

FRAMING DETAILS

F07

Nail rimboard to Joists with 2 1/2" (8d) nail into each flange.

Dimension lumber is not suitable for use as rim board with I-Joists.

F07A

Dimension lumber is not suitable for use as rim board with I-Joists.

F01

Joist blocking

F02

Rim Joist

NJ40U/AJS 24 and NJ60U/AJS 25 requires 2X6 wall for minimum bearing

F27A

Top flange or face mount Joist hanger

LVL

F52

One 2 1/2" (8d) nail each side at bearing

1 1/2" minimum bearing length (1 1/4" for 18-24" deep)

To limit splitting flange, start nails at least 1 1/4" from end. Nails may need to be driven at an angle to limit splitting of bearing plate.

F08

Solid block all posts from above to bearing below

F03

Rim Joist

NJ40U/AJS 24 and NJ60U/AJS 25 requires 2X6 wall for minimum bearing

Joist must be designed to carry wall above when not stacked over wall below

INTERMEDIATE BEARING DETAILS

F06

For load bearing wall above (stacked over wall below)

Joist blocking

F09

Blocking may be required, consult design professional of record and/or local building official.

Load bearing wall above (stacked over wall below)

2X block

Nail block with one 3" (10d) nail into plate

Size	12	16	19.2	24
2X4	6460	4840	4030	3230
2X6	10140	7600	6330	5070

1. Squash blocks are to be in full contact with upper floor and lower wall plate.

2. Capacities shown are for double squash blocks at each Joist, for single squash block, divide the vertical load by 2.

Joist blocking may be required in seismic areas for floor diaphragm strength

Joist or rimboard blocking

Nail per local code provisions

Intermediate bearing

Cross bracing OK as blocking only if support below is not a braced wall panel or shear wall, and no wall exists above

F10

Backer block (minimum 12" wide). Nail with 10 - 3" (10d) nails.

Joist hanger

Filler block. Nail with 10 - 3" (10d) nails.

Backer block required where top flange Joist hanger load exceeds 250 lbs. Install tight to top flange.

PLYWOOD/OSB REINFORCEMENT

3/8" min. x 48" long plywood/OSB rated sheathing must match the full depth of the Joist.

Nail to the Joist with 2 1/2" (8d) nails at 6" o/c and nail with 4 - 2 1/2" (8d) nails into backer block.

When reinforcing both sides, stagger nails to limit splitting. Install with horizontal face grain.

F05A

3/8" min. plywood/OSB or rimboard closure. Nail with 2 1/2" (8d) nail into each flange.

Joist blocking required for cantilever

Structural panel reinforcement

Web stiffeners should be installed if required

Uplift on back span shall be considered in all cantilever designs

LATERAL SUPPORT

- Joists must be laterally supported at the ends with hangers, Rim Joists, rimboard, blocking panels or cross-bracing. Blocking panels or cross-bracing are required at cantilever supports.
- Blocking may be required at intermediate bearings for floor diaphragm as per Code, consult local building official.

MINIMUM BEARING LENGTH FOR JOISTS

- 1 1/2" is required at end supports. 3 1/2" is required at cantilever and intermediate supports.
- Longer bearing lengths allow higher reaction values. Refer to the Bldg Code evaluation report.

NAILING REQUIREMENTS

Rim Joist, rimboard or closure panel to Joist:

- Rims or closure panel 1 1/4" thick and less: 2 - 2 1/2" (8d) nails, one each in the top and bottom flange.
- Rim Joist: Toe-nail top flange to Rim Joist with 2-10d box nails, one on each side of flange.

Rim Joist, rimboard or blocking panel to support:

- 2 1/2" (8d) nails at 6" o/c
- When used for shear transfer, follow the building designer's specification.

Joist to Support:

- 2 - 2 1/2" (8d) nails, one on each side of the web, placed 1 1/2" minimum from the end of the Joist to limit splitting.

Sheathing to Joist:

- Prescriptive residential floor sheathing nailing requires 2 1/2" (8d) common nails at 6" o/c on edges and at 12" o/c in the field as per Code.
- Maximum nail spacing for minimum lateral stability is 24".
- 14 gauge staples may be substituted for 2 1/2" (8d) nails if the staples penetrate at least 1" into the Joist.
- Wood screws may be acceptable, contact local building official or KOTT for more information.

BACKER BLOCK DIMENSIONS

Series	Backer Block Thickness
LPI 20Plus AJS 140 NJ40H/AJS 150 NJ60H/AJS 20 NJ40U/AJS 24 NJ60U/AJS 25	1 1/8" or two 1/2" wood panels 2X_lumber

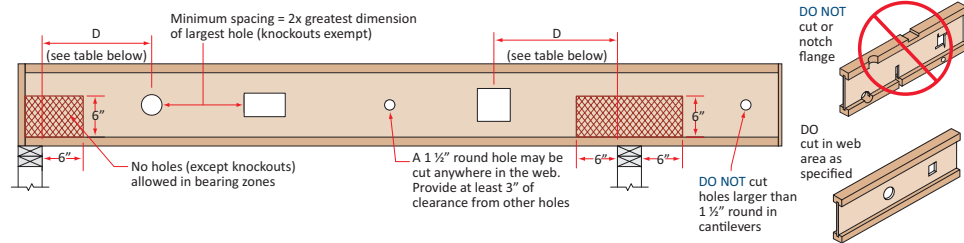
- Cut backer blocks to a maximum depth equal to the web depth minus 1/4" to avoid a forced fit.

PROTECT JOISTS FROM WEATHER

- Joists are intended only for applications that provide permanent protection from the weather. Bundles of product should be covered and stored off of the ground.

HOLE CUTTING CHARTS

for Residential Applications (40/15 PSF)



ROUND HOLES

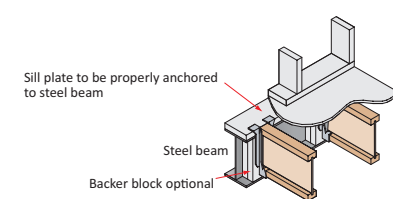
JOIST DEPTH & HOLE SIZE [IN]

Span [ft]	9-1/2"		11-3/8"		14"			16"						
	3"	6"	3"	6"	3"	6"	9"	3"	6"	9"	12"			
8'	1'-0"	1'-6"			1'-0"	1'-0"		1'-0"	1'-0"	2'-2"	1'-0"	1'-4"	3'-7"	4'-11"
10'	1'-0"	2'-6"			1'-0"	1'-0"		1'-0"	1'-0"	2'-2"	1'-0"	1'-4"	3'-7"	4'-11"
12'	1'-0"	4'-0"			1'-0"	1'-0"		1'-0"	1'-0"	2'-2"	1'-0"	1'-4"	3'-7"	4'-11"
14'	1'-0"	5'-0"			1'-0"	1'-0"		1'-0"	1'-0"	2'-2"	1'-0"	1'-4"	3'-7"	4'-11"
16'	2'-0"	6'-6"			1'-0"	1'-0"	2'-6"	1'-0"	1'-0"	4'-6"	1'-0"	1'-4"	3'-7"	4'-11"
18'	3'-0"	7'-6"			1'-0"	1'-0"	3'-6"	1'-0"	1'-0"	4'-6"	1'-0"	1'-4"	3'-7"	4'-11"
20'	4'-0"	9'-0"			3'-2"	4'-10"		2'-9"	4'-1"	7'-0"	2'-5"	3'-6"	6'-1"	7'-5"
22'	5'-0"	10'-0"			3'-2"	5'-6"		2'-9"	4'-1"	7'-0"	2'-5"	3'-6"	6'-1"	7'-5"
24'	6'-6"	11'-6"			3'-2"	7'-0"		5'-0"	6'-5"	9'-8"	4'-8"	5'-11"	8'-7"	10'-1"
26'					4'-0"	8'-0"		5'-0"	6'-5"	9'-8"	4'-8"	5'-11"	8'-7"	10'-1"
28'					5'-0"	9'-0"		5'-0"	6'-5"	10'-0"	7'-0"	8'-4"	11'-3"	12'-10"
30'					5'-0"	9'-0"		5'-0"	7'-0"	11'-0"	7'-0"	8'-4"	11'-3"	12'-10"
32'					5'-0"	8'-0"	12'-6"	7'-0"	8'-4"	11'-3"	7'-0"	8'-4"	11'-3"	13'-0"
34'								7'-0"	8'-4"	11'-3"	14'-6"			

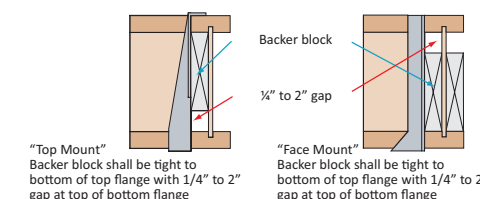
NOTES:

- Hole may be positioned vertically anywhere in the web.
- Use Table 1 for uniformly loaded maximum loads of 40 psf live loads and 15 psf dead loads on simple span application.
- For other load conditions or hole sizes, contact KOTT.

F15E CONNECTION WITH HANGER ON STEEL BEAM

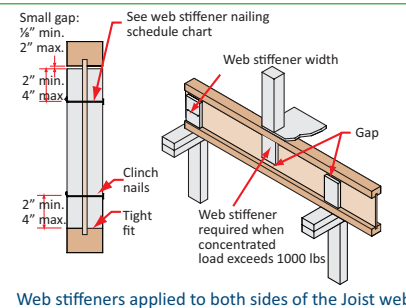


F16D HANGER CONNECTIONS TO JOIST HEADERS

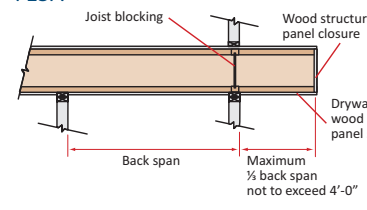


F16E

- Web stiffeners are optional except as noted below: Stiffeners are always required in hangers that do not extend up to support the top flange of the Joist. Web stiffeners may be required with certain sloped or skewed hangers or to achieve uplift values. Refer to hanger manufacturer's installation guide.
- Stiffeners may be cut from structural rated wood panels, engineered rimboard or 2X lumber (NJ40U/AJS 24 and NJ60U/AJS 25 only).
 - For structural capacity: Web stiffeners needed to increase the Joist's reaction at a specific bearing location.
 - Stiffeners are always required in certain roof applications.
 - Stiffeners are always required under concentrated loads that exceed 1000 pounds. Install the web stiffeners snug to the top flange in this situation. Follow the nailing schedule for intermediate bearings.



F15A



These details apply to cantilevers with uniform loads only. It may be possible to exceed the limitations of these details by analyzing a specific application with design software.

LVL MULTIPLE MEMBER CONNECTIONS

Rows	Depth	Spacing	3 1/2" (2 plys)	5 1/4" (3 plys)
Maximum Factored Uniform Load (PLF) Applied to Either Outside Member 3/4" Common Wire Nails (16d)				
2	7 1/2" to 12"	24"	408	306
		12"	816	612
3	11 1/2" to 18"	24"	1632	1224
		12"	612	459
		6"	1224	918
4	24"	24"	2448	1836
		12"	816	612
		6"	1632	1224

Rows	Depth	Spacing	3 1/2" (2 plys)	5 1/4" (3 plys)	7" (4 plys)
Maximum Factored Uniform Load (PLF) Applied to Either Outside Member SDW 1/4" x 3 3/4" SDS 1/4" x 5" SDW 1/4" x 6 3/4"					
2	7 1/2" to 18"	12"	1250	1170	1040
		6"	2500	2340	2080
3	11 1/2" to 24"	12"	1875	1755	1560
		6"	3750	3510	3120

Rows	Depth	Spacing	3 1/2" (2 plys)	5 1/4" (3 plys)	7" (4 plys)
Maximum Factored Uniform Load (PLF) Applied to Either Outside Member 1/2" Bolts A307					
2	7 1/2" to 18"	12"	1560	1170	1040
		6"	3120	2340	2080
3	11 1/2" to 24"	12"	2340	1755	1560
		6"	4680	3510	3120

NOTES:

- Design values apply to common bolts that conform to ASTM A307 Grades A&B, SAE J429 Grades 2 or higher. A washer not less than a standard cut washer shall be between the wood and the bolt head and between the wood and the nut. The minimum edge distance for bolts shall be 2". The minimum end distance for bolts shall be 4". Bolt holes shall not be greater than 1/16" of the bolt diameter.
- When 3 1/4" pneumatic gun nails 0.122" diameter (10d) are used, multiply the maximum factored uniform load for the 3 1/2" common wire nails by 0.61 factor.
- The nail schedules shown apply to both sides of a 3-member beam.
- 4-ply beams must be top-loaded or loaded from both sides. Lesser side shall be no less than 25% of the opposite side.
- Beams wider than 7" must be designed by a professional Engineer.
- An equivalent specific gravity of 0.46 may be used when designing specific connections with Forex LVL. Connection design is based on CSA 086-09.
- Simpson Strong-Drive LVL screws may also be used to connect multiple member LVL beams. Contact KOTT Engineering for further information.