



(6) 3/4 in. long staples shall be installed at 90 Deg. in WEBSHIELD panels on opposite sides of the web. Staples shall be staggered to avoid interference.

Section View Option A
90 Degrees



(4) 1-1/4 in. long staples are permissible provided the fasteners are installed at an angle. Care must be taken to ensure the fasteners penetrate sufficiently into the I-joist to secure the panels, and also to avoid punching through and detaching the WEBSHIELD panels on the opposite side of the web.

Section View Option B
Angle into Flange

For SI: 1 inch = 25.4 mm

FIGURE 7 – WEBSHIELD® INSTALLATION DETAILS (2x3 and 2x4 Flange)

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PINKWOOD® I-JOISTS AND WEBSHIELD® PANELS

CSI Sections:
06 05 23 Wood, Plastic and Composite Fastenings
06 17 33 Wood I-Joists

1.0 RECOGNITION

The Pinkwood® I-Joists and WEBSHIELD® Panels, as evaluated and represented in IAPMO UES Evaluation Report ER-431 and with changes as noted in this supplement, are a satisfactory alternative for use in buildings built under the following codes (and regulations):

- 2026 and 2023 City of Los Angeles Building Code (LABC)
- 2026 and 2023 City of Los Angeles Residential Code (LARC)

2.0 LIMITATIONS

Use of the Pinkwood® I-Joists and WEBSHIELD® Panels, recognized in IAPMO UES ER-431, and this supplement is subject to the requirements of IAPMO UES ER-431 and the following limitations:

2.1 For the 2026 LABC or 2026 LARC, the design, installation, conditions of use, and identification of the Pinkwood® I-Joists and WEBSHIELD® Panels shall be in accordance with the 2024 International Building Code or the 2024 International Residential Code, as applicable, as noted in IAPMO UES ER-431.

2.2 For the 2023 LABC or 2023 LARC, the design, installation, conditions of use, and identification of the Pinkwood® I-Joists and WEBSHIELD® Panels shall be in accordance with the 2021 International Building Code or the 2021 International Residential Code, as applicable, as noted in IAPMO UES ER-431.

2.3 Prior to installation, calculations and details demonstrating compliance with this approval report and the Los Angeles Building Code or Los Angeles Residential Code shall be submitted to the structural plan check section for review and approval. The calculations and details shall be prepared, stamped, and signed by a California registered design professional.

2.4 The design, installation, and inspection of the Pinkwood® I-Joists and WEBSHIELD® Panels shall be in accordance with LABC Chapters 16 and 17, as applicable, due to local amendments to these chapters.

2.5 Under the LARC, a design in accordance with Section R301.1.3 shall be submitted.

2.6 Fabrication of PKI joists shall be in a shop of a fabricator licensed by the City of Los Angeles Building Department, in accordance with the Manufacturing Standards submitted to the Department.

2.7 PKI joists shall be installed and properly braced in accordance with the Pinkwood® published installation instructions and the Los Angeles Building Code.

2.8 Flanges shall not be subjected to dynamic or static outward forces that may tend to separate the flange from the web.

2.9 This supplement expires concurrently with IAPMO UES ER-431.