



# Power Joist<sup>®</sup>

**United States User Guide  
(ICC ESR-1262)**

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# Joining Forces



Anthony Forest Products Company and Domtar Corporation are in a joint venture to manufacture and distribute **Power Joist®**, a high quality solid lumber flange I-Joist. This value-added product upholds Anthony's and Domtar's commitment to using lumber to its highest strength potential, while also offering an environmentally sound alternative to large dimension lumber joists. In addition to our financial contribution to the 50-50 partnership, Anthony and Domtar bring unique skills to the venture. Domtar contributes its expertise in mill management, along with a reliable supply of MSR lumber. Anthony adds its renowned customer service infrastructure, **Superior Power Products** line and nationwide distribution network.

## About the Partners

Anthony Forest Products Company, a family-owned business founded in 1916, is headquartered in El Dorado, Arkansas. The company operates lumber and wood chip mills, as well as two engineered wood laminating plants in the southern US. It has 43 years of solid experience in engineered wood products.

Domtar Corporation (NYSE/TSX:UFS) is the largest integrated manufacturer of uncoated free sheet paper in North America and the second largest in the world based on production capacity, and is also a manufacturer of paper grade, fluff and specialty pulp. The Company designs, manufactures, markets and distributes a wide range of business, commercial printing and publication as well as converting and specialty papers, part of a family of environmentally and socially responsible papers. Domtar owns and operates Domtar Distribution Group, an extensive network of strategically located paper distribution facilities. Domtar also produces lumber and other specialty and industrial wood products. The Company employs nearly 13,000 people. For more information visit [www.domtar.com](http://www.domtar.com).



## Environmental Forestry

Domtar management practices are designed to pass on healthy forests to future generations. In this context, independent third-party verification of its forest management practices is one of Domtar's forest policy commitments. All forest lands that Domtar manages are certified according to internationally recognized environmental standards, such as ISO 14001 and the Forest Stewardship Council (FSC).

## The Joint-Venture Plant

This state-of-the-art, high efficiency, one piece flow facility is located in Sault Ste. Marie, Ontario, Canada. This strategically located plant provides fast and efficient access to the entire North American market.



## The Power Joist®

The solid lumber flange I-Joist is made from 2x3 and 2x4 MSR lumber. Power Joist is the latest addition to the Superior Power Products line, which includes Power Beam®, Power Header®, Power Preserved Glulam®, Power Plank®, Power Log®, and Power Column®.

**Anthony-Domtar Inc.'s power-of-two venture is a combination that brings more choices, more value and more power... to the customer.**

# Anthony Power Joist®

## Say What They Do and Do What They Say

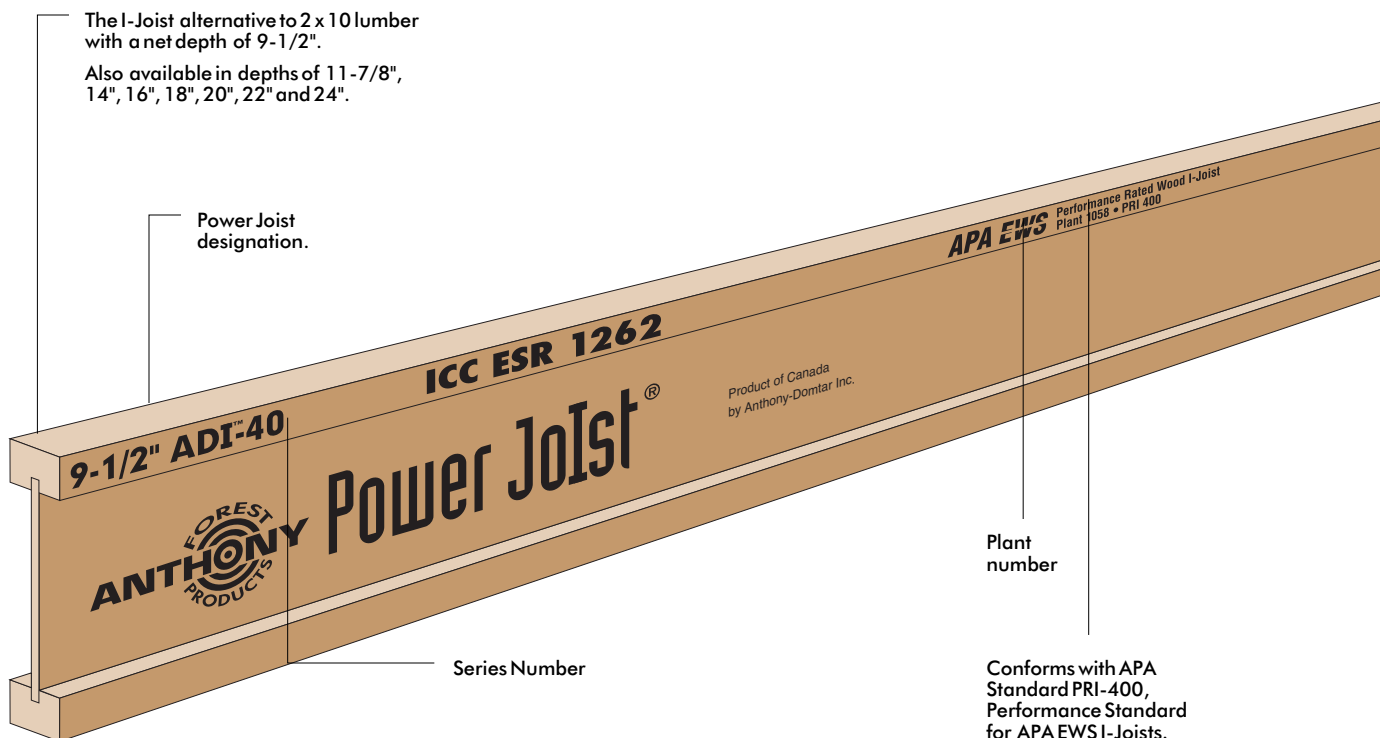
Anthony Forest Products Co. has made it easy to make the right choice for residential and non-residential floor and roof joist products. ADI Power Joists are produced in accordance with the APA's PRI-400 standard, APA EWS report ICC ESR – 1405, Anthony – Domtar's report ICC ESR – 1262, and LA City Report RR 2556. All code reports can be downloaded from our website, [www.anthonyforest.com](http://www.anthonyforest.com).

Power Joists® provide a high performance alternative to dimension lumber joists for floor and roof applications. This guide will help you efficiently use ADI Power Joist by leading you through the simple steps of product selection, specification, and installation.

The APA trademark signifies that the I-Joist manufacturer is committed to the strict quality standards of Engineered Wood Systems (EWS), a related corporation of APA, and that ADI's are manufactured in conformance with PRI-400, Performance Standard for APA EWS I-Joists. APA's rigorous program of quality verification and testing is designed to assure predictable product performance.

This guide explains floor and roof systems. Review by a design professional is required for applications beyond the scope of this document. Simple to specify. Easy to install. Less confusion. ADI Power Joists are the right choice for residential and non-residential floor and roof construction.

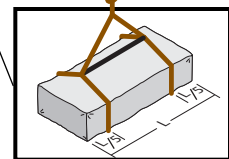
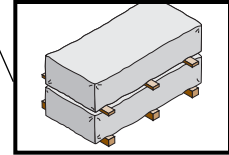
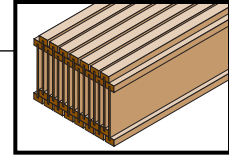
## Power Joist® Labeling Example



# Anthony Power Joist

## Storage and Handling Guidelines

1. Store, stack and handle Power Joist vertically and level only.
2. Do not store Power Joists in direct contact with the ground and or flatwise.
3. Protect Power Joists from weather, and use stickers to separate bundles.
4. To further protect Power Joists from dirt and weather, do not open bundles until time of installation.
5. When lifting Power Joists with a crane on the job site, take a few simple precautions to prevent damage to the Power Joists and injury to your work crew.
  - Pick Power Joists in bundles as shipped by the supplier.
  - Orient the bundles so that the webs of the Power Joists are vertical.
  - Pick the bundles at the 5th points, using a spreader bar if necessary.
6. Do not twist or apply loads to the Power Joist when horizontal.
7. *Never* use or try to repair a damaged Power Joist.

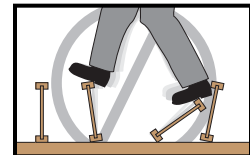


## Safety Precautions

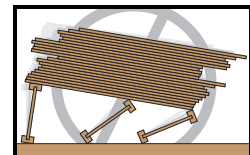
**WARNING:** Power Joists are not stable until completely installed, and will not carry any load until fully braced and sheathed.

### Avoid Accidents by Following These Important Guidelines:

1. Brace and nail each Power Joist as it is installed, using hangers, blocking panels, rim board, and/or cross-bridging at joist ends. When Power Joists are applied continuously over interior supports and a load-bearing wall is planned at the location, blocking will be required at the interior supports.
2. When the building is completed, the floor sheathing will provide lateral support for the top flanges of the Power Joists. Until this sheathing is applied, temporary bracing, often called struts, or temporary sheathing must be applied to prevent Power Joist rollover or buckling.
  - Temporary bracing or struts must be 1 x 4 inch minimum, at least 8' long and spaced no more than 8' on center, and must be secured with a minimum of two 8d nails fastened to the top surface of each Power Joist. Nail bracing to a lateral restraint at the end of each bay. Lap ends of adjoining bracing over at least two Power Joists.
  - Or, sheathing (temporary or permanent) can be nailed to the top flange of the first 4' of Power Joists at the end of the bay.
3. For cantilevered Power Joists, brace top and bottom flanges, and brace ends with closure panels, rim board, or cross-bridging.
4. Install and nail permanent sheathing to each Power Joist before placing loads on the floor system. Then, stack building materials over beams or walls only.
5. For temporary construction loads such as dry wall stocking see APA Publication J735A (Temporary Construction Loads Over I-Joist Roofs).



Do not allow workers to walk on Power Joists until joists are fully installed and braced, or serious injuries can result.



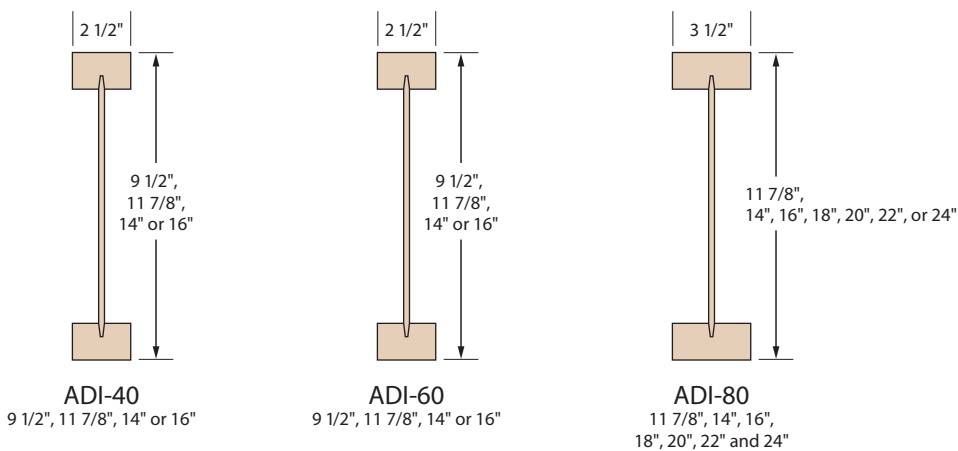
Never stack building materials over unbraced Power Joists. Stack only over beams or walls.

Failure to follow applicable building codes and span ratings, failure to use allowable hole sizes and locations, or failure to use web stiffeners when required can result in serious accidents. Follow these installation guidelines carefully.

# Selecting ADI Power Joist™

## Product Description

The ADI Power Joist is an "I"-shaped engineered wood structural member designed for use in residential and non-residential floor and roof construction. ADI's are prefabricated using SPF MSR lumber flanges and OSB web, bonded together with exterior-type adhesives. Power Joist are limited to a L/480 maximum live load deflection for residential and non-residential floor applications. ADI Power Joists are identified by their depth followed by a designation such as ADI-40 which relates to the joist strength and stiffness. ADIs are manufactured to strict tolerances with the following characteristics:



- **Flanges** are MSR 2x3's and 2x4's.
- **Webs** are OSB and all are classified as Exposure 1 or Exterior and are 3/8" in thickness or greater.
- All ADIs are assembled using exterior-type adhesives that meet ASTM D 2559 and ASTM D 7247.
- ADIs are available in eight depths: 9-1/2", 11-7/8", 14", 16", 18", 20", 22" and 24".
- ADIs of the same depth are manufactured with various flange widths; flange width is an important design consideration when specifying hangers.
- ADI Power Joists are manufactured up to 64' in length. These lengths are cut to frequently used lengths such as 16' to 36', in 2' increments for jobsite delivery. Check local supplier for availability.

# Allowable Floor Spans

## Maximum Allowable Spans

The specific ADI designation needed for your application is easily determined by selecting the span needed and then choosing the ADI that meets your span, spacing, and uniform loading criteria.

Table 1 and 1a is for simple or multiple span applications respectively. The use of this table will provide maximum spans for the indicated spacings and span conditions.

To illustrate the selection of an ADI product, assume a design simple span of 16'1". For architectural reasons, limit the joist depth to 11-7/8" and joist spacing to 19.2" on center. From the 9-1/2" and 11-7/8" entries in Table 1, look down the 19.2" o.c. spacing column. For depths of 9-1/2", select 9-1/2" ADI-60, and from the 11-7/8" depths notice that any joist designation will work.

The allowable spans in the table in this user guide indicate the allowable clear span for various joist spacings under typical residential uniform floor loads (40 psf live load and 10 psf dead load) for glued-nailed systems.

In addition, floor sheathing must be field glued using approved construction adhesives to the Power Joist flanges to achieve the ADI allowable spans.

Use of this span table is limited to uniform load conditions and ADI floor spans shall not exceed these allowable spans. ADI Power Joist can be used for other applications such as roofs and ceilings to support line loads or concentrated loads, etc., when properly engineered using the appropriate design properties in Table 16 and 17.

Table 1							
Allowable Spans for Floor ADI Power Joist							
Simple span only — Glued subfloor* — On center spacing							
MAXIMUM FLOOR SPAN (ft)				GLUED SUBFLOOR			
Load		Series	Depth (in)	On center joist spacing (in)			
Live	Dead			12	16	19.2	24
40	10	ADI 40	9 1/2	18'-0"	16'-5"	15'-6"	14'-6"
			11 7/8	21'-5"	19'-7"	18'-6"	16'-8"
			14	24'-4"	22'-3"	20'-6"	18'-4"
			16	26'-11"	24'-3"	22'-1"	19'-9"
		ADI 60	9 1/2	18'-11"	17'-4"	16'-4"	15'-3"
			11 7/8	22'-7"	20'-8"	19'-6"	18'-2"
			14	25'-9"	23'-6"	22'-2"	20'-8"
			16	28'-6"	26'-0"	24'-7"	22'-10"
		ADI 80	11 7/8	24'-11"	22'-8"	21'-4"	19'-10"
			14	28'-3"	25'-9"	24'-3"	22'-7"
			16	31'-4"	28'-6"	26'-10"	25'-0"
			18	34'-2"	31'-1"	29'-3"	27'-3"
20	36'-11"		33'-8"	31'-8"	29'-6"		
22	39'-8"		36'-1"	34'-0"	31'-8"		
24	42'-4"		38'-6"	36'-4"	33'-9"		

Table 1a							
Allowable Spans for Floor ADI Power Joist							
Multiple span only — Glued subfloor* — On center spacing							
MAXIMUM FLOOR SPAN (ft)				GLUED SUBFLOOR			
Load		Series	Depth (in)	On center joist spacing (in)			
Live	Dead			12	16	19.2	24
40	10	ADI 40	9 1/2	19'-7"	17'-11"	16'-4"	14'-7"
			11 7/8	23'-5"	20'-5"	18'-7"	16'-7"
			14	25'-11"	22'-5"	20'-5"	18'-3"
			16	27'-11"	24'-2"	22'-0"	19'-8"
		ADI 60	9 1/2	20'-8"	18'-10"	17'-9"	16'-6"
			11 7/8	24'-8"	22'-6"	21'-2"	19'-7"
			14	28'-0"	25'-7"	24'-1"	19'-9"
			16	31'-1"	28'-4"	24'-9"	19'-9"
		ADI 80	11 7/8	27'-1"	24'-8"	23'-3"	21'-7"
			14	30'-10"	28'-0"	26'-5"	23'-11"
			16	34'-2"	31'-1"	29'-3"	23'-11"
			18	37'-3"	33'-10"	31'-11"	29'-5"
20	40'-3"		36'-8"	34'-6"	31'-0"		
22	43'-3"		39'-4"	36'-4"	31'-5"		
24	46'-2"		41'-6"	37'-10"	31'-5"		

SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 psf = 47.88 Pa

- (1) Allowable clear span applicable to simple-span or multiple-span residential floor construction with a design dead load of 10 psf and a live load of 40 psf. The live load deflection is limited to L/480. (L = span length in inches)
- (2) Spans are based on a composite floor with glue-nailed sheathing meeting the requirements for APA Rated Sheathing STURD-I-FLOOR conforming to PS1 or PS2 with a minimum thickness of 19/32" (40/20 or

20 o.c.) for a joist spacing of 19.2 inches or less, or 23/32-inch (48/24 or 24 o.c.) for a joist spacing of 24 inches when floor sheathing is nailed only. Adhesive shall meet APA Specification AFG-01 or ASTM D3498. Spans must be reduced to 12 inches when floor sheathing is nailed only.

- (3) Minimum bearing length shall be 1-3/4 inches for the end bearings and 3-1/2 inches for the intermediate bearings.
- (4) Bearing stiffeners are not required when I-Joist are used with the spans and spacing given in the above table, except as required for hangers.

## Allowable Floor Uniform Load Capacities

**Table 2**

**Floor ADI Power Joist — ADI 40**

Allowable Uniform Loads (PLF)

CLEAR JOIST SPAN (ft.)	9-1/2"		11-7/8"		14"		16"	
	LIVE LOAD Defl. L/480	TOTAL LOAD Defl. L/240	LIVE LOAD Defl. L/480	TOTAL LOAD Defl. L/240	LIVE LOAD Defl. L/480	TOTAL LOAD Defl. L/240	LIVE LOAD Defl. L/480	TOTAL LOAD Defl. L/240
6		281		325		325		325
7		242		280		280		280
8		212		246		246		246
9		189		219		219		219
10		170		197		197		197
11	153	155		179		179		179
12	118	133		165		165		165
13	93	113		151		152		152
14	75	98	128	131		141		141
15	61	85	104	114		132		132
16	51	75	86	100		124		124
17	42	67	72	89	105	117		117
18	36	60	61	79	89	104		110
19	30	53	52	71	76	94		103
20	26	48	45	64	65	85	89	93
21		44	39	59	56	77	77	84
22		39	34	53	49	70	67	77
23		34	29	49	43	64	58	70
24		30	26	45	38	59	52	65
25		27		41	34	54	46	60
26				38	30	50	41	55
27				36	27	47	36	51
28				33		43	33	48
29				30		40	29	44
30				27		38	27	42
31						35		39

**Table 3**

**Floor ADI Power Joist — ADI 60**

Allowable Uniform Loads (PLF)

CLEAR JOIST SPAN (ft.)	9-1/2"		11-7/8"		14"		16"	
	LIVE LOAD Defl. L/480	TOTAL LOAD Defl. L/240	LIVE LOAD Defl. L/480	TOTAL LOAD Defl. L/240	LIVE LOAD Defl. L/480	TOTAL LOAD Defl. L/240	LIVE LOAD Defl. L/480	TOTAL LOAD Defl. L/240
6		281		325		325		325
7		242		280		280		280
8		212		246		246		246
9		189		219		219		219
10		170		197		197		197
11		155		179		179		179
12	141	142		165		165		165
13	112	131		152		152		152
14	90	122		141		141		141
15	73	114	125	132		132		132
16	60	104	103	124		124		124
17	51	92	86	117		117		117
18	43	82	73	110	107	110		110
19	36	73	62	98	92	104		104
20	31	62	53	89	79	99		99
21	27	54	46	81	68	95	93	95
22		47	40	74	59	90	81	90
23		41	35	67	52	83	71	86
24		36	31	62	46	76	63	83
25		32	28	55	41	70	55	80
26		29		49	36	65	49	76
27		26		44	32	60	44	71
28				39	29	56	40	66
29				35	26	52	36	61
30				32		47	32	57
31				29		43	29	54

# Allowable Floor Uniform Load Capacities

<b>Table 4</b>						
<b>Floor ADI Power Joist — ADI 80</b>						
<b>Allowable Uniform Loads (PLF)</b>						
<b>CLEAR JOIST SPAN (ft.)</b>	<b>11 7/8"</b>		<b>14"</b>		<b>16"</b>	
	<b>LIVE LOAD</b>	<b>TOTAL LOAD</b>	<b>LIVE LOAD</b>	<b>TOTAL LOAD</b>	<b>LIVE LOAD</b>	<b>TOTAL LOAD</b>
	<b>Defl. L/480</b>	<b>Defl. L/240</b>	<b>Defl. L/480</b>	<b>Defl. L/240</b>	<b>Defl. L/480</b>	<b>Defl. L/240</b>
6		359		393		393
7		309		338		338
8		271		297		297
9		241		264		264
10		218		238		238
11		198		217		217
12		182		199		199
13		168		184		184
14		156		171		171
15		146		160		160
16		137		150		150
17	119	129		141		141
18	101	122		133		133
19	86	115	125	126		126
20	74	110	108	120		120
21	64	104	93	114		114
22	56	100	81	109		109
23	49	95	71	104	97	104
24	43	86	63	100	85	100
25	38	76	56	96	76	96
26	34	68	50	92	67	92
27	30	60	44	85	60	89
28	27	54	40	79	54	86
29		49	36	72	49	83
30		44	32	65	44	80
31		40	29	59	40	76
32		36	27	53	36	71
33		33		49	33	66
34		30		45	30	61

**Notes for Tables 2, 3, 4 and 5:**

1. Live Load column limits deflection to L/480, Total Load column limits deflection to L/240.
2. Values represent the most restrictive of simple span or multiple span conditions.
3. Values are for I-Joists spaced at a maximum of 24" on center.
4. Table assumes a minimum end bearing length of 1-3/4" and a minimum interior bearing length of 3-1/2".
5. Web stiffeners are not required for the joists in tables 2,3 and 4. Web stiffeners are required for all joists at each support in Table 5.

**Joist Sizing:**

1. Select desired joist depth (column).
2. Select desired span (row).
3. Check BOTH Live Load and Total Load columns.
4. If Live Load column is blank, Total Load capacity governs.

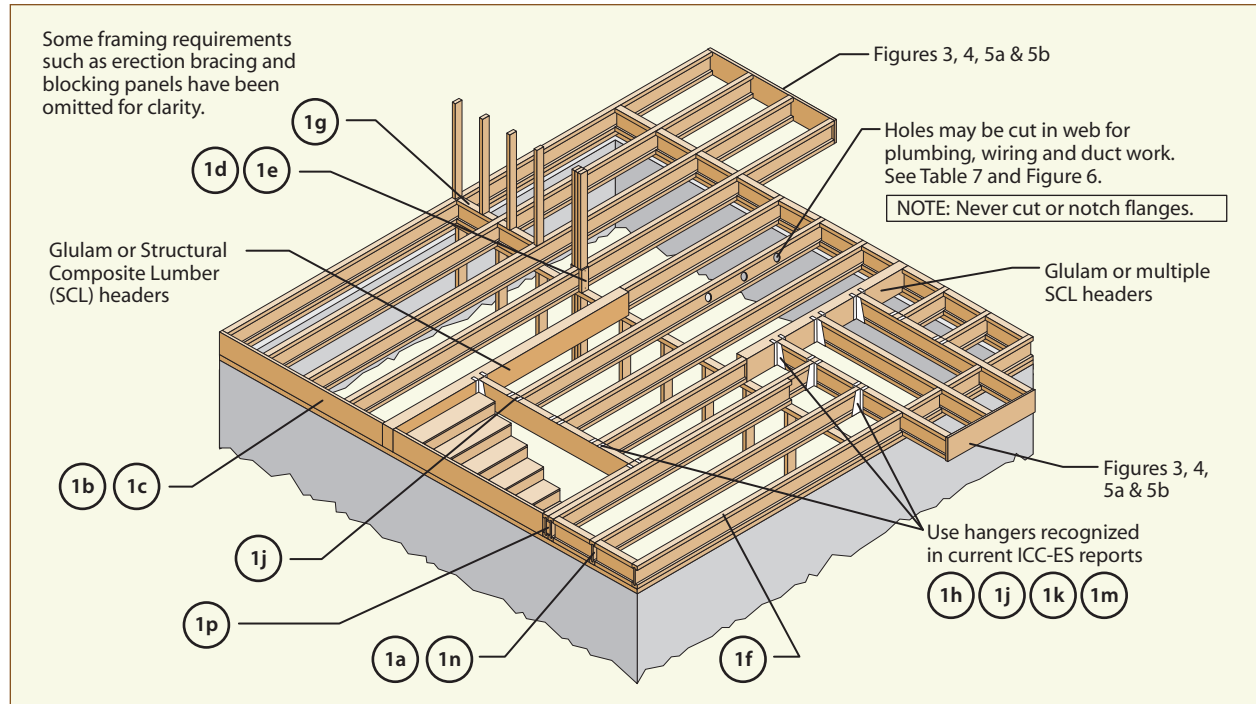
<b>Table 5</b>								
<b>Floor ADI Power Joist — ADI 80 with Web Stiffeners</b>								
<b>Allowable Uniform Loads (PLF)</b>								
<b>CLEAR JOIST SPAN (ft.)</b>	<b>18"</b>		<b>20"</b>		<b>22"</b>		<b>24"</b>	
	<b>LIVE LOAD</b>	<b>TOTAL LOAD</b>	<b>LIVE LOAD</b>	<b>TOTAL LOAD</b>	<b>LIVE LOAD</b>	<b>TOTAL LOAD</b>	<b>LIVE LOAD</b>	<b>TOTAL LOAD</b>
	<b>Defl. L/480</b>	<b>Defl. L/240</b>	<b>Defl. L/480</b>	<b>Defl. L/240</b>	<b>Defl. L/480</b>	<b>Defl. L/240</b>	<b>Defl. L/480</b>	<b>Defl. L/240</b>
12		263		263		263		263
13		243		243		243		243
14		225		225		225		225
15		210		210		210		210
16		197		197		197		197
17		185		185		185		185
18		175		175		175		175
19		166		166		166		166
20		158		158		158		158
21		150		150		150		150
22		143		143		143		143
23		137		137		137		137
24	121	132		132		132		132
25	107	126		126		126		126
26	95	121	120	121		121		121
27	85	117	108	117		117		117
28	76	112	96	112		112		112
29	69	105	87	108	107	108		108
30	62	98	78	105	97	105		105
31	56	92	71	101	88	101		101
32	51	86	65	95	80	98	97	98
33	47	81	59	89	73	95	88	95
34	43	76	54	84	67	92	81	92
35	39	72	49	80	61	87	74	90
36	36	68	45	75	56	82	68	87
37	33	64	42	71	52	78	63	85
38	30	61	39	67	48	74	58	80

# Floor Framing and Construction Details

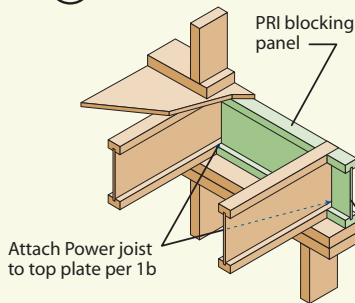
**Figure 1**

## Typical ADI Power Joist® Floor Framing and Construction Details

All nails shown in the details below are assumed to be common nails unless otherwise noted. 10d box nails (0.128 x 3 in.) may be substituted for 8d common (0.131 x 2-1/2 in.) shown in details. Individual components not shown to scale for clarity.



**1a Blocking Panel at End Support Detail**

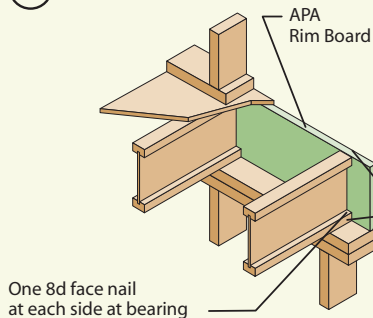


Blocking Panel or Rim Joist	Uniform Vertical Load Transfer Capacity* (plf)
ADI Joists (9 1/2 - 18")	2000

\*The uniform vertical load capacity is limited to a joist depth of 18 inches or less and is based on the normal (10-yr) load duration. It shall not be used in the design of a bending member, such as joist, header, or rafter. For concentrated vertical load transfer capacity, see 1d.

8d nails @ 6" o.c. to top plate (when used for lateral shear transfer, nail to bearing plate with same nailing as required for decking)

**1b Rim Board Detail**



Blocking Panel or Rim Joist	Uniform Vertical Load Transfer Capacity* (plf)
1-1/8" APA Rim Board Plus	4850
1-1/8" APA Rim Board	4400
1" APA Rim Board	3300

\*The uniform vertical load capacity is limited to Rim Board depth of 18 inches or less and is based on the normal (10-yr) load duration. It shall not be used in the design of a bending member, such as joist, header, or rafter. For concentrated vertical load transfer capacity, see 1d.

One 8d common or box nail at top and bottom flange

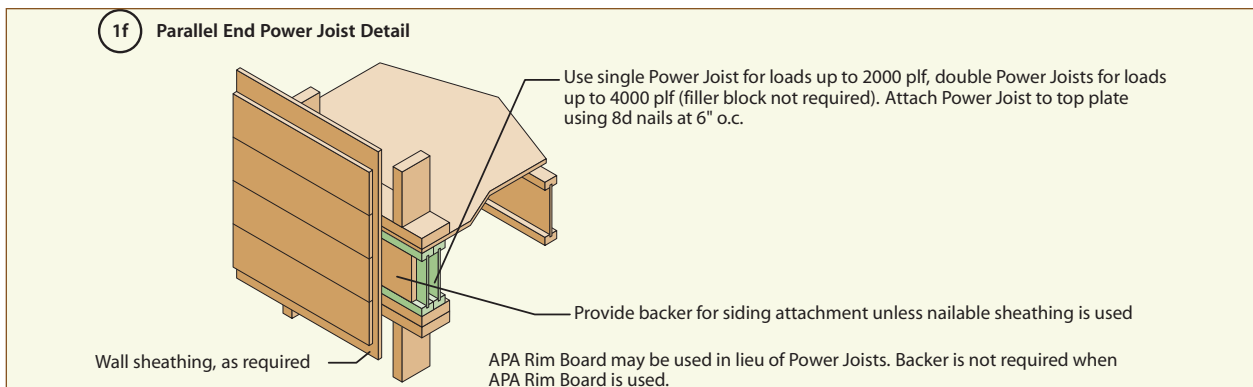
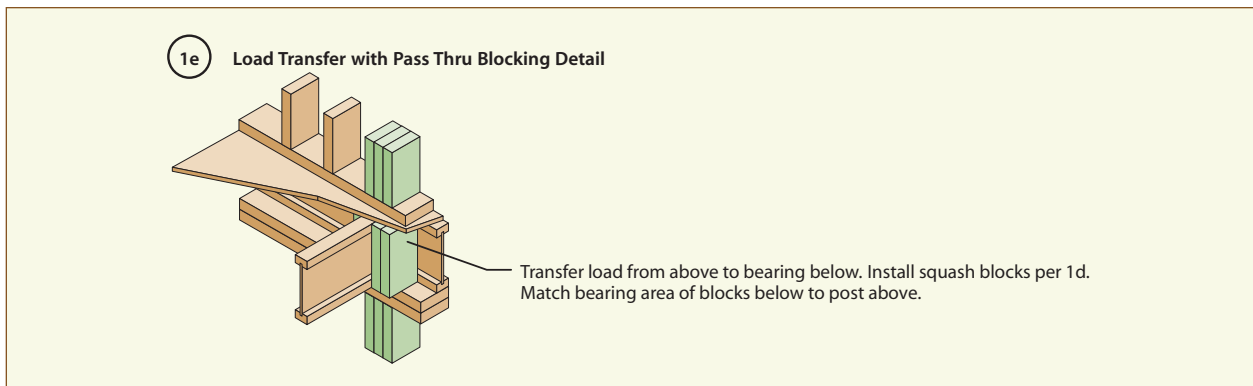
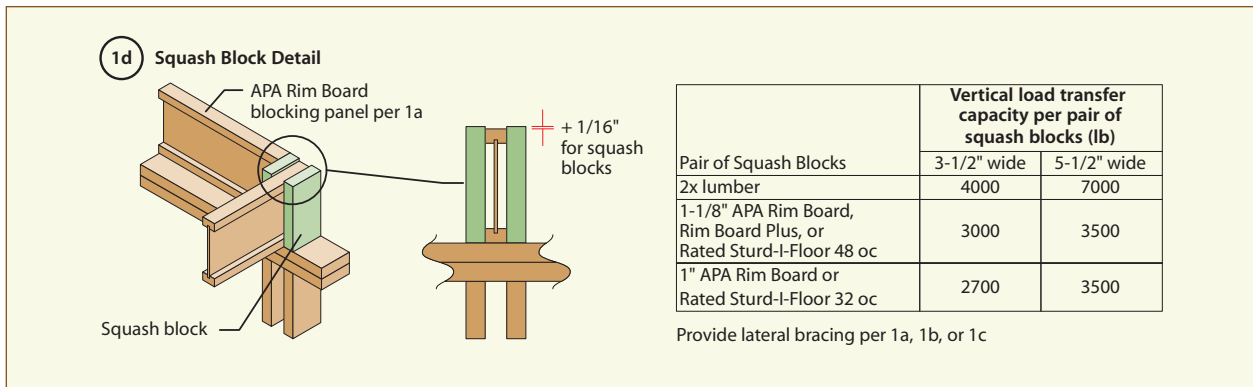
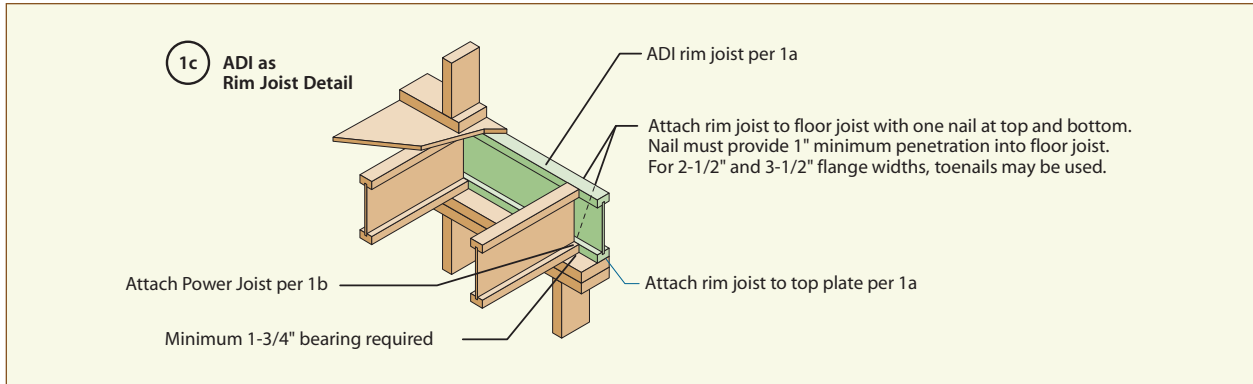
Attach APA Rim Board to top plate using 8d common or box toenails @ 6" o.c.

To avoid splitting flange, start nails at least 1-1/2" from end of Power Joist. Nails may be driven at an angle to avoid splitting of bearing plate.

**Figure 1** Continued

**Typical ADI Power Joist® Floor Framing and Construction Details**

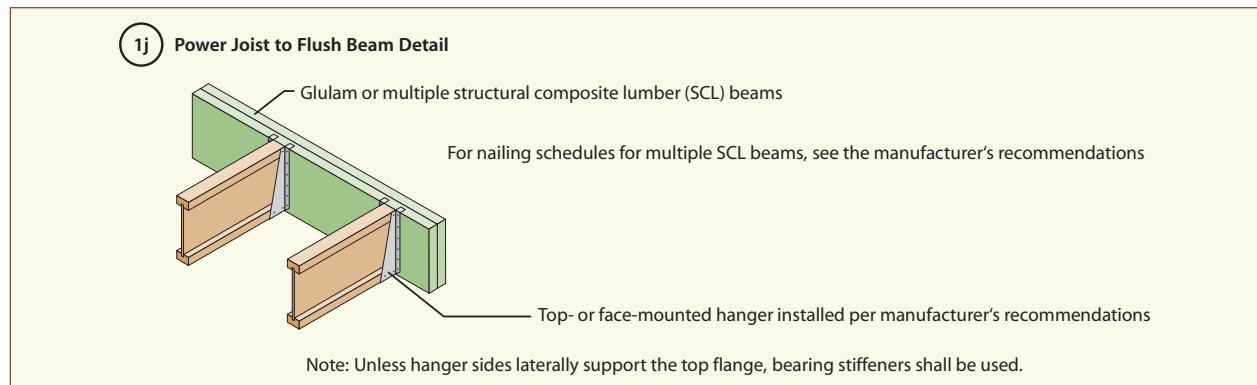
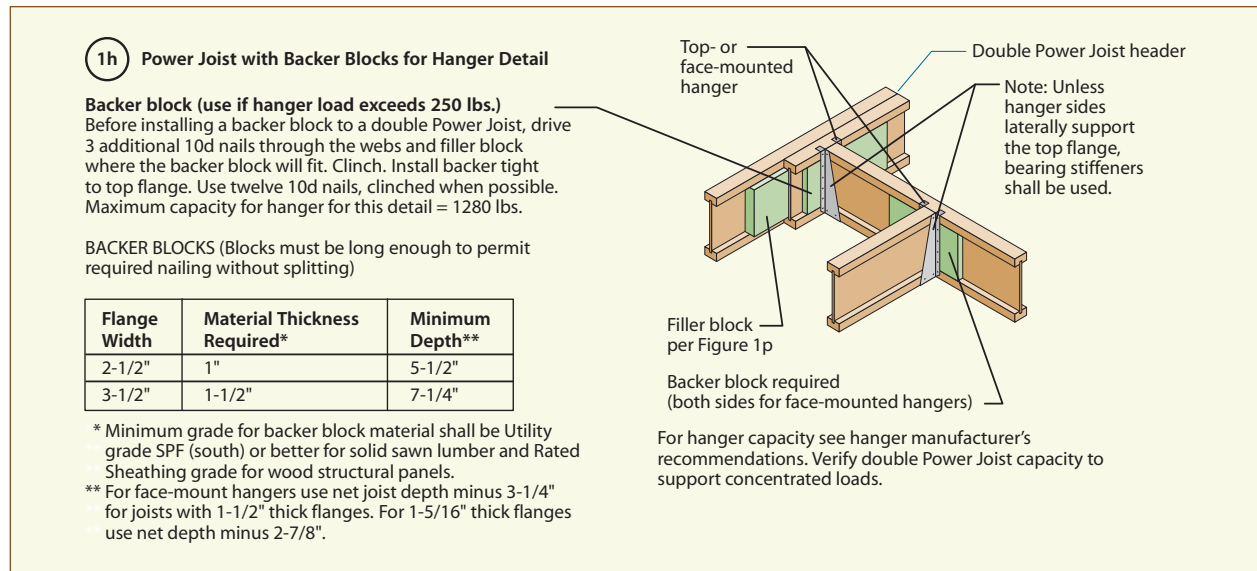
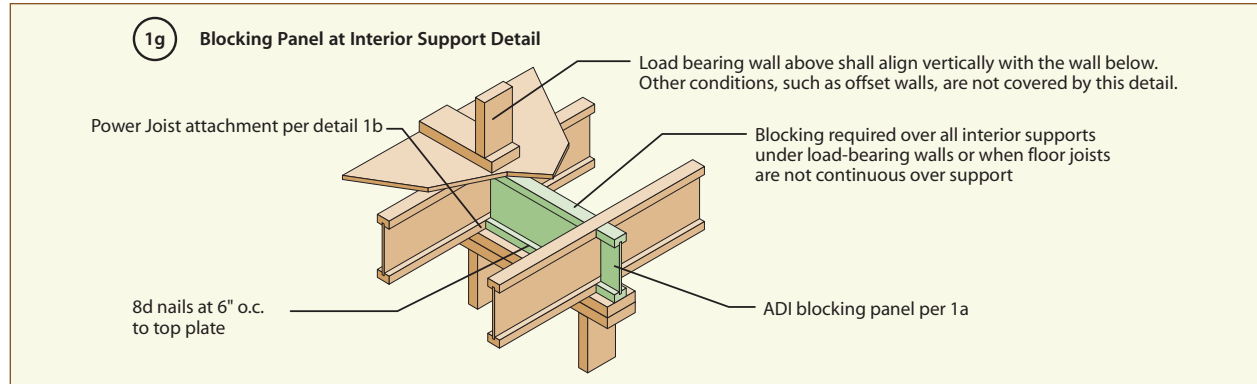
All nails shown in the details below are assumed to be common nails unless otherwise noted. 10d box nails (0.128 x 3 in.) may be substituted for 8d common (0.131 x 2-1/2 in.) shown in details. Individual components not shown to scale for clarity.



**Figure 1 Continued**

**Typical ADI Power Joist® Floor Framing and Construction Details**

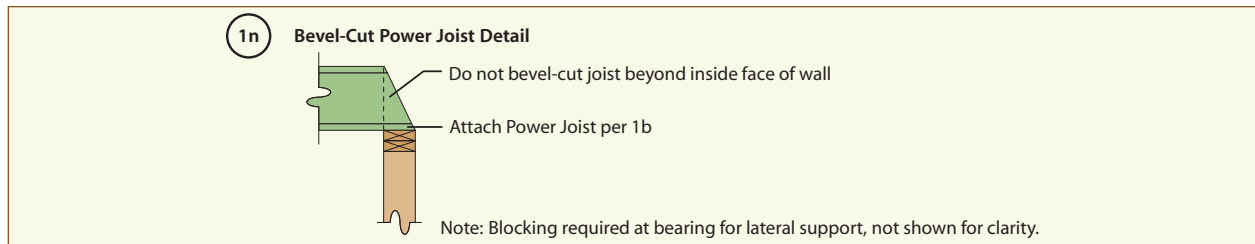
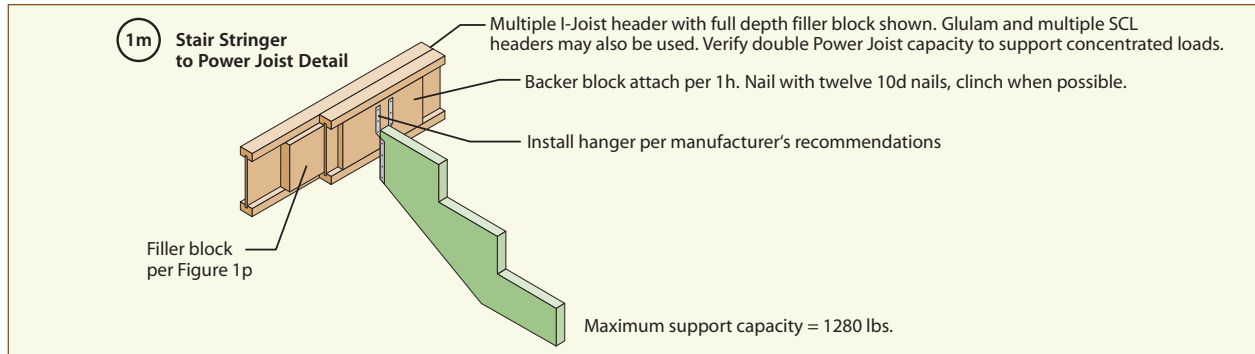
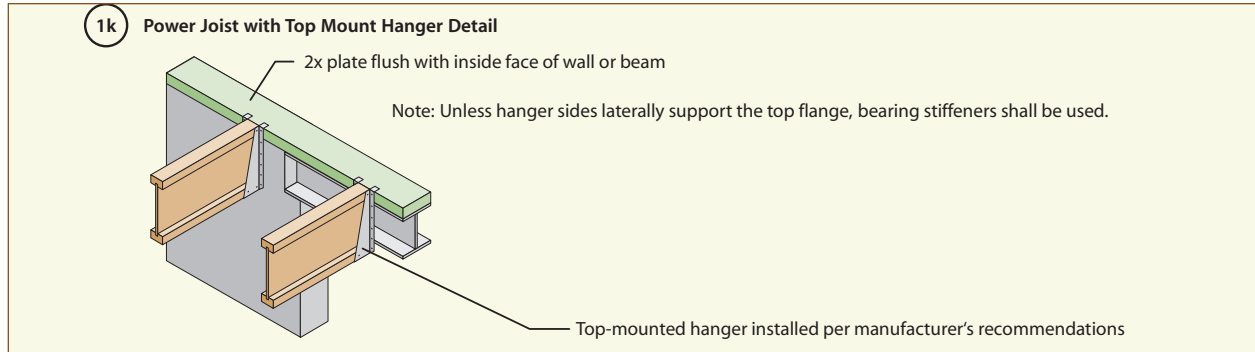
All nails shown in the details below are assumed to be common nails unless otherwise noted. 10d box nails (0.128 x 3 in.) may be substituted for 8d common (0.131 x 2-1/2 in.) shown in details. Individual components not shown to scale for clarity.



**Figure 1 Continued**

**Typical ADI Power Joist® Floor Framing and Construction Details**

All nails shown in the details below are assumed to be common nails unless otherwise noted. 10d box nails (0.128 x 3 in.) may be substituted for 8d common (0.131 x 2-1/2 in.) shown in details. Individual components not shown to scale for clarity.



**1p Double Power Joist Construction Detail**

Flange Width	Net Depth	Filler Block Size
2-1/2"	9-1/2"	2-1/8" x 6"
	11-7/8"	2-1/8" x 8"
	14"	2-1/8" x 10"
	16"	2-1/8" x 12"
3-1/2"	11-7/8"	3" x 8"
	14"	3" x 10"
	16"	3" x 12"
3-1/2"	18"	3" x 14"
	20"	3" x 16"
	22"	3" x 18"
	24"	3" x 20"

Filler block

Offset nails from opposite face by 6"

1/8" gap between top flange and filler block

12"

Notes:

1. Support back of I-Joist web during nailing to prevent damage to web/flange connection.
2. Leave a 1/8-inch gap between top of filler block and bottom of top I-Joist flange.
3. Filler block is required between joists for full length of span.
4. Nail joists together with two rows of 10d nails at 12 inches o.c. (clinch when possible) on each side of the double Power Joist. Total of 4 nails per foot required. If nails can be clinched, only 2 nails per foot are required.
5. The maximum load that may be applied to one side of the double joist using this detail is 620 lbf/ft.

# Web Stiffener Requirements

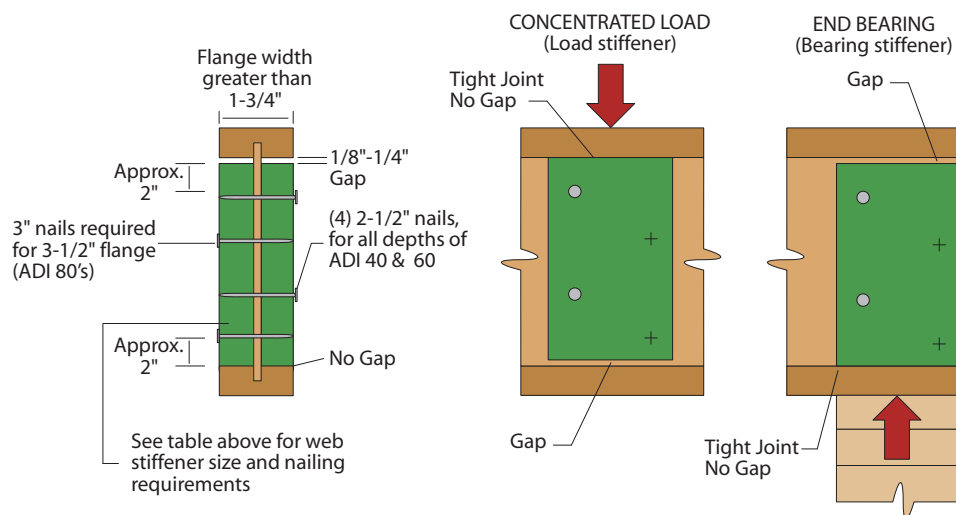
Minimum nailing requirements for web stiffeners.

Stiffener Size and Nailing Requirements		
Joist Depth	2-1/2" Wide Flange	3-1/2" Wide Flange
	8d (2-1/2") nails	10d (3") nails
9.5"	4	-
11.875"	4	4
14"	4	4
16"	4	4
18"	-	6
20"	-	6
22"	-	8
24"	-	8
Minimum Stiffener Size	1" x 2-5/16" (width)	1-1/2" x 2-5/16" (width)

- Web stiffeners are required:
  - When sides of the hangers do not laterally brace the top flange of each Power Joist.
  - When Power Joists® are designed to support concentrated loads greater than 1580 lbs. applied to the Power Joist's top flange between supports. In these applications **only**, the gap between the load stiffener and the flange shall be at the bottom flange.
  - For all engineered applications with end-reactions greater than 1580 lbs., a design analysis must be performed.
- When used at end bearings, install web stiffeners tight against the bottom flange of the Power Joist. Leave a minimum 1/8" gap between the top of the stiffener and the bottom of the top flange (see Figure 2).
- Web stiffeners may be supplied by the distributor for field installation, or may be cut in the field as required.

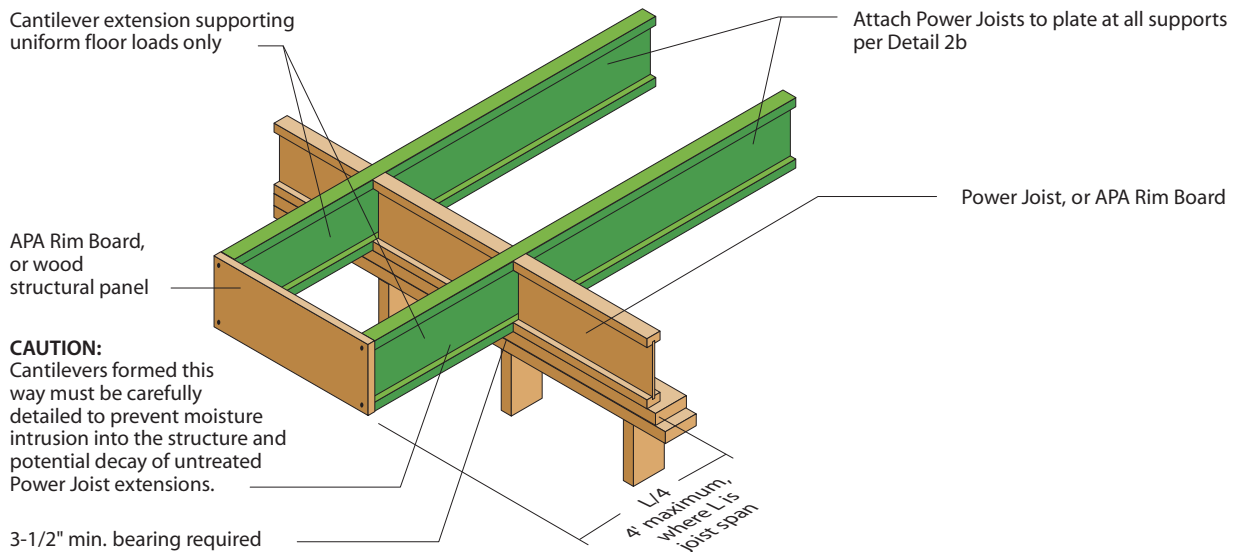
Figure 2

## Web Stiffener Installation Details



## Cantilever Details for Balconies – (No Wall Load)

**Figure 3**



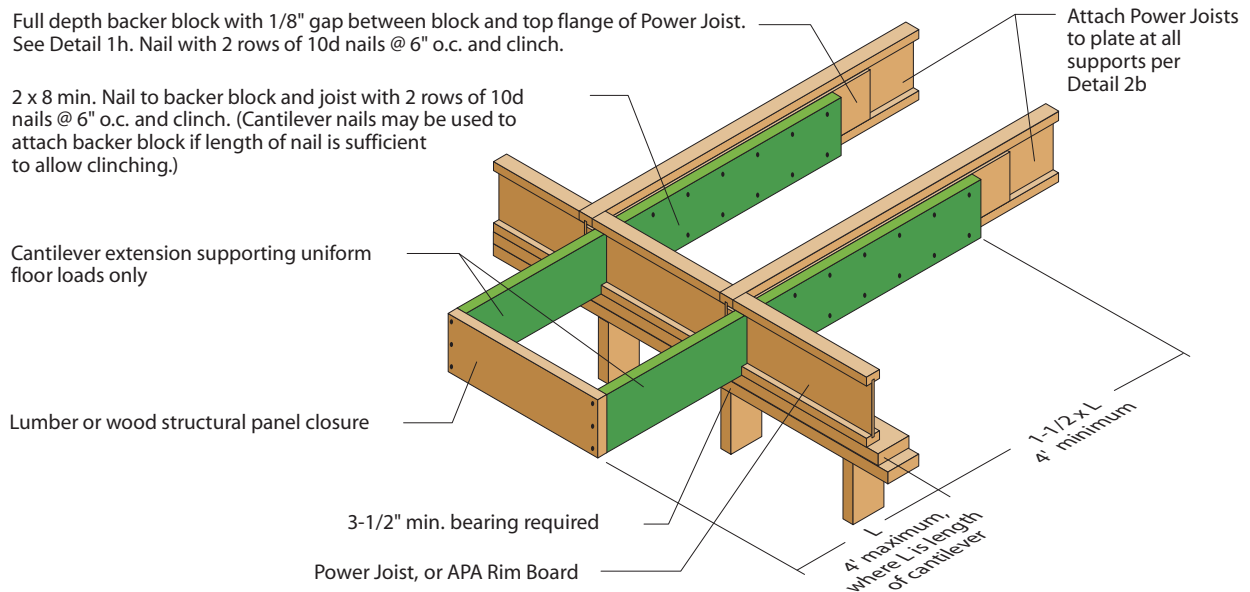
Balconies may be constructed using either continuous Power Joists (Figure 3) or by adding lumber extensions (Figure 4) to the Power Joist. Continuous Power Joist cantilevers are limited to one-fourth the adjacent span when supporting uniform loads only. For applications supporting concentrated loads at the end of the cantilever, such as a wall, see Figures 5a and 5b.

Unless otherwise engineered, cantilevers are limited to a maximum of 4 feet when supporting uniform loads only. Blocking is required at the cantilever support, as shown.

Uniform floor load shall not exceed 40 psf live load and 10 psf dead load. The balcony load shall not exceed 60 psf live load and 10 psf dead load.

**Figure 4**

### Lumber Cantilever Detail For Balconies

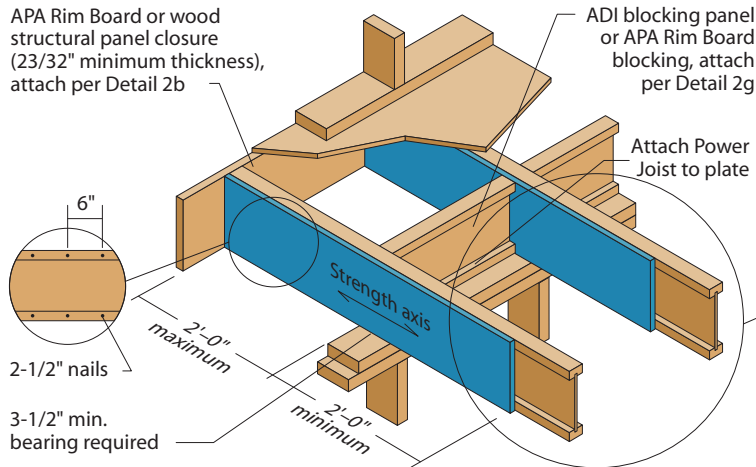


**Notes:** All nails shown in the details above are assumed to be common nails unless otherwise noted. Individual components not shown to scale for clarity.

# Cantilever Detail for Vertical Building Offset – (Concentrated Wall Load)

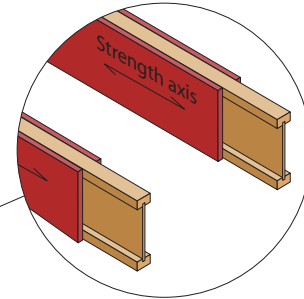
**Figure 5a**

**Method 1**  
SHEATHING REINFORCEMENT ONE SIDE



**Method 2**  
SHEATHING REINFORCEMENT TWO SIDES

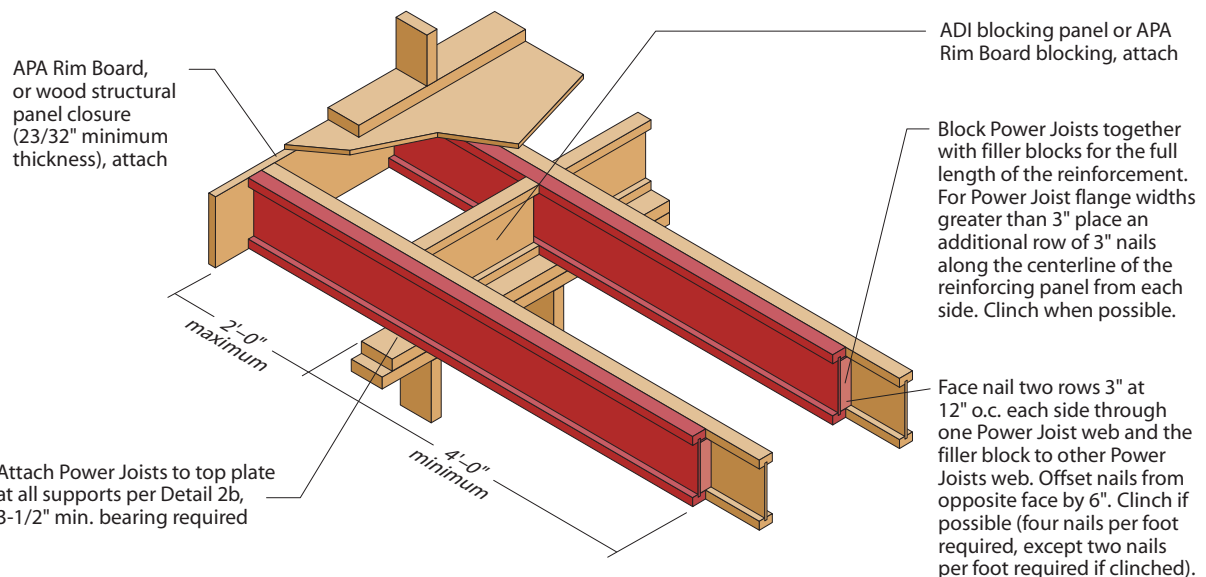
Use same installation as Method 1 but reinforce both sides of Power Joist with sheathing or APA Rim Board.



Note: APA RATED SHEATHING 48/24 (minimum thickness 23/32") required on sides of joist. Depth shall match the full height of the joist. Nail with 2-1/2" nails at 6" o.c., top and bottom flange. Install with face grain horizontal. Attach Power Joist to plate at all supports per Detail 2b

Power Joists may also be used in cantilever applications supporting a concentrated load applied to the end of the cantilever, such as with a vertical building offset. For cantilever-end concentrated load applications that require reinforcing based on Table 6, the cantilever is limited to 2 feet maximum. In addition, blocking is required along the cantilever support and for 4 feet on each side of the cantilever area. Subject to the roof loads and layout (see Table 6), three methods of reinforcing are allowed in load bearing cantilever applications: reinforcing sheathing applied to one side of the Power Joist (Method 1), reinforcing sheathing applied to both sides of the Power Joist (Method 2) or double Power Joists (Alternate Method 2).

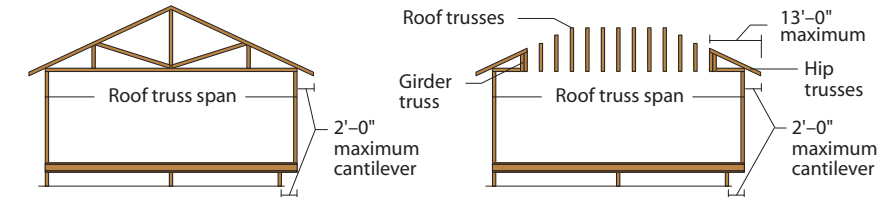
**Alternate Method 2**  
DOUBLE POWER JOISTS



**Notes:** All nails shown in the details above are assumed to be common nails unless otherwise noted. Individual components not shown to scale for clarity.

# Cantilever Detail for Vertical Building Offset – (Concentrated Wall Load)

**Figure 5b**



See Table below for Power Joist reinforcement requirements at cantilever.

For hip roofs with the hip trusses running parallel to the cantilevered floor joists, the Power Joist reinforcement requirements for a span of 26 ft. shall be permitted to be used.

Source: APA

## Cantilever Reinforcement Methods

**Table 6**  
ADI Cantilever Reinforcement Methods Allowed

Joist Depth (in.)	Roof Truss Span (ft)	ROOF LOADINGS											
		TL = 35 psf LL not to exceed 20 psf Joist Spacing (in.)				TL = 45 psf LL not to exceed 30 psf Joist Spacing (in.)				TL = 55 psf LL not to exceed 40 psf Joist Spacing (in.)			
		12	16	19.2	24	12	16	19.2	24	12	16	19.2	24
9-1/2	26	N	N	N	1,2	N	N	1,2	2	N	1,2	2	X
	28	N	N	1,2	1,2	N	N	1,2	2	N	1,2	2	X
	30	N	N	2	1,2	N	1,2	1,2	2	N	1,2	2	X
	32	N	N	1,2	2	N	1,2	1,2	X	N	1,2	2	X
	34	N	N	1,2	2	N	1,2	2	X	N	2	X	X
11-7/8	36	N	N	1,2	2	N	1,2	2	X	N	2	X	X
	26	N	N	N	1,2	N	N	1,2	1,2	N	1,2	1,2	2
	28	N	N	1,2	1,2	N	1,2	1,2	1,2	N	1,2	1,2	2
	30	N	N	1,2	1,2	N	1,2	1,2	2	N	1,2	1,2	2
	32	N	N	1,2	1,2	N	1,2	1,2	2	N	1,2	1,2	2
	34	N	N	1,2	1,2	N	1,2	1,2	2	N	1,2	2	2
14	36	N	N	1,2	1,2	N	1,2	1,2	2	N	1,2	2	2
	38	N	1,2	1,2	2	N	1,2	1,2	2	1,2	1,2	2	X
	26	N	N	N	1,2	N	N	N	1,2	N	N	1,2	1,2
	28	N	N	N	1,2	N	N	1,2	1,2	N	N	1,2	2
	30	N	N	N	1,2	N	N	1,2	1,2	N	1,2	1,2	2
	32	N	N	N	1,2	N	N	1,2	1,2	N	1,2	1,2	2
	34	N	N	N	1,2	N	N	1,2	2	N	1,2	1,2	2
16	36	N	N	1,2	1,2	N	1,2	1,2	2	N	1,2	1,2	2
	38	N	N	1,2	1,2	N	1,2	1,2	2	N	1,2	2	2
	40	N	N	1,2	1,2	N	1,2	1,2	2	N	1,2	2	2
	26	N	N	N	1,2	N	N	1,2	1,2	N	N	1,2	1,2
	28	N	N	N	1,2	N	N	1,2	1,2	N	1,2	1,2	2
	30	N	N	N	1,2	N	N	1,2	1,2	N	1,2	1,2	2
	32	N	N	N	1,2	N	N	1,2	1,2	N	1,2	1,2	2
	34	N	N	1,2	1,2	N	N	1,2	2	N	1,2	1,2	2
42	N	N	1,2	1,2	N	1,2	1,2	2	N	1,2	2	X	

**Notes**

- (1) N = No reinforcement required.
- 1 = PRIs reinforced with 23/32" wood structural panel on one side only.
- 2 = PRIs reinforced with 23/32" wood structural panel on both sides or double Power Joist.
- X = Try a deeper joist or closer spacing.
- (2) Color coding in table is matched to details in Figure 5a and 5b.
- (3) Maximum load shall be: 15 psf roof dead load, 50 psf floor total load, and 80 plf

- wall load. Wall load is based on 3'-0" maximum width window or door openings. For larger openings, or multiple 3'-0" width openings spaced less than 6'-0" o.c., additional joists beneath the opening's cripple studs may be required.
- (4) Table applies to joists 12" to 24" o.c. Use 12" o.c. requirements for lesser spacings.
- (5) For conventional roof construction using a ridge beam, the Roof Truss Span column above is equivalent to the distance between the supporting wall and the ridge beam. When the roof is framed using a ridge board, the Roof Truss Span is equivalent to the distance between the supporting walls as if a truss is used

## Typical Floor Framing Installation Notes

1. Installation of ADI Power Joist shall be in accordance with Figure 1.
2. Except for cutting joist to length, Power Joist flanges should never be cut, drilled, or notched.
3. Concentrated loads should only be applied to the top surface of the top flange. At no time should concentrated loads be suspended from the bottom flange with the exception of light loads such as ceiling fans, light fixtures, etc.
4. Power Joists must be protected from the weather prior to installation.
5. Power Joists must not be used in applications where they will be permanently exposed to weather, or will reach a moisture content greater than 16% such as in swimming pool or hot tub areas. They must not be installed where they will remain in direct contact with concrete or masonry.
6. End-bearing length must be at least 1-3/4". For multiple span joists, intermediate bearing length must be at least 3-1/2".
7. Ends of floor joists shall be restrained to prevent rollover. Use Certified Rim Board or Power Joist blocking panels.
8. Power Joists installed beneath bearing walls perpendicular to the joists require full depth blocking panels, Certified Rim Board, or squash blocks (cripple blocks) to transfer gravity loads from above the floor system to the wall or foundation below (see note 1g page 10).
9. For Power Joists up to 18" deep installed as rim board directly beneath bearing walls parallel to the joists, the maximum vertical load using a single Power Joist is 2000 plf, and 4000 plf if double Power Joists are used. Full bearing is required under Power Joist used as rim board.
10. Continuous lateral support of the Power Joist's compression flange is required to prevent rotation and buckling. In simple span uses, lateral support of the top flange is normally supplied by the floor sheathing. In multiple span or cantilever applications, bracing of the Power Joist's bottom flange is also required at interior supports of multiple-span joists, and at the end support next to the cantilever extension. The ends of all cantilever extensions must be laterally braced as shown in Figure 3 or 4.
11. Nails installed perpendicular to the wide face of the flange shall be spaced in accordance with the applicable building code requirements or approved building plans but should not be closer than 2" o.c. per row.
12. Figure 1 details show only Power Joist-specific fastener requirements. For other fastener requirements, see the applicable building code.
13. For Fire-Resistance ratings, typical Sound Transmission Class (STC), and typical Impact Insulation Class (IIC) refer to: ICC ESR 1405 Section 4.2.2 or DCA 3 - Fire Rated Wood Floor and Wall Assemblies at [www.awc.org](http://www.awc.org).

## Web Hole Rules and Specifications

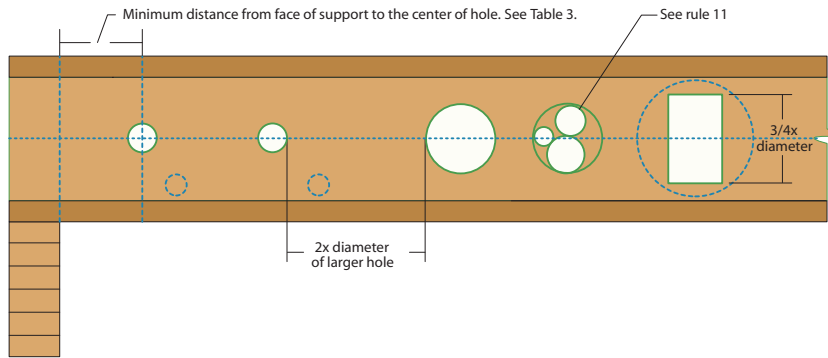
One of the benefits of using Power Joists in residential floor construction is that holes may be cut in the joist webs to accommodate electrical wiring, plumbing lines and other mechanical systems, therefore minimizing the depth of the floor system.

### Rules for cutting holes in ADI Joists

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

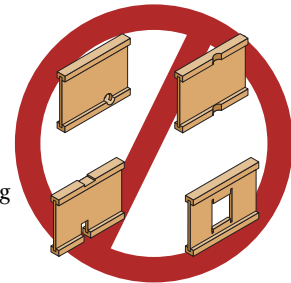
**Figure 6**

**Power Joist Typical Holes**



**Cutting the Holes**

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



**Web Hole Rules and Specifications Continued**

**Table 7**

**Location Of Circular Holes In ADI Joist Webs**

Simple or Multiple Span for Dead Loads up to 10 psf and Live Loads up to 40 psf<sup>(1)(2)(3)(4)</sup>

Joist Depth	Joist	Minimum Distance from Inside Face of Any Support to Center of Hole (ft.-in.)															
		Round Hole Diameter (in.)															
		SAF <sup>(5)</sup>	2	3	4	5	6	6 1/4	7	8	8 5/8	9	10	10 3/4	11	12	12 3/4
9-1/2"	ADI-40	14'-6"	0'-7"	1'-8"	3'-0"	4'-4"	5'-9"	6'-3"									
	ADI-60	15'-3"	1'-8"	3'-0"	4'-4"	5'-8"	7'-3"	7'-8"									
11-7/8"	ADI-40	16'-7"	0'-7"	0'-8"	1'-2"	2'-5"	3'-9"	4'-1"	5'-1"	6'-8"	7'-11"						
	ADI-60	18'-2"	0'-8"	1'-10"	3'-2"	4'-5"	5'-10"	6'-2"	7'-4"	8'-11"	10'-0"						
	ADI-80	19'-10"	1'-11"	3'-2"	4'-6"	5'-10"	7'-3"	7'-8"	8'-10"	10'-6"	11'-7"						
14"	ADI-40	18'-3"	0'-7"	0'-8"	0'-8"	0'-9"	1'-10"	2'-2"	3'-2"	4'-7"	5'-5"	6'-0"	7'-7"	9'-4"			
	ADI-60	19'-9"	0'-7"	0'-8"	0'-8"	1'-7"	3'-2"	3'-6"	4'-9"	6'-6"	7'-8"	8'-4"	10'-4"	11'-11"			
	ADI-80	22'-7"	0'-7"	1'-9"	3'-0"	4'-4"	5'-8"	6'-1"	7'-1"	8'-7"	9'-7"	10'-3"	12'-2"	13'-10"			
16"	ADI-40	19'-8"	0'-7"	0'-8"	0'-8"	0'-9"	0'-9"	0'-10"	1'-5"	2'-9"	3'-7"	4'-1"	5'-6"	6'-7"	7'-0"	8'-9"	10'-9"
	ADI-60	19'-9"	0'-7"	0'-8"	0'-8"	0'-9"	0'-9"	0'-10"	1'-10"	3'-6"	4'-6"	5'-2"	7'-3"	8'-11"	9'-6"	11'-10"	13'-9"
	ADI-80	23'-11"	0'-7"	0'-8"	0'-8"	1'-7"	3'-2"	3'-7"	4'-10"	6'-6"	7'-7"	8'-3"	10'-2"	11'-8"	12'-2"	14'-3"	16'-0"
18"	ADI-80	27'-3"	0'-7"	0'-8"	0'-8"	0'-11"	2'-3"	2'-8"	3'-9"	5'-2"	6'-1"	6'-8"	8'-3"	9'-6"	9'-11"	11'-8"	13'-0"
20"	ADI-80	29'-6"	0'-7"	0'-8"	0'-8"	0'-9"	1'-9"	2'-1"	3'-1"	4'-5"	5'-3"	5'-10"	7'-3"	8'-4"	8'-8"	10'-3"	11'-5"
22"	ADI-80	31'-5"	0'-7"	0'-8"	0'-8"	0'-9"	0'-9"	1'-1"	2'-0"	3'-3"	4'-0"	4'-6"	5'-9"	6'-9"	7'-1"	8'-6"	9'-9"
24"	ADI-80	31'-5"	0'-7"	0'-8"	0'-8"	0'-9"	0'-9"	0'-10"	0'-10"	1'-11"	2'-7"	3'-1"	4'-4"	5'-5"	5'-10"	7'-4"	8'-6"

**Notes**

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

**OPTIONAL:**

Table 7 is based on the Power Joists being used at their maximum span. If the Power Joists are placed at less than their full allowable span, the maximum distance from the centerline of the hole to the face of any support (D) as given above may be reduced as follows:

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

Where:  $D_{\text{reduced}}$  = Distance from the inside face of any support to center of hole, reduced for less-than-maximum span applications (ft). The reduced distance shall not be less than 6 inches from the face of support to edge of the hole.

$L_{\text{actual}}$  = The actual measured span distance between the inside faces of supports (ft).

SAF = Span Adjustment Factor given in the table above.

D = The minimum distance from the inside face of any support to center of hole from Table 7 above.

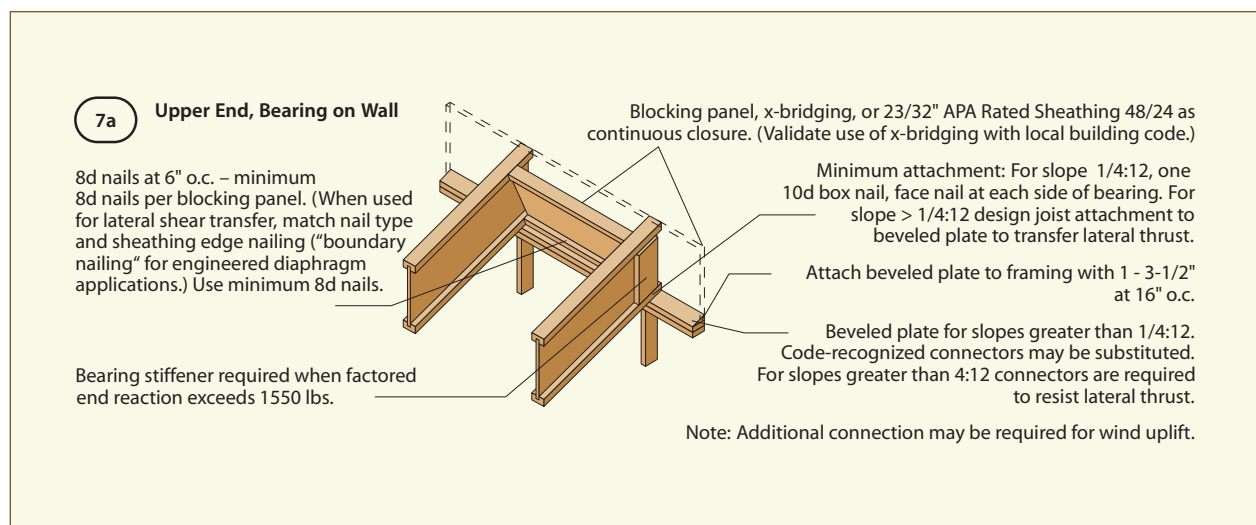
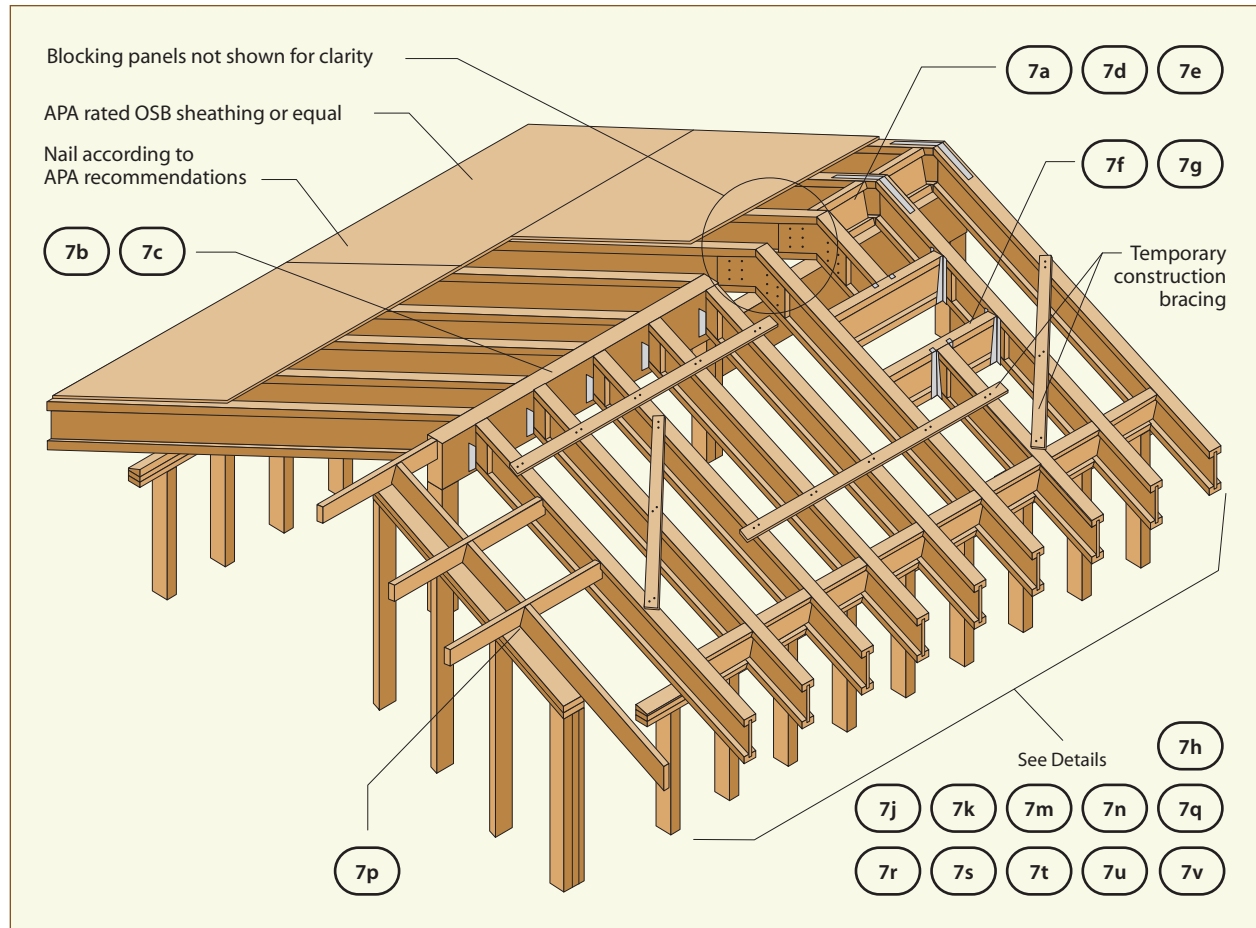
If  $\frac{L_{\text{actual}}}{\text{SAF}}$  is greater than 1, use 1 in the above calculation for  $\frac{L_{\text{actual}}}{\text{SAF}}$ .

# Roof Framing and Construction Details

Figure 7

## Typical Power Joist Roof Framing and Construction Details

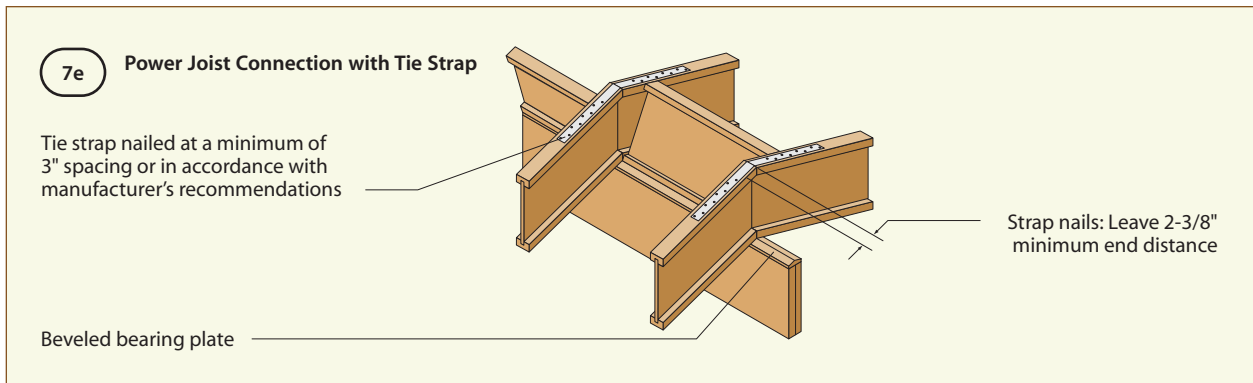
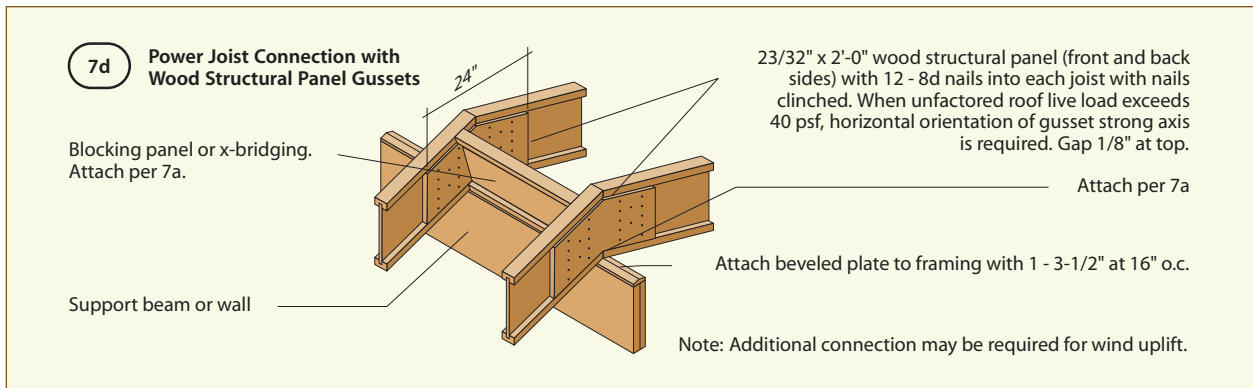
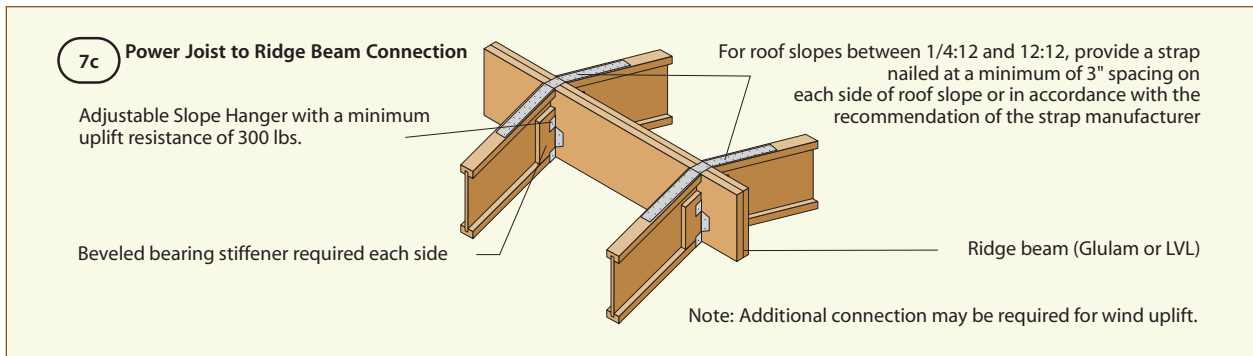
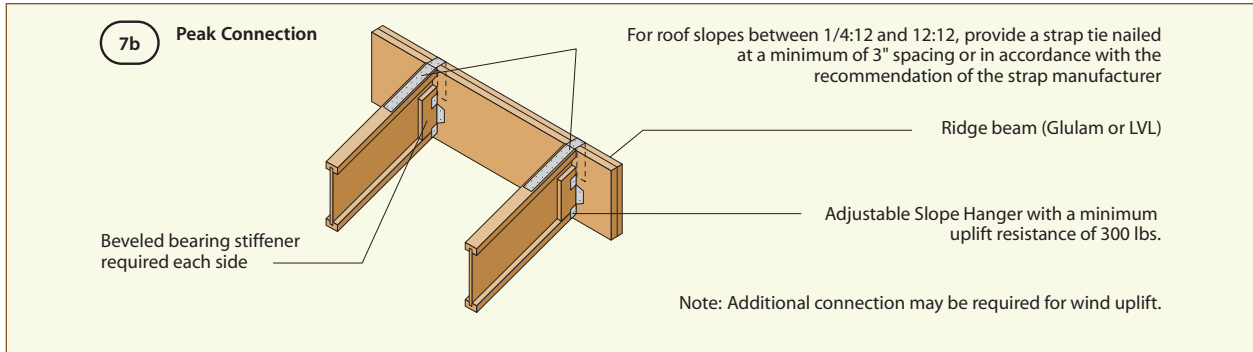
All nails shown in the details below are assumed to be common nails unless otherwise noted. 10d box nails (0.128 x 3 in.) may be substituted for 8d common (0.131 x 2-1/2 in.) shown in details. Individual components not shown to scale for clarity.



**Figure 7** Continued

**Typical Power Joist Roof Framing and Construction Details**

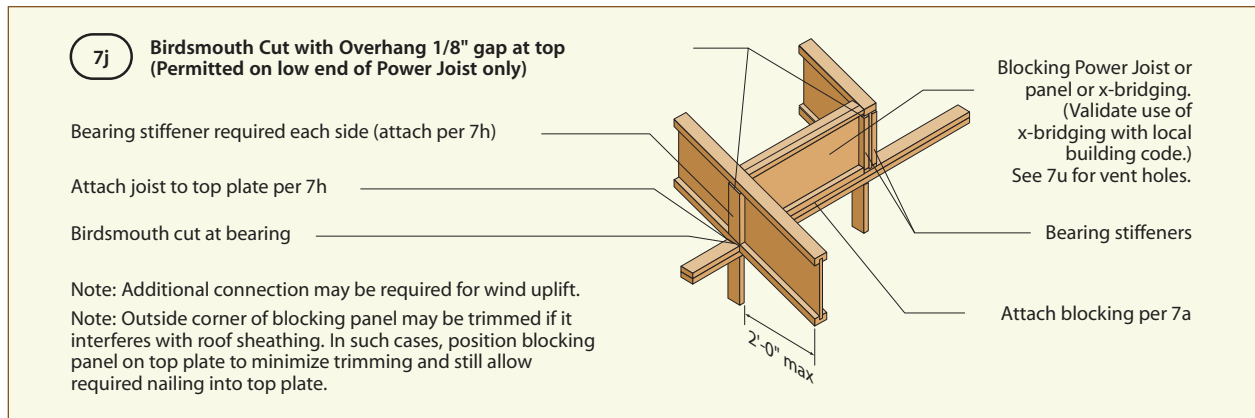
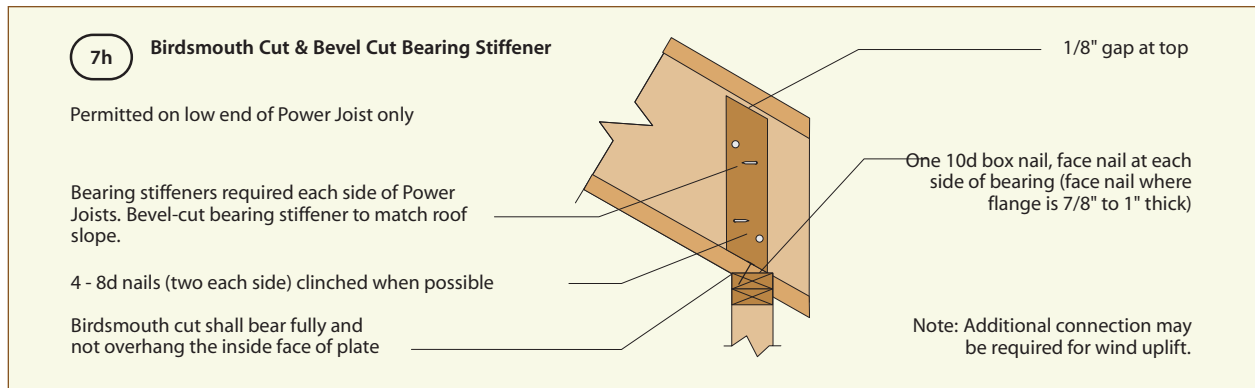
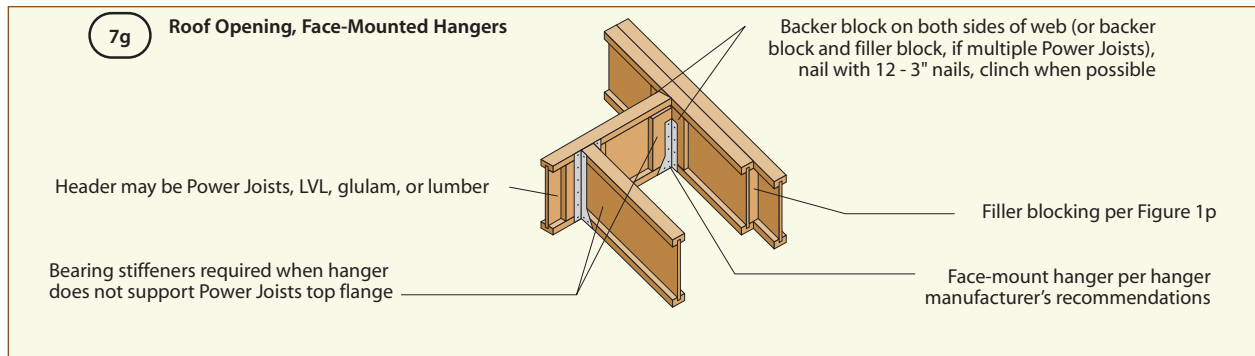
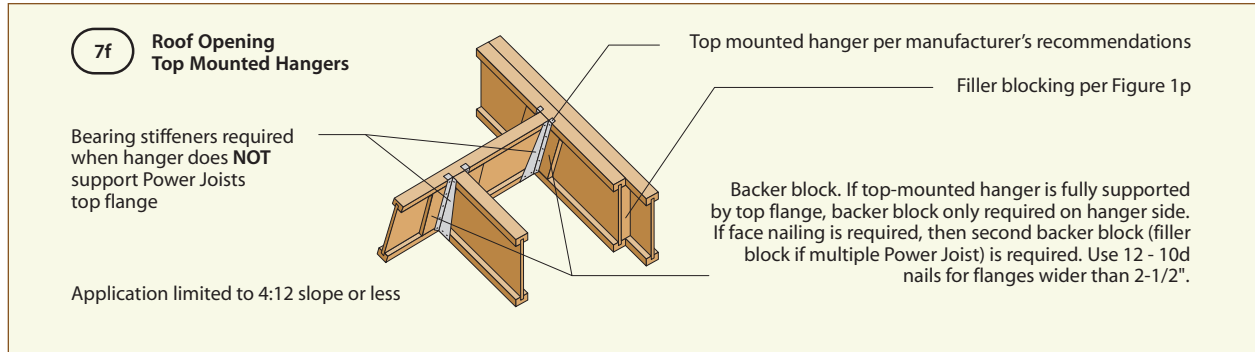
All nails shown in the details below are assumed to be common nails unless otherwise noted. 10d box nails (0.128 x 3 in.) may be substituted for 8d common (0.131 x 2-1/2 in.) shown in details. Individual components not shown to scale for clarity.



**Figure 7 Continued**

**Typical Power Joist Roof Framing and Construction Details**

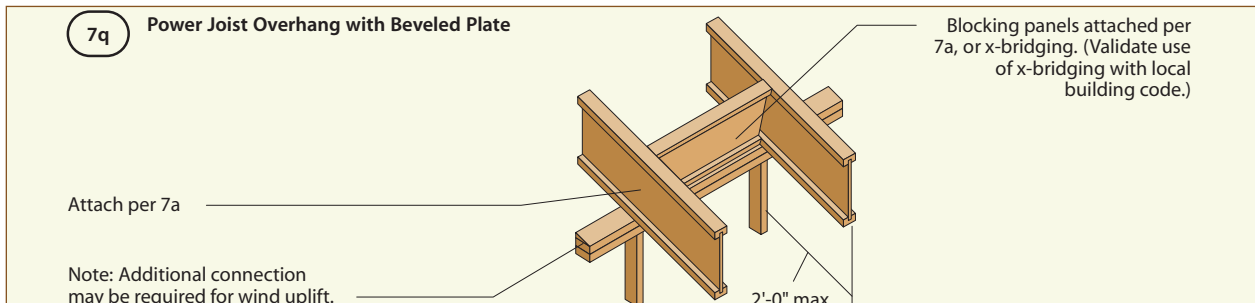
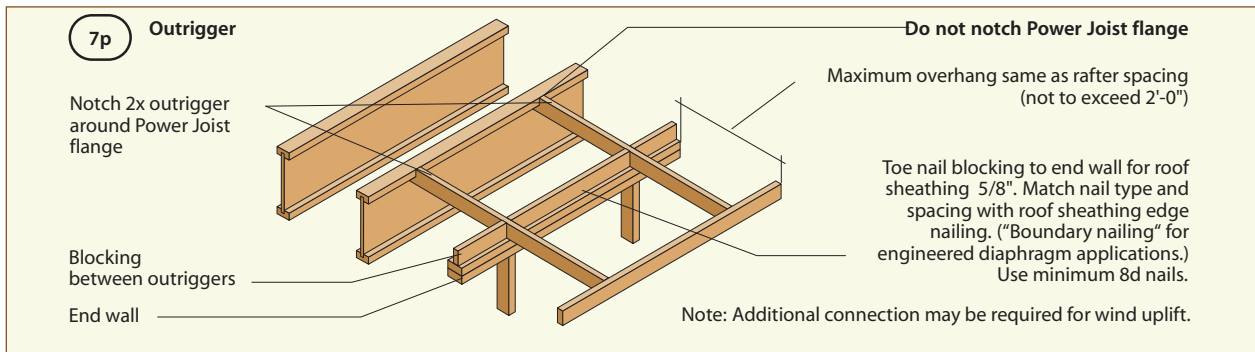
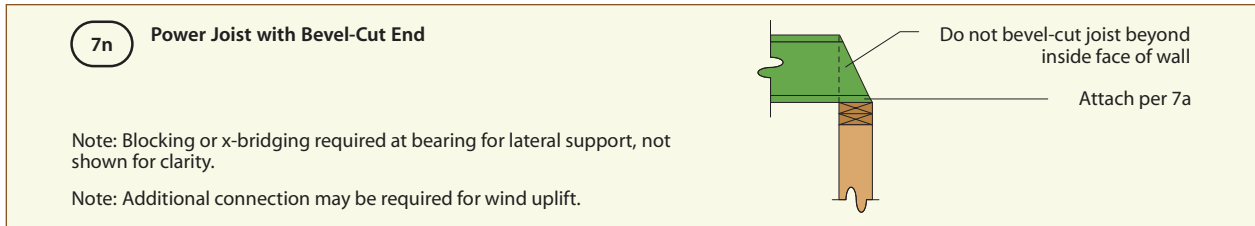
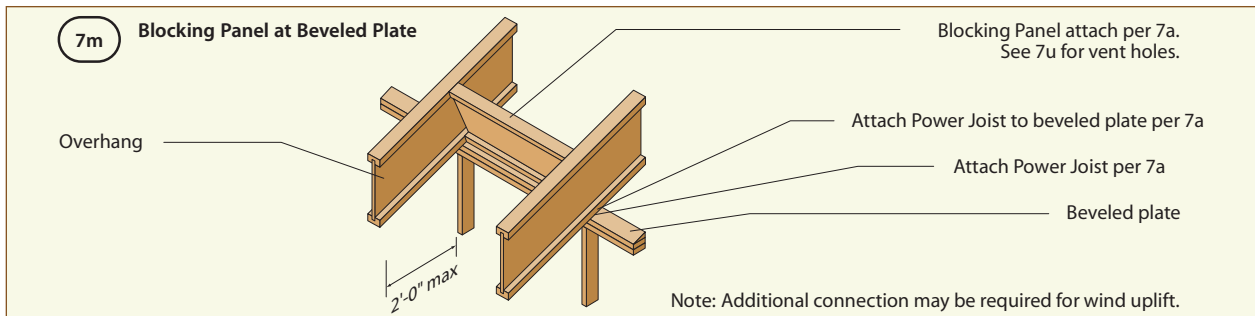
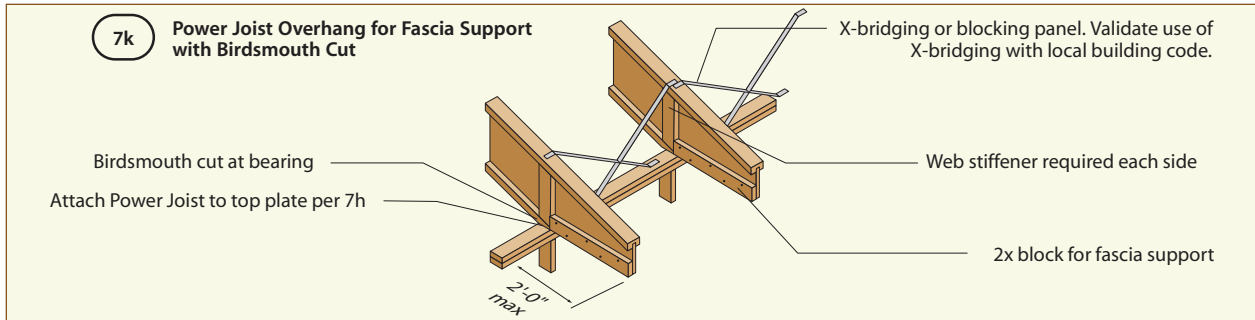
All nails shown in the details below are assumed to be common nails unless otherwise noted. 10d box nails (0.128 x 3 in.) may be substituted for 8d common (0.131 x 2-1/2 in.) shown in details. Individual components not shown to scale for clarity.



**Figure 7 Continued**

**Typical Power Joist Roof Framing and Construction Details**

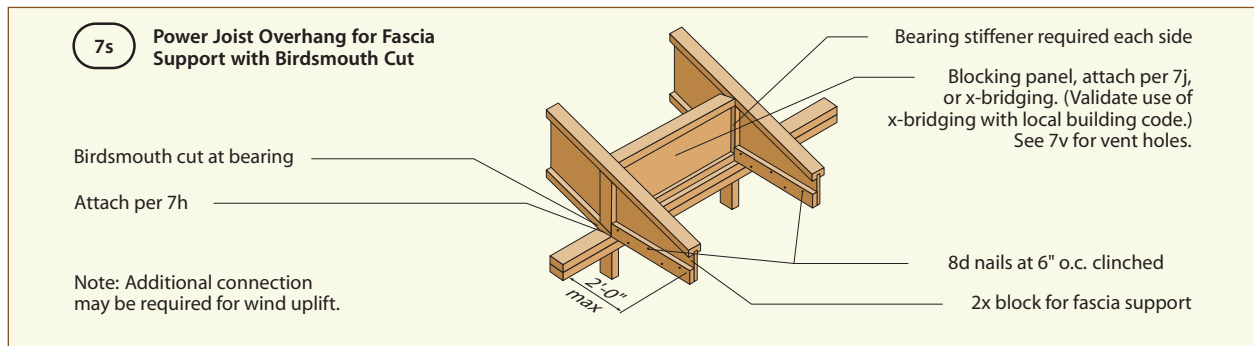
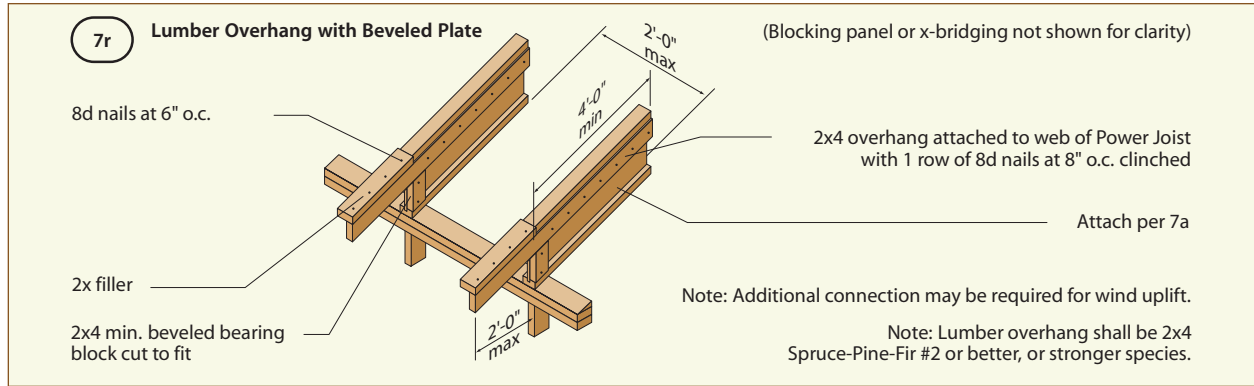
All nails shown in the details below are assumed to be common nails unless otherwise noted. 10d box nails (0.128 x 3 in.) may be substituted for 8d common (0.131 x 2-1/2 in.) shown in details. Individual components not shown to scale for clarity.



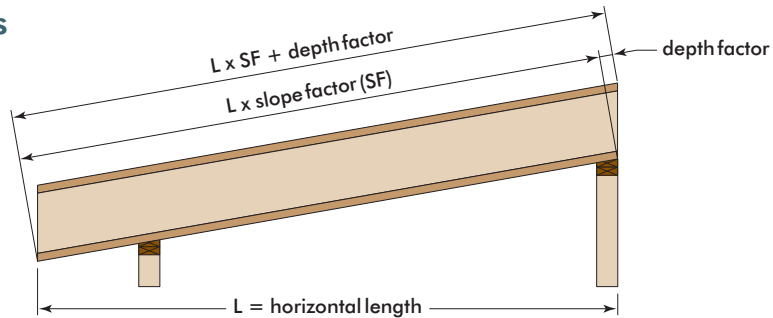
**Figure 7 Continued**

**Typical Power Joist Roof Framing and Construction Details**

All nails shown in the details below are assumed to be common nails unless otherwise noted. 10d box nails (0.128 x 3 in.) may be substituted for 8d common (0.131 x 2-1/2 in.) shown in details. Individual components not shown to scale for clarity.



**Slope Spans for Roofs**



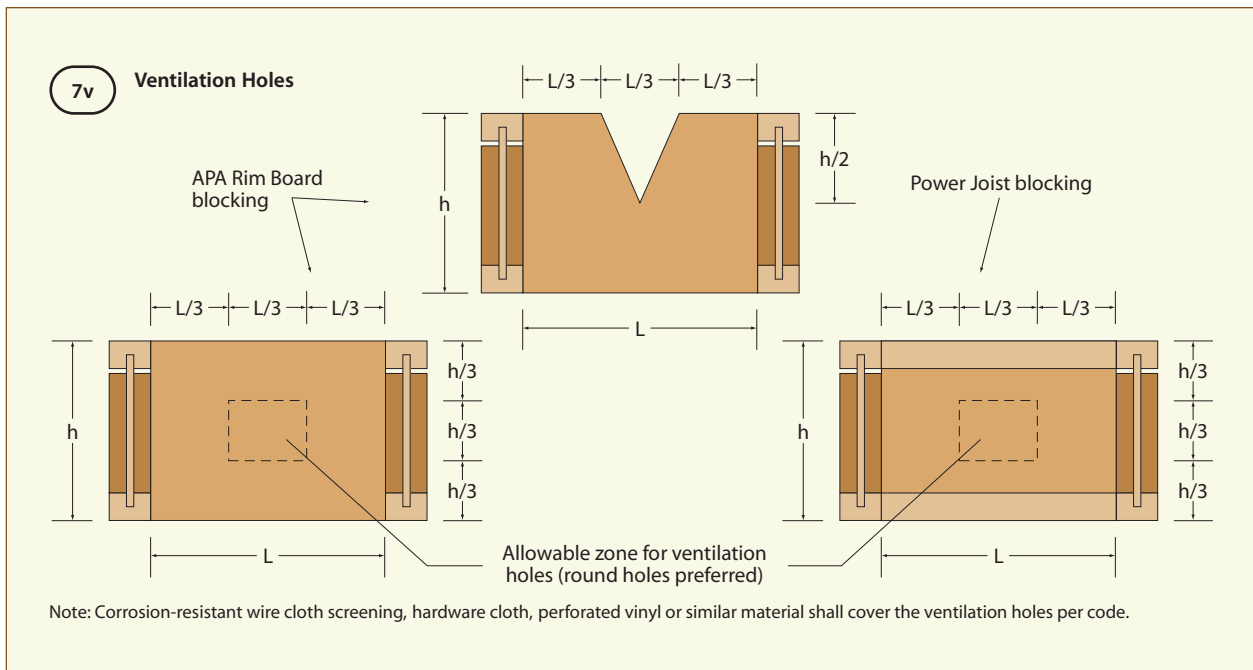
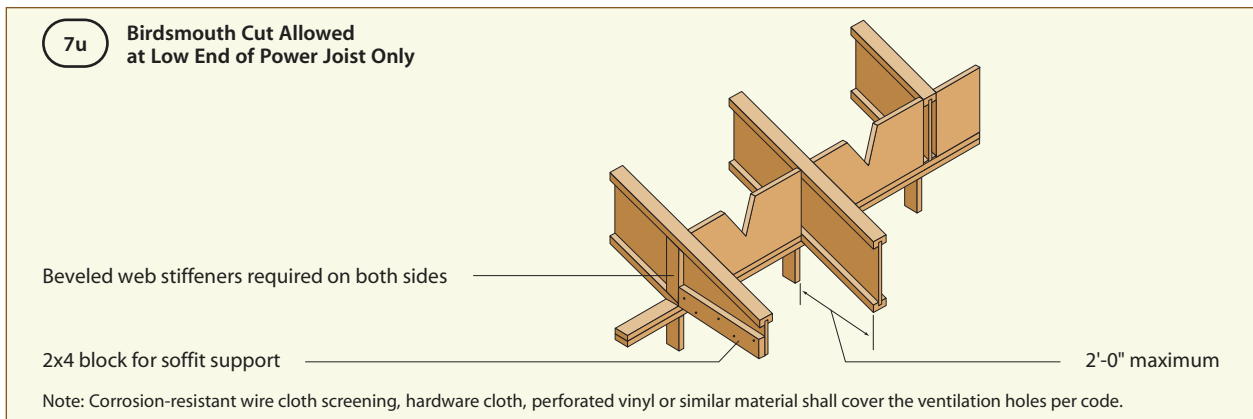
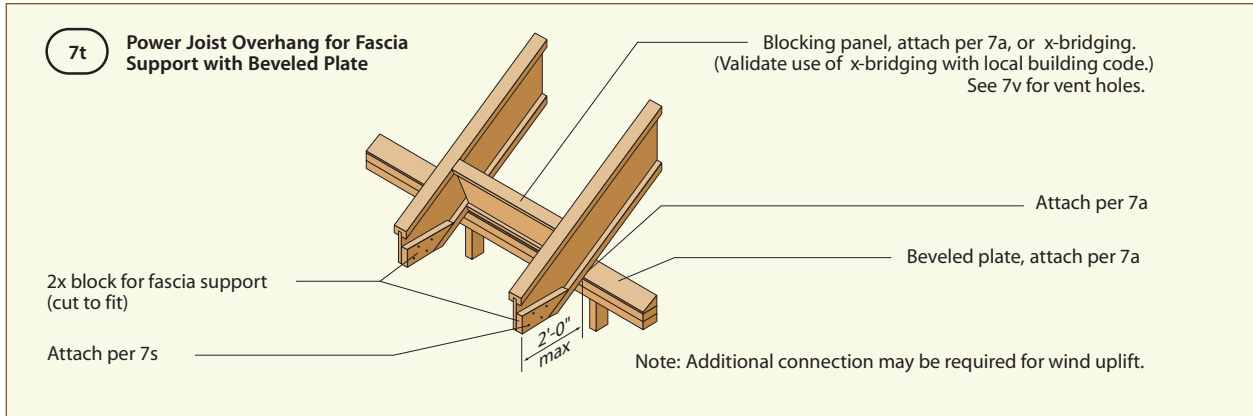
**Slope Factor and Depth Factor Table**

Slope	2.5:12	3:12	3.5:12	4:12	4.5:12	5:12	6:12	7:12	8:12	9:12	10:12	11:12	12:12	
Slope Factor	1.021	1.031	1.042	1.054	1.068	1.083	1.118	1.158	1.202	1.250	1.302	1.357	1.414	
Depth Factor	9-1/2"	2"	2-3/8"	2-7/8"	3-1/4"	3-5/8"	4"	4-3/4"	5-5/8"	6-3/8"	7-1/4"	8"	8-3/4"	9-1/2"
	11-7/8"	2-1/2"	3"	3-1/2"	4"	4-1/2"	5"	6"	7"	8"	9"	10"	11"	11-7/8"
	14"	3"	3-1/2"	4-1/8"	4-3/4"	5-1/4"	5-7/8"	7"	8-1/4"	9-3/8"	10-1/2"	11-3/4"	12-7/8"	14"
	16"	3-3/8"	4"	4-3/4"	5-3/8"	6"	6-3/4"	8"	9-3/8"	10-3/4"	12"	13-3/8"	14-3/4"	16"
	18"	3-3/4"	4-1/2"	5-1/4"	6"	6-3/4"	7-1/2"	9"	10-1/2"	12"	13-1/2"	15"	16-1/2"	18"
	20"	4-1/4"	5"	5-7/8"	6-3/4"	7-1/2"	8-3/8"	10"	11-3/4"	13-3/8"	15"	16-3/4"	18-3/8"	20"
	22"	4-5/8"	5-1/2"	6-1/2"	7-3/8"	8-1/4"	9-1/4"	11"	12-7/8"	14-3/4"	16-1/2"	18-3/8"	20-1/4"	22"
24"	5"	6"	7"	8"	9"	10"	12"	14"	16"	18"	20"	22"	24"	

**Figure 7 Continued**

**Typical Power Joist Roof Framing and Construction Details**

All nails shown in the details below are assumed to be common nails unless otherwise noted. 10d box nails (0.128 x 3 in.) may be substituted for 8d common (0.131 x 2-1/2 in.) shown in details. Individual components not shown to scale for clarity.



# Allowable Roof Spans – Simple Spans

<b>Table 8</b>										
<b>Simple Span</b>										
Live Load = 20 psf    Dead Load = 15 psf    Snow Load = 1.15										
Series	Depth	Slope of 1/4:12 to 4:12			Slope of 4:12 to 8:12			Slope of 8:12 to 12:12		
		16" oc	19.2" oc	24" oc	16" oc	19.2" oc	24" oc	16" oc	19.2" oc	24" oc
ADI 40	9 1/2	21'-9"	19'-10"	17'-9"	20'-7"	19'-3"	17'-3"	19'-0"	17'-10"	16'-6"
	11 7/8	25'-3"	23'-0"	20'-6"	24'-6"	22'-4"	19'-11"	22'-10"	21'-5"	19'-2"
	14	28'-0"	25'-6"	22'-9"	27'-2"	24'-9"	22'-1"	25'-11"	23'-9"	21'-3"
	16	30'-4"	27'-8"	24'-9"	29'-5"	26'-10"	24'-0"	28'-3"	25'-9"	23'-0"
ADI 60	9 1/2	23'-4"	21'-11"	20'-3"	21'-11"	20'-7"	19'-0"	20'-2"	19'-0"	17'-7"
	11 7/8	27'-11"	26'-3"	24'-2"	26'-3"	24'-8"	22'-10"	24'-3"	22'-9"	21'-1"
	14	31'-10"	29'-11"	26'-9"	29'-11"	28'-1"	26'-0"	27'-8"	25'-11"	24'-0"
	16	35'-5"	32'-6"	29'-1"	33'-3"	31'-3"	28'-2"	30'-8"	28'-10"	26'-9"
ADI 80	11 7/8	31'-1"	29'-3"	27'-0"	29'-3"	27'-5"	25'-5"	27'-0"	25'-4"	23'-6"
	14	35'-5"	33'-3"	30'-9"	33'-3"	31'-3"	28'-11"	30'-8"	28'-10"	26'-9"
	16	39'-3"	36'-11"	34'-2"	36'-11"	34'-8"	32'-1"	34'-1"	32'-0"	29'-8"
	18	44'-5"	42'-8"	40'-6"	40'-0"	38'-6"	36'-8"	35'-1"	33'-10"	32'-3"
	20	48'-1"	46'-2"	43'-7"	43'-3"	41'-8"	39'-8"	37'-11"	36'-7"	34'-11"
	22	51'-7"	49'-4"	45'-8"	46'-5"	44'-9"	41'-11"	40'-9"	39'-4"	37'-6"
24	54'-7"	51'-5"	47'-7"	49'-7"	47'-1"	43'-8"	43'-5"	41'-11"	39'-2"	

**Notes:**

1. Allowable clear span applicable to simple-span roof construction with 2' overhang. The live load deflection is limited to L/240 and total load deflection to L/180.
2. Spans are based on a duration of load (DOL) factor of 1.15.
3. Minimum bearing length must be 1-3/4" (44.5 mm) for the end bearings and 3-1/2" (89 mm) on end bearing adjacent to cantilever.
4. Bearing stiffeners are not required when Power Joists are used with the spans and spacings given in this table, except as required by hanger manufacturers.

<b>Table 9</b>										
<b>Simple Span</b>										
Live Load = 25 psf    Dead Load = 15 psf    Snow Load = 1.15										
Series	Depth	Slope of 1/4:12 to 4:12			Slope of 4:12 to 8:12			Slope of 8:12 to 12:12		
		16" oc	19.2" oc	24" oc	16" oc	19.2" oc	24" oc	16" oc	19.2" oc	24" oc
ADI 40	9 1/2	20'-5"	18'-7"	16'-7"	19'-9"	18'-1"	16'-2"	17'-1"	15'-10"	14'-1"
	11 7/8	23'-7"	21'-6"	19'-3"	23'-0"	20'-11"	18'-9"	20'-1"	18'-4"	16'-4"
	14	26'-2"	23'-10"	21'-4"	25'-6"	23'-3"	20'-9"	22'-3"	20'-4"	18'-2"
	16	28'-5"	25'-11"	23'-2"	27'-8"	25'-3"	22'-6"	24'-2"	22'-0"	19'-8"
ADI 60	9 1/2	22'-3"	20'-11"	19'-4"	21'-0"	19'-8"	18'-3"	18'-2"	17'-0"	15'-9"
	11 7/8	26'-9"	25'-1"	22'-7"	25'-2"	23'-8"	21'-10"	21'-9"	20'-5"	18'-11"
	14	30'-6"	28'-1"	25'-1"	28'-8"	26'-11"	24'-5"	24'-10"	23'-4"	21'-4"
	16	33'-5"	30'-5"	27'-2"	31'-11"	29'-8"	26'-6"	27'-7"	25'-11"	23'-2"
ADI 80	11 7/8	29'-9"	27'-11"	25'-10"	28'-0"	26'-4"	24'-4"	24'-3"	22'-9"	21'-1"
	14	29'-9"	27'-11"	25'-10"	31'-11"	29'-11"	27'-8"	27'-7"	25'-11"	24'-0"
	16	37'-7"	35'-3"	32'-5"	35'-4"	33'-3"	30'-9"	30'-8"	28'-9"	26'-7"
	18	42'-4"	40'-6"	34'-9"	38'-2"	36'-8"	34'-9"	33'-7"	32'-3"	30'-8"
	20	45'-9"	43'-7"	37'-0"	41'-4"	39'-8"	37'-0"	36'-4"	34'-11"	33'-3"
	22	48'-8"	45'-8"	38'-8"	44'-4"	41'-11"	38'-8"	39'-0"	37'-6"	34'-10"
24	50'-9"	47'-7"	40'-4"	46'-6"	43'-8"	40'-4"	41'-7"	39'-2"	36'-4"	

<b>Table 10</b>										
<b>Simple Span</b>										
Live Load = 30 psf    Dead Load = 15 psf    Snow Load = 1.15										
Series	Depth	Slope of 1/4:12 to 4:12			Slope of 4:12 to 8:12			Slope of 8:12 to 12:12		
		16" oc	19.2" oc	24" oc	16" oc	19.2" oc	24" oc	16" oc	19.2" oc	24" oc
ADI 40	9 1/2	19'-3"	17'-6"	15'-8"	18'-9"	17'-1"	15'-3"	15'-5"	14'-0"	12'-6"
	11 7/8	22'-3"	20'-4"	18'-2"	21'-9"	19'-10"	17'-8"	17'-10"	16'-3"	14'-6"
	14	24'-8"	22'-6"	20'-1"	24'-1"	22'-0"	19'-8"	19'-9"	18'-0"	16'-1"
	16	26'-9"	24'-5"	21'-10"	26'-2"	23'-10"	21'-4"	21'-5"	19'-7"	17'-5"
ADI 60	9 1/2	21'-5"	20'-1"	18'-5"	20'-2"	18'-11"	17'-6"	16'-9"	15'-8"	14'-6"
	11 7/8	25'-8"	23'-11"	21'-4"	24'-3"	22'-9"	20'-10"	20'-1"	18'-10"	17'-1"
	14	29'-0"	26'-6"	23'-8"	27'-7"	25'-10"	23'-1"	22'-11"	21'-2"	18'-11"
	16	31'-6"	28'-9"	25'-8"	30'-8"	28'-1"	25'-1"	25'-2"	23'-0"	20'-6"
ADI 80	11 7/8	28'-7"	26'-10"	24'-10"	27'-0"	25'-4"	23'-5"	22'-4"	21'-0"	19'-5"
	14	32'-6"	30'-6"	28'-2"	30'-8"	28'-10"	26'-8"	25'-5"	23'-10"	22'-1"
	16	36'-1"	33'-10"	30'-7"	34'-1"	32'-0"	29'-7"	28'-3"	26'-6"	24'-6"
	18	40'-7"	38'-9"	35'-7"	36'-8"	35'-1"	32'-10"	32'-4"	31'-0"	29'-5"
	20	43'-8"	40'-9"	37'-5"	39'-8"	37'-6"	34'-6"	34'-11"	33'-6"	31'-2"
	22	45'-8"	42'-8"	39'-2"	41'-11"	39'-3"	36'-2"	37'-6"	35'-4"	32'-8"
24	47'-7"	44'-6"	40'-10"	43'-9"	40'-11"	37'-8"	39'-10"	36'-10"	34'-0"	

## Allowable Roof Spans—Simple Span

<b>Table 11</b>										
<b>Simple Span</b> Live Load = 40 psf    Dead Load = 15 psf    Snow Load = 1.15										
Series	Depth	Slope of 1/4:12 to 4:12			Slope of 4:12 to 8:12			Slope of 8:12 to 12:12		
		16" oc	19.2" oc	24" oc	16" oc	19.2" oc	24" oc	16" oc	19.2" oc	24" oc
ADI 40	9 1/2	17'-5"	15'-10"	14'-2"	17'-1"	15'-7"	13'-11"	16'-7"	15'-2"	13'-6"
	11 7/8	20'-2"	18'-4"	16'-5"	19'-9"	18'-0"	16'-1"	19'-3"	17'-6"	15'-8"
	14	22'-4"	20'-5"	18'-2"	21'-11"	20'-0"	17'-10"	21'-4"	19'-5"	17'-4"
ADI 60	9 1/2	20'-0"	18'-8"	16'-8"	18'-11"	17'-9"	16'-4"	17'-7"	16'-6"	15'-4"
	11 7/8	23'-8"	21'-7"	19'-4"	22'-8"	21'-2"	18'-11"	21'-2"	19'-10"	18'-4"
	14	26'-3"	24'-0"	21'-5"	25'-9"	23'-6"	21'-0"	24'-1"	22'-8"	20'-5"
ADI 80	16	28'-6"	26'-0"	23'-3"	27'-11"	25'-6"	22'-9"	26'-10"	24'-10"	22'-2"
	11 7/8	26'-8"	25'-0"	23'-0"	25'-3"	23'-8"	21'-11"	23'-7"	22'-1"	20'-5"
	14	30'-4"	28'-6"	25'-6"	28'-9"	27'-0"	24'-11"	26'-10"	25'-2"	23'-3"
	16	33'-8"	31'-0"	27'-7"	31'-11"	29'-11"	27'-2"	29'-9"	27'-11"	25'-10"
	18	37'-3"	34'-8"	31'-7"	34'-3"	32'-0"	29'-3"	30'-3"	28'-11"	26'-7"
	20	39'-3"	36'-6"	33'-3"	36'-2"	33'-8"	30'-10"	32'-7"	30'-5"	27'-11"
22	41'-0"	38'-2"	34'-10"	37'-10"	35'-3"	32'-3"	34'-1"	31'-10"	29'-3"	
24	42'-9"	39'-9"	36'-4"	39'-5"	36'-9"	33'-7"	35'-7"	33'-3"	30'-6"	

<b>Table 12</b>										
<b>Simple Span</b> Live Load = 50 psf    Dead Load = 15 psf    Snow Load = 1.15										
Series	Depth	Slope of 1/4:12 to 4:12			Slope of 4:12 to 8:12			Slope of 8:12 to 12:12		
		16" oc	19.2" oc	24" oc	16" oc	19.2" oc	24" oc	16" oc	19.2" oc	24" oc
ADI 40	9 1/2	16'-0"	14'-7"	13'-0"	15'-9"	14'-4"	12'-10"	15'-5"	14'-0"	12'-6"
	11 7/8	18'-6"	16'-11"	15'-1"	18'-3"	16'-7"	14'-10"	17'-10"	16'-3"	14'-6"
	14	20'-7"	18'-9"	16'-9"	20'-3"	18'-5"	16'-6"	19'-9"	18'-0"	16'-1"
ADI 60	16	22'-4"	20'-4"	18'-2"	21'-11"	20'-0"	17'-10"	21'-5"	19'-7"	17'-5"
	9 1/2	18'-9"	17'-2"	15'-4"	17'-11"	16'-9"	15'-1"	16'-9"	15'-8"	14'-6"
	11 7/8	21'-10"	19'-11"	17'-9"	21'-5"	19'-7"	17'-6"	20'-1"	18'-10"	17'-1"
ADI 80	14	24'-2"	22'-1"	19'-8"	23'-9"	21'-8"	19'-4"	22'-11"	21'-2"	18'-11"
	16	26'-3"	23'-11"	21'-4"	25'-10"	23'-6"	21'-0"	25'-2"	23'-0"	20'-6"
	11 7/8	25'-1"	23'-6"	21'-2"	23'-11"	22'-5"	20'-9"	22'-4"	21'-0"	19'-5"
ADI 80	14	28'-6"	26'-3"	23'-4"	27'-2"	25'-6"	23'-1"	25'-5"	23'-10"	22'-1"
	16	31'-3"	28'-6"	23'-4"	30'-2"	28'-0"	25'-1"	28'-3"	26'-6"	24'-6"
	18	34'-1"	31'-7"	28'-9"	31'-6"	29'-3"	26'-8"	28'-6"	26'-7"	24'-6"
	20	35'-11"	33'-3"	30'-3"	33'-2"	30'-10"	28'-1"	30'-0"	27'-11"	25'-6"
	22	37'-7"	34'-10"	31'-8"	34'-9"	32'-3"	29'-4"	31'-5"	29'-3"	26'-9"
	24	39'-2"	36'-4"	33'-0"	36'-2"	33'-7"	30'-7"	32'-9"	30'-6"	27'-10"

### Notes:

1. Allowable clear span applicable to simple-span roof construction with 2' overhang. The live load deflection is limited to L/240 and total load deflection to L/180.
2. Spans are based on a duration of load (DOL) factor of 1.15.
3. Minimum bearing length must be 1-3/4" (44.5 mm) for the end bearings and 3-1/2" (89 mm) on end bearing adjacent to cantilever.
4. Bearing stiffeners are not required when Power Joists are used with the spans and spacings given in this table, except as required by hanger manufacturers.

## Allowable Roof Uniform Load Capacities

**Table 13**

**ADI Power Joist — ADI 40**  
Allowable uniform loads (PLF) Roof

CLEAR JOIST SPAN (ft.)	9-1/2"			11-7/8"			14"			16"		
	LIVE LOAD	TOTAL LOAD		LIVE LOAD	TOTAL LOAD		LIVE LOAD	TOTAL LOAD		LIVE LOAD	TOTAL LOAD	
		Defl. L/240	SNOW 115%		NON- SNOW 125%	Defl. L/240		SNOW 115%	NON- SNOW 125%		Defl. L/240	SNOW 115%
6		323	351		374	407		374	407		374	407
7		278	302		322	336		322	336		322	336
8		244	265		282	295		282	295		282	295
9		217	236		251	262		251	262		251	262
10		196	213		227	237		227	237		227	237
11		178	194		206	215		206	215		206	215
12		153	166		189	198		189	198		189	198
13		130	142		174	183		175	183		175	183
14		113	122		150	163		163	170		163	170
15		98	107		131	143		152	158		152	158
16		86	94		115	125		142	149		142	149
17		77	83		102	111		134	140		134	140
18		68	74		91	99		120	130		127	132
19	61	61	67		82	89		108	117		118	125
20	52	56	60		74	81		97	106		107	116
21	45	50	55		67	73		88	96		97	105
22	39	46	50		61	67		81	88		88	96
23	34	42	46		56	61		74	80		81	88
24	30	39	41		52	56		68	74		74	81
25	27	36	36	46	48	52		62	68		69	75
26		32	32	41	44	48		58	63		63	69
27		29	29	37	41	44	53	54	58		59	64
28		26	26	33	38	41	48	50	54		55	60
29				30	35	39	43	47	51		51	56
30				27	33	36	39	43	47		48	52
31					31	32	35	41	44		45	49
32					29	29	32	38	42		42	46
33					27	27	29	36	39		39	43
34							27	34	36	37	37	40

**Notes:**

1. Roof joists or rafters must be sloped a minimum of 1/4" in 12".
2. Live Load column limits deflection to L/240, Total Load column limits deflection to L/180.  
Cathedral ceilings or sheet rocked rafters may require stiffer performance or additional design.
3. Values represent the most restrictive of simple span or multiple span conditions.
4. Values are for Power Joists spaced at a maximum of 24" on center.
5. Table assumes a minimum end bearing length of 1-3/4" and a minimum interior bearing length of 3-1/2"
6. Web stiffeners are not required except when the joist hangers do not provide lateral support for the top flange of the Power Joists. Web stiffeners are required at birdsmouth cuts and when required by hanger manufacturers for proper connections.

**Joist Sizing:**

1. Select desired joist depth (column).
2. Select desired span (row).
3. Check BOTH Live Load and Total Load columns.
4. If Live Load column is blank, Total Load capacity governs.

# Allowable Roof Uniform Load Capacities

<b>Table 14</b>												
<b>ADI Power Joist — ADI 60</b>												
<b>Allowable uniform loads (PLF) Roof</b>												
<b>CLEAR JOIST SPAN (ft.)</b>	<b>9-1/2"</b>			<b>11-7/8"</b>			<b>14"</b>			<b>16"</b>		
	<b>LIVE LOAD</b>	<b>TOTAL LOAD</b>		<b>LIVE LOAD</b>	<b>TOTAL LOAD</b>		<b>LIVE LOAD</b>	<b>TOTAL LOAD</b>		<b>LIVE LOAD</b>	<b>TOTAL LOAD</b>	
		<b>Defl. L/240</b>	<b>SNOW 115%</b>		<b>NON-SNOW 125%</b>	<b>Defl. L/240</b>		<b>SNOW 115%</b>	<b>NON-SNOW 125%</b>		<b>Defl. L/240</b>	<b>SNOW 115%</b>
6		323	351		374	407		374	407		374	407
7		278	302		322	336		322	336		322	336
8		244	265		282	295		282	295		282	295
9		217	236		251	262		251	262		251	262
10		196	213		227	237		227	237		227	237
11		178	194		206	215		206	215		206	215
12		164	178		189	198		189	198		189	198
13		151	164		175	183		175	183		175	183
14		140	153		163	170		163	170		163	170
15		131	143		152	158		152	158		152	158
16		119	129		142	149		142	149		142	149
17	101	106	115		134	140		134	140		134	140
18	85	94	102		126	132		127	132		127	132
19	73	85	92		113	123		120	125		120	125
20	62	77	83		102	111		114	119		114	119
21	54	69	72	92	93	101		109	113		109	113
22	47	63	63	81	85	92		104	108		104	108
23	41	55	55	71	77	84		95	103		99	104
24	36	48	48	62	71	77		87	95		95	99
25	32	43	43	55	66	71		81	88		91	95
26	29	38	38	49	61	65	72	74	81		87	92
27	26	34	34	44	56	58	65	69	75		81	88
28		31	31	39	52	52	58	64	70		75	82
29		28	28	35	47	47	52	60	65		70	77
30				32	43	43	47	56	61	65	66	72
31				29	39	39	43	52	57	59	62	67
32				26	35	35	39	49	52	53	58	63
33					32	32	36	46	47	49	54	59
34					29	29	32	43	43	44	51	56

- Notes:**
1. Roof joists or rafters must be sloped a minimum of 1/4" in 12".
  2. Live Load column limits deflection to L/240, Total Load column limits deflection to L/180. Cathedral ceilings or sheet rocked rafters may require stiffer performance or additional design.
  3. Values represent the most restrictive of simple span or multiple span conditions.
  4. Values are for Power Joists spaced at a maximum of 24" on center.
  5. Table assumes a minimum end bearing length of 1-3/4" and a minimum interior bearing length of 3-1/2"
  6. Web stiffeners are not required except when the joist hangers do not provide lateral support for the top flange of the Power Joists. Web stiffeners are required at birdsmouth cuts and when required by hanger manufacturers for proper connections.

- Joist Sizing:**
1. Select desired joist depth (column).
  2. Select desired span (row).
  3. Check BOTH Live Load and Total Load columns.
  4. If Live Load column is blank, Total Load capacity governs.

## Allowable Roof Uniform Load Capacities

**Table 15**

**ADI Power Joist — ADI 80**  
Allowable uniform loads (PLF) Roof

CLEAR JOIST SPAN (ft.)	11-7/8"			14"			16"		
	LIVE LOAD	TOTAL LOAD		LIVE LOAD	TOTAL LOAD		LIVE LOAD	TOTAL LOAD	
		Defl. L/240	SNOW 115%		NON- SNOW 125%	Defl. L/240		SNOW 115%	NON- SNOW 125%
6		413	449		452	491		452	491
7		355	358		389	358		389	358
8		312	314		341	314		341	314
9		278	280		304	280		304	280
10		250	252		274	252		274	252
11		228	230		249	230		249	230
12		209	211		229	211		229	211
13		193	195		211	195		211	195
14		180	181		196	181		196	181
15		168	169		183	169		183	169
16		157	159		172	159		172	159
17		148	149		162	149		162	149
18		140	141		153	141		153	141
19		133	134		145	134		145	134
20		126	127		138	127		138	127
21		120	121		131	121		131	121
22	111	115	116		125	116		125	116
23	97	109	111		120	111		120	111
24	86	101	106		115	106		115	106
25	76	93	101		110	102		110	102
26	68	86	90	99	105	98		106	98
27	60	80	81	89	98	94		102	94
28	54	72	72	79	91	91		99	91
29	49	65	65	72	85	88		95	88
30	44	59	59	65	79	85	88	92	85
31	40	53	53	59	74	78	80	87	82
32	36	49	49	53	70	71	73	82	80
33	33	44	44	49	65	65	66	77	77
34	30	41	41	45	59	59	61	73	75

**Notes:**

1. Roof joists or rafters must be sloped a minimum of 1/4" in 12".
2. Live Load column limits deflection to L/240, Total Load column limits deflection to L/180. Cathedral ceilings or sheet rocked rafters may require stiffer performance or additional design.
3. Values represent the most restrictive of simple span or multiple span conditions.
4. Values are for Power Joists spaced at a maximum of 24" on center.
5. Table assumes a minimum end bearing length of 1-3/4" and a minimum interior bearing length of 3-1/2"
6. Web stiffeners are not required except when the joist hangers do not provide lateral support for the top flange of the Power Joists. Web stiffeners are required at birdsmouth cuts and when required by hanger manufacturers for proper connections.

**Joist Sizing:**

1. Select desired joist depth (column).
2. Select desired span (row).
3. Check BOTH Live Load and Total Load columns.
4. If Live Load column is blank, Total Load capacity governs.

# Allowable Roof Uniform Load Capacities

**Table 15** Cont.

## ADI Power Joist — ADI 80 with Web Stiffeners

Allowable uniform loads (PLF) Roof

CLEAR JOIST SPAN (ft.)	18"			20"			22"			24"		
	LIVE LOAD Defl. L/240	TOTAL LOAD		LIVE LOAD Defl. L/240	TOTAL LOAD		LIVE LOAD Defl. L/240	TOTAL LOAD		LIVE LOAD Defl. L/240	TOTAL LOAD	
		SNOW 115%	NON-SNOW 125%		SNOW 115%	NON-SNOW 125%		SNOW 115%	NON-SNOW 125%		SNOW 115%	NON-SNOW 125%
12		302	329		302	329		302	329		302	329
13		279	303		279	303		279	303		279	303
14		259	282		259	282		259	282		259	282
15		242	263		242	262		242	262		242	262
16		227	247		227	247		227	247		227	247
17		213	232		213	232		213	232		213	232
18		201	219		201	219		201	219		201	219
19		191	208		191	208		191	208		191	208
20		181	197		181	197		181	197		181	197
21		173	188		173	188		173	188		173	188
22		165	179		165	179		165	179		165	179
23		158	172		158	172		158	172		158	172
24		151	165		151	165		151	165		151	165
25		145	158		145	158		145	158		145	158
26		139	152		139	152		139	152		139	152
27		134	146		134	146		134	146		134	146
28		129	140		129	140		129	140		129	140
29		120	131		125	136		125	136		125	136
30		112	122		121	132		121	132		121	132
31	105	105	114		117	127		117	127		117	127
32	96	99	107		109	119		113	123		113	123
33	87	93	101		103	112		110	119		110	119
34	80	88	95		97	105		106	115		107	116
35	73	83	90		91	99		100	109		104	113
36	67	78	85	85	86	94		95	103		101	110
37	62	74	80	79	82	89		90	97		97	106
38	57	70	76	72	78	84		85	92		92	100
39	53	67	72	67	74	80		81	88		88	95
40	49	63	69	62	70	76	77	77	83		83	91
41	46	60	65	58	67	72	71	73	79		79	86
42	42	57	62	54	64	69	66	70	76		76	82
43	39	55	59	50	61	66	62	66	72		72	78
44	37	52	57	47	58	63	58	63	69		69	75
45	34	50	54	44	55	60	54	61	66	66	66	72
46	32	48	52	41	53	58	51	58	63	61	63	68
47	30	46	50	38	51	55	47	56	60	58	60	66
48	28	44	48	36	49	53	44	53	58	54	58	63
49	27	42	46	34	47	51	42	51	56	51	56	60
50	25	40	44	32	45	49	39	49	53	48	53	58

**Notes:**

1. Roof joists or rafters must be sloped a minimum of 1/4" in 12".
2. Live Load column limits deflection to l/240. Total Load column limits deflection to l/180
3. Values represent the most restrictive of simple span or multiple span conditions.
4. Values are for Power Joists spaced a maximum of 24" on center.
5. Table assumes a minimum end bearing length of 1-3/4" and a minimum interior bearing length of 3-1/2"
6. WEB STIFFENERS ARE REQUIRED AT EACH SUPPORT
7. Tabulated values are clear span as measured between the face of the supports.

**JOIST SIZING:**

1. Select desired span (row).
2. Select Joist depth (column) to satisfy both Live Load and Dead Load capacity.
3. If Live Load column is blank, Total Load capacity controls.

# Power Joist® Design Properties

**Table 16**

Series	Depth	EI <sup>(2)</sup> (10 <sup>6</sup> lbf-in. <sup>2</sup> )	M <sub>r</sub> <sup>(3)</sup> (lbf-ft)	V <sub>r</sub> <sup>(4)</sup> (lbf)	K <sup>(5)</sup> (10 <sup>6</sup> lbf)	Self Weight (plf)	Allowable Verticle Load (lbf/ft)
ADI-40	9-1/2	193	2,735	1,120	4.94	2.6	2,000
	11-7/8	330	3,545	1,420	6.18	2.9	2,000
	14	482	4,270	1,710	7.28	3.1	2,000
	16	657	4,950	1,970	8.32	3.4	2,000
ADI-60	9-1/2	231	3,780	1,120	4.94	2.6	2,000
	11-7/8	396	4,900	1,420	6.18	2.9	2,000
	14	584	5,895	1,710	7.28	3.1	2,000
	16	799	6,835	1,970	8.32	3.4	2,000
ADI-80	11-7/8	547	6,940	1,420	6.18	3.6	2,000
	14	802	8,360	1,710	7.28	3.8	2,000
	16	1092	9,690	1,970	8.32	4.0	2,000
	18	1413	11,000	2,450	9.36	4.3	2,000
	20	1790	12,180	2,530	10.4	4.5	1,720
	22	2214	13,340	2,615	11.44	4.7	1,440
	24	2687	14,490	2,695	12.48	4.9	1,390

- (1.) The tabulated values are factored resistances for standard duration of load. All values, except EI and K shall be permitted to be adjusted for other load durations as permitted by the code.
- (2.) Bending stiffness (EI) of the Power Joist.
- (3.) Moment capacity of the Power Joist which shall not be increased by any code-allowed repetitive member use factor.
- (4.) Shear capacity (V) of the Power Joist.
- (5.) Coefficient of shear deflection (K) of the Power Joist. For calculating uniform load and center-point load deflections of the Power Joist in a simple-span application, use Equations 1 and 2.

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

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

Where:  $\delta$  = calculated deflection (in)       $\omega$  = uniform load (lbf/in)       $\ell$  = design span (in)  
 P = concentrated load (lbf)      EI = bending stiffness of the Power Joist (lbf-in<sup>2</sup>)      K = coefficient of shear deflection (lbf)

**Table 17**

## Reaction Values for ADI Power Joist<sup>(1,2)</sup>

Series	Depth	End Reaction <sup>(3)</sup> (lbf)				Intermediate Reaction <sup>(4)</sup> (lbf)			
		1.75" Bearing		4" Bearing		3.5" Bearing		5.5" Bearing	
		Web Stiffeners		Web Stiffeners		Web Stiffeners		Web Stiffeners	
		No	Yes	No	Yes	No	Yes	No	Yes
ADI-40	9-1/2	1,080	1,120	1,120	1,120	2,755	2,900 <sup>(6)</sup>	3,245	3,245
	11-7/8	1,200	1,310	1,420	1,420	2,755	3,045 <sup>(6)</sup>	3,245	3,375
	14	1,200	1,480 <sup>(5)</sup>	1,550	1,710	2,755	3,175 <sup>(6)</sup>	3,245	3,485
	16	1,200	1,640 <sup>(5)</sup>	1,550	1,970	2,755	3,300 <sup>(6)</sup>	3,245	3,595
ADI-60	9-1/2	1,080	1,120	1,120	1,120	2,755	2,900	3,245	3,245
	11-7/8	1,200	1,310	1,420	1,420	2,755	3,045	3,245	3,375
	14	1,200	1,480	1,550	1,710	2,755	3,175	3,245	3,485
	16	1,200	1,640	1,550	1,970	2,755	3,300	3,245	3,595
ADI-80	11-7/8	1,280	1,420	1,420	1,420	2,760	3,300	3,255	3,585
	14	1,280	1,710	1,550	1,710	3,020	3,455	3,435	3,745
	16	1,280	1,845	1,550	1,970	3,265	3,600	3,600	3,900
	18		2,050 <sup>(7)</sup>		2,450 <sup>(8)</sup>	3,200 <sup>(9)</sup>	3,950 <sup>(9)</sup>	3,650 <sup>(10)</sup>	4,350 <sup>(10)</sup>
	20		2,050 <sup>(7)</sup>		2,530 <sup>(8)</sup>	3,200 <sup>(9)</sup>	3,950 <sup>(9)</sup>	3,650 <sup>(10)</sup>	4,350 <sup>(10)</sup>
	22		2,050 <sup>(7)</sup>		2,615 <sup>(8)</sup>	3,200 <sup>(9)</sup>	3,950 <sup>(9)</sup>	3,650 <sup>(10)</sup>	4,350 <sup>(10)</sup>
	24		2,050 <sup>(7)</sup>		2,695 <sup>(8)</sup>	3,200 <sup>(9)</sup>	3,950 <sup>(9)</sup>	3,650 <sup>(10)</sup>	4,350 <sup>(10)</sup>

- (1.) The tabulated values are design values for normal duration of load. All values shall be permitted to be adjusted for other load durations provided that the adjusted reaction design values are not greater than the limits specified in notes 5 through 10.
- (2.) For end reaction values above 1,550 lbf, bearing stiffeners are required.
- (3.) Interpolation of End Reaction between 1-3/4" and 4" bearing is permitted.
- (4.) Interpolation of Intermediate Reaction between 3-1/2" and 5-1/2" bearing is permitted.
- (5.) Adjusted values for other load durations may not exceed the flange compression capacity of 1,748 lbf.
- (6.) Adjusted values for other load durations may not exceed the flange compression capacity of 3,496 lbf.
- (7.) Adjusted values for other load durations may not exceed the flange compression capacity of 3,080 lbf.
- (8.) Adjusted values for other load durations may not exceed the flange compression capacity of 7,035 lbf.
- (9.) Adjusted values for other load durations may not exceed the flange compression capacity of 6,155 lbf.
- (10.) Adjusted values for other load durations may not exceed the flange compression capacity of 9,675 lbf.

Not Allowed

# USP Hangers for ADI 40, 60 and 80 Series

**Table 18**

**Single Power Joist®**  
USP Structural Connectors



Width	Depth	Top Mount	Uplift 133%	Download		Face Mount	Uplift 133%	Download		Skewed	Uplift 133%	Download	
				DF/SP	SPF			DF/SP	SPF			DF/SP	SPF
2-1/2	9-1/2	TFL2595	300	1600	1230	THF25925	175	1370	1175	SKH2520L/R	1505	1625	1400
	11-7/8	TFL25118	300	1600	1230	THF25112	300	1595	1370	SKH2520L/R	1505	1625	1400
	14	TFL2514	300	1600	1230	THF25140	300	2090	1800	SKH2524L/R	1505	1855	1600
	16	TFL2516	300	1600	1230	THF25160	300	2550	2200	SKH2524L/R	1505	1855	1600
3-1/2	11-7/8	THO35118	300	2050	2050	THF35112	245	1825	1570	SKH410L/R	1565	2240	1935
	14	THO35140	300	2715	2100	THF35140	245	2320	2000	SKH414L/R	1565	3080	2660
	16	THO35160	300	2715	2100	THF35157	245	2550	2200	SKH414L/R	1565	3080	2660
	18	THO35180	300	2685	2100	THF35165	1235	2785	2400	SKH418L/R	1565	3920	3390
	20	THO35200	300	2685	2100	THF35165	1235	2785	2400	SKH418L/R	1565	3920	3390
	22	TFI422	300	3245	2345	THF35165	1235	2785	2400	SKH418L/R	1565	3920	3390
	24	TFI424	300	3245	2345	THF35165	1235	2785	2400	SKH418L/R	1565	3920	3390

**Table 19**

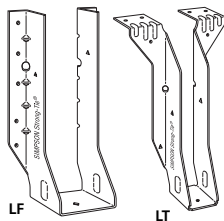
**Double Power Joist®**  
USP Structural Connectors



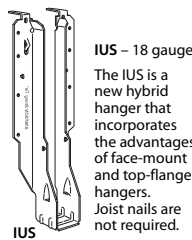
Width	Depth	Top Mount	Uplift 133%	Download		Face Mount	Uplift 133%	Download		Skewed	Uplift 133%	Download	
				DF/SP	SPF			DF/SP	SPF			DF/SP	SPF
5	9-1/2	THO25950-2	1015	3665	3000	THF25925-2	930	1390	1200	SKH2520L/R-2	1575	1650	1430
	11-7/8	THO25118-2	1015	3665	3000	THF25112-2	930	1855	1600	SKH2520L/R-2	1575	1650	1430
	14	THO25140-2	1015	4450	3300	THF25140-2	1000	2500	2180	SKH2524L/R-2	1575	1890	1630
	16	THO25160-2	1015	4450	3300	THF25160-2	1000	3000	2615	SKH2524L/R-2	1575	1890	1630
7	11-7/8	BPH71118	1000	3510	3280	HD7120	945	2240	1935	HD7120-SK45L/R3	710	2240	1935
	14	BPH7114	1000	3510	3280	HD7140	1260	2800	2420	HD7140-SK45L/R3	945	2800	2420
	16	BPH7116	1000	3510	3280	HD7160	1260	3360	2905	HD7160-SK45L/R3	945	3360	2905
	18	BPH7118	1000	3510	3280	HD7180	1260	3920	3390	HD7180-SK45L/R3	945	3920	3390
	20	BPH7120	1000	3510	3280	HD7180	1260	3920	3390	HD7180-SK45L/R3	945	3920	3390
	22	BPH7122	1000	3510	3280	HD7180	1260	3920	3390	HD7180-SK45L/R3	945	3920	3390
	24	BPH7124	1000	3510	3280	HD7180	1260	3920	3390	HD7180-SK45L/R3	945	3920	3390

**Notes:**

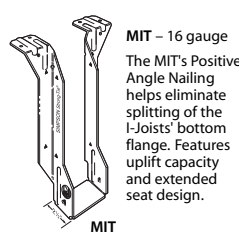
1. Shaded hangers require web stiffeners. Web stiffeners may be required for non-shaded hangers by Anthony-Domtar.
2. This table is for quick specification for Power Joist hangers. Refer to hanger manufacturer for additional design information.
3. Hangers for Double Power Joist are special order. Consult USP for pricing and lead times.



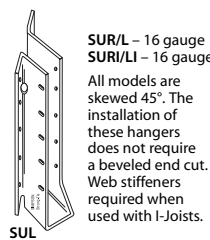
**LF** – 18 gauge  
**LT** – 18 gauge  
The LF and LT series feature fast and easy installation. No web stiffeners required and only one screw secures joist in hanger.



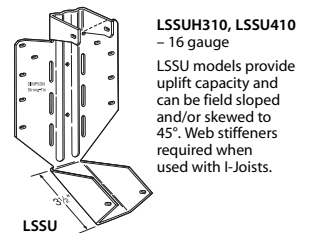
**IUS** – 18 gauge  
The IUS is a new hybrid hanger that incorporates the advantages of face-mount and top-flange hangers. Joist nails are not required.



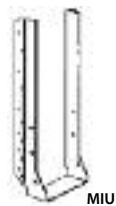
**MIT** – 16 gauge  
The MIT's Positive Angle Nailing helps eliminate splitting of the I-Joist's bottom flange. Features uplift capacity and extended seat design.



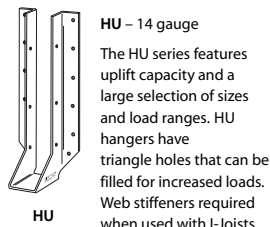
**SUR/L** – 16 gauge  
**SURI/LI** – 16 gauge  
All models are skewed 45°. The installation of these hangers does not require a beveled end cut. Web stiffeners required when used with I-Joists.



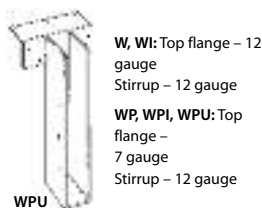
**LSSUH310, LSSU410** – 16 gauge  
LSSU models provide uplift capacity and can be field sloped and/or skewed to 45°. Web stiffeners required when used with I-Joists.



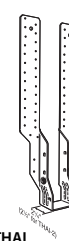
**MIU** – 16 gauge  
The MIU series features 16 gauge steel and extra nailing for higher loads than the IUT.



**HU** – 14 gauge  
The HU series features uplift capacity and a large selection of sizes and load ranges. HU hangers have triangle holes that can be filled for increased loads. Web stiffeners required when used with I-Joists.



**W, WI:** Top flange – 12 gauge  
Stirrup – 12 gauge  
**WP, WPI, WPU:** Top flange – 7 gauge  
Stirrup – 12 gauge



**THAI** – 18 gauge  
This hanger has extra long straps and can be field-formed to give height adjustability and top-flange hanger convenience. Positive angle nailing helps eliminate splitting of the I-Joist's bottom flange. Not all strap nail holes need to be filled for maximum nailing. Web stiffeners required when used with I-Joists.

# Simpson Hangers for ADI 40, 60 & 80 Series

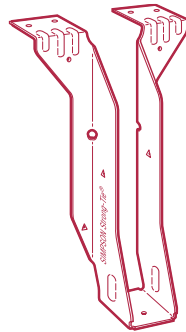
**Table 20**

## Power Joist® Strong-Tie Hangers

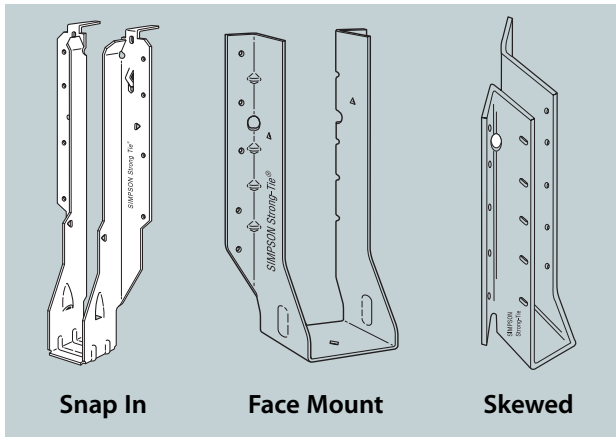
Power Joist		Simpson Strong-Tie Hangers											
Width	Depth	Load				Load				Load			
		Top Mount	Uplift (133)	Download		Face Mount	Uplift (133)	Download		Skewed 45	Uplift (133)	Download	
				DF/SP	SPF			DF/SP	SPF			DF/SP	SPF
2-1/2	9-1/2	ITS2.56/9.5	105	1520	1150	IUS2.56/9.5	75	935	810	SUR/L2.56/9	210	2015	1735
	11-7/8	ITS2.56/11.88	105	1520	1150	IUS2.56/11.88	75	1170	1010	SUR/L2.56/11	210	2305	1980
	14	ITS2.56/14	105	1520	1150	IUS2.56/14	75	1405	1210	SUR/L2.56/14	210	2590	2225
	16	ITS2.56/16	105	1520	1150	IUS2.56/16	75	1640	1415	SUR/L2.56/14	210	2590	2225
3-1/2	9-1/2	ITT49.5	235	1450	1200	IUS3.56/9.5	75	1170	1010	SUR/L410	720	1860	1610
	11-7/8	ITT411.88	235	1450	1200	IUS3.56/11.88	75	1405	1210	SUR/L410	720	1860	1610
	14	ITT414	235	1450	1200	IUS3.56/14	75	1405	1210	SUR/L414	960	2395	1795
	16	ITT416	235	1450	1200	IUS3.56/16	75	1640	1415	SUR/L414	960	2395	1795
	18	MIT418	215	2245	1665	MIU3.56/18	230	3100	2690	SUR/L414	960	2395	1795
	20	MIT420	215	2245	1665	MIU3.56/20	230	3340	2890	SUR/L414	960	2395	1795
	22	HIT422	315	2550	1950	MIU3.56/20	230	3340	2890	----- not available -----			
	24	HIT424	315	2550	1950	MIU3.56/20	230	3340	2890	----- not available -----			

**Notes:**

1. Shaded hangers require web stiffeners. Web stiffeners may be required for non-shaded hangers by Anthony Domtar.
2. This table is for quick specification for Power Joist hangers. Refer to hanger manufacturer for additional design information.



**Top Mount**



**Snap In**

**Face Mount**

**Skewed**



[www.anthonystore.com](http://www.anthonystore.com)

## Power Products<sup>SM</sup> Warranty

### Limited Lifetime Warranty

Anthony Forest Products Company warrants that its Power Joist®, Power Beam®, Power Header®, Power Log®, and Power Plank® are free from defects in design, materials and workmanship. When installed and finished according to our published installation instructions and accepted engineering standards, our Power Products will perform in accordance with our current published specifications for the lifetime of your home or building.

### Warranty Limitations

Anthony Forest Products Company must be given a reasonable opportunity to inspect the product before it will honor any claims under this warranty. If after inspection and verification of the problem, we determine that there is a structural failure covered by the warranty, we will pay to the owner of the structure an amount of money equal to the reasonable cost of the defective product, or, at our option, replace any defective product. This warranty does not cover the cost of installation, removal of the defective product, or reinstallation of replacement product. Checks, cracks or splits of Power Products resulting from the natural physical properties of wood are not covered — unless the condition causes a structural weakness.

Please protect your investment! Power Products must be protected from exposure to moisture from whatever source by proper building standards. Exposure to moisture beyond incidental exposure during normal construction periods may cause product failure and will void this limited warranty.

This warranty shall apply only if the Power Product is subjected to normal use and exposure. The products must be stored, handled, and installed in a manner generally accepted in the industry, and in accordance with our current published installation instructions and in compliance with our product design specifications relating to spans and loading. Failure to follow such instructions will void this warranty.

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This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

For information on the Power Products or our warranty, contact us at:

**Anthony Forest Products Company**  
P.O. Box 1877, El Dorado, Arkansas 71731  
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