
P3 JOIST

USER GUIDE

CANADA 2018

BY  **EACOM**
TIMBER CORPORATION

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EACOM

SAULT STE. MARIE

EACOM Timber Corporation is a major Eastern Canadian wood products company formed in 2008. Its head office is located in Montreal, Quebec, with regional offices located in Timmins, Ontario and Val-d'Or, Quebec. In 2010, EACOM acquired Domtar Forest Products Division. As a result, its operations include the manufacturing, marketing and distribution of lumber and wood based value-added products, and the management of forest resources.

EACOM currently owns seven sawmills (5 in Ontario, 2 in Quebec), a remanufacturing facility (Quebec) and an engineered I-Joist plant (Ontario) for a total of 1100 employees. Many of these mills have a long, rich history having been part of their communities for over 100 years.

EACOM has a production capacity of approximately 900 million board feet of lumber and holds Crown logging rights of approximately 3.5 million cubic meters annually.

The Company is committed to investing in strong assets, including healthy forests, advanced technology and talented people.

For more information visit www.eacom.ca.

P3 JOIST

EACOM Timber Corporation has made it easy to make the right choice for residential and non-residential floor and roof joist products. P3 Joist are produced in accordance with EACOM's report ASTM D 5055 and ASTM D 7247. All code reports can be downloaded from our website www.eacom.ca.

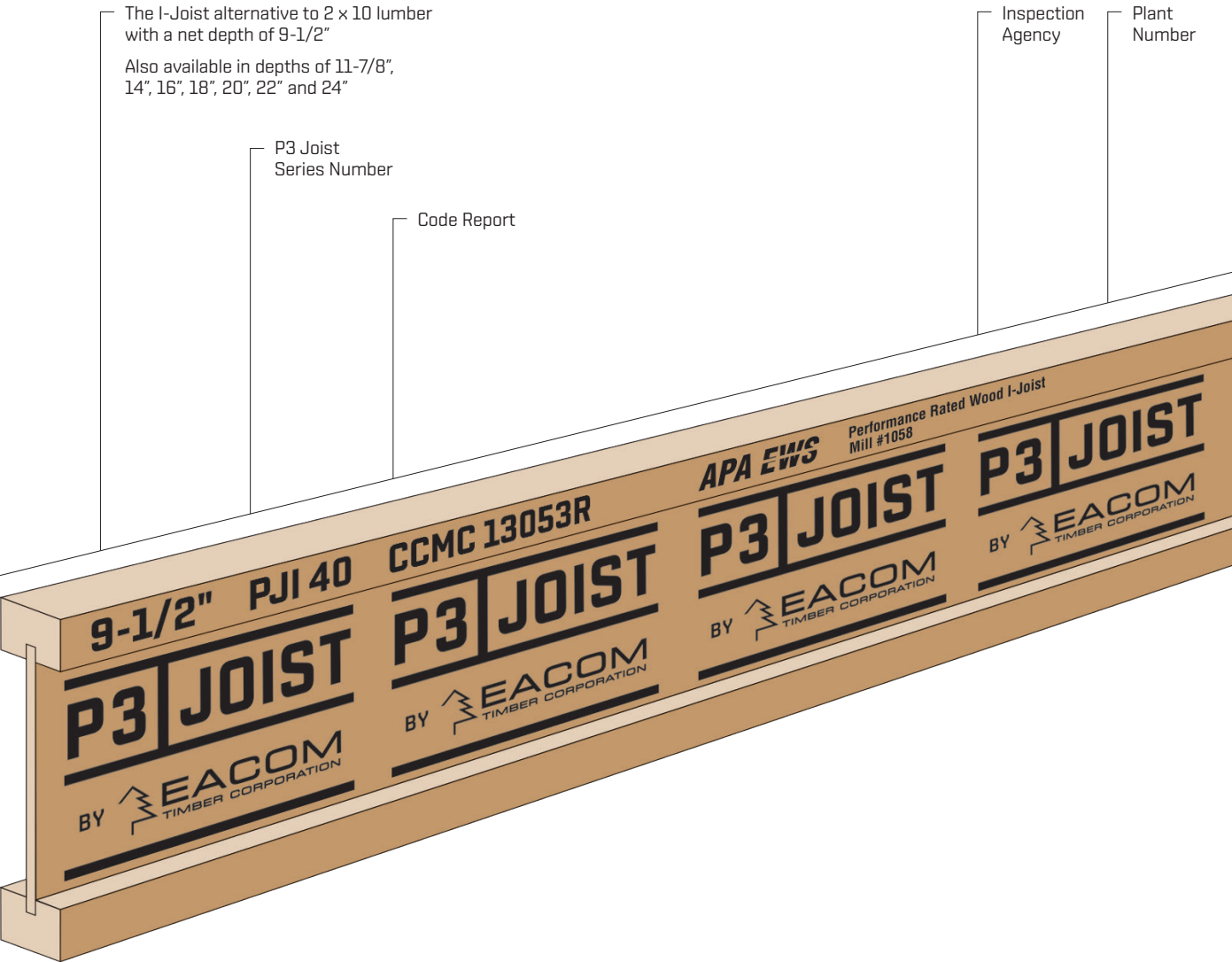
P3 Joist provide a high performance alternative to dimension lumber joists for floor and roof applications. This guide will help you efficiently use P3 Joist by leading you through the simple steps of product selection, specification, and installation.

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 P3 Joist are manufactured in conformance with ASTM D5055. 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. P3 Joist are the right choice for residential and non-residential floor and roof construction.

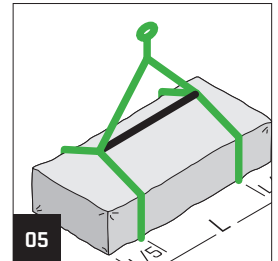
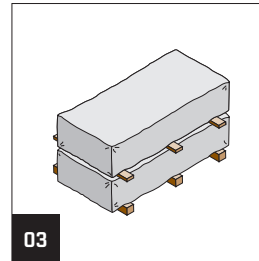
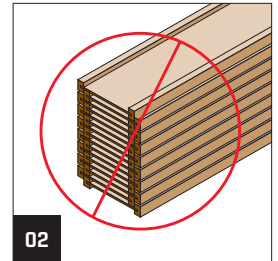
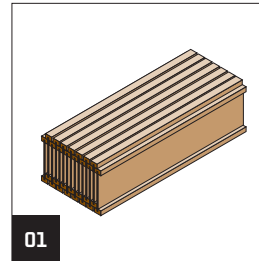
P3 Joist Labeling Example



P3 JOIST (continued)

Storage and Handling Guidelines

1. Store, stack, and handle P3 Joists in a vertical and level position only.
2. Do not store P3 Joists in direct contact with the ground; do not store P3 Joists flatwise.
3. Protect P3 Joists from weather, and use stickers to separate bundles.
4. To protect P3 Joists further from dirt and weather, do not open bundles until time of installation.
5. When lifting P3 Joists with a crane on the job site, take a few simple precautions to prevent damage to the P3 Joists and to prevent injury to your work crew.
 - Lift P3 Joists in bundles as shipped by the supplier.
 - Orient the bundles so that the webs of the P3 Joists are vertical.
 - Lift the bundles at the 5th points, using a spreader bar if necessary.
6. Do not twist or apply loads to the P3 Joist when horizontal.
7. Never use or try to repair a damaged P3 Joist.



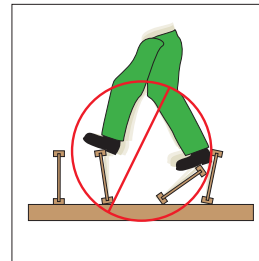
Safety Precautions

WARNING P3 Joists are not stable until completely installed and will not carry any load until fully braced and sheathed.

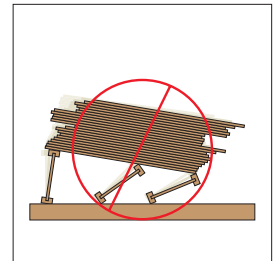
Avoid Accidents by Following These Important Guidelines.

1. Brace and nail each P3 Joist as it is installed, using hangers, blocking panels, rim board, and/or cross-bridging at joist ends. When P3 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 P3 Joists. Until this sheathing is applied, temporary bracing, often called struts, or temporary sheathing must be applied to prevent P3 Joist rollover or buckling.
 - Temporary bracing or struts **must be** 1 x 4" minimum, at least 8' long, spaced no more than 8' on center, and secured with a minimum of two 8d nails fastened to the top surface of each P3 Joist. Nail bracing to a lateral restraint at the end of each bay. Lap ends of adjoining bracing over at least two P3 Joists.
 - Or, sheathing (temporary or permanent) can be nailed to the top flange of the first 4' of the P3 Joists at the end of the bay.
3. For cantilevered P3 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 P3 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 stacking, see APA Publication J735A [Temporary Construction Loads Over I-Joist Roofs].

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.



Do not allow workers to walk on P3 Joists until joists are fully installed and braced, or serious injuries can result.

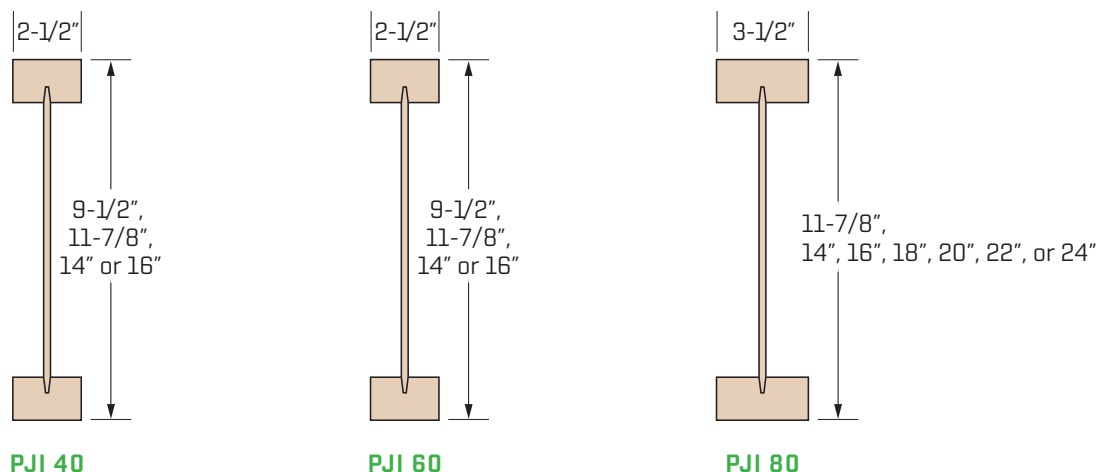


Never stack building materials over unsheathed P3 Joists. Stack only over beams or walls.

Selecting a P3 JOIST

Product Description

The P3 Joist is an "I"-shaped engineered wood structural member designed for use in residential and non-residential floor and roof construction. P3 Joists are prefabricated using SPF MSR lumber flanges and OSB web, which are bonded together with exterior-type adhesives. It is recommended that P3 Joists be designed in accordance with the CCMC vibration procedure for residential floor applications, a criteria which provides superior floor performance. P3 Joists are limited to a L/480 maximum live load deflection for residential and non-residential floor applications. P3 Joists are identified by their depth followed by a designation such as PJI 40 which relates to the joist strength and stiffness. P3 Joists 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 P3 Joists are assembled using exterior-type adhesives that meet ASTM D 2559 and ASTM D 7247.
- P3 Joists are available in eight depths: 9-1/2", 11-7/8", 14", 16", 18", 20", 22" and 24".
- P3 Joists of the same depth are manufactured with various flange widths; flange width is an important design consideration when specifying hangers.
- P3 Joists are manufactured up to 64' in length. These lengths are cut to used lengths such as 16' to 36' in 2' increments for jobsite delivery. Check local supplier for availability.
- P3 Joists are listed and approved in Canada under CCMC 13053R and Ontario Minister's Ruling #07-16-174.

Allowable Floor Spans

Maximum Allowable Spans

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

Tables 1 and 1a are for simple or multiple span applications respectively. The use of these tables will provide maximum spans for the indicated spacing and span conditions.

To illustrate the selection of a P3 Joist product, assume a design simple span of 15'-10" for 40/15 loading. For architectural reasons limit the P3 Joist depth to 11-7/8" and P3 Joist spacing to 19.2" on center with 5/8" OSB subfloor. From the 11-7/8" entry in Table 1, look down the 19.2" o.c. spacing column. Select PJI 40 11-7/8" P3 Joist.

While any of the P3 Joists shown in Tables 1 and 1a may be available in a specific market area, availability of any P3 Joist product should be verified prior to final product selection.

The allowable spans in the tables in this user guide indicate the allowable clear and multiple spans for various joist spacings under typical residential uniform floor loads (40 psf live load and 15 psf dead load) for glued-nailed systems.

Floor sheathing must be field glued to the P3 Joist flanges using approved construction adhesives to achieve the P3 Joist allowable spans.

Use of these span tables is limited to uniform load conditions and P3 Joist floor spans shall not exceed these allowable spans. P3 Joist can be used for other applications such as roofs and ceilings to support line loads or concentrated loads, etc., when properly engineered.

NOTES

1. Design is to CSA 086S1-05 and CCMC vibration concluding report dated September 4, 1997.
2. Web stiffeners are not required for P3 Joists up to 16" deep. Joists 18" and deeper require stiffeners at each support.
3. Use in dry service conditions only.
4. Provide lateral support at points of bearing to prevent twisting of joists.
5. Uniform load deflection criteria is L/360 on live load and L/240 on total load calculated using bare joist properties only and is L/480 on live load based on glued subfloor.
6. Elastomeric adhesives for gluing of the subfloor shall conform to CGSB Standard CAN-CGSB-71.26-M88
7. Minimum bearing length to be 1-3/4".
8. Vibration spans are based on 19/32" OSB or 5/8" Canadian Softwood Plywood for joist spacing of 12" to 19.2" and on 23/32" OSB or 3/4" Canadian Softwood Plywood for joists spaced at 24" o.c. No ceiling, concrete topping, or bridging elements.
9. Spans listed are clear distances between supports.

TABLE 1
Allowable Spans for P3 Floor 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	15	PJI 40	9-1/2	15'-8"	14'-9"	14'-4"	14'-3"
			11-7/8	17'-7"	16'-7"	16'-0"	16'-2"
			14	19'-4"	18'-0"	17'-5"	17'-6"
			16	21'-1"	19'-6"	18'-9"	18'-11"
		PJI 60	9-1/2	16'-2"	15'-3"	14'-9"	14'-10"
			11-7/8	18'-2"	17'-1"	16'-6"	16'-8"
			14	20'-2"	18'-8"	17'-11"	18'-1"
			16	22'-0"	20'-5"	19'-6"	19'-8"
		PJI 80	11-7/8	19'-6"	18'-0"	17'-5"	17'-6"
			14	21'-8"	20'-0"	19'-2"	19'-4"
			16	23'-7"	21'-10"	20'-10"	21'-0"
			18	25'-4"	23'-5"	22'-5"	22'-6"
		PJI 80	20	27'-1"	25'-0"	23'-11"	24'-0"
			22	28'-9"	26'-7"	25'-4"	25'-6"
			24	30'-5"	28'-0"	26'-9"	26'-11"

*For other type floor assemblies, please contact EACOM at www.eacom.ca.

TABLE 1 A
Allowable Spans for P3 Floor 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	15	PJI 40	9-1/2	16'-11"	16'-0"	15'-6"	14'-10"
			11-7/8	19'-3"	17'-11"	17'-4"	17'-0"
			14	21'-5"	19'-10"	19'-0"	18'-8"
			16	23'-3"	21'-7"	20'-8"	20'-1"
		PJI 60	9-1/2	17'-6"	16'-6"	16'-0"	16'-1"
			11-7/8	20'-1"	18'-7"	17'-11"	18'-0"
			14	22'-4"	20'-8"	19'-10"	20'-0"
			16	24'-4"	22'-7"	21'-7"	21'-9"
		PJI 80	11-7/8	21'-7"	20'-0"	19'-1"	19'-3"
			14	24'-0"	22'-2"	21'-3"	21'-4"
			16	26'-2"	24'-2"	23'-1"	23'-3"
			18	28'-1"	26'-0"	24'-10"	24'-11"
		PJI 80	20	30'-0"	27'-9"	26'-6"	26'-8"
			22	31'-10"	29'-5"	28'-1"	28'-3"
			24	34'-3"	31'-1"	29'-8"	29'-9"

Allowable Floor Uniform Load Capacities

TABLE 2
P3 Floor Joist — PJI 40
Allowable Uniform Loads (PLF)

Clear Span (ft)	9-1/2"				11-7/8"				14"				16"			
	Unfactored Loads Based on Deflection			Factored Total Load	Unfactored Loads Based on Deflection			Factored Total Load	Unfactored Loads Based on Deflection			Factored Total Load	Unfactored Loads Based on Deflection			Factored Total Load
	Live		Total L/240		Live		Total L/240		Live		Total L/240		Live		Total L/240	
	L/480	L/360			L/480	L/360			L/480	L/360			L/480	L/360		
8	301			344				419				419				419
9	224	299		306	357			374				374				374
10	170	227		276	274			337				337				337
11	132	176		252	215	287		308	301			308				308
12	104	139	209	231	171	228		282	241			282				282
13	84	112	168	208	138	184		261	195	260		261	258			261
14	68	91	137	180	113	151	226	233	160	214		243	213			243
15	56	75	113	157	93	125	187	203	133	178		227	177			227
16	47	62	94	138	78	104	157	179	112	149		213	149	199		213
17	39	52	79	122	66	88	132	159	94	126	189	191	126	168		201
18	33	45	67	109	56	75	112	142	80	107	161	171	108	144		190
19	28	38	57	98	48	64	96	127	69	92	139	153	93	124		178
20	24	33	49	89	41	55	83	115	60	80	120	138	80	107		161
21	21	28	43	80	36	48	72	104	52	69	104	126	70	94	141	146
22					31	42	63	95	45	61	91	115	61	82	123	133
23					28	37	56	87	40	54	81	105	54	72	109	122
24					24	33	49	80	35	47	71	96	48	64	96	112
25					22	29	44	74	31	42	63	89	43	57	86	103
26					19	26	39	68	28	37	56	82	38	51	76	95
27									25	34	51	76	34	46	69	88
28									22	30	45	71	31	41	62	82
29									20	27	41	66	28	37	56	77
30									18	25	37	62	25	33	50	72
31									17	22	34	58	23	30	46	67

TABLE 3
P3 Floor Joist — PJI 60
Allowable Uniform Loads (PLF)

Clear Span (ft)	9-1/2"				11-7/8"				14"				16"			
	Unfactored Loads Based on Deflection			Factored Total Load	Unfactored Loads Based on Deflection			Factored Total Load	Unfactored Loads Based on Deflection			Factored Total Load	Unfactored Loads Based on Deflection			Factored Total Load
	Live		Total L/240		Live		Total L/240		Live		Total L/240		Live		Total L/240	
	L/480	L/360			L/480	L/360			L/480	L/360			L/480	L/360		
8				344				419				419				419
9	258			306				374				374				374
10	197	263		276	316			337				337				337
11	154	205		252	249			308				308				308
12	122	163		231	199	265		282	280			282				282
13	98	131	197	213	161	215		261	228			261				261
14	80	107	161	198	132	177		243	188			243				243
15	66	88	133	185	110	146	220	227	157	209		227	208			227
16	55	74	111	174	92	123	184	213	132	176		213	176			213
17	46	62	93	164	78	104	156	201	112	149		201	149	199		201
18	39	53	79	151	66	88	133	190	96	128		190	128	171		190
19	34	45	68	136	57	76	114	176	82	110	165	180	110	147		180
20	29	39	59	123	49	66	99	159	71	95	143	171	96	128		171
21	25	34	51	111	43	57	86	144	62	83	125	163	84	112		163
22					37	50	75	132	54	73	109	156	74	98	148	156
23					33	44	66	120	48	64	96	145	65	87	130	149
24					29	39	59	111	42	57	85	133	57	77	115	143
25					26	35	52	102	38	50	76	123	51	68	103	137
26					23	31	46	94	34	45	68	114	46	61	92	132
27									30	40	61	105	41	55	82	122
28									27	36	55	98	37	49	74	114
29									24	33	49	91	33	45	67	106
30									22	30	45	85	30	40	61	99
31									20	27	41	80	27	37	55	93

Allowable Floor Uniform Load Capacities (continued)

TABLE 4

P3 Floor Joist — PJI 80

Allowable Uniform Loads (PLF)

Clear Span (ft)	11-7/8"				14"				16"			
	Unfactored Loads Based on Deflection			Factored Total Load	Unfactored Loads Based on Deflection			Factored Total Load	Unfactored Loads Based on Deflection			Factored Total Load
	Live		Total L/240		Live		Total L/240		Live		Total L/240	
	L/480	L/360			L/480	L/360			L/480	L/360		
8				420				459				487
9				375				410				434
10				338				370				392
11				308				337				357
12	256			283				310				328
13	210			262				286				303
14	173	231		243	243			266				282
15	145	193		227	204			249				264
16	122	163		213	172	230		234	227			247
17	103	138		201	147	196		220	194			233
18	88	118	177	190	126	168		208	167			220
19	76	102	153	180	109	145		197	145	193		209
20	66	88	133	171	95	126		187	126	168		199
21	58	77	116	163	83	111	166	179	110	147		189
22	51	68	102	156	73	97	146	171	97	130		181
23	45	60	90	149	64	86	129	163	86	115	173	173
24	39	53	79	143	57	76	115	156	76	102	153	166
25	35	47	71	137	51	68	102	150	68	91	137	159
26	31	42	63	132	45	61	91	145	61	82	123	153
27					41	55	82	139	55	73	110	148
28					37	49	74	134	49	66	99	142
29					33	44	67	130	45	60	90	137
30					30	40	61	121	41	54	82	133
31					27	37	55	114	37	49	74	129

NOTES for Tables 2, 3, 4, and 5

1. Clear span is the distance between the face of the supports.
2. The load values are for standard term load duration and dry service conditions only. The dead load must not exceed the live load.
3. The load values represent the worst case of simple span or multiple span single member applications.
4. Design of continuous spans is based on the longest span. The shortest span must not be less than 50% of the longest span.
5. Provide continuous lateral support for top flange. Provide lateral support at points of bearing to prevent twisting of joist.
6. The unfactored load columns are based on deflection only. The factored load column is based on strength only. Unfactored live load (either L/480 or L/360), unfactored total load and factored load must be checked. Where the unfactored load column is blank, the factored load column governs.
7. Provide 1-3/4" bearing at end supports and 3-1/2" bearing at interior support minimum.
8. Web stiffeners are not required for the joists in tables 2,3 and 4.
9. Web stiffeners are required for all joists at each support in Table 5.
10. The loads have been calculated in accordance with CSA 086S1-05.
11. Vibration is not included in the design criteria for this table.

TABLE 5

P3 Floor Joist — PJI 80 with Web Stiffeners

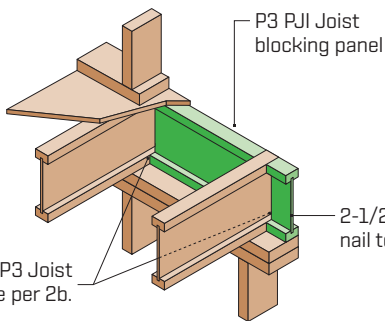
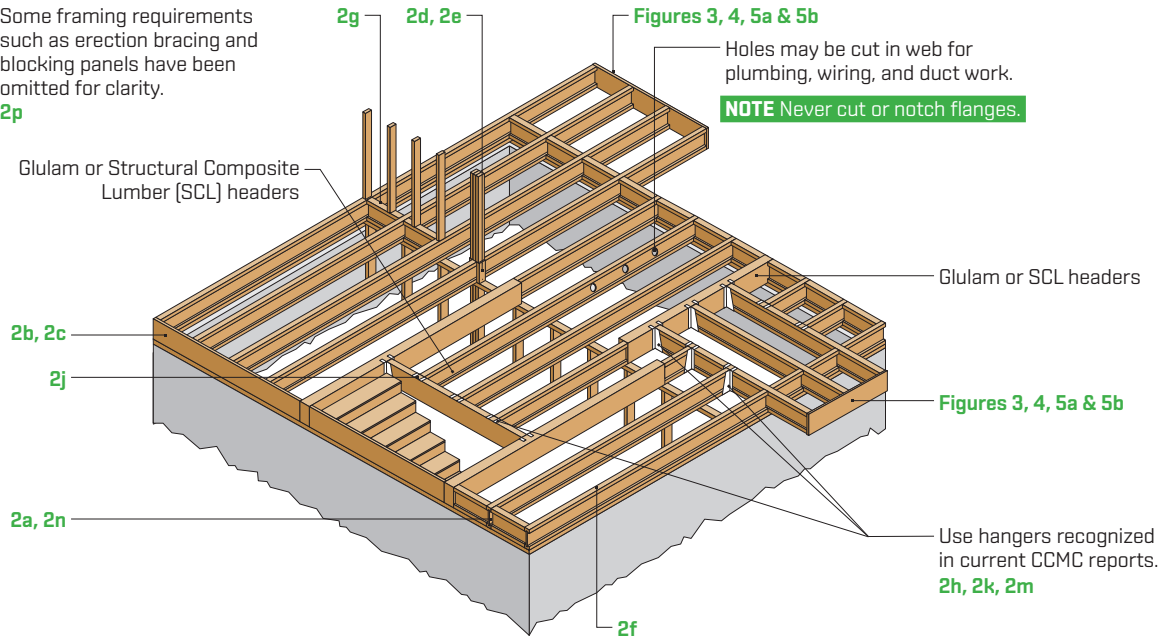
Allowable Uniform Loads (PLF)

Clear Span (ft)	18"				20"				22"				24"			
	Unfactored Loads Based on Deflection			Factored Total Load	Unfactored Loads Based on Deflection			Factored Total Load	Unfactored Loads Based on Deflection			Factored Total Load	Unfactored Loads Based on Deflection			Factored Total Load
	Live		Total L/240		Live		Total L/240		Live		Total L/240		Live		Total L/240	
	L/480	L/360			L/480	L/360			L/480	L/360			L/480	L/360		
8				601				601				601				601
9				536				536				536				536
10				484				484				484				484
11				441				441				441				441
12				405				405				405				405
13				375				375				375				375
14				348				348				348				348
15				326				326				326				326
16	284			306				306				306				306
17	244			288				288				288				288
18	211			272	260			272				272				272
19	183	244		258	226			258				258				258
20	160	213		245	198			245	239			245				245
21	140	187		234	174	232		234	211			234				234
22	124	165		223	154	205		223	187			223	222			223
23	110	146		214	136	182		214	166			214	198			214
24	97	130	195	205	122	162		205	148	197		205	177			205
25	87	116	175	197	109	145		197	133	177		197	158			197
26	78	104	157	189	98	130		189	119	159		189	143			189
27	70	94	141	182	88	117	176	182	107	143		182	129	172		182
28	63	85	127	176	79	106	159	176	97	130		176	116	155		176
29	57	77	115	170	72	96	144	170	88	118		170	106	141		170
30	52	70	105	160	65	87	131	164	80	107	161	164	96	129		164
31	47	63	95	150	60	80	120	159	73	98	147	159	88	117		159

Floor Framing and Construction Details

FIGURE 1
Typical P3 Floor Joist Framing and Construction Details

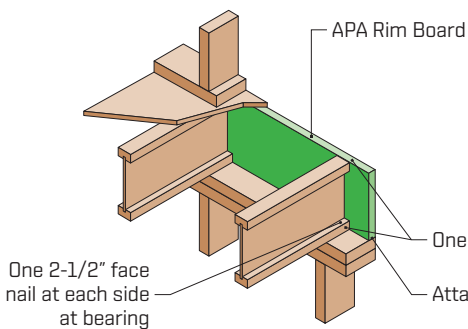
All nails shown in the details below are assumed to be common nails unless otherwise noted. Framing lumber is assumed to be Spruce-Pine-Fir. Individual components are not shown to scale for clarity.



Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
P3 PJI Joist (9-1/2" - 18")	3300

*The uniform vertical load capacity is limited to a joist depth of 18" or less and is based on the standard term 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 2d.

2a **BLOCKING PANEL AT END SUPPORT DETAIL**



Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
1-1/8" APA Rim Board Plus	8090
1-1/8" APA Rim Board	7340
1" APA Rim Board	5500

*The uniform vertical load capacity is limited to a rim board depth of 16" or less and is based on standard term 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 2d.

2b **RIM BOARD DETAIL**

To avoid splitting flange, start nails at least 1-1/2" from end of P3 Joist. Nails may be driven at an angle to avoid splitting of bearing plate.

FIGURE 1 (CONTINUED)
Typical P3 Floor Joist Framing and Construction Details

All nails shown in the details below are assumed to be common nails unless otherwise noted. Framing lumber is assumed to be Spruce-Pine-Fir. Individual components are not shown to scale for clarity.

2c

P3 JOIST AS RIM JOIST DETAIL

Pair of Squash Blocks	Maximum Factored Vertical Load per Pair of Squash Blocks [lb]	
	3-1/2" wide	5-1/2" wide
2x lumber	5800	9500
1-1/8" APA Rim Board, Rim Board Plus, or Rated Sturd-I-Floor 48 oc	4500	5800
1" APA Rim Board or Rated Sturd-I-Floor 32 oc	4000	5800

2d

SQUASH BLOCK DETAIL

Provide lateral bracing per 2a, 2b, or 2c.

2e

LOAD TRANSFER WITH PASS THRU BLOCKING DETAIL

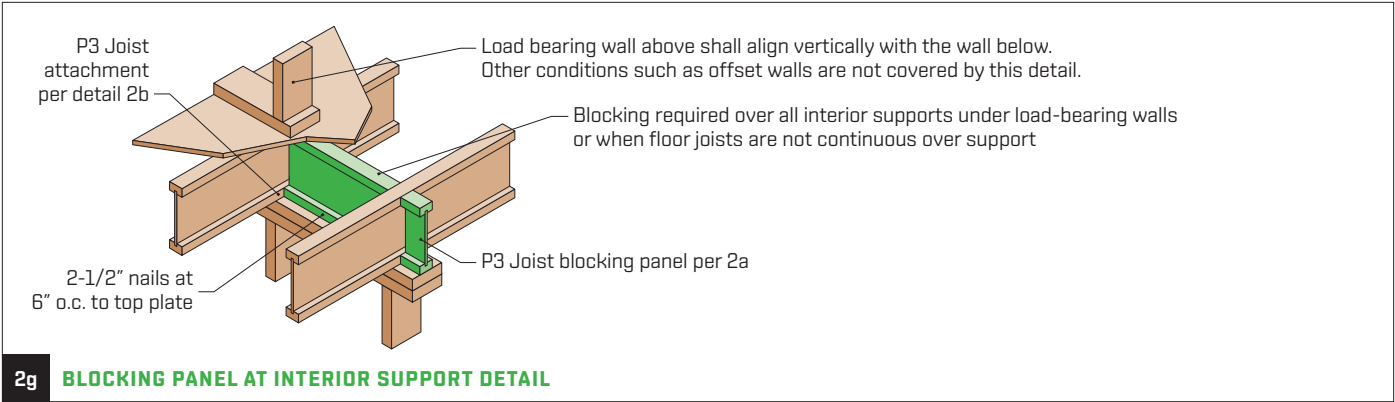
2f

PARALLEL END P3 JOIST DETAIL

APA Rim Board may be used in lieu of P3 Joist. Backer is not required when APA Rim Board is used.

FIGURE 1 (CONTINUED)
Typical P3 Floor Joist Framing and Construction Details

All nails shown in the details below are assumed to be common nails unless otherwise noted. Framing lumber is assumed to be Spruce-Pine-Fir. Individual components are not shown to scale for clarity.

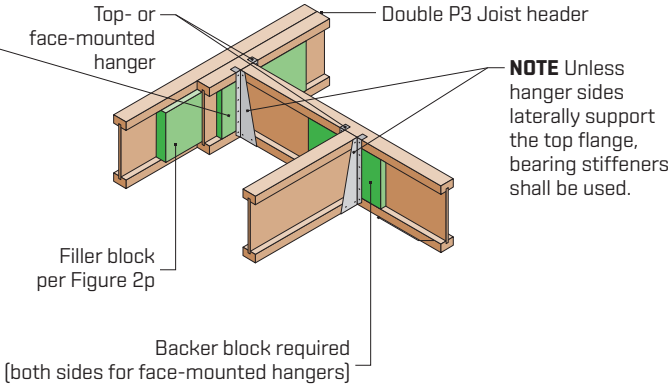


BACKER BLOCK Use if factored hanger load exceeds **360 lbs.** Before installing a backer block to a double P3 Joist, drive 3 additional 3" nails through the webs and filler block where the backer block will fit. Clinch. Install backer tightly to top flange. Use twelve 3" nails, clinched when possible. Maximum factored resistance for hanger for this detail is 1620 lbs.

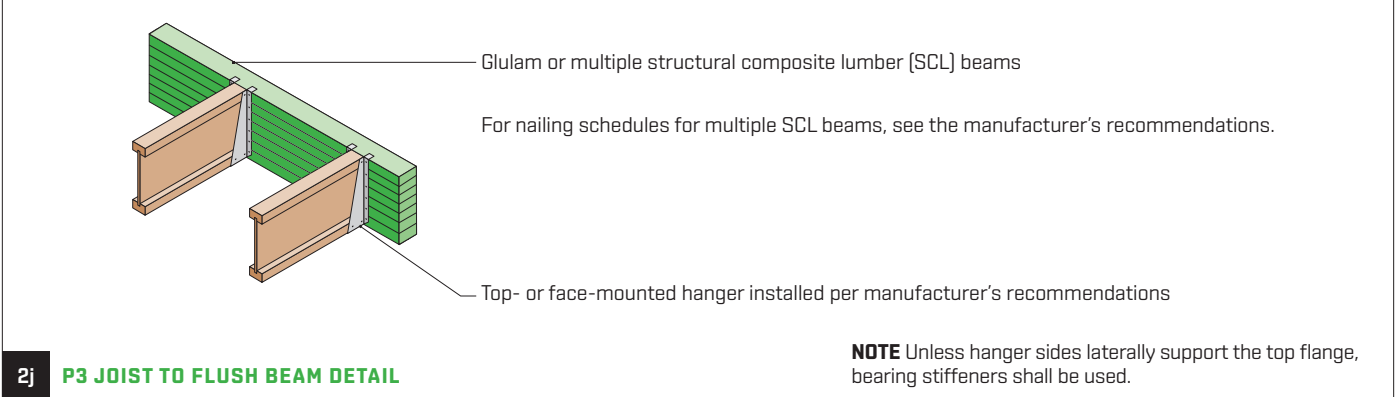
BACKER BLOCKS Blocks must be long enough to permit required nailing without splitting.

Flange Width	Material Thickness Required*	Minimum Depth
2-1/2"	1"	5-1/2"
3-1/2"	1-1/2"	7-1/4"

* Minimum grade for backer block material shall be Utility grade SPF (south) or better for solid sawn lumber and shall be Rated Sheathing grade for wood structural panels. For face-mount hangers use net joist depth minus 3-1/4" for joists with 1-1/2" thick flanges.



For hanger capacity see hanger manufacturer's recommendations. Verify double P3 Joist capacity to support concentrated loads.



NOTE Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.

FIGURE 1 (CONTINUED)
Typical P3 Floor Joist Framing and Construction Details

All nails shown in the details below are assumed to be common nails unless otherwise noted. Framing lumber is assumed to be Spruce-Pine-Fir. Individual components are not shown to scale for clarity.

2x plate flush with inside face of wall or beam

NOTE Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.

Top-mounted hanger installed per manufacturer's recommendations

2k **P3 JOIST WITH TOP MOUNT HANGER DETAIL**

Multiple P3 Joist headers with full depth filler block is shown. Glulam and multiple SCL headers may also be used. Verify double P3 Joist capacity to support concentrated loads.

Attach backer block per 2h. Nail with twelve 3" nails. Clinch when possible

Install hanger per manufacturer's recommendations.

Filler block per Figure 2p

Maximum support capacity is 1620 lbs.

2m **STAIR STRINGER TO P3 JOIST DETAIL**

Do not bevel-cut joist beyond inside face of wall.

Attach P3 Joist per 2b.

2n **BEVEL-CUT P3 JOIST DETAIL**

NOTE Blocking is required at bearing for lateral support. Not shown for clarity

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"

NOTES

- Support back of I-Joist web during nailing to prevent damage to web/flange connection.
- Leave a 1/8" gap between top of filler block and bottom of top P3 Joist flange.
- Filler block is required between joists for full length of span.
- Nail joists together with two rows of 3" nails at 12" o.c. (clinched when possible) on each side of the double P3 Joist. Total of 4 nails per foot required. If nails can be clinched, only 2 nails per foot are required.
- The maximum load that may be applied to one side of the double joist using this detail is 860 lbs./ft.

Filler block

Offset nails from opposite face by 6".

1/8" gap between top flange and filler block

2p **DOUBLE P3 JOIST CONSTRUCTION DETAIL**

Minimum Nailing Requirements for Web Stiffeners

Stiffener Size and Nailing Requirement

Joist Dept	2-1/2" Wide Flange 8d [2-1/2"] nails	3-1/2" Wide Flange 10d [3"] nails
9-1/2"	4	-
11-7/8"	4	4
14"	4	4
16"	4	4
18"	-	6
20"	-	6
22"	-	8
24"	-	8
Minimum Stiffener	1" x 2-5/16" [width]	1-1/2" x 2-5/16" [width]

1. Web stiffeners are required:

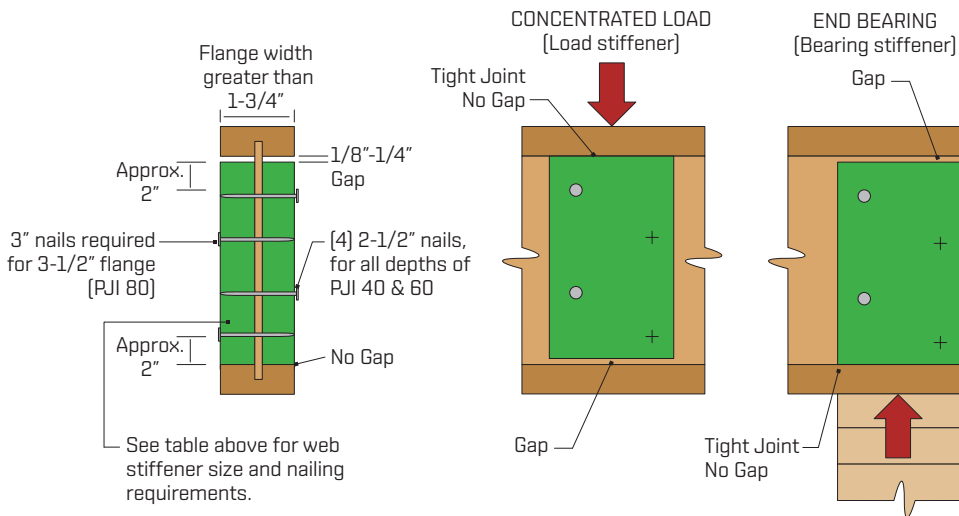
- When sides of the hangers do not laterally brace the top flange of each P3 Joist;
- When P3 Joists are designed to support concentrated loads greater than 1500 lbs. that are applied to the P3 Joist's top flange between supports. In these applications only, the gap between the web stiffener and the flange shall be at the bottom flange;
- For all engineered applications with end-reactions greater than 1500 lbs.
A design analysis must be performed for all engineered applications with end-reactions greater than 1500 lbs.

2. When used at end bearings, install web stiffeners tightly against the bottom flange of the P3 Joist. Leave a minimum 1/8" gap between the top of the stiffener and the bottom of the top flange. See Figure 2.

3. Web stiffeners may be supplied by the distributor for field installation or may be cut in the field as required.

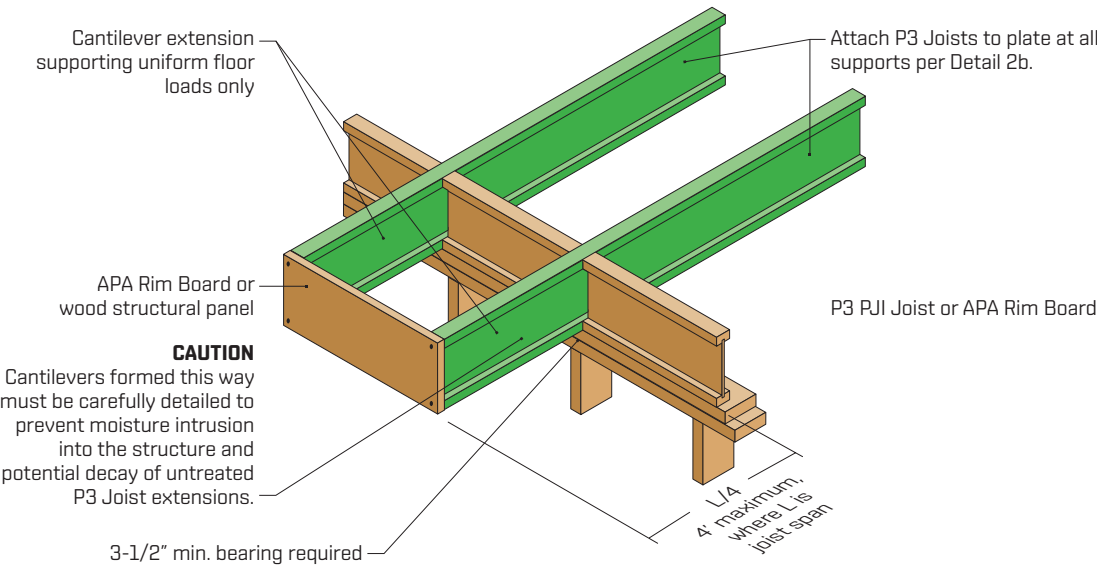
Web Stiffener Installation Details

FIGURE 2



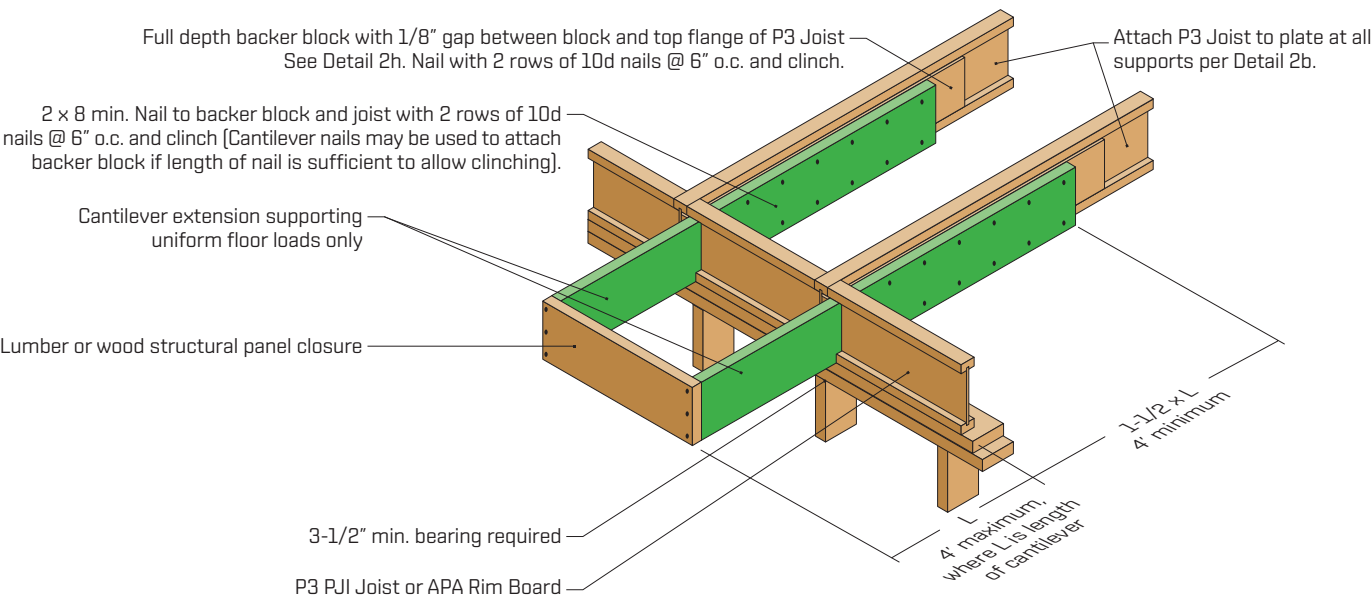
Cantilever Details for Interior Balconies (No Wall Load)

FIGURE 3



Lumber Cantilever Details For Balconies (No Wall Load)

FIGURE 4



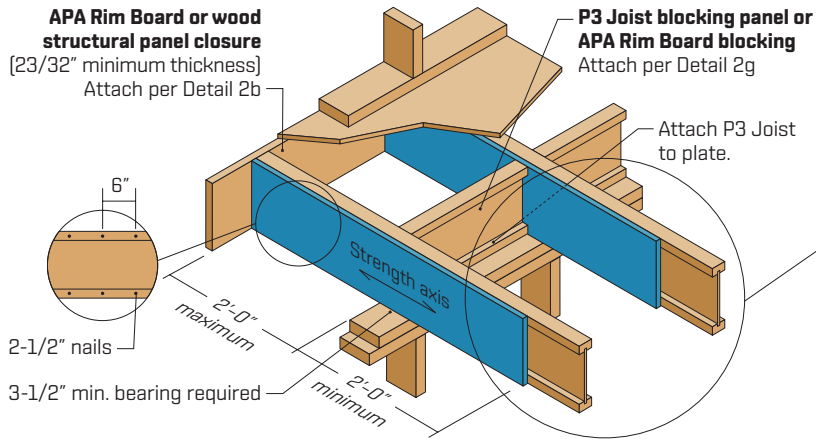
NOTES All nails shown in the details above are assumed to be common nails unless otherwise noted. Individual components are not shown to scale for clarity.

Cantilever Detail for Vertical Building Offset (Concentrated Wall Load)

FIGURE 5A

Method 1

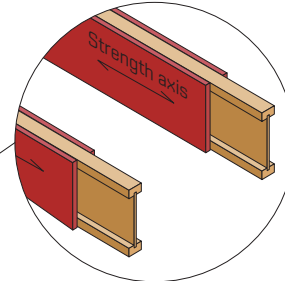
Sheathing Reinforcement One Side



Method 2

Sheathing Reinforcement Two Sides

Use same installation as Method 1, but reinforce both sides of the P3 Joist with sheathing or APA Rim Board.

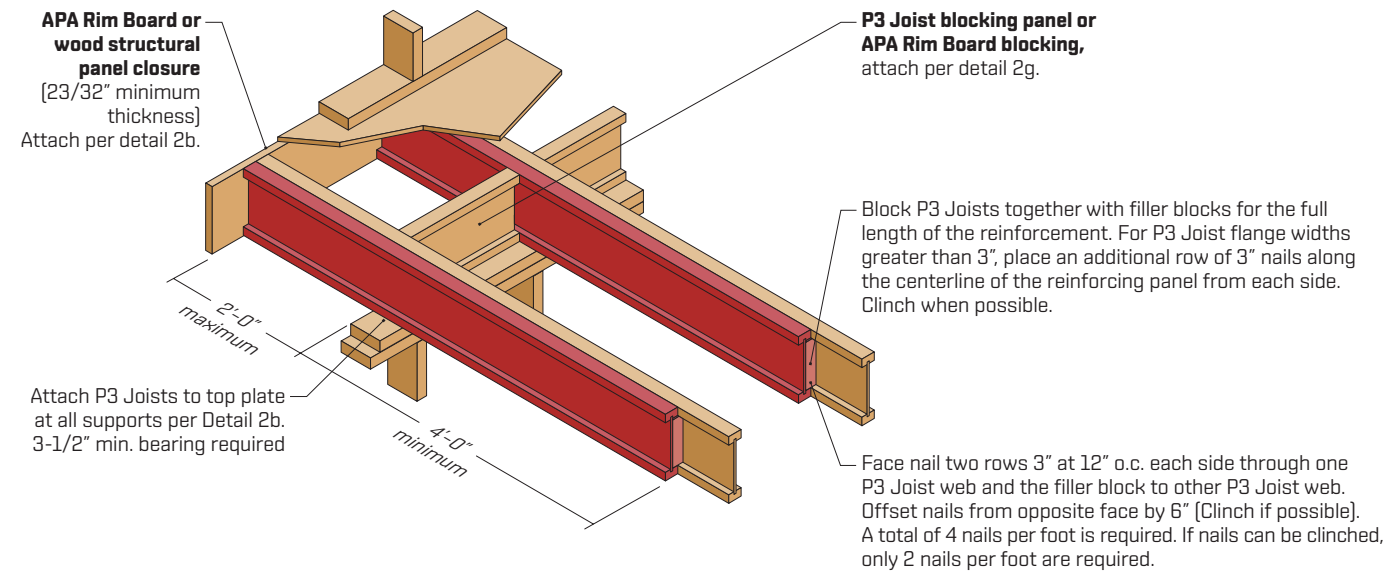


Use nailing pattern shown for Method 1 with opposite face nailing offset by 3".

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 top and bottom flange with 2-1/2" nails at 6" o.c. Install with face grain running horizontally. Attach P3 Joist to plate at all supports per Detail 2b.

FIGURE 5B

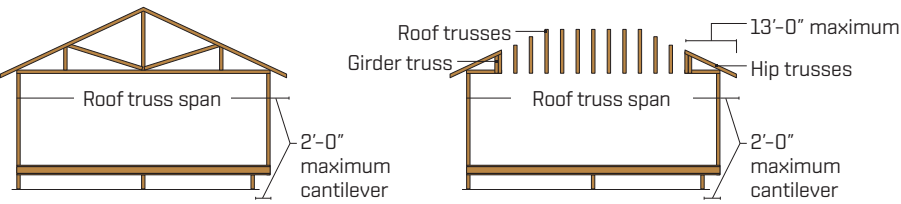
Double P3 Joists



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

Cantilever Details for Vertical Building Offset (Concentrated Wall Load)

FIGURE 5C



See Table below for APA PRI reinforcement requirements at cantilever.

For hip roofs with the hip trusses running parallel to the cantilevered floor joists, the P3 Joists reinforcement requirements for a span of 26 ft. shall be permitted to be used.

Source: APA

Cantilever Reinforcement Methods

TABLE 6
P3 Joist 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
	36	N	N	1, 2	2	N	1, 2	2	X	N	2	X	X
11-7/8	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
	36	N	N	1, 2	1, 2	N	1, 2	1, 2	2	N	1, 2	2	2
14	26	N	1, 2	1, 2	2	N	1, 2	1, 2	2	1, 2	1, 2	2	X
	28	N	N	N	1, 2	N	N	N	1, 2	N	N	1, 2	1, 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
	36	N	N	1, 2	1, 2	N	1, 2	1, 2	2	N	1, 2	1, 2	2
16	26	N	N	1, 2	1, 2	N	1, 2	1, 2	2	N	1, 2	1, 2	2
	28	N	N	1, 2	1, 2	N	1, 2	1, 2	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	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
	36	N	N	1, 2	1, 2	N	1, 2	1, 2	2	N	1, 2	1, 2	2
18	26	N	N	1, 2	1, 2	N	N	1, 2	1, 2	N	N	1, 2	1, 2
	28	N	N	1, 2	1, 2	N	N	1, 2	1, 2	N	1, 2	1, 2	2
	30	N	N	1, 2	1, 2	N	N	1, 2	1, 2	N	1, 2	1, 2	2
	32	N	N	1, 2	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
	36	N	N	1, 2	1, 2	N	1, 2	1, 2	2	N	1, 2	1, 2	2
20	26	N	N	1, 2	1, 2	N	N	1, 2	1, 2	N	N	1, 2	1, 2
	28	N	N	1, 2	1, 2	N	N	1, 2	1, 2	N	1, 2	1, 2	2
	30	N	N	1, 2	1, 2	N	N	1, 2	1, 2	N	1, 2	1, 2	2
	32	N	N	1, 2	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
	36	N	N	1, 2	1, 2	N	1, 2	1, 2	2	N	1, 2	1, 2	2
22	26	N	N	1, 2	1, 2	N	N	1, 2	1, 2	N	N	1, 2	1, 2
	28	N	N	1, 2	1, 2	N	N	1, 2	1, 2	N	1, 2	1, 2	2
	30	N	N	1, 2	1, 2	N	N	1, 2	1, 2	N	1, 2	1, 2	2
	32	N	N	1, 2	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
	36	N	N	1, 2	1, 2	N	1, 2	1, 2	2	N	1, 2	1, 2	2
24	26	N	N	1, 2	1, 2	N	N	1, 2	1, 2	N	N	1, 2	1, 2
	28	N	N	1, 2	1, 2	N	N	1, 2	1, 2	N	1, 2	1, 2	2
	30	N	N	1, 2	1, 2	N	N	1, 2	1, 2	N	1, 2	1, 2	2
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	36	N	N	1, 2	1, 2	N	1, 2	1, 2	2	N	1, 2	1, 2	2
26	26	N	N	1, 2	1, 2	N	N	1, 2	1, 2	N	N	1, 2	1, 2
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	30	N	N	1, 2	1, 2	N	N	1, 2	1, 2	N	1, 2	1, 2	2
	32	N	N	1, 2	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
	36	N	N	1, 2	1, 2	N	1, 2	1, 2	2	N	1, 2	1, 2	2

Typical Floor Framing Installation Notes

1. Installation of P3 Joist shall be in accordance with Figure 1.
2. Except for cutting joist to length, P3 Joist flanges should **NEVER** be cut, drilled, or notched.
3. Concentrated loads should be applied only 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. P3 Joists must be protected from the weather prior to installation.
5. P3 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 P3 Joist blocking panels.
8. P3 Joists installed beneath bearing walls perpendicular to the joists require full depth blocking panels, Certified Rim Board, or squash blocks (cripple blocks) in order to transfer gravity loads from above the floor system to the wall or foundation below. See note 2g page 10.
9. For P3 Joists up to 18" deep installed as rim board directly beneath bearing walls parallel to the joists, the maximum factored vertical load using a single P3 Joist is 3300 plf and is 6600 plf if double P3 Joists are used. Full bearing is required under P3 Joist used as rim board.
10. Continuous lateral support of the P3 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 P3 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 P3 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 National Building Code of Canada 2005 Table A-9.10.3.1.B. assembly numbers F3 to F21.

Web Hole Rules and Specifications

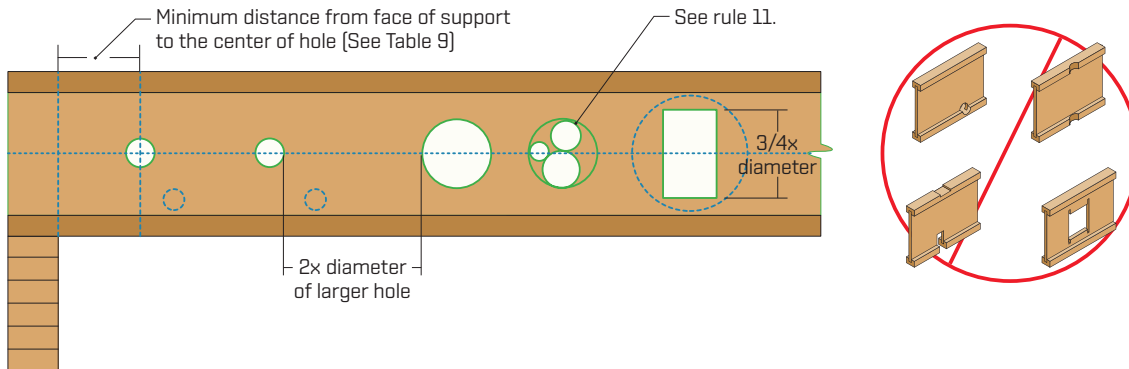
One of the benefits of using P3 Joists in residential floor construction is that holes may be cut in the joist webs to accommodate electrical wiring, plumbing lines, and other mechanical systems, thereby minimizing the depth of the floor system.

Rules for Cutting Holes in P3 Joist

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

P3 Joist Typical Holes

FIGURE 6



Cutting the Holes

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

TABLE 7

Location Of Circular Holes In P3 Joist Webs

Simple or Multiple Span for Dead Loads up to 15 psf and Live Loads up to 40 psf^{1,2,3,4}

Joist Depth	Joist	Minimum Distance from Inside Face of Any Support to Center of Hole (ft.-in.)															
		Round Hole Diameter (in.)															
		SAF ⁽⁵⁾	2	3	4	5	6	6-1/4	7	8	8-5/8	9	10	10-3/4	11	12	12-3/4
9-1/2"	PJI 40	14'-3"	0'-8"	1'-10"	3'-2"	4'-6"	5'-11"	6'-4"									
	PJI 60	14'-9"	1'-5"	2'-8"	4'-0"	5'-5"	6'-11"	7'-3"									
11-7/8"	PJI 40	16'-0"	0'-7"	0'-8"	1'-5"	2'-8"	4'-0"	4'-4"	5'-5"	6'-11"	7'-11"						
	PJI 60	16'-6"	0'-7"	0'-10"	2'-1"	3'-5"	4'-9"	5'-1"	6'-2"	7'-8"	8'-8"						
	PJI 80	17'-5"	0'-7"	1'-8"	2'-11"	4'-3"	5'-7"	5'-11"	7'-0"	8'-7"	9'-8"						
14"	PJI 40	17'-5"	0'-7"	0'-8"	0'-8"	0'-11"	2'-2"	2'-6"	3'-6"	4'-10"	5'-9"	6'-3"	7'-10"	9'-1"			
	PJI 60	17'-11"	0'-7"	0'-8"	0'-8"	1'-9"	3'-0"	3'-4"	4'-4"	5'-9"	6'-8"	7'-3"	8'-10"	10'-1"			
	PJI 80	19'-2"	0'-7"	0'-8"	1'-4"	2'-7"	3'-11"	4'-3"	5'-4"	6'-9"	7'-8"	8'-3"	9'-10"	11'-2"			
16"	PJI 40	18'-9"	0'-7"	0'-8"	0'-8"	0'-9"	0'-9"	0'-10"	1'-9"	3'-0"	3'-10"	4'-4"	5'-9"	6'-10"	7'-3"	8'-10"	10'-1"
	PJI 60	19'-6"	0'-7"	0'-8"	0'-8"	0'-9"	1'-6"	1'-10"	2'-10"	4'-2"	5'-0"	5'-6"	6'-11"	8'-1"	8'-6"	10'-1"	11'-5"
	PJI 80	20'-10"	0'-7"	0'-8"	0'-8"	1'-3"	2'-6"	2'-10"	3'-10"	5'-2"	6'-0"	6'-7"	8'-0"	9'-2"	9'-7"	11'-3"	12'-7"
18"	PJI 80	22'-5"	0'-7"	0'-8"	0'-8"	0'-9"	0'-9"	0'-10"	0'-10"	2'-3"	3'-1"	3'-8"	5'-2"	6'-3"	6'-8"	8'-3"	9'-7"
20"	PJI 80	23'-11"	0'-7"	0'-8"	0'-8"	0'-9"	0'-9"	0'-10"	0'-10"	1'-9"	2'-6"	3'-1"	4'-5"	5'-5"	5'-9"	7'-3"	8'-4"
22"	PJI 80	25'-4"	0'-7"	0'-8"	0'-8"	0'-9"	0'-9"	0'-10"	0'-10"	1'-3"	2'-0"	2'-5"	3'-9"	4'-8"	5'-0"	6'-4"	7'-4"
24"	PJI 80	26'-9"	0'-7"	0'-8"	0'-8"	0'-9"	0'-9"	0'-10"	0'-10"	1'-7"	2'-0"	3'-2"	4'-1"	4'-4"	5'-7"	6'-6"	

NOTES

1. Above tables may be used for P3 Joist spacing of 24" 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 stands for Span Adjustment Factor. SAF is used as defined below.

OPTIONAL

Table 9 is based on the P3 Joist being used at their maximum span. If the P3 Joist are placed at less than their full allowable span, the maximum distance from the centerline of the hole to the face of any support (D) as given above may be reduced as follows.

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

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

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

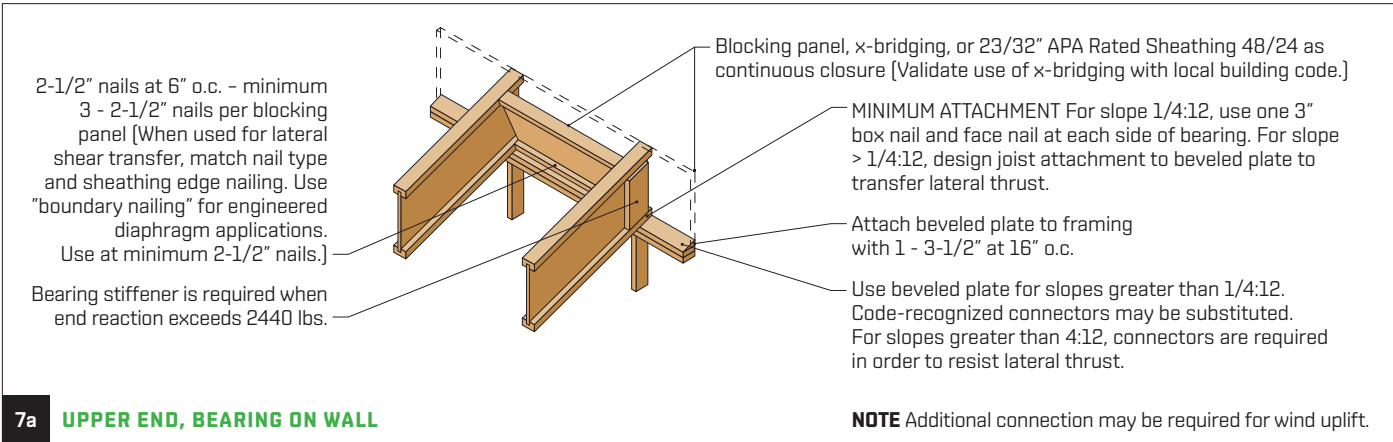
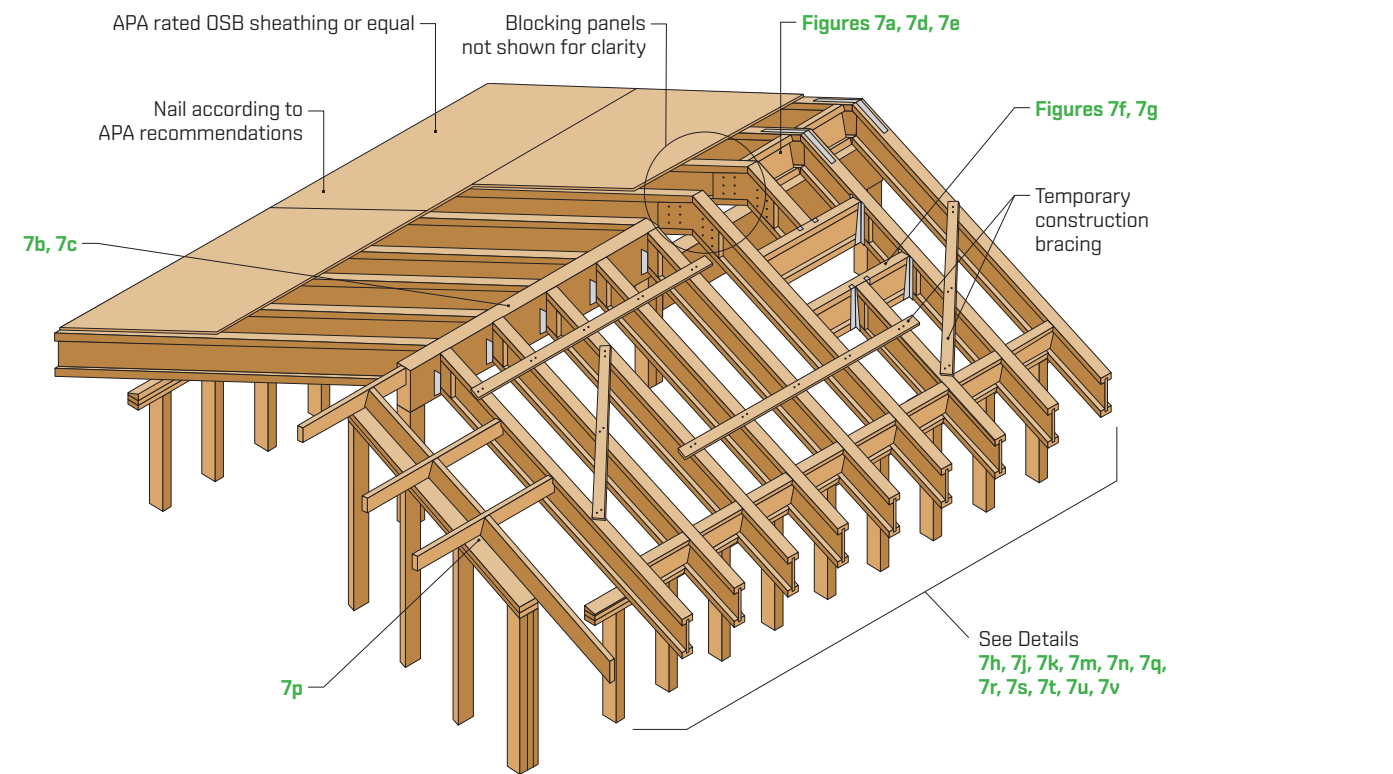
SAF = Span Adjustment Factor is given in the table above.

D = The minimum distance from the inside face of any support to center of hole from Table 9 above

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

Typical P3 Joist Roof Framing and Construction Details

FIGURE 7
All nails shown in the details below are assumed to be common nails unless otherwise noted. Framing lumber is assumed to be Spruce-Pine-Fir. Individual components are not shown to scale for clarity.

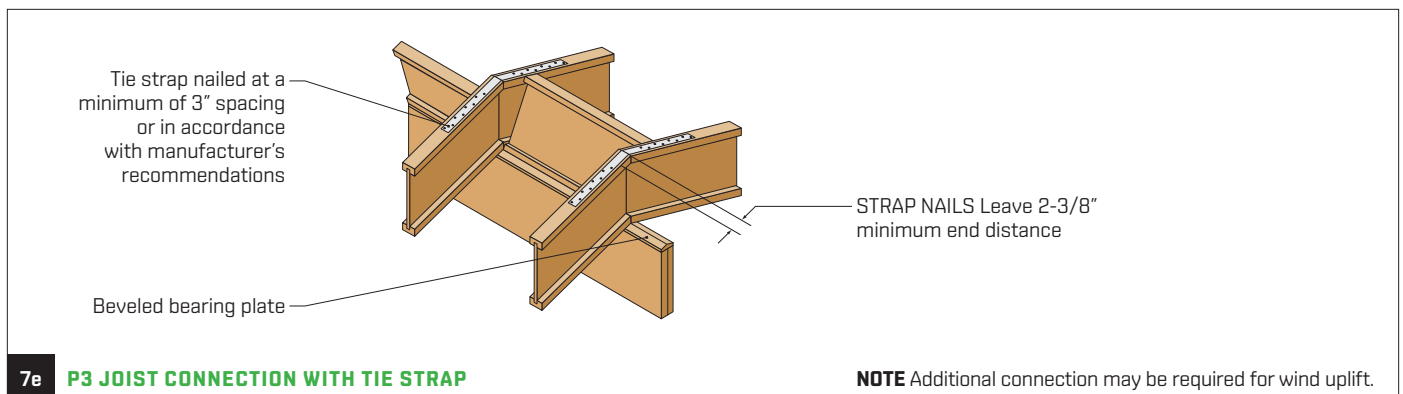
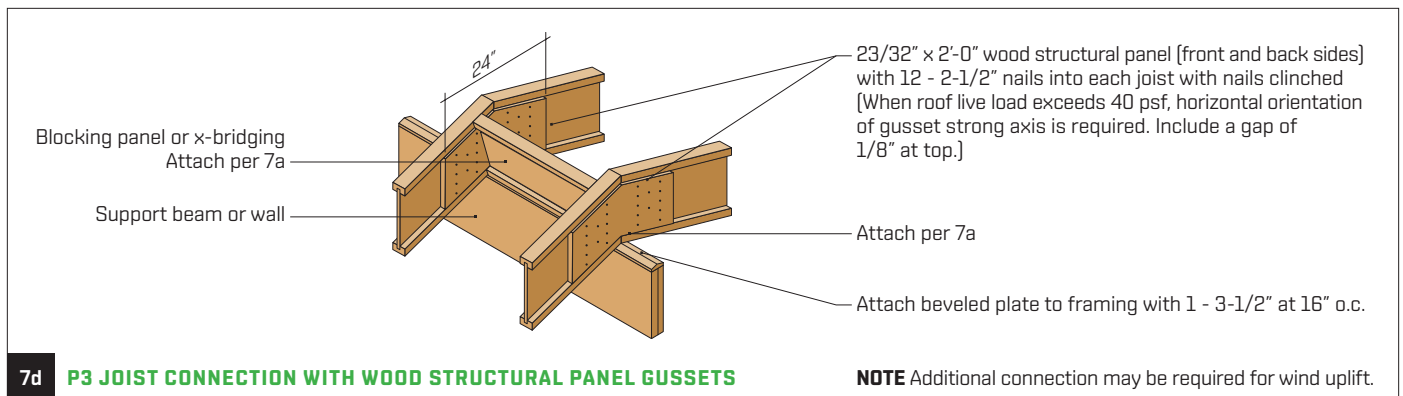
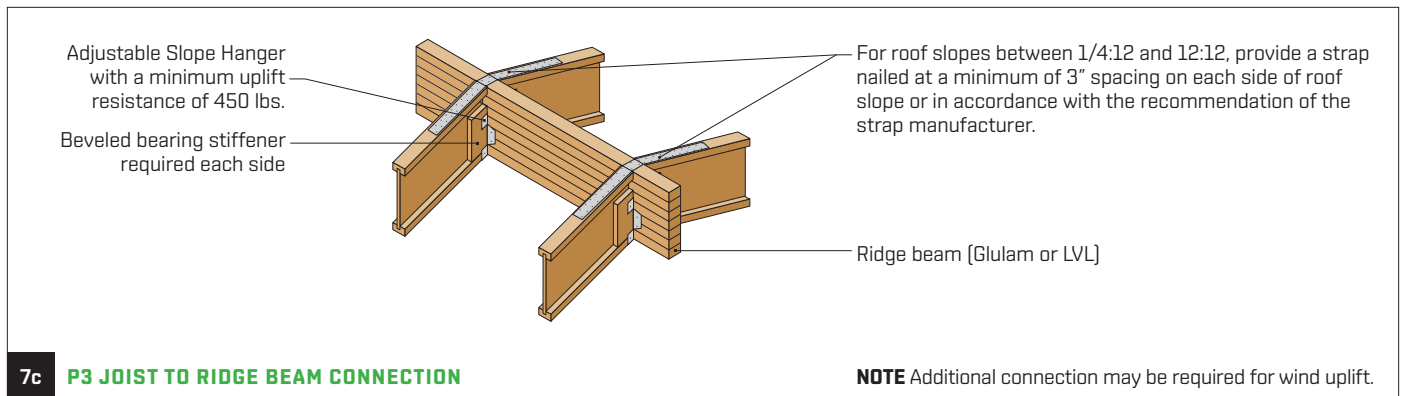
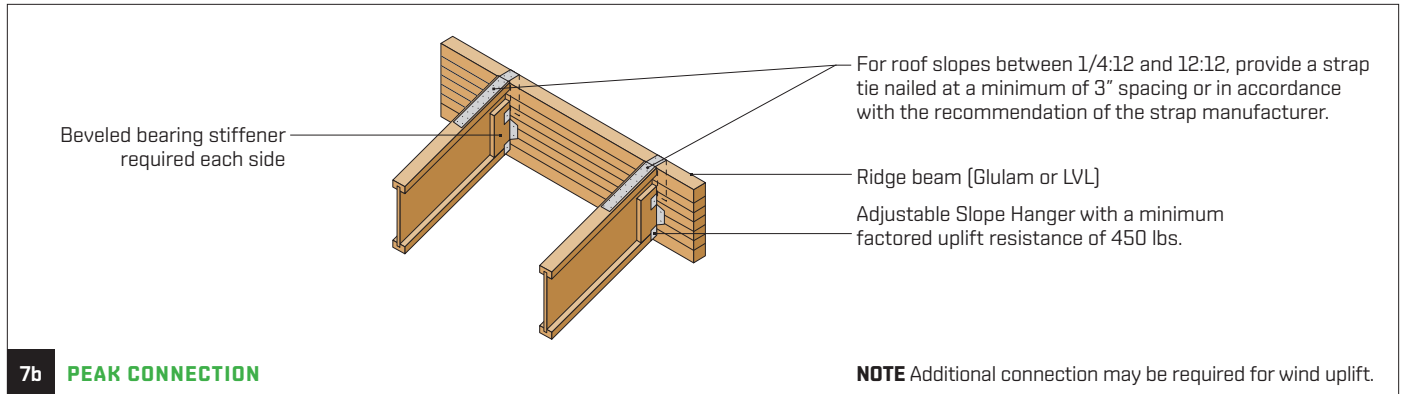


NOTE Additional connection may be required for wind uplift.

FIGURE 7 (CONTINUED)

Typical P3 Joist Roof Framing and Construction Details

All nails shown in the details below are assumed to be common nails unless otherwise noted. Framing lumber is assumed to be Spruce-Pine-Fir. Individual components are not shown to scale for clarity.

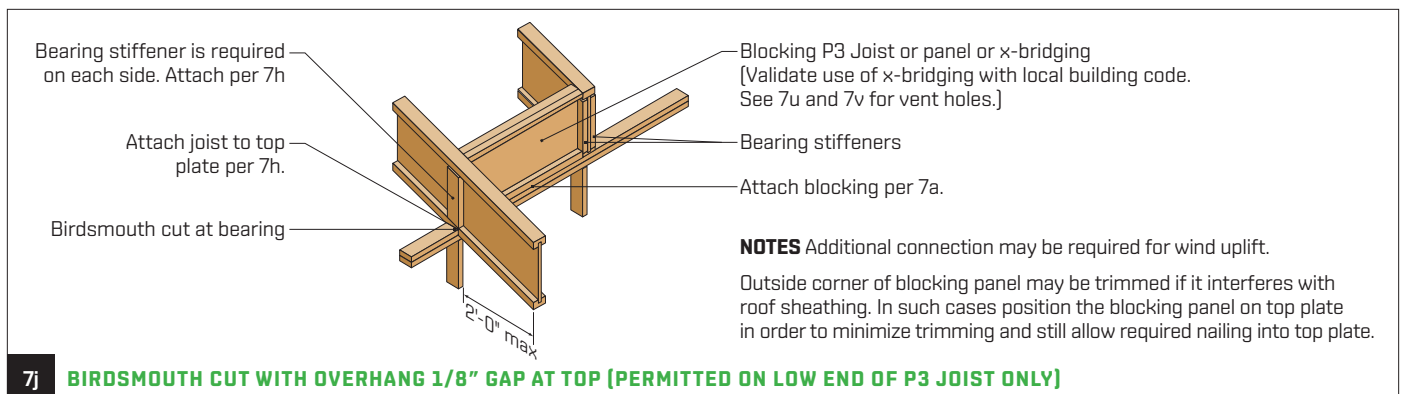
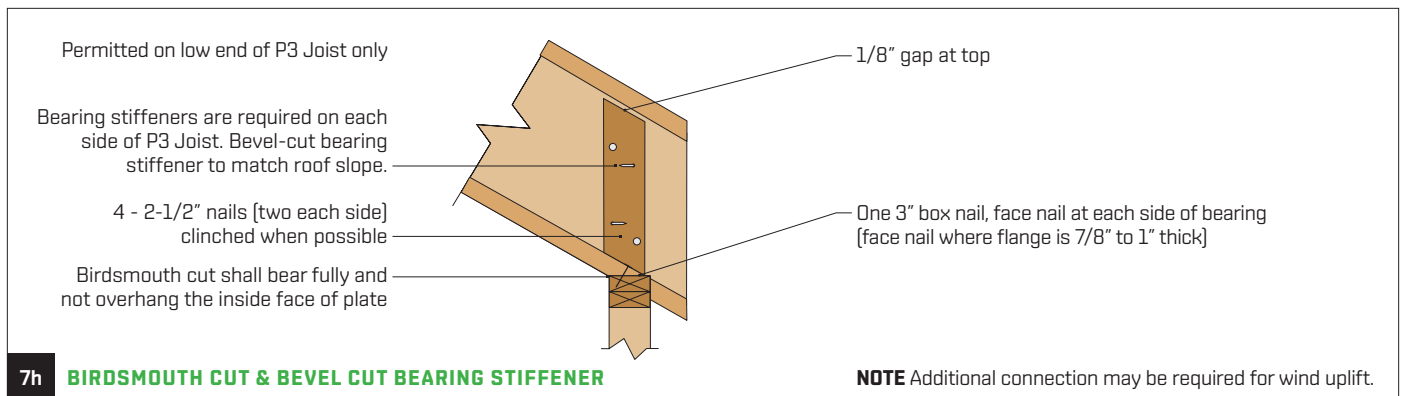
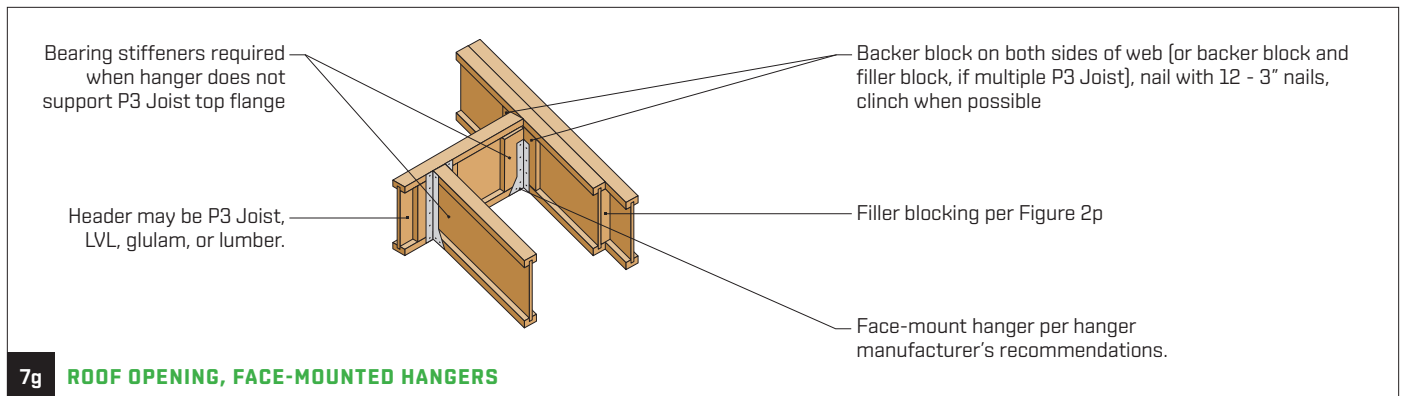
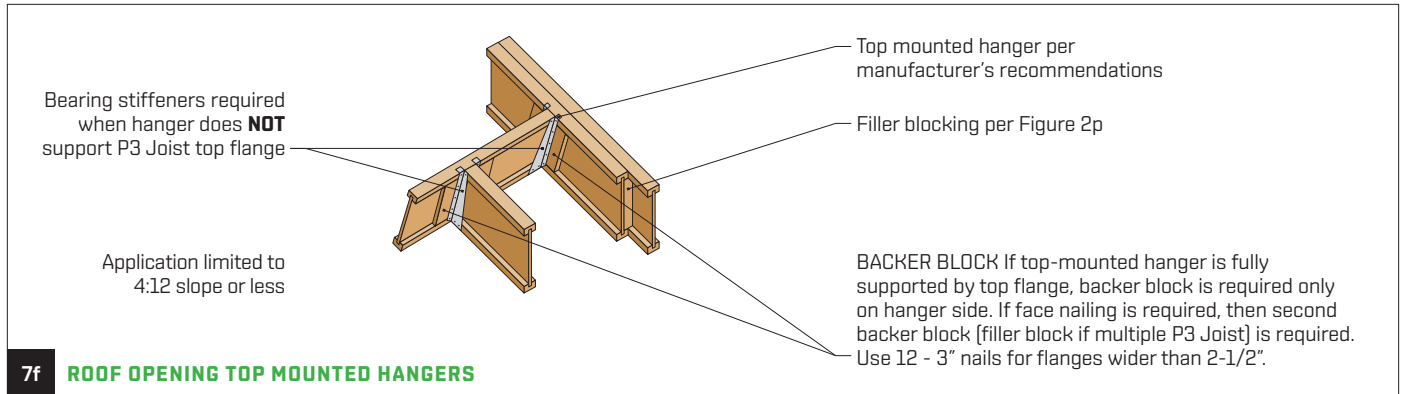


Source: APA

FIGURE 7 (CONTINUED)

Typical P3 Joist Roof Framing and Construction Details

All nails shown in the details below are assumed to be common nails unless otherwise noted. Framing lumber is assumed to be Spruce-Pine-Fir. Individual components are not shown to scale for clarity.

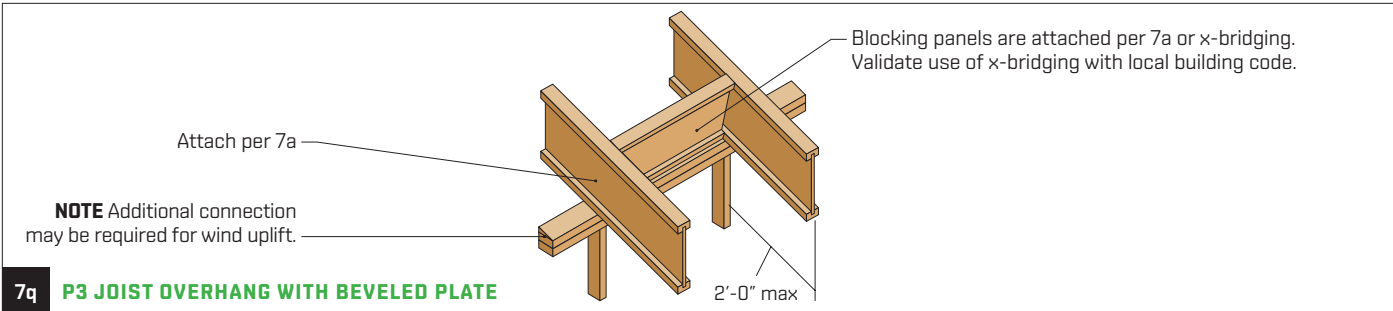
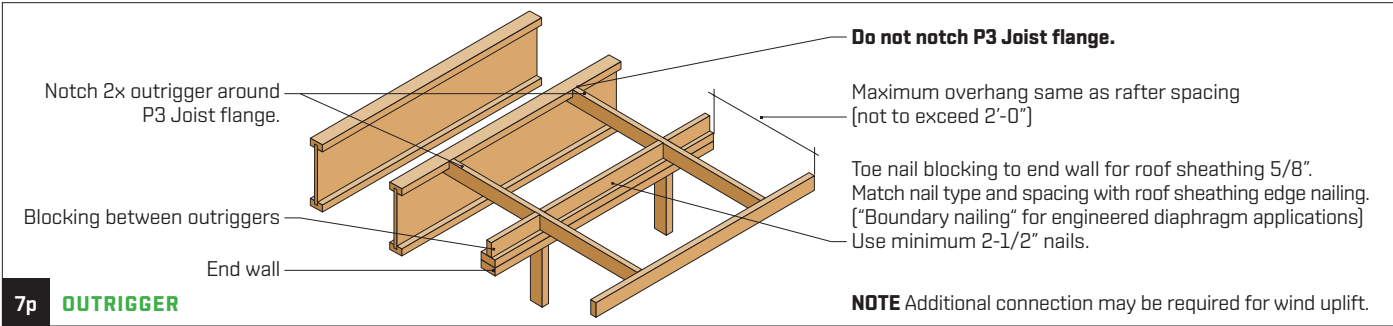
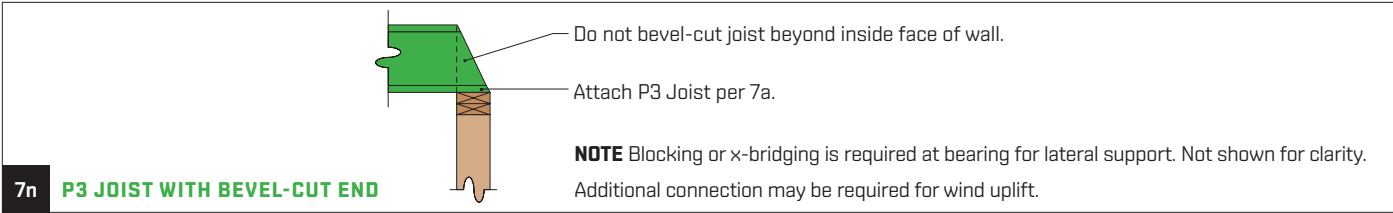
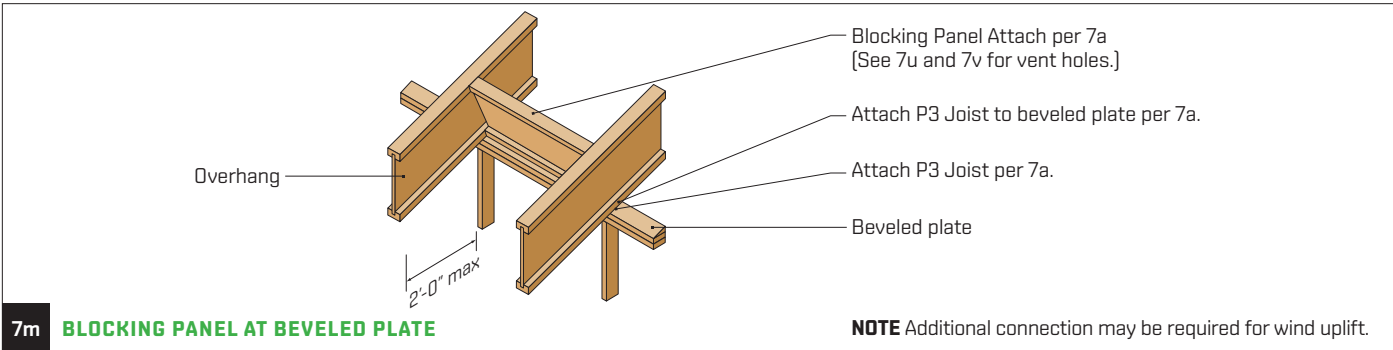
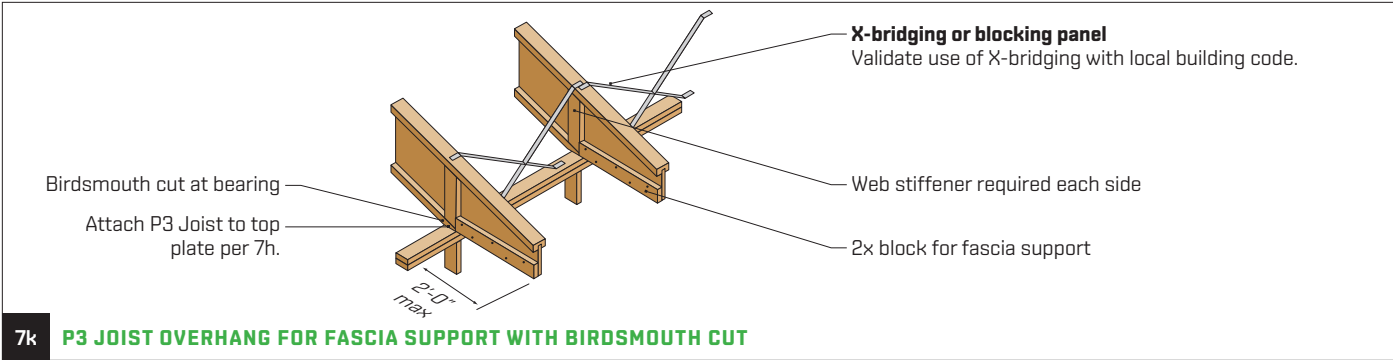


Source: APA

FIGURE 7 (CONTINUED)

Typical P3 Joist Roof Framing and Construction Details

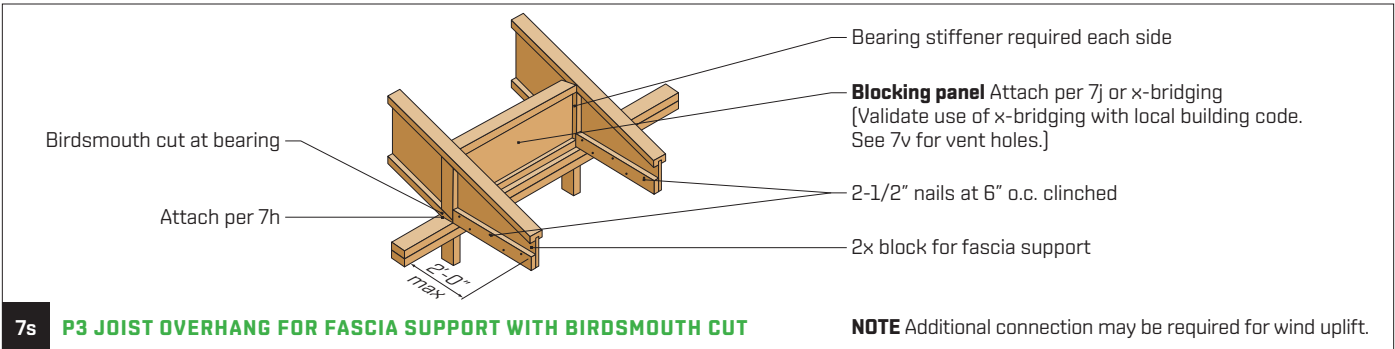
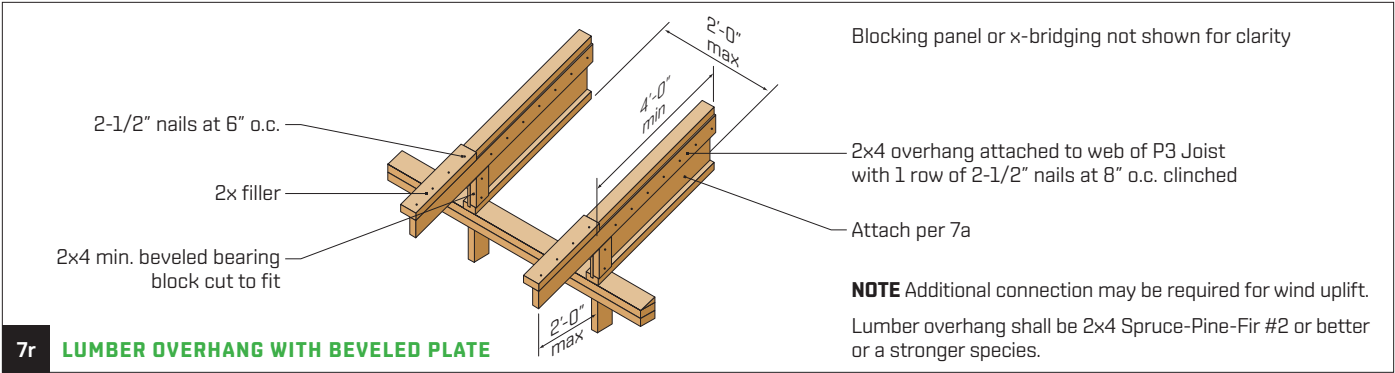
All nails shown in the details below are assumed to be common nails unless otherwise noted. Framing lumber is assumed to be Spruce-Pine-Fir. Individual components are not shown to scale for clarity.



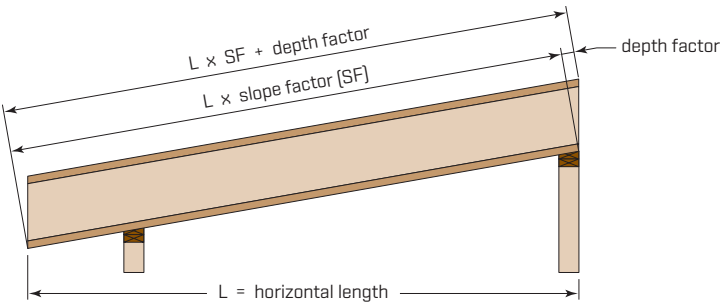
Source: APA

FIGURE 7 (CONTINUED)
Typical P3 Joist Roof Framing and Construction Details

All nails shown in the details below are assumed to be common nails unless otherwise noted. Framing lumber is assumed to be Spruce-Pine-Fir. Individual components are not shown to scale for clarity.



Slope Spans for Roofs



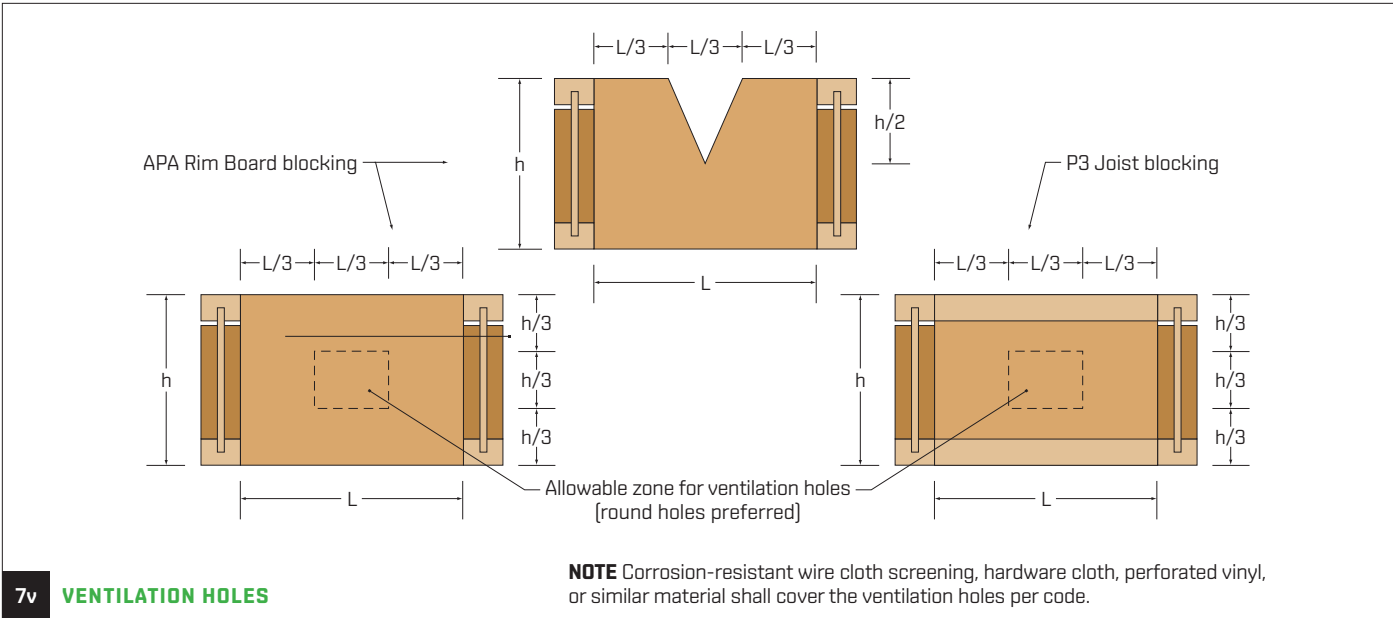
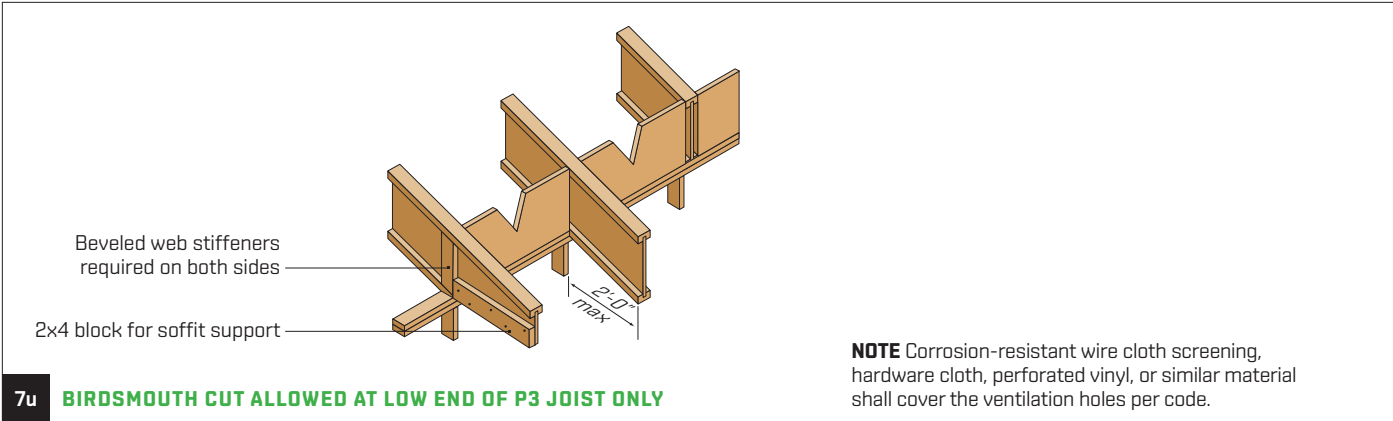
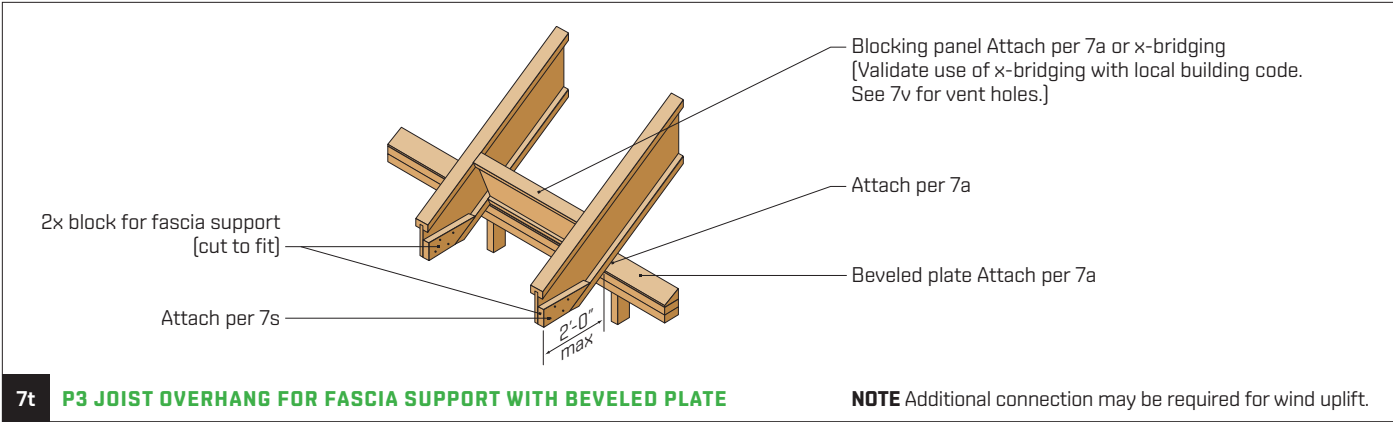
Slope Factor and Depth Factor Table

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 P3 Joist Roof Framing and Construction Details

All nails shown in the details below are assumed to be common nails unless otherwise noted. Framing lumber is assumed to be Spruce-Pine-Fir. Individual components are not shown to scale for clarity.



Allowable Roof Spans – Simple Span

TABLE 8

Simple Span Live Load = 20 psf Dead Load = 15 psf

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
PJI 40	9-1/2	21'-2"	19'-11"	18'-5"	20'-4"	19'-1"	17'-8"	19'-1"	17'-11"	16'-7"
	11-7/8	25'-5"	23'-10"	21'-7"	24'-4"	22'-10"	21'-0"	22'-10"	21'-6"	19'-11"
	14	28'-10"	26'-6"	23'-8"	27'-8"	25'-10"	23'-1"	26'-0"	24'-5"	22'-3"
	16	31'-4"	28'-7"	25'-6"	30'-6"	27'-10"	24'-10"	28'-10"	26'-10"	23'-11"
PJI 60	9-1/2	22'-6"	21'-1"	19'-6"	21'-7"	20'-3"	18'-9"	20'-3"	19'-0"	17'-7"
	11-7/8	27'-0"	25'-4"	23'-5"	25'-10"	24'-4"	22'-6"	24'-4"	22'-10"	21'-2"
	14	30'-9"	28'-10"	26'-9"	29'-6"	27'-8"	25'-8"	27'-8"	26'-0"	24'-1"
	16	34'-2"	32'-1"	29'-8"	32'-9"	30'-9"	28'-6"	30'-9"	28'-11"	26'-9"
PJI 80	11-7/8	30'-0"	28'-2"	26'-1"	28'-10"	27'-0"	25'-0"	27'-1"	25'-5"	23'-6"
	14	34'-2"	32'-1"	29'-8"	32'-9"	30'-9"	28'-6"	30'-9"	28'-11"	26'-9"
	16	37'-11"	35'-7"	32'-11"	36'-4"	34'-2"	31'-7"	34'-2"	32'-1"	29'-8"
	18	41'-4"	38'-10"	35'-11"	39'-7"	37'-3"	34'-6"	37'-3"	35'-0"	32'-5"
	20	44'-9"	42'-0"	38'-11"	42'-11"	40'-4"	37'-4"	40'-4"	37'-10"	35'-1"
	22	48'-1"	45'-1"	41'-9"	46'-1"	43'-3"	40'-1"	43'-3"	40'-8"	37'-8"
	24	51'-3"	48'-2"	43'-10"	49'-2"	46'-2"	42'-8"	46'-2"	43'-5"	40'-3"



TABLE 9

Simple Span Live Load = 30 psf Dead Load = 15 psf

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
PJI 40	9-1/2	18'-5"	17'-3"	16'-0"	17'-8"	16'-7"	15'-4"	16'-9"	15'-9"	14'-7"
	11-7/8	22'-1"	20'-9"	18'-11"	21'-2"	19'-11"	18'-5"	20'-1"	18'-11"	17'-6"
	14	25'-1"	23'-3"	20'-9"	24'-1"	22'-7"	20'-4"	22'-10"	21'-5"	19'-9"
	16	27'-5"	25'-0"	22'-4"	26'-9"	24'-6"	21'-11"	25'-4"	23'-10"	21'-3"
PJI 60	9-1/2	19'-6"	18'-4"	16'-11"	18'-9"	17'-7"	16'-3"	17'-10"	16'-9"	15'-6"
	11-7/8	23'-5"	22'-0"	20'-4"	22'-6"	21'-1"	19'-6"	21'-4"	20'-1"	18'-7"
	14	26'-9"	25'-1"	23'-2"	25'-8"	24'-1"	22'-3"	24'-4"	22'-10"	21'-2"
	16	29'-8"	27'-11"	25'-9"	28'-6"	26'-9"	24'-9"	27'-1"	25'-5"	23'-6"
PJI 80	11-7/8	26'-1"	24'-5"	22'-7"	25'-0"	23'-6"	21'-9"	23'-9"	22'-4"	20'-8"
	14	29'-8"	27'-10"	25'-9"	28'-6"	26'-9"	24'-9"	27'-1"	25'-5"	23'-6"
	16	32'-11"	30'-11"	28'-7"	31'-7"	29'-8"	27'-5"	30'-0"	28'-2"	26'-1"
	18	35'-11"	33'-8"	31'-2"	34'-6"	32'-4"	29'-11"	32'-9"	30'-9"	28'-6"
	20	38'-11"	36'-6"	33'-9"	37'-4"	35'-1"	32'-5"	35'-5"	33'-4"	30'-10"
	22	41'-9"	39'-3"	36'-3"	40'-1"	37'-8"	34'-10"	38'-1"	35'-9"	33'-1"
	24	44'-7"	41'-10"	38'-5"	42'-9"	40'-2"	37'-2"	40'-8"	38'-2"	35'-4"



NOTES

- Design is to CSA 086S1-05.
- Spans are for joists supported at each end only (ie no intermediate supports). For other conditions contact the manufacturer.
- Spans listed are clear distances between supports.
- Web stiffeners are not required for joist depths up to 16". **Depths of 18" or greater require web stiffeners at each support.**
- Use in dry service conditions only.
- Provide continuous lateral support for top flange. Provide lateral support at points of bearing to prevent twisting of the joist.
- Uniform load deflection criteria is L/360 on live load and L/180 on total load. Deflection calculated using joist properties only
- Provide a roof slope of at least 1/4 in 12 for drainage.
- Provide 1-3/4" horizontal bearing at each support, minimum.
- Sloping joists need to be anchored to each support to resist a sliding force of:
 $H_t = [0.5 w_t L y] / (y^2 + 144)^{1/2}$
 where H_t = factored force parallel to the joist (lb),
 w_t = factored horizontally projected loading (plf),
 L = horizontal span (ft), y = roof slope: rise in 12

Allowable Roof Spans—Simple Span

TABLE 10

Simple Span Live Load = 40 psf Dead Load = 15 psf

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
PJI 40	9-1/2	16'-8"	15'-7"	14'-5"	16'-0"	15'-0"	13'-10"	15'-2"	14'-3"	13'-2"
	11-7/8	20'-0"	18'-9"	17'-0"	19'-2"	18'-0"	16'-8"	18'-2"	17'-1"	15'-10"
	14	22'-8"	20'-11"	18'-8"	21'-9"	20'-5"	18'-4"	20'-8"	19'-5"	17'-11"
	16	24'-8"	22'-6"	20'-2"	24'-2"	22'-2"	19'-9"	23'-0"	21'-7"	19'-4"
PJI 60	9-1/2	17'-8"	16'-7"	15'-4"	17'-0"	15'-11"	14'-8"	16'-1"	15'-1"	14'-0"
	11-7/8	21'-2"	19'-11"	18'-4"	20'-4"	19'-1"	17'-8"	19'-4"	18'-2"	16'-10"
	14	24'-2"	22'-8"	20'-11"	23'-2"	21'-9"	20'-2"	22'-1"	20'-8"	19'-2"
	16	26'-10"	25'-2"	23'-4"	25'-10"	24'-3"	22'-5"	24'-6"	23'-0"	21'-4"
PJI 80	11-7/8	23'-7"	22'-1"	20'-5"	22'-8"	21'-3"	19'-8"	21'-6"	20'-2"	18'-8"
	14	26'-10"	25'-2"	23'-3"	25'-9"	24'-2"	22'-4"	24'-6"	23'-0"	21'-3"
	16	29'-9"	27'-11"	25'-2"	28'-7"	26'-10"	24'-3"	27'-2"	25'-6"	23'-2"
	18	32'-6"	30'-6"	28'-2"	31'-2"	29'-3"	27'-1"	29'-8"	27'-10"	25'-9"
	20	35'-2"	33'-0"	30'-6"	33'-9"	31'-9"	29'-4"	32'-1"	30'-2"	27'-11"
	22	37'-10"	35'-6"	32'-9"	36'-4"	34'-1"	31'-6"	34'-6"	32'-5"	30'-0"
	24	40'-4"	37'-10"	34'-7"	38'-9"	36'-4"	33'-8"	36'-10"	34'-7"	32'-0"



TABLE 11

Simple Span Live Load = 50 psf Dead Load = 15 psf

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
PJI 40	9-1/2	15'-5"	14'-5"	13'-4"	14'-9"	13'-10"	12'-10"	14'-1"	13'-2"	12'-2"
	11-7/8	18'-5"	17'-4"	15'-7"	17'-9"	16'-8"	15'-4"	16'-10"	15'-10"	14'-7"
	14	21'-0"	19'-2"	17'-2"	20'-2"	18'-11"	16'-11"	19'-2"	18'-0"	16'-6"
	16	22'-8"	20'-8"	18'-5"	22'-4"	20'-4"	18'-2"	21'-3"	19'-11"	17'-10"
PJI 60	9-1/2	16'-4"	15'-4"	14'-1"	15'-8"	14'-8"	13'-7"	14'-11"	14'-0"	12'-11"
	11-7/8	19'-7"	18'-4"	16'-11"	18'-10"	17'-8"	16'-4"	17'-11"	16'-10"	15'-6"
	14	22'-4"	20'-11"	19'-4"	21'-6"	20'-2"	18'-7"	20'-5"	19'-2"	17'-9"
	16	24'-10"	23'-4"	19'-10"	23'-10"	22'-5"	19'-3"	22'-8"	21'-4"	18'-6"
PJI 80	11-7/8	21'-9"	20'-5"	18'-10"	20'-11"	19'-8"	18'-2"	19'-11"	18'-8"	17'-3"
	14	24'-10"	23'-3"	21'-2"	23'-10"	22'-4"	20'-6"	22'-8"	21'-3"	19'-8"
	16	27'-6"	25'-10"	21'-2"	26'-5"	24'-10"	20'-6"	25'-2"	23'-7"	19'-9"
	18	30'-0"	28'-2"	26'-0"	28'-10"	27'-1"	25'-0"	27'-5"	25'-9"	23'-10"
	20	32'-6"	30'-6"	28'-2"	31'-3"	29'-4"	27'-1"	29'-9"	27'-11"	25'-10"
	22	35'-0"	32'-9"	30'-3"	33'-7"	31'-6"	29'-2"	31'-11"	30'-0"	27'-9"
	24	37'-4"	35'-0"	31'-8"	35'-10"	33'-8"	31'-1"	34'-1"	32'-0"	29'-7"



NOTES

- Design is to CSA 086S1-05.
- Spans are for joists supported at each end only (ie no intermediate supports). For other conditions contact the manufacturer.
- Spans listed are clear distances between supports.
- Web stiffeners are not required for joist depths up to 16". **Depths of 18" or greater require web stiffeners at each support.**
- Use in dry service conditions only.
- Provide continuous lateral support for top flange. Provide lateral support at points of bearing to prevent twisting of the joist.
- Uniform load deflection criteria is L/360 on live load and L/180 on total load. Deflection calculated using joist properties only
- Provide a roof slope of at least 1/4 in 12 for drainage.
- Provide 1-3/4" horizontal bearing at each support, minimum.
- Sloping joists need to be anchored to each support to resist a sliding force of:
 $H_t = [0.5 w_p L y] / [y^2 + 144]^{1/2}$
 where H_t = factored force parallel to the joist (lb),
 w_p = factored horizontally projected loading (plf),
 L = horizontal span (ft), y = roof slope: rise in 12

Allowable Roof Uniform Load Capacities

TABLE 12
P3 Joist — PJI 40

Allowable uniform loads (PLF) Roof

Clear Span (ft)	9-1/2"				11-7/8"				14"				16"			
	Unfactored Loads Based on Deflection			Factored Total Load	Unfactored Loads Based on Deflection			Factored Total Load	Unfactored Loads Based on Deflection			Factored Total Load	Unfactored Loads Based on Deflection			Factored Total Load
	Live		Total L/180		Live		Total L/180		Live		Total L/180		Live		Total L/180	
	L/360	L/240			L/360	L/240			L/360	L/240			L/360	L/240		
8				344				419				419				419
9	299			306				374				374				374
10	227			276				337				337				337
11	176			252	287			308				308				308
12	139	209		231	228			282				282				282
13	112	168		208	184			261	260			261				261
14	91	137		180	151	226		233	214			243				243
15	75	113	150	157	125	187		203	178			227				227
16	62	94	125	138	104	157		179	149			213	199			213
17	52	79	105	122	88	132		159	126	189		191	168			201
18	45	67	90	109	75	112		142	107	161		171	144			190
19	38	57	77	98	64	96		127	92	139		153	124			178
20	33	49	66	89	55	83	111	115	80	120		138	107			161
21	28	43	57	80	48	72	97	104	69	104		126	94	141		146
22	25	37	50	73	42	63	85	95	61	91		115	82	123		133
23	22	33	44	67	37	56	74	87	54	81		105	72	109		122
24	19	29	39	62	33	49	66	80	47	71	95	96	64	96		112
25	17	26	34	57	29	44	58	74	42	63	85	89	57	86		103
26	15	23	31	52	26	39	52	68	37	56	75	82	51	76		95
27	13	20	27	49	23	35	47	63	34	51	68	76	46	69		88
28					21	31	42	59	30	45	61	71	41	62		82
29					19	28	38	55	27	41	55	66	37	56	74	77
30					17	25	34	51	25	37	50	62	33	50	67	72
31					15	23	31	48	22	34	45	58	30	46	61	67
32					14	21	28	45	20	31	41	54	28	42	56	63
33					13	19	26	42	18	28	37	51	25	38	51	59
34					11	17	23	40	17	26	34	48	23	35	47	56

NOTES

- 1. Clear span is the distance between the face of the supports.
- 2. The load values are for standard term load duration and dry service conditions only. The dead load must not exceed the live load.
- 3. The load values above represent the worst case of simple span or multiple span single member applications.
- 4. Design of continuous spans is based on the longest span. The shortest span must not be less than 50% of the longest span.
- 5. Provide continuous lateral support for top flange. Provide lateral support at points of bearing to prevent twisting of joist.
- 6. The unfactored load columns are based on deflection only. The factored load column is based on strength only. Unfactored live load (either L/360 or L/240), unfactored total load, and factored load must be checked. Where the unfactored load column is blank, the factored load column governs.
- 7. Provide 1-3/4" bearing at end supports and 3-1/2" bearing at interior support minimum.
- 8. Web stiffeners are not required for the joists in this table.
- 9. The loads have been calculated in accordance with CSA 086S1-05.
- 10. Use the horizontal span from the building plans to size the joists. For slopes greater than 1 in 12, multiply the tabulated loads by the appropriate factor listed below.
Provide a roof slope of at least 1/4 in 12 for drainage.

Slope Factor

roof slope / 12	2	3	4	5	6	7	8	9	10	11	12
unfactored live load	0.986	0.970	0.949	0.923	0.894	0.864	0.832	0.800	0.768	0.737	0.707
unfactored total load	0.973	0.941	0.900	0.852	0.800	0.746	0.692	0.640	0.590	0.543	0.500
factored loads	0.986	0.970	0.949	0.923	0.894	0.864	0.832	0.800	0.768	0.737	0.707

Allowable Roof Uniform Load Capacities (continued)

TABLE 13
P3 Joist — PJI 60
Allowable uniform loads (PLF) Roof

Clear Span (ft)	9-1/2"				11-7/8"				14"				16"			
	Unfactored Loads Based on Deflection			Factored Total Load	Unfactored Loads Based on Deflection			Factored Total Load	Unfactored Loads Based on Deflection			Factored Total Load	Unfactored Loads Based on Deflection			Factored Total Load
	Live		Total L/180		Live		Total L/180		Live		Total L/180		Live		Total L/180	
	L/360	L/240			L/360	L/240			L/360	L/240			L/360	L/240		
8				344				419				419				419
9				306				374				374				374
10	263			276				337				337				337
11	205			252				308				308				308
12	163			231	265			282				282				282
13	131	197		213	215			261				261				261
14	107	161		198	177			243				243				243
15	88	133	177	185	146	220		227	209			227				227
16	74	111	148	174	123	184		213	176			213				213
17	62	93	125	164	104	156		201	149			201	199			201
18	53	79	106	151	88	133	177	190	128			190	171			190
19	45	68	91	136	76	114	152	176	110	165		180	147			180
20	39	59	78	123	66	99	132	159	95	143		171	128			171
21	34	51	68	111	57	86	115	144	83	125		163	112			163
22	29	44	59	101	50	75	100	132	73	109	146	156	98	148		156
23	26	39	52	93	44	66	88	120	64	96	129	145	87	130		149
24	23	34	46	85	39	59	78	111	57	85	114	133	77	115		143
25	20	31	41	79	35	52	70	102	50	76	101	123	68	103		137
26	18	27	36	73	31	46	62	94	45	68	91	114	61	92	123	132
27	16	24	33	67	28	42	56	88	40	61	81	105	55	82	110	122
28					25	37	50	81	36	55	73	98	49	74	99	114
29					22	34	45	76	33	49	66	91	45	67	90	106
30					20	30	41	71	30	45	60	85	40	61	81	99
31					18	28	37	66	27	41	54	80	37	55	74	93
32					17	25	34	62	25	37	50	75	33	50	67	87
33					15	23	31	59	22	34	45	71	31	46	62	82
34					14	21	28	55	20	31	41	66	28	42	56	77

- NOTES**
1. Clear span is the distance between the face of the supports.
 2. The load values are for standard term load duration and dry service conditions only. The dead load must not exceed the live load.
 3. The load values above represent the worst case of simple span or multiple span single member applications.
 4. Design of continuous spans is based on the longest span. The shortest span must not be less than 50% of the longest span.
 5. Provide continuous lateral support for top flange. Provide lateral support at points of bearing to prevent twisting of joist.
 6. The unfactored load columns are based on deflection only. The factored load column is based on strength only. Unfactored live load (either L/360 or L/240), unfactored total load, and factored load must be checked. Where the unfactored load column is blank, the factored load column governs.
 7. Provide 1-3/4" bearing at end supports and 3-1/2" bearing at interior support minimum.
 8. Web stiffeners are not required for the joists in this table.
 9. The loads have been calculated in accordance with CSA 086S1-05.
 10. Use the horizontal span from the building plans to size the joists. For slopes greater than 1 in 12, multiply the tabulated loads by the appropriate factor listed below. Provide a roof slope of at least 1/4 in 12 for drainage.

Slope Factor

roof slope / 12	2	3	4	5	6	7	8	9	10	11	12
unfactored live load	0.986	0.970	0.949	0.923	0.894	0.864	0.832	0.800	0.768	0.737	0.707
unfactored total load	0.973	0.941	0.900	0.852	0.800	0.746	0.692	0.640	0.590	0.543	0.500
factored loads	0.986	0.970	0.949	0.923	0.894	0.864	0.832	0.800	0.768	0.737	0.707

Allowable Roof Uniform Load Capacities (continued)

TABLE 14

P3 Joist — PJ1 80

Allowable uniform loads (PLF) Roof

Clear Span (ft)	11-7/8"				14"				16"			
	Unfactored Loads Based on Deflection			Factored Total Load	Unfactored Loads Based on Deflection			Factored Total Load	Unfactored Loads Based on Deflection			Factored Total Load
	Live		Total L/180		Live		Total L/180		Live		Total L/180	
	L/360	L/240			L/360	L/240			L/360	L/240		
8				420				459				487
9				375				410				434
10				338				370				392
11				308				337				357
12				283				310				328
13				262				286				303
14	231			243				266				282
15	193			227				249				264
16	163			213	230			234				247
17	138			201	196			220				233
18	118	177		190	168			208				220
19	102	153		180	145			197	193			209
20	88	133		171	126			187	168			199
21	77	116	155	163	111	166		179	147			189
22	68	102	136	156	97	146		171	130			181
23	60	90	120	149	86	129		163	115	173		173
24	53	79	106	143	76	115	153	156	102	153		166
25	47	71	94	137	68	102	136	150	91	137		159
26	42	63	84	132	61	91	122	145	82	123		153
27	38	57	76	124	55	82	110	139	73	110	147	148
28	34	51	68	115	49	74	99	134	66	99	133	142
29	31	46	62	108	44	67	89	130	60	90	120	137
30	28	42	56	101	40	61	81	121	54	82	109	133
31	25	38	51	94	37	55	74	114	49	74	99	129
32	23	34	46	88	33	50	67	107	45	68	91	124
33	21	32	42	83	30	46	61	100	41	62	83	116
34	19	29	39	78	28	42	56	94	38	57	76	110

NOTES

1. Clear span is the distance between the face of the supports.
2. The load values are for standard term load duration and dry service conditions only. The dead load must not exceed the live load.
3. The load values above represent the worst case of simple span or multiple span single member applications.
4. Design of continuous spans is based on the longest span. The shortest span must not be less than 50% of the longest span.
5. Provide continuous lateral support for top flange. Provide lateral support at points of bearing to prevent twisting of joist.
6. The unfactored load columns are based on deflection only. The factored load column is based on strength only. Unfactored live load (either L/360 or L/240), unfactored total load, and factored load must be checked. Where the unfactored load column is blank, the factored load column governs.
7. Provide 1-3/4" bearing at end supports and 3-1/2" bearing at interior support minimum.
8. Web stiffeners are not required for the joists in this table.
9. The loads have been calculated in accordance with CSA 086S1-05.
10. Use the horizontal span from the building plans to size the joists. For slopes greater than 1 in 12, multiply the tabulated loads by the appropriate factor listed below. Provide a roof slope of at least 1/4 in 12 for drainage.

Slope Factor

roof slope / 12	2	3	4	5	6	7	8	9	10	11	12
unfactored live load	0.986	0.970	0.949	0.923	0.894	0.864	0.832	0.800	0.768	0.737	0.707
unfactored total load	0.973	0.941	0.900	0.852	0.800	0.746	0.692	0.640	0.590	0.543	0.500
factored loads	0.986	0.970	0.949	0.923	0.894	0.864	0.832	0.800	0.768	0.737	0.707



Allowable Roof Uniform Load Capacities (continued)

TABLE 15
P3 Joist — PJI 80 with Web Stiffeners
Allowable uniform loads (PLF) Roof

Clear Span (ft)	18"				20"				22"				24"			
	Unfactored Loads Based on Deflection			Factored Total Load	Unfactored Loads Based on Deflection			Factored Total Load	Unfactored Loads Based on Deflection			Factored Total Load	Unfactored Loads Based on Deflection			Factored Total Load
	Live		Total L/180		Live		Total L/180		Live		Total L/180		Live		Total L/180	
	L/360	L/240			L/360	L/240			L/360	L/240			L/360	L/240		
12				405				405				405				405
13				375				375				375				375
14				348				348				348				348
15				326				326				326				326
16				306				306				306				306
17				288				288				288				288
18				272				272				272				272
19	244			258				258				258				258
20	213			245				245				245				245
21	187			234	232			234				234				234
22	165			223	205			223				223				223
23	146			214	182			214				214				214
24	130	195		205	162			205	197			205				205
25	116	175		197	145			197	177			197				197
26	104	157		189	130			189	159			189				189
27	94	141		182	117	176		182	143			182	172			182
28	85	127	170	176	106	159		176	130			176	155			176
29	77	115	154	170	96	144		170	118			170	141			170
30	70	105	140	160	87	131		164	107	161		164	129			164
31	63	95	127	150	80	120		159	98	147		159	117			159
32	58	87	116	140	73	109	146	154	89	134		154	107			154
33	53	80	107	132	67	100	134	146	82	123		149	98	148		149
34	49	73	98	124	61	92	123	138	75	113		145	91	136		145
35	45	67	90	117	56	85	113	130	69	104	139	141	83	125		141
36	41	62	83	111	52	78	104	123	64	96	128	135	77	116		137
37	38	57	77	105	48	72	97	116	59	89	119	128	71	107		133
38	35	53	71	100	44	67	89	110	55	82	110	121	66	99		130
39	33	49	66	95	41	62	83	105	51	76	102	115	61	92	123	125
40	30	46	61	90	38	58	77	100	47	71	95	109	57	86	114	119
41	28	43	57	86	36	54	72	95	44	66	88	104	53	80	107	113
42	26	40	53	82	33	50	67	90	41	62	82	99	49	74	99	108
43	24	37	49	78	31	47	62	86	38	58	77	95	46	70	93	103
44	23	35	46	74	29	44	58	82	36	54	72	90	43	65	87	98

NOTES

- 1. Clear span is the distance between the face of the supports.
- 2. The load values are for standard term load duration and dry service conditions only. The dead load must not exceed the live load.
- 3. The load values above represent the worst case of simple span or multiple span single member applications.
- 4. Design of continuous spans is based on the longest span. The shortest span must not be less than 50% of the longest span.
- 5. Provide continuous lateral support for top flange. Provide lateral support at points of bearing to prevent twisting of joist.
- 6. The unfactored load columns are based on deflection only. The factored load column is based on strength only. Unfactored live load (either L/360 or L/240), unfactored total load, and factored load must be checked. Where the unfactored load column is blank, the factored load column governs.
- 7. Provide 1-3/4" bearing at end supports and 3-1/2" bearing at interior support minimum.
- 8. **Web stiffeners are required at each support.**
- 9. The loads have been calculated in accordance with CSA 086S1-05.
- 10. Use the horizontal span from the building plans to size the joists. For slopes greater than 1 in 12, multiply the tabulated loads by the appropriate factor listed below. Provide a roof slope of at least 1/4 in 12 for drainage.

Slope Factor

roof slope / 12	2	3	4	5	6	7	8	9	10	11	12
unfactored live load	0.986	0.970	0.949	0.923	0.894	0.864	0.832	0.800	0.768	0.737	0.707
unfactored total load	0.973	0.941	0.900	0.852	0.800	0.746	0.692	0.640	0.590	0.543	0.500
factored loads	0.986	0.970	0.949	0.923	0.894	0.864	0.832	0.800	0.768	0.737	0.707

P3 Joist Design Properties

TABLE 16
Factored Resistance for P3 Joists¹

Series	Depth	El ² [106 lbf-in. ²]	Mr ³ [lbf-ft]	Vr ⁴ [lbf]	K ⁵ [106 lbf]	Self Weight [plf]	Factored Vertical Bearing [lbf/ft]
PJI 40	9-1/2	193	4,549	1,768	4.94	2.6	3,300
	11-7/8	330	5,896	2,241	6.18	2.9	3,300
	14	482	7,102	2,699	7.28	3.1	3,300
	16	657	8,233	3,109	8.32	3.4	3,300
PJI 60	9-1/2	231	6,287	1,768	4.94	2.6	3,300
	11-7/8	396	8,150	2,241	6.18	2.9	3,300
	14	584	9,805	2,699	7.28	3.1	3,300
	16	799	11,368	3,109	8.32	3.4	3,300
PJI 80	11-7/8	547	11,543	2,241	6.18	3.6	3,300
	14	802	13,904	2,699	7.28	3.8	3,300
	16	1,092	16,116	3,109	8.32	4.0	3,300
	18	1,413	18,295	3,867	9.36	4.3	3,300
	20	1,790	20,258	3,993	10.4	4.5	2,850
	22	2,214	22,187	4,128	11.44	4.7	2,400
	24	2,687	24,100	4,254	12.48	4.9	2,300

NOTES

1. The tabulated values are design values for standard duration of load. All values, except El and K, shall be permitted to be adjusted for other load durations as permitted by the code.

2. Bending stiffness [El] of the P3 Joist

3. Factored Moment resistances of the P3 Joist which shall not be increased by any code-allowed repetitive member use factor.

4. Factored Shear resistance [V_r] of the P3 Joist

5. Coefficient of shear deflection [K] of the P3 Joist (For calculating uniform load and center-point load deflections of the P3 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: δ = calculated deflection [in]

ω = unfactored uniform load [lbf/in]

ℓ = design span [in]

P = concentrated load [lbf]

El = bending stiffness of the P3 Joist [lbf-in²]

K = coefficient of shear deflection [lbf]

Reaction Capacities for P3 Joist

TABLE 17
Factored Reaction Values for P3 Joist¹

Series	Depth	End Reaction [d] [lbf]				Intermediate Reaction [c] [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
PJI 40	9-1/2	1,705	1,768	1,768	1,768	4,349	4,577	5,122	5,122
	11-7/8	1,894	2,068	2,241	2,241	4,349	4,806	5,122	5,327
	14	1,894	2,336	2,447	2,699	4,349	5,011	5,122	5,501
	16	1,894	2,589	2,447	3,109	4,349	5,209	5,122	5,674
PJI 60	9-1/2	1,705	1,768	1,768	1,768	4,349	4,577	5,122	5,122
	11-7/8	1,894	2,068	2,241	2,241	4,349	4,806	5,122	5,327
	14	1,894	2,336	2,447	2,699	4,349	5,011	5,122	5,501
	16	1,894	2,589	2,447	3,109	4,349	5,209	5,122	5,674
PJI 80	11-7/8	2,020	2,241	2,241	2,241	4,356	5,209	5,138	5,659
	14	2,020	2,699	2,447	2,699	4,767	5,453	5,422	5,911
	16	2,020	2,912	2,447	3,109	5,154	5,682	5,682	6,156
	18		3,236		3,867	5,051	6,235	5,761	6,866
	20		3,236		3,993	5,051	6,235	5,761	6,866
	22		3,236		4,128	5,051	6,235	5,761	6,866
	24		3,236		4,254	5,051	6,235	5,761	6,866

NOTES

1. The tabulated values are factored resistances for standard term duration of load. All values shall be permitted to be adjusted for other load durations as permitted by the code.

2. For end reaction values above 2,450 lbf, bearing stiffeners are required.

P3 Joists Framing Connectors — Single P3 Joists

SIMPSON Strong-Tie

TABLE 18

Joist Height	Model	B Dim	Top Flange		Factored Resistance			Model	B Dim	Snap-In		Factored Resistance			Model	B Dim	Face Mount		Factored Resistance		
			Fastener Type		Uplift	Normal				Fastener Type		Uplift	Normal				Fastener Type		Uplift	Normal	
			Header	Joist	[115]	DF/SP	SPF			Header	Joist	[115]	DF/SP	SPF			Header	Joist	[115]	DF/SP	SPF
P3 Joist 40, 60 Width = 2-1/2"																					
9-1/2	LT259	2	6-3"	1-#8x1-1/4ws ⁴	105	2560	1725	IUS2.56/9.5	2	8-3"	—	175	2385	1690	LF259	2	10-3"	1-#8x1-1/4ws ⁴	105	2525	2155
11-7/8	LT251188	2	6-3"	1-#8x1-1/4ws ⁴	105	2560	1725	IUS2.56/11.88	2	10-3"	—	175	2565	1820	LF2511	2	12-3"	1-#8x1-1/4ws ⁴	105	2880	2270
14	LT2514	2	6-3"	1-#8x1-1/4ws ⁴	105	2560	1725	IUS2.56/14	2	12-3"	—	175	2565	1820	LF2514	2	14-3"	1-#8x1-1/4ws ⁴	105	3235	2385
16	LT2516	2	6-3"	1-#8x1-1/4ws ⁴	100	2560	1725	IUS2.56/16	2	14-3"	—	175	2725	1935	MIU2.56/16	2-1/2	24-3"	2-10dx1-1/2	375	4930	3485
P3 Joist 80 Width = 3-1/2"																					
11-7/8	LT351188	2	6-3"	2-#8x1-1/4ws ⁴	105	2560	1725	IUS3.56/11.88	2	12-3"	—	175	2375	1695	LF3511	2	12-3"	2-#8x1-1/4ws ⁴	105	2880	2270
14	LT3514	2	6-3"	2-#8x1-1/4ws ⁴	105	2560	1725	IUS3.56/14	2	12-3"	—	175	2375	1695	LF3514	2	14-3"	2-#8x1-1/4ws ⁴	105	3235	2385
16	LT3516	2	6-3"	2-#8x1-1/4ws ⁴	100	2560	1725	IUS3.56/16	2	14-3"	—	175	2375	1695	MIU3.56/16	2-1/2	24-3-1/2"	2-10dx1-1/2	375	4930	3485
18	MIT418	2-1/2	8-3-1/2"	2-10dx1-1/2	265	3490	2420	No IUS for these depths							MIU3.56/18	2-1/2	26-3-1/2"	2-10dx1-1/2	375	4930	3485
20	MIT420	2-1/2	8-3-1/2"	2-10dx1-1/2	265	3490	2420								MIU3.56/20	2-1/2	28-3-1/2"	2-10dx1-1/2	375	4930	3485
22	HIT422	3	10-3-1/2"	2-10dx1-1/2	320	3725	2705								MIU3.56/20	2-1/2	28-3-1/2"	2-10dx1-1/2	375	4930	3485
24	HIT424	3	10-3-1/2"	2-10dx1-1/2	320	3725	2705								MIU3.56/20	2-1/2	28-3-1/2"	2-10dx1-1/2	375	4930	3485

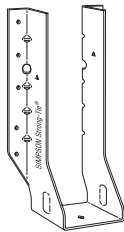
1WS = wood screw

TABLE 19

Joist Height	Model	B Dim	45° Skew		Factored Resistance			Model	B Dim	Adjustable Height		Factored Resistance			Model	B Dim	Field Slope & Skew		Factored Resistance		
			Fastener Type		Uplift	Normal				Fastener Type		Uplift	Normal				Fastener Type		Uplift	Normal	
			Header	Joist	[115]	DF/SP	SPF			Header	Joist	[115]	DF/SP	SPF			Header	Joist	[115]	DF/SP	SPF
P3 Joist 40, 60 Width = 2-1/2"																					
9-1/2	SUR/L2.56/9	3-3/8	14-3-1/2"	2-10dx1-1/2	385	3950	2805	THAI322	2-1/4	6-3"	2-10dx1-1/2	—	2810	2385	LSSUH310	3-1/2	14-3-1/2"	12-10dx1-1/2	1155	2345	1665
11-7/8	SUR/L2.56/11	3-3/8	16-3-1/2"	2-10dx1-1/2	385	3950	2805	THAI322	2-1/4	6-3"	2-10dx1-1/2	—	2810	2385	LSSUH310	3-1/2	14-3-1/2"	12-10dx1-1/2	1155	2345	1665
14	SUR/L2.56/14	3-3/8	18-3-1/2"	2-10dx1-1/2	385	3950	2805	THAI322	2-1/4	6-3"	2-10dx1-1/2	—	2810	2385	LSSUH310	3-1/2	14-3-1/2"	12-10dx1-1/2	1155	2345	1665
16	SUR/L2.56/14	3-3/8	18-3-1/2"	2-10dx1-1/2	385	3950	2805	See Wood Construction Connectors Catalog for hanger selection							LSSUH310	3-1/2	14-3-1/2"	12-10dx1-1/2	1155	2345	1665
P3 Joist 80 Width = 3-1/2"																					
11-7/8	SUR/L410	2-5/8	14-3-1/2"	6-3-1/2"	1540	4065	2875	THAI422	2-1/4	6-3"	2-10dx1-1/2	—	2810	2385	LSSU410	3-1/2	14-3-1/2"	12-10dx1-1/2	1155	2345	1665
14	SUR/L414	2-5/8	18-3-1/2"	8-3-1/2"	2090	4095	2895	THAI422	2-1/4	6-3"	2-10dx1-1/2	—	2810	2385	LSSU410	3-1/2	14-3-1/2"	12-10dx1-1/2	1155	2345	1665
16	SUR/L414	2-5/8	18-3-1/2"	8-3-1/2"	2090	4095	2895	See Wood Construction Connectors Catalog for hanger selection							See Wood Construction Connectors Catalog for hanger selection						
18	SUR/L414	2-5/8	18-3-1/2"	8-3-1/2"	2090	4095	2895														
20	SUR/L414	2-5/8	18-3-1/2"	8-3-1/2"	2090	4095	2895														
22	SUR/L414	2-5/8	18-3-1/2"	8-3-1/2"	2090	4095	2895														
24	See Wood Construction Connectors Catalog for hanger selection																				

NOTES

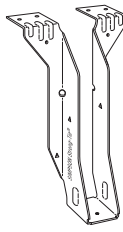
- All nails are common wire nails unless noted otherwise.
- Hangers that are marked by green shading in tables require web stiffeners. The I-Joist manufacturer may require web stiffeners for hangers that are not marked by shading.
- THAI hangers require a minimum of 4 top and 2 face nails installed.
- WS = Wood Screw



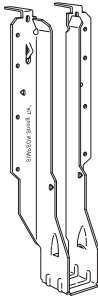
LF

LF - 18 gauge
LT - 18 gauge

The LF and LT series feature fast and easy installation. No web stiffeners are required.



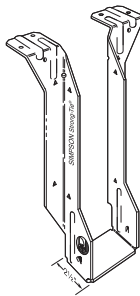
LT



IUS

IUS - 18 gauge

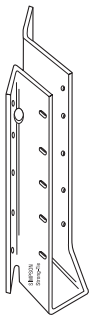
The IUS is a hybrid hanger that incorporates the advantages of face-mount and top-flange hangers. Joist nails are not required.



MIT

MIT - 16 gauge

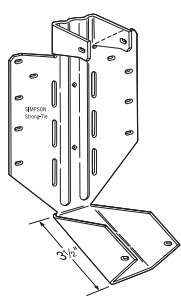
The MIT's Positive Angle Nailing helps eliminate splitting of the I-joists' bottom flange. It features uplift capacity and extended seat design.



SUL

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 are required when used with I-joists.



LSSU

LSSUH310, LSSU410 - 16 gauge

LSSU models provide uplift capacity and can be field sloped and/or skewed to 45°. Web stiffeners are required when used with I-joists.

P3 Joists Framing Connectors — Double P3 Joists

SIMPSON Strong-Tie

TABLE 20

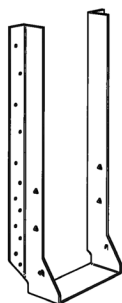
Joist Height	Model	B Dim	Top Flange		Factored Resistance			Model	B Dim	Face Mount		Factored Resistance			Model	B Dim	45° Skew		Factored Resistance		
			Fastener Type		Uplift [115]	Normal				Fastener Type		Uplift [115]	Normal				Fastener Type		Uplift [115]	Normal	
			Header	Joist		DF/SP	SPF			Header	Joist		DF/SP	SPF			Header	Joist		DF/SP	SPF
Double PJI 40, 60 Joist Width = 5"																					
9-1/2	MIT39.5-2	2-½	8-3-½"	2-10dx1-½	265	3490	2420	MIU5.12/9	2-½	16-3-½"	2-10dx1-½	375	4550	3230	HSUR/L5.12/9	2-¾	12-3-½"	2-10dx1-½	195	2995	2350
11-7/8	MIT311.88-2	2-½	8-3-½"	2-10dx1-½	265	3490	2420	MIU5.12/11	2-½	20-3-½"	2-10dx1-½	375	4550	3230	HSUR/L5.12/11	2-¾	16-3-½"	2-10dx1-½	195	4190	2965
14	MIT314-2	2-½	8-3-½"	2-10dx1-½	265	3490	2420	MIU5.12/14	2-½	22-3-½"	2-10dx1-½	375	4930	3485	HSUR/L5.12/11	2-¾	16-3-½"	2-10dx1-½	195	4190	2965
16	MIT5.12/16	2-½	8-3-½"	2-10dx1-½	265	3490	2420	MIU5.12/16	2-½	24-3-½"	2-10dx1-½	375	4930	3485	HSUR/L5.12/11	2-¾	16-3-½"	2-10dx1-½	195	4190	2965
Double PJI 80 Joist Width = 7" web stiffeners required																					
11-7/8	B712/11.88	2-½	14-3-½"	8-3-½"	1170	5940	3910	HU412-2	2-½	22-3-½"	8-3-½"	2280	5780	4690	HU412-2X³	2-½	22-3-½"	8-3-½"	1710	3755	3050
14	B712/14	2-½	14-3-½"	8-3-½"	1170	5940	3910	HU414-2	2-½	26-3-½"	12-3-½"	3420	7025	5780	HU412-2X³	2-½	26-3-½"	12-3-½"	2565	4565	3755
16	B712/16	2-½	14-3-½"	8-3-½"	1170	5940	3910	HU414-2	2-½	26-3-½"	12-3-½"	3420	7025	5780	HU412-2X³	2-½	26-3-½"	12-3-½"	2565	4565	3755
18	B712/18	2-½	14-3-½"	8-3-½"	1170	5940	3910	HU414-2	2-½	26-3-½"	12-3-½"	3420	7025	5780	HU412-2X³	2-½	26-3-½"	12-3-½"	2565	4565	3755
20	B712/20	2-½	14-3-½"	8-3-½"	1170	5940	3910	HU414-2	2-½	26-3-½"	12-3-½"	3420	7025	5780	HU412-2X³	2-½	26-3-½"	12-3-½"	2565	4565	3755
22	B712/22	2-½	14-3-½"	8-3-½"	1170	5940	3910	HU414-2	2-½	26-3-½"	12-3-½"	3420	7025	5780	See Wood Construction Connectors Catalog for hanger selection						
24	B712/24	2-½	14-3-½"	8-3-½"	1170	5940	3910	HU414-2	2-½	26-3-½"	12-3-½"	3420	7025	5780							

TABLE 21

Joist Height	Model	B Dim	Field Slope		Factored Resistance			Model	B Dim	Adjustable Height		Factored Resistance		
			Fastener Type		Uplift [115]	Normal				Fastener Type		Uplift [115]	Normal	
			Header	Joist		DF/SP	SPF			Header	Joist		DF/SP	SPF
Double PJI 40, 60 Joist Width = 5"														
9-1/2	LSU5.12 ^a	3-½	24-3-½"	16-10dx1-½	910	2600	1845	THAI-2 ²	2-½	6-3"	2-10dx1-½	—	2800	2800
11-7/8	LSU5.12 ^a	3-½	24-3-½"	16-10dx1-½	910	2600	1845	THAI-2 ²	2-½	6-3"	2-10dx1-½	—	2800	2800
14	LSU5.12 ^a	3-½	24-3-½"	16-10dx1-½	910	2600	1845	THAI-2 ²	2-½	6-3"	2-10dx1-½	—	2800	2800
16	See Wood Construction Connectors Catalog for hanger selection							See Wood Construction Connectors Catalog for hanger selection						
Double PJI 80 Joist Width = 7"														
11-7/8 to 24	See Wood Construction Connectors Catalog for hanger selection							See Wood Construction Connectors Catalog for hanger selection						

NOTES

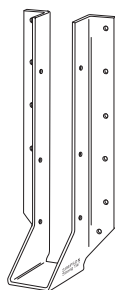
- Hangers that are marked with green shading in tables require web stiffeners. The I-Joist manufacturer may require web stiffeners for hangers that are not marked with shading.
- THAI hangers require a minimum of 4 top and 2 face nails installed. THAI-2 must be special ordered; specify hanger seat width between 3-1/8" and 5-5/16".
- Skewed option must be special ordered. Specify skew angle and direction (i.e. HU412-2X, SKR45).
- The LSU is field slopable only. Skew options must be special ordered from the factory.



MIU

MIU - 16 gauge

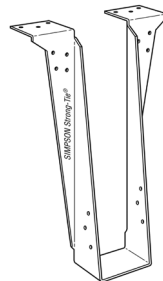
The MIU series features 16 gauge steel and extra nailing for higher loads than the IUT.



HU

HU - 14 gauge

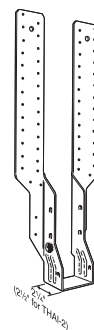
The HU series features uplift capacity and a large selection of sizes and load ranges. HU hangers have triangle holes that can be filled for increased loads. Web stiffeners are required when used with I-joists.



B

B - 12 gauge

The B Series offer versatility for I-Joist and SCL lumber enhanced load capacity widens the range of application for these hangers.



THAI

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 are required when used with I-joists.

P3 Products Warranty

Limited Lifetime Warranty

EACOM Timber Corporation warrants that its line of P3 Products are free from defects in design, materials and workmanship. When installed and finished according to our published installation instructions and accepted engineering standards, our P3 Products will perform in accordance with our current published specifications for the lifetime of your home or building.

Warranty Limitations

EACOM Timber Corporation 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 P3 Products resulting from the natural physical properties of wood are not covered — unless the condition causes a structural weakness.

Please protect your investment! P3 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 P3 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.

Disclaimer

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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 our P3 Products or our warranty, contact us at:

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