onCENTER®

BlueLinx Engineered Wood Products

INSTALLATION GUIDE

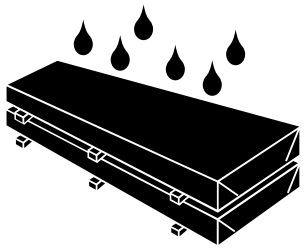
Residential Floor & Roof Systems

ENGINEERED LUMBER

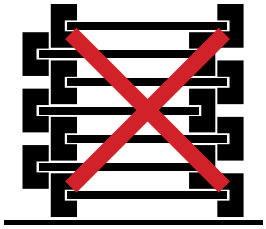
BLUELINX

DELIVERING WHAT MATTERS™

STORAGE & HANDLING

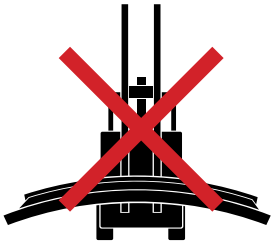


Protect from moisture and weather. Keep covered with factory wrap until time of use. Store on dry level ground using stacked support blocks 10' on-center to keep bundles at least 6" off the ground and to allow air circulation.



DO NOT store BLI joists flat. (onCENTER® LVL and rim board should be stacked flatwise).

DO NOT lift BLI joists by top flange with forklift.

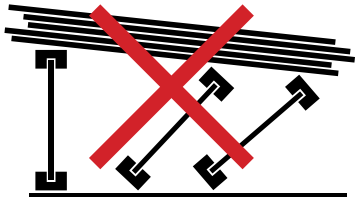


DO NOT lift BLI joists flatwise.

SAFETY PRECAUTIONS

Use safety glasses, gloves, hard hats, and other personal protective equipment when handling and installing onCENTER engineered lumber. Contact BlueLinx for SDS information.

DO NOT walk on onCENTER engineered lumber that is lying flat.



DO NOT stack building materials on unsheathed joists. Stack only over bearing walls or main beams.

DO NOT use damaged products.

BRACING REQUIREMENTS

DO NOT allow workers or loads on engineered lumber joists until properly installed and braced.

1. Joists are unstable until properly attached and braced laterally. Failure to provide stability can result in serious accidents.
2. Restrain joists and beams from rotation at the end supports by use of blocking panels, x-bridging, or continuous closure (rim board, rim joist or structural panel).
3. Install all fasteners in each joist, beam, hanger, blocking panel, x-bridging, or continuous closure as it is set.
4. Lateral restraint, such as a braced end wall or existing deck, must be established parallel to the first joist in a run. This can also be accomplished by a temporary or permanent deck (sheathing) fastened to the full length of the first 4' of joists in the run.
5. Rows of temporary bracing running at right angles to the joists and spaced not more than 10' on center must extend to the established lateral restraint. Bracing should be a minimum of 1x4, at least 8' long, attached to the top face of each joist with a minimum of two 8d nails (10d if bracing is 2x4). Ends of bracing should overlap at least two joists.
6. Ends of cantilevers require temporary bracing on both the top and bottom flanges.
7. Sheathing must be completely attached to each BLI joist before additional loads can be placed on the system.
8. Joist flanges must remain straight within ½" of true alignment.

INSTALLATION NOTES

1. BlueLinx onCENTER products must be protected from weather and used only in covered, dry-use conditions (conditions in which moisture content of solid sawn lumber is less than 16%).
2. BLI joists must be supported by the bottom flange on walls or beams or in hangers. They must not be supported by the top flange, by a non-structural ridge board, or by toe-nailing into a beam or ledger.
3. For BLI joists, minimum end bearing length is 1¾"; minimum intermediate bearing length is 3½".
4. BLI joists and LVL must be restrained from rotation at ends and each support. The top (or compression) edge must have continuous lateral support, such as properly installed sheathing directly attached to the compression edge.
5. Engineered lumber must not be installed in direct contact with masonry or concrete.
6. When nail type is not specified in this guide, common, box or sinkers may be used.
7. When nailing to the wide face of BLI joist flanges, maintain spacing within the following ranges:

Flange Nail Spacing				
Nail Size	BLI 700, 900		BLI 40, 60, 65, 80, 90	
	Min.	Max.	Min.	Max.
8d Box, 8d Common, 10d Box, 12d Box	2"	24"	4"	24"
10d Common, 12d Common	3"	24"	4"	24"

NOTES:
1. When more than one row of nails is required, rows must be offset by at least ½" (⅜" for BLI 700 joists) and staggered.
2. 14 gauge staples may be substituted for 8d nails if penetration into the joist flange is at least 1".
3. Do not use nails larger than those shown above when attaching sheathing to BLI joists.

8. **Minimum Spacing and Distance for Nails Installed into onCENTER LVL [a]**

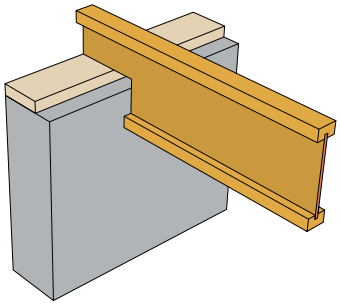
Surface	Nail	Min. End Distance	Minimum Nail Spacing		Max. Nail Penetration
			Single Row	Double Row	
Narrow Face	8d (0.131") & smaller	2½"	3"	4"	2¼"
	10d & 12d (0.148")	3½" [b]	4"	5"	2½"
	16d (0.162")	3½"	6"	6"	2"
Wide Face [c]	12d (0.148") & smaller	1½"	3"	3"	-
	16d (0.162")	1½"	5"	5"	-

a. Edge distance shall be sufficient to prevent splitting.
b. Minimum end distance for single row nailing is 3".
c. Applies to nails installed in rows parallel to the grain (length) of the LVL.

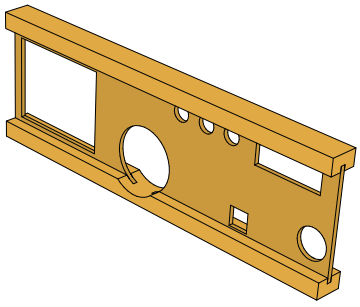
9. BLI joists are manufactured with no camber, and may be installed with web markings reading right side up or upside down.
10. Except when cutting to length or for birdsmouth cuts, BLI joist flanges should not be cut, tapered, notched, or drilled.
11. Concentrated loads should be supported by the top surface of the top flange, not hung from the bottom flange (Exceptions: lighting fixtures, ceiling fans, etc.).
12. Certain applications of staple-up radiant heating may increase deflection in I-joists with solid-sawn flanges due to unequal drying within the floor cavity (see APA publication TT-113).
13. With fire-retardent or preservative treated wood, use only stainless steel or hot-dipped galvanized connectors, fasteners and other metal hardware as required by code. As a minimum requirement, hot-dipped galvanized coated fasteners should conform to ASTM Standard A 153 and hot-dipped galvanized coated connectors should conform to ASTM Standard A 653 (Class G-185). In highly corrosive environments, stainless steel connectors and fasteners should be used.

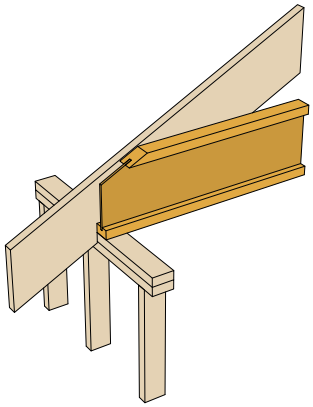
INSTALLATION CAUTIONS

DO NOT support BLI joist by top flange or web.

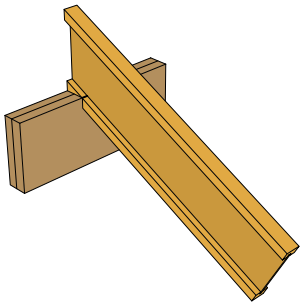


DO NOT violate hole table rules.

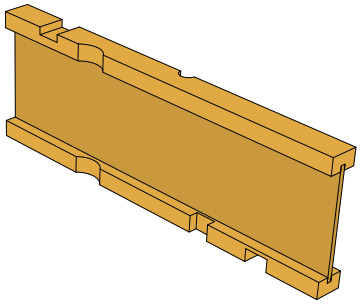




DO NOT bevel cut BLI joist past inside face of wall. See detail F8.



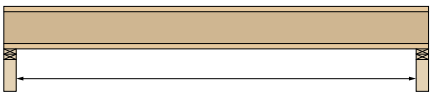
DO NOT birdsmouth cut bottom flange at high end of roof BLI joist. See roof details R2 & R3.

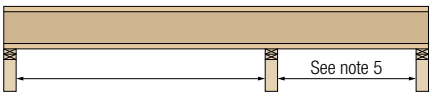


DO NOT cut or notch flanges except for cutting to length and for birdsmouth cuts (roof detail R6).

FLOOR SPANS

40 PSF Live Load + 10 PSF Dead Load (L/480)



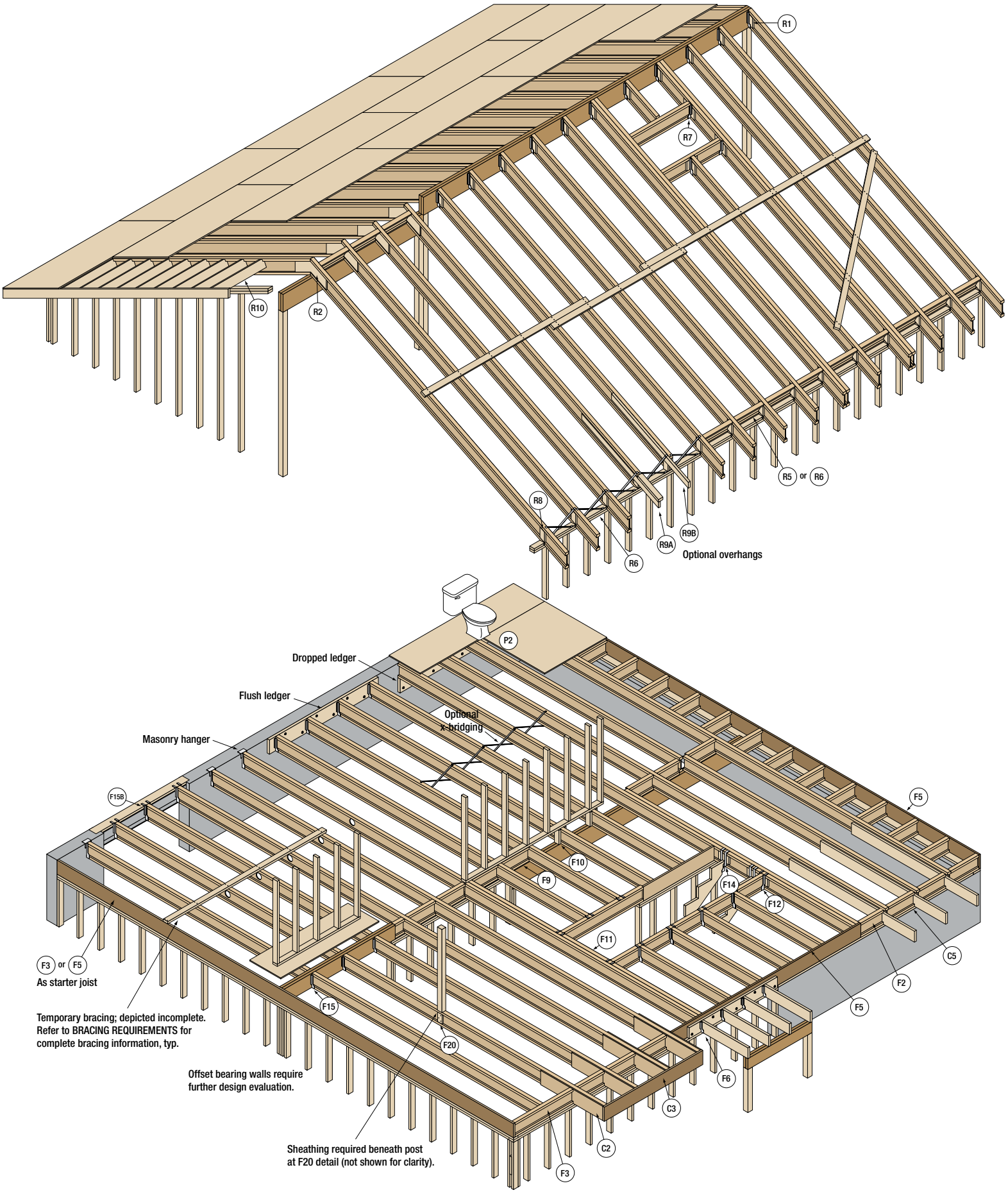


Joist Series	Joist Depth	Simple Span				Multiple Span			
		12" o.c.	16" o.c.	19.2" o.c.	24" o.c.	12" o.c.	16" o.c.	19.2" o.c.	24" o.c.
BLI 40	9½"	17'-11"	16'-05"	15'-06"	14'-06"	19'-07"	17'-10"	16'-04"	14'-07"
	11⅞"	21'-05"	19'-07"	18'-06"	16'-08"	23'-04"	20'-05"	18'-07"	16'-07"
	14"	24'-04"	22'-02"	20'-06"	18'-04"	25'-11"	22'-05"	20'-05"	18'-03"
	16"	26'-11"	24'-03"	22'-01"	19'-09"	27'-11"	24'-02"	22'-00"	19'-08"
BLI 60	11⅞"	22'-07"	20'-08"	19'-06"	18'-02"	24'-07"	22'-06"	21'-02"	19'-07"
	14"	25'-08"	23'-06"	22'-02"	20'-08"	28'-00"	25'-07"	24'-01"	19'-09"
	16"	28'-06"	26'-00"	24'-07"	22'-10"	31'-01"	28'-04"	24'-09"	19'-09"
BLI 65	11⅞"	23'-06"	21'-05"	20'-02"	18'-09"	25'-06"	23'-02"	21'-10"	19'-10"
	14"	26'-08"	24'-03"	22'-10"	21'-03"	28'-11"	26'-04"	24'-05"	21'-10"
	16"	29'-06"	26'-10"	25'-04"	23'-06"	32'-01"	28'-10"	26'-04"	23'-06"
BLI 80	11⅞"	24'-10"	22'-08"	21'-04"	19'-10"	27'-01"	24'-08"	23'-02"	21'-07"
	14"	28'-03"	25'-09"	24'-03"	22'-07"	30'-09"	28'-00"	26'-04"	23'-11"
	16"	31'-04"	28'-06"	26'-10"	25'-00"	34'-02"	31'-00"	29'-02"	24'-07"
	18"	34'-02"	31'-01"	29'-03"	24'-10"	37'-03"	33'-10"	30'-09"	24'-07"
BLI 90	11⅞"	25'-07"	23'-03"	21'-11"	20'-05"	27'-10"	25'-03"	23'-10"	21'-10"
	14"	29'-00"	26'-05"	24'-11"	23'-02"	31'-07"	28'-09"	27'-01"	23'-11"
	16"	32'-01"	29'-03"	27'-06"	25'-05"	34'-11"	31'-10"	29'-11"	25'-11"
	18"	35'-01"	31'-11"	30'-01"	24'-10"	38'-03"	34'-09"	31'-09"	25'-05"
BLI 700	11⅞"	23'-00"	21'-00"	19'-10"	18'-06"	25'-01"	22'-10"	21'-07"	19'-06"
	14"	26'-01"	23'-10"	22'-06"	20'-11"	28'-05"	25'-11"	24'-05"	19'-06"
	16"	29'-00"	26'-05"	24'-11"	23'-01"	31'-07"	28'-09"	24'-05"	19'-06"
BLI 900	11⅞"	26'-04"	24'-00"	22'-07"	21'-00"	28'-08"	26'-01"	24'-07"	22'-10"
	14"	29'-11"	27'-02"	25'-07"	23'-10"	32'-07"	29'-07"	27'-10"	25'-11"
	16"	33'-01"	30'-01"	28'-04"	26'-04"	36'-01"	32'-09"	30'-10"	26'-07"

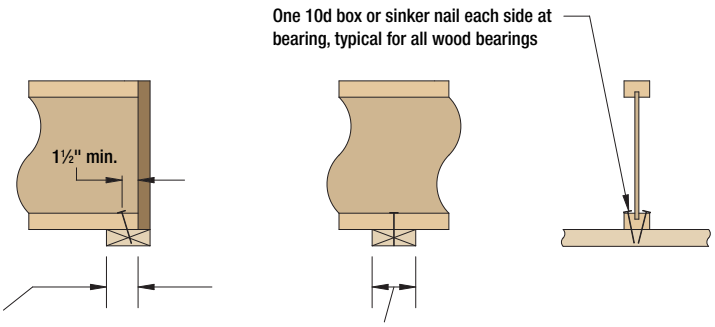
NOTES:

1. Spans are maximum clear distances between supports. Uniform loading is assumed.
2. Live load deflection is limited to L/480, providing joists that are one-third stiffer than required by code. Experience has shown that floors designed to the code minimum live load deflection (L/360) may not meet the occupant's expectations for floor performance.
3. Spans are based on composite action with glued-nailed APA Rated Sheathing or Sturd-I-Floor® panels of minimum thickness 19/32" (40/20 or 20 oc) for joist spacing of 19.2" or less, or 23/32" (48/24 or 24 oc) for a joist spacing of 24". BlueLinx recommends using an adhesive (applied to top flange of joists) that has been qualified as a Class 1/8 in., Type P/O subfloor adhesive in accordance with ASTM D3498, applied per adhesive manufacturer's instructions. Surfaces must be clean and dry. If adhesive is not used, reduce spans by 12".
4. Minimum bearing length: 1¾" (end), 3½" (intermediate).
5. For multiple-span joists (two or more spans), end spans must be at least 40% of adjacent span.
6. Tabulated spans for multiple-span conditions cover a wide range of span combinations. Neither simple nor multiple spans require bearing stiffeners. Longer spans may be possible by analyzing a specific span condition and/or by adding bearing stiffeners. Check using isDesign® software.
7. For span charts with 40 psf live load and 20 psf dead load, refer to Specifier's Guide addendum at www.buildonCENTER.com. For other loads or deflection criteria, use is Design software, or contact BlueLinx Engineered Lumber Technical Services.

onCENTER FRAMING SYSTEMS



F1 ATTACHMENT AT BEARING



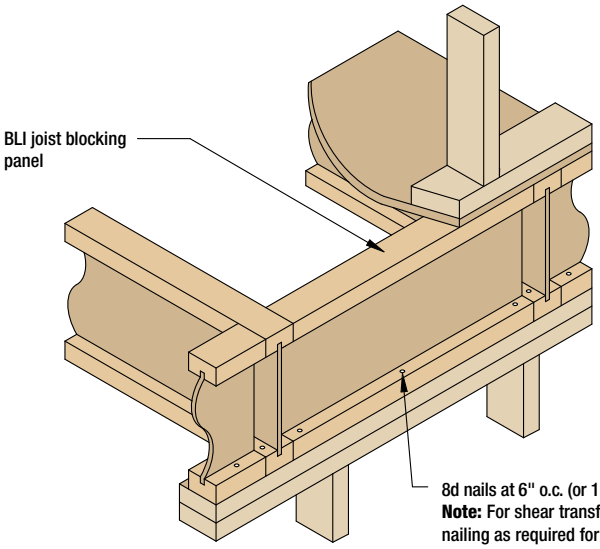
1¾" minimum end bearing length for all floor & roof details. To minimize splitting of flange and bearing plate, angle nails and start at least 1½" from end.

3½" minimum intermediate bearing length for all floor & roof details.

Longer bearing lengths may be indicated on the placement plan.

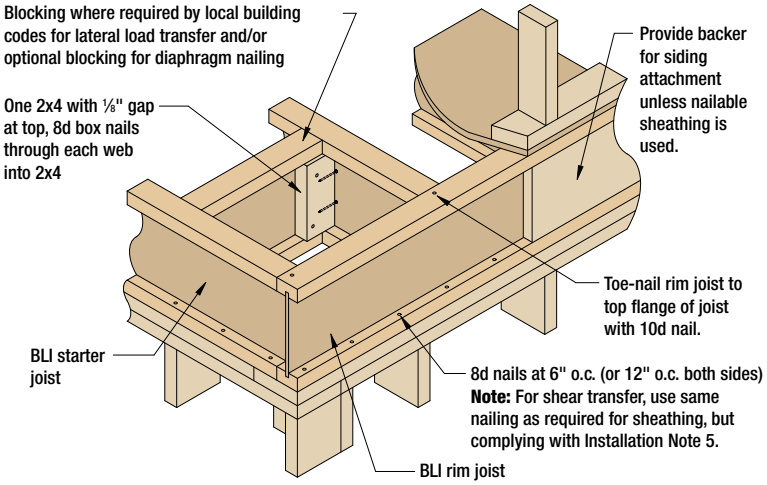
F2 BLOCKING PANEL, EXTERIOR

Vertical load transfer = 2000 plf max. (18" – 1810 plf)



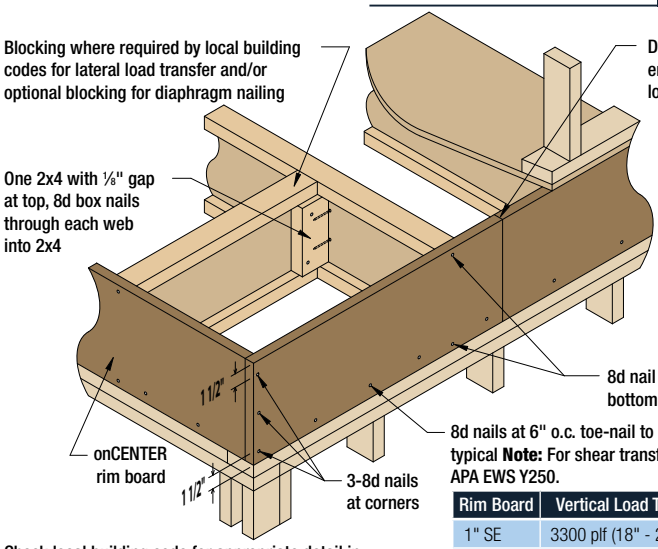
F3 BLI RIM JOIST / STARTER JOIST

Vertical load transfer = 2000 plf max. (18" – 1810 plf)



Note: Minimum 1¾" bearing length for all BLI joists

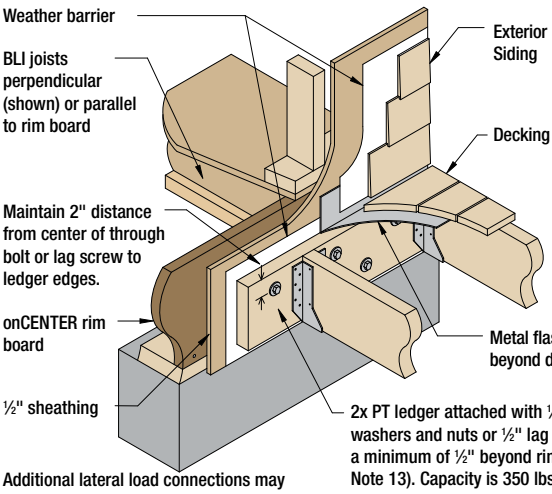
F5 onCENTER RIM BOARD CLOSURE



Rim Board	Vertical Load Transfer
1" SE	3300 plf (18" - 2750 plf)
1⅛" SE	4850 plf (18" - 4650 plf)

Check local building code for appropriate detail in areas of high lateral load.

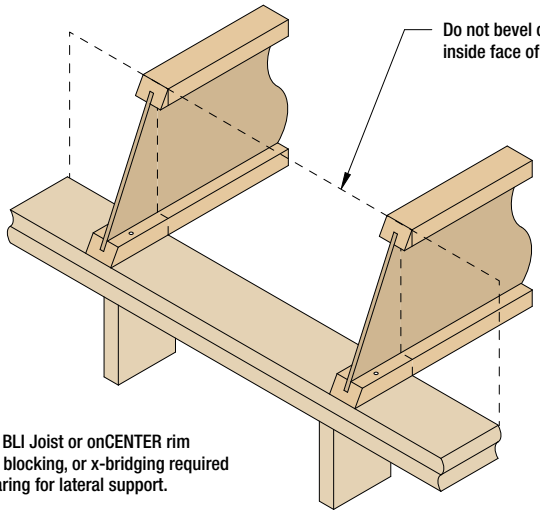
F6 DECK ATTACHMENT TO RIM BOARD



CAUTION: Insert lag screw in lead hole by turning with a wrench, not by driving with a hammer. Avoid over-torquing, which can significantly reduce lateral resistance of screw.

Additional lateral load connections may be required. See R502 (IRC 2009), R507 (IRC 2012 - 2024), and WIJMA *Deck Lateral Load Connection*.

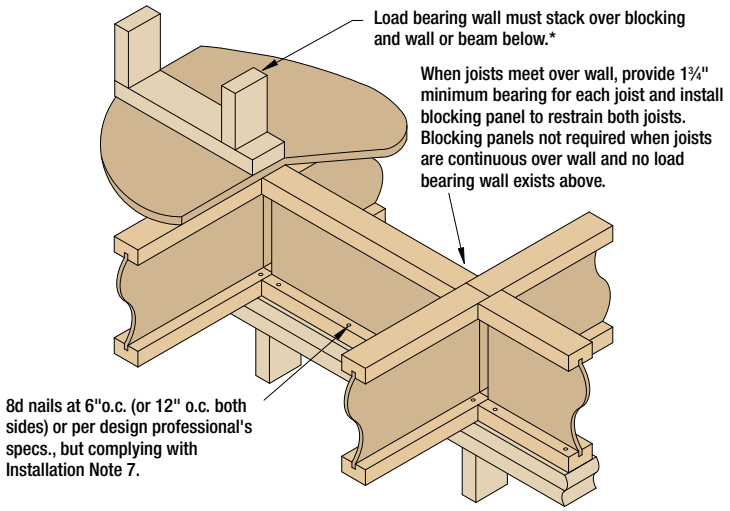
F8 BEVEL CUT JOIST



Check local building code for appropriate detail in areas of high lateral load.

F9 BLOCKING PANEL, INTERIOR

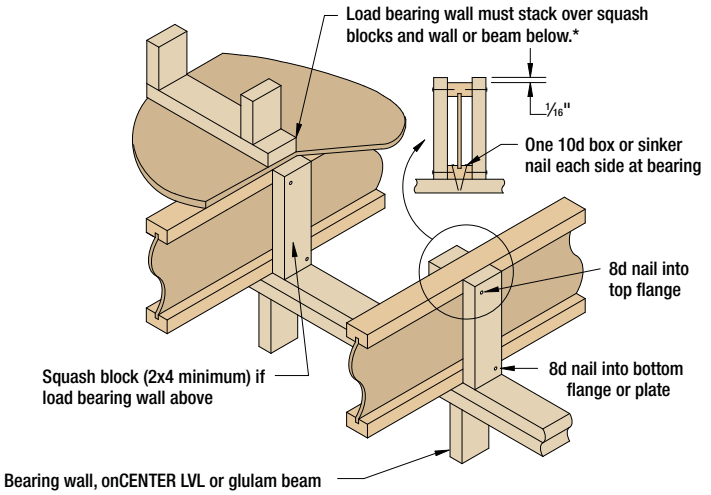
Vertical load transfer = 2000 plf max. (18" – 1810 plf)



* Non-stacking load bearing walls require additional consideration.

F10 SQUASH BLOCKS AT INTERIOR BEARING

Vertical load transfer = 2000 plf max. along load bearing wall

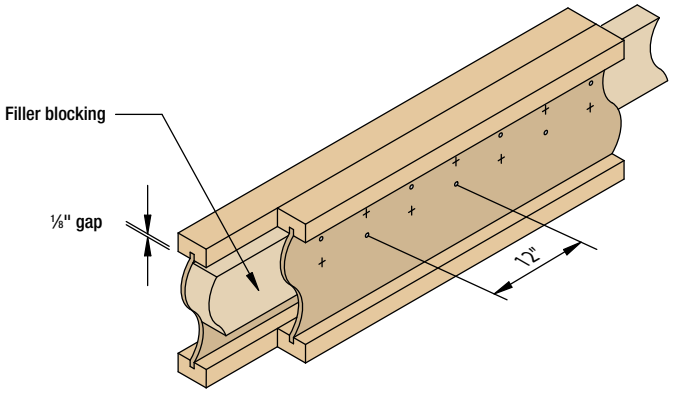


* Non-stacking load bearing walls require additional consideration.
Check local building code for appropriate detail in areas of high lateral load.

F11 DOUBLE JOIST CONSTRUCTION WITH FILLER

Note: Filler blocks and fastening between joists can be omitted when double joists are loaded evenly from above to the tops of both joists, such as when a parallel bearing wall is directly centered over the double joist.

Joist		Regular Filler Blocking (Detail F12)	Full-depth Filler Blocking (Details C4, F13, F14 & R7)
Series	Depth		
BLI 40	9½"	2x6 + ⅜" OSB/Plywood	2x6 + ⅜" OSB/Plywood
BLI 40, 60	11⅞"	2x6 + ⅜" OSB/Plywood	2x8 + ⅜" OSB/Plywood
	14"	2x8 + ⅜" OSB/Plywood	2x10 + ⅜" OSB/Plywood
	16"	2x8 + ⅜" OSB/Plywood	2x12 + ⅜" OSB/Plywood
BLI 700	11⅞"	2x6 + ⅜" OSB/Plywood	2x8 + ⅜" OSB/Plywood
	14"	2x8 + ⅜" OSB/Plywood	2x10 + ⅜" OSB/Plywood
	16"	2x8 + ⅜" OSB/Plywood	2x12 + ⅜" OSB/Plywood
BLI 65, 80 90, 900	11⅞"	2-2x8	2-2x8
	14"	2-2x8	2-2x10
	16"	2-2x8	2-2x12
BLI 80, 90	18"	2-2x8	2-2x12



1) Support back of web during nailing to prevent damage to web-flange connection.
2) Leave ⅛" gap between top of filler blocking and bottom of top flange.
3) Block solid between joists. For all applications except cantilever reinforcement, filler need not be one continuous length, but must extend the entire length of span. For double I-joist cantilever reinforcement C4, filler must be one continuous piece extending the full length of the reinforcement.
4) Place joists together and nail from each side with 2 rows of 10d common nails (16d common for BLI 65, BLI 80, BLI 90, and BLI 900) at 12" o.c. Offset rows on opposite side 6".

F12 FLOOR OPENING, TOP MOUNT HANGERS

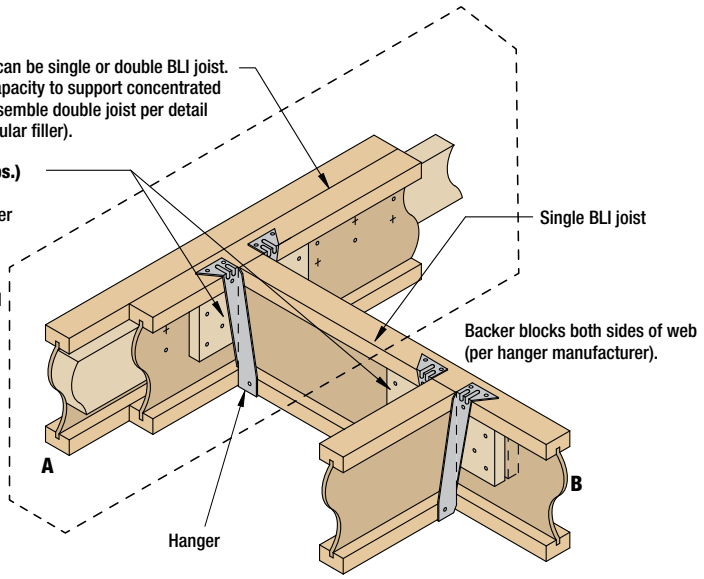
Backer Blocks*

Joist Series	Material
BLI 40, 60	½" + ½"
BLI 700	⅞"
BLI 65, 80, 90, 900	1½"

Joist Depth	Block Depth
9½", 11⅞"	5½"
14"- 18"	7¼"

* Block centered on hanger location.
Minimum length 24".

Backer Block (use if hanger load exceeds 250 lbs.)
Before installing backer to double joist, drive an additional 4-10d common nails through web into filler where backer will fit. Repeat on back side of double joist. Install backer tight to top flange. Use 8-10d common nails (15-10d common nails for BLI 65, 80, 90, 700 and 900 series joists). Stagger nails to avoid splitting. Clinch nails when possible.



F13 FLOOR OPENING, FACE MOUNT HANGERS

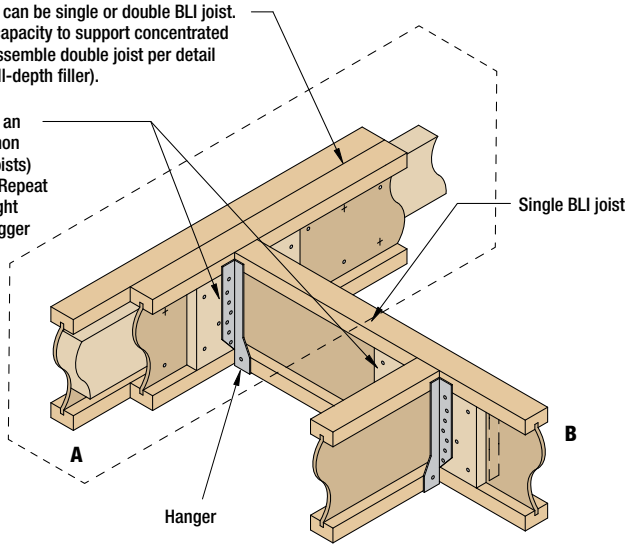
Backer Blocks*

Joist Series	Material
BLI 40, 60	½" + ½"
BLI 700	⅞"
BLI 65, 80, 90, 900	1½"

Joist Depth	Block Depth
9½"	6¼"
11⅞"	8⅝"
14"	10¾"
16"	12¾"
18"	14¾"

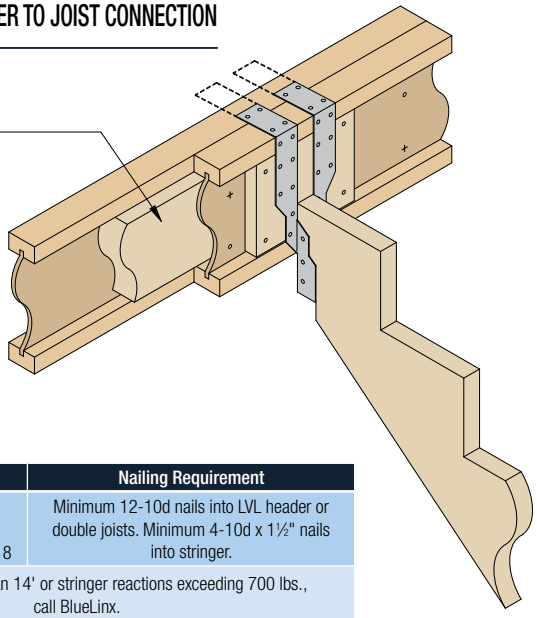
* Block centered on hanger location. Minimum length 24".

Backer Block
Before installing backer to double joist, drive an additional 7-10d common nails (4-10d common nails for BLI 65, 80, 90, 700 and 900 series joists) through web into filler where backer will fit. Repeat on back side of double joist. Install backer tight to top flange. Use 18-10d common nails. Stagger nails to avoid splitting. Clinch nails when possible.



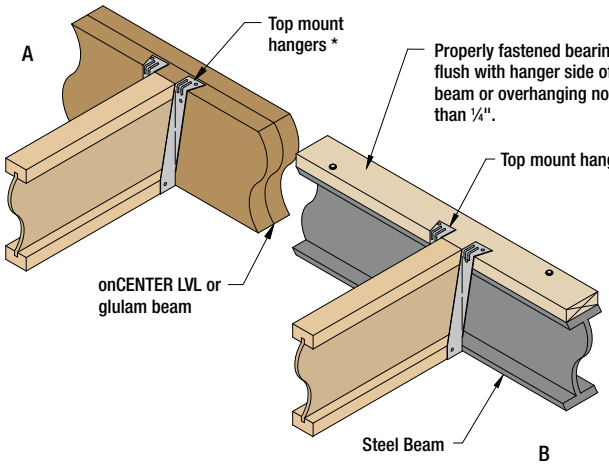
Unless hanger sides laterally restrain top flange, bearing stiffeners are required at hangers (see detail F18).

F14 STAIR STRINGER TO JOIST CONNECTION



Hangers	Nailing Requirement
MiTek® MSH218 or Simpson Strong-Tie® THA218	Minimum 12-10d nails into LVL header or double joists. Minimum 4-10d x 1½" nails into stringer.
For stringers longer than 14' or stringer reactions exceeding 700 lbs., call BlueLinx.	

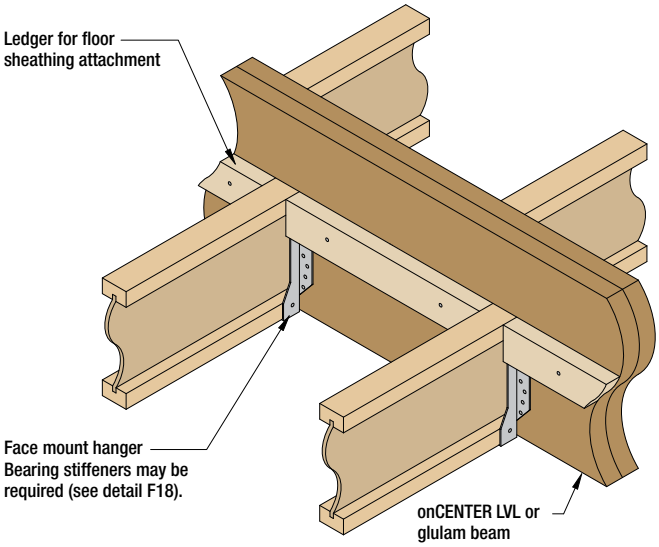
JOIST TO BEAM CONNECTION F15



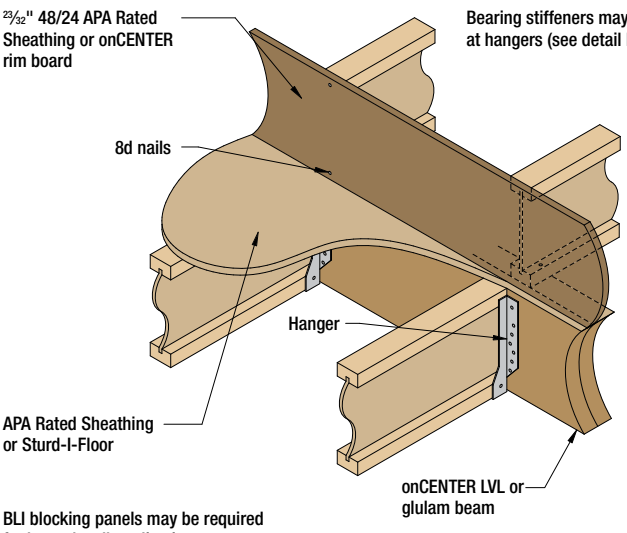
Bearing stiffeners may be required at hangers (see detail F18).

*Appropriate face mount hangers may be substituted, but 'B' requires solid wood blocking properly attached to the steel beam.

F16 JOIST TO BEAM CONNECTION, STEP DOWN



JOIST TO DROPPED BEAM CONNECTION, STEP DOWN F17

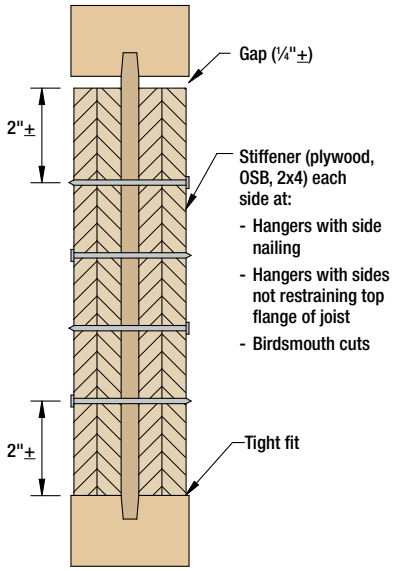


BLI blocking panels may be required for braced wall applications.

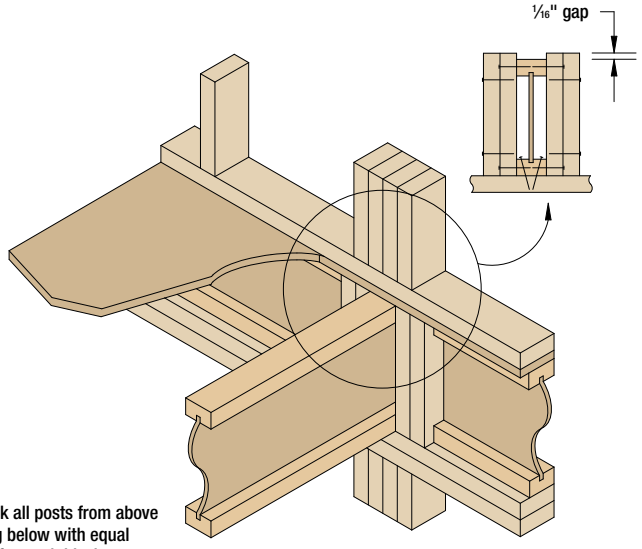
F18 BEARING STIFFENERS

Joist Series	Stiffener Material	Nails
BLI 40, 60, 700	½" + ½"	4-8d*
BLI 65, 80, 90, 900	1½"	4-10d*

Minimum stiffener width is 2⁵⁄₁₆".
* Use 6 nails for 18" joists.

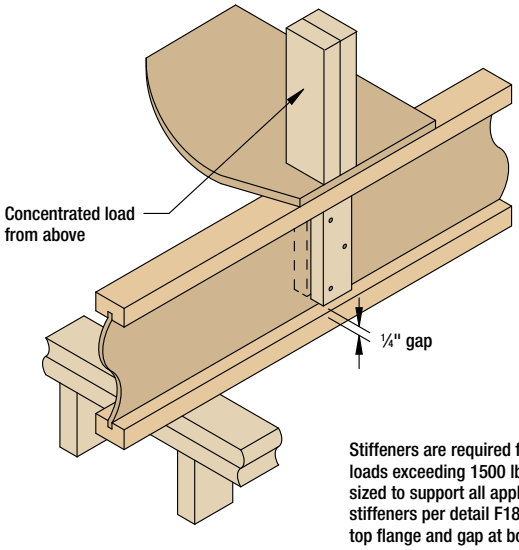


SQUASH BLOCKS AT CONCENTRATED LOADS F19



Solid block all posts from above to bearing below with equal number of squash blocks

F20 WEB STIFFENERS

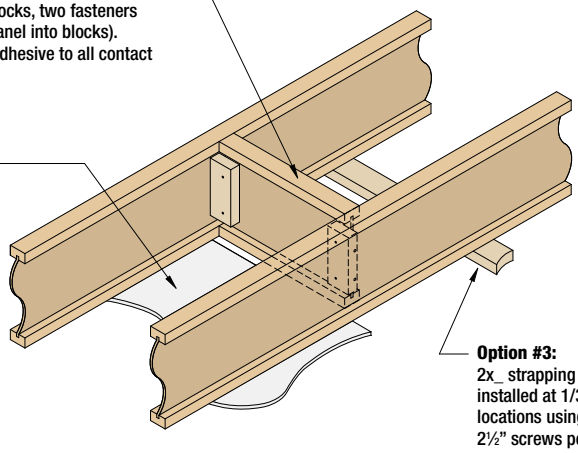


Stiffeners are required for concentrated loads exceeding 1500 lbs. I-joists must be sized to support all applied loads. Install stiffeners per detail F18 but tight against top flange and gap at bottom.

FLOOR PERFORMANCE ENHANCERS F21

Option #1:
Blocking panel with end blocks installed at ⅓ span locations using #8 x 2" screws (two fasteners from joist web into blocks, two fasteners from blocking panel into blocks). Apply subfloor adhesive to all contact surfaces.

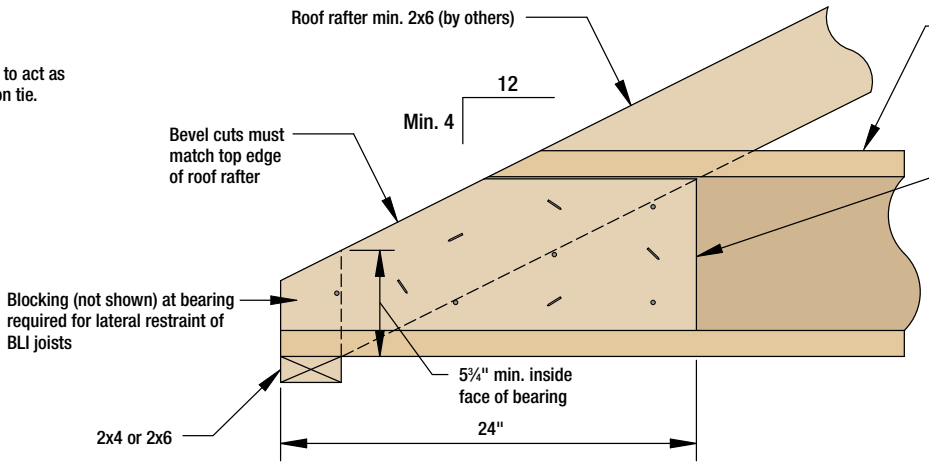
Option #2:
Directly applied ceiling



Option #3:
2x_ strapping installed at 1/3 span locations using two 2½" screws per joist

F23 TAPER CUT REINFORCEMENT
Restores full shear & reaction capacity

Note:
BLI joist not to act as rafter tension tie.



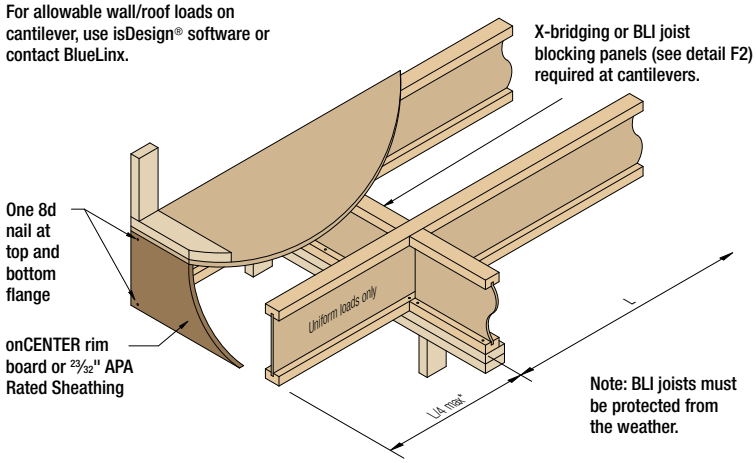
Top flange of BLI joists to be braced with sheathing or min. 1x4 at 24" o.c. max

OSB web reinforcement (23/32" thick 48/24 APA Rated Sheathing or 24 oc APA Rated Sturd-I-Floor, face grain horizontal) on both faces (tight to bottom flange). Attach with carpenter's wood glue and 10d box nails, evenly spaced, alternated on both faces, and clinched.

Joist Depth	Reinforcement Height	Nail Quantity
9½"	5¾"	6
11⅞"	7¾"	10
14"	9¼"	12
16"	11¾"	14
18"	14"	18

C1 CANTILEVER, UNREINFORCED

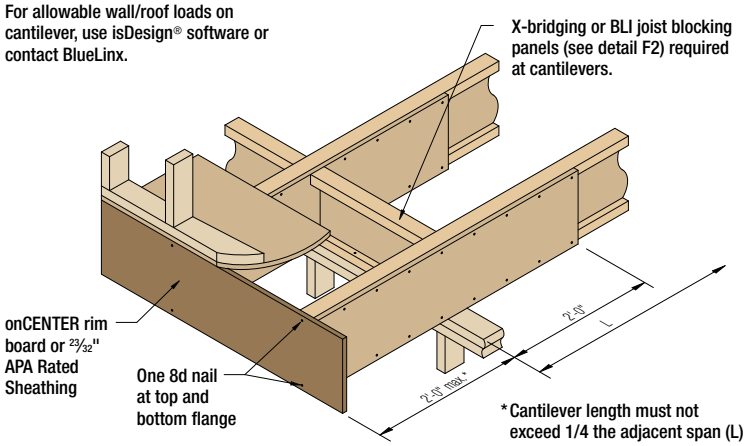
For allowable wall/roof loads on cantilever, use isDesign® software or contact BlueLinx.



*Cantilever length must not exceed ¼ the adjacent span (L). Nor may it exceed:
a) 2'-0" (if end of cantilever supports wall/roof loads)
b) 4'-0" (if no loads are placed on end of cantilever)
For other conditions contact BlueLinx.

C2 CANTILEVER, SINGLE REINFORCEMENT
Single Sheathing/Rim Board

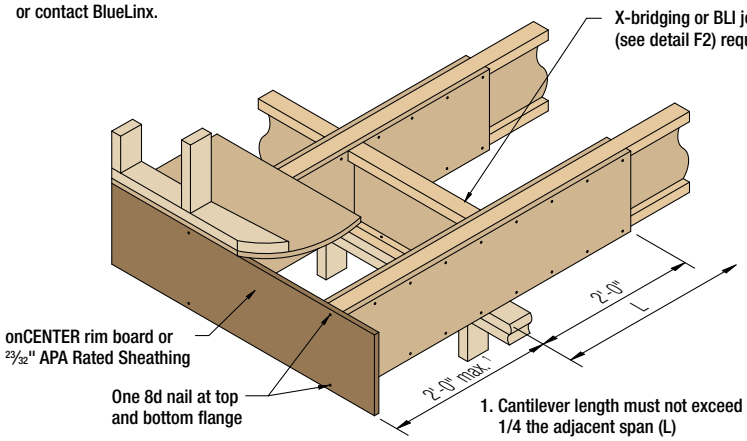
For allowable wall/roof loads on cantilever, use isDesign® software or contact BlueLinx.



Note: onCENTER rim board or 48/24 APA Rated Sheathing (strength axis horizontal) required one side of joist. Depth must match full depth of joist. Nail to joist flanges with 8d nails at 6" o.c. Minimum end distance for flange edge nailing is 2" (3" for BLI 700/900).

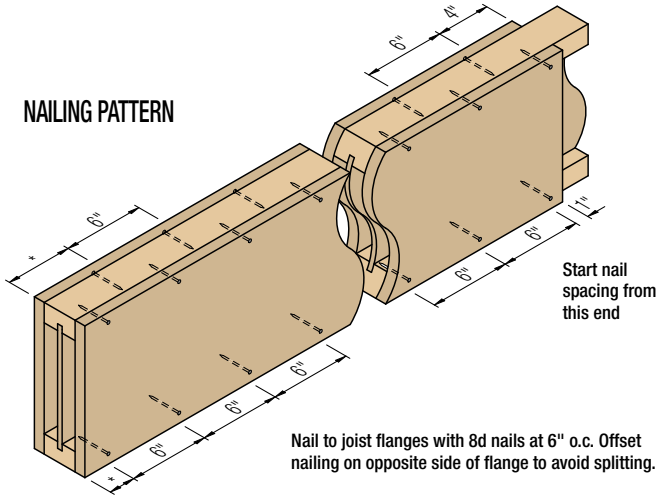
C3 CANTILEVER, DOUBLE REINFORCEMENT
Double Sheathing/Rim Board

For allowable wall/roof loads on cantilever, use isDesign® software or contact BlueLinx.



Note: onCENTER rim board or 48/24 APA Rated Sheathing (strength axis horizontal) required both sides of joist. Depth must match full depth of joist.

NAILING PATTERN

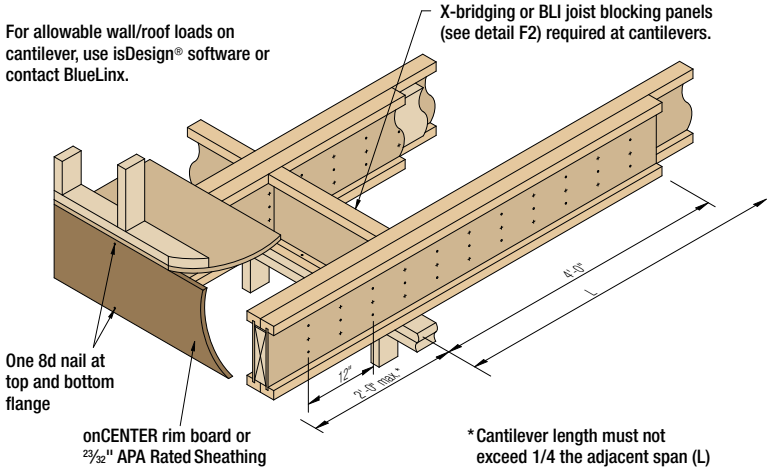


Nail to joist flanges with 8d nails at 6" o.c. Offset nailing on opposite side of flange to avoid splitting.

* Minimum end distance for flange edge nailing is 2" (3" for BLI 700/900).

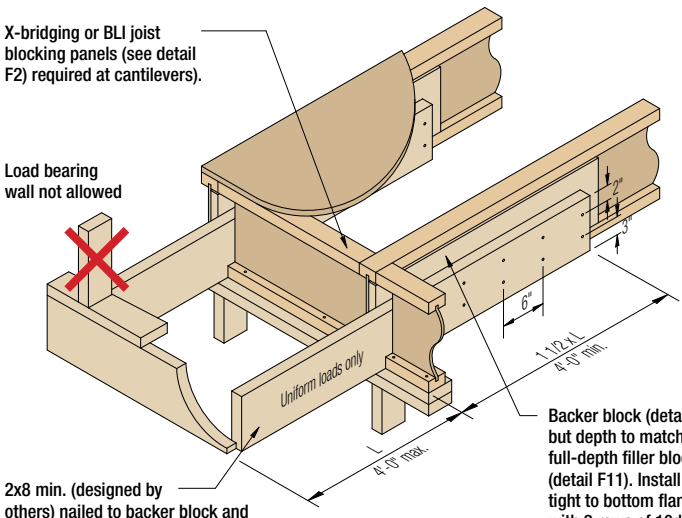
C4 CANTILEVER, DOUBLE REINFORCEMENT
Double Joist

For allowable wall/roof loads on cantilever, use isDesign® software or contact BlueLinx.



Note: Block together full length with full-depth filler blocking. See detail F11 for filler size, except filler must be one continuous length. For 9½" joists, use 2 rows of 10d nails at 12" o.c. from each side; for other depths, use 3 rows of 10d nails (16d for BLI 65, 80, 90 and 900) at 12" o.c. from each side. Offset opposite side nailing by 6".

C5 CANTILEVER, DROPPED

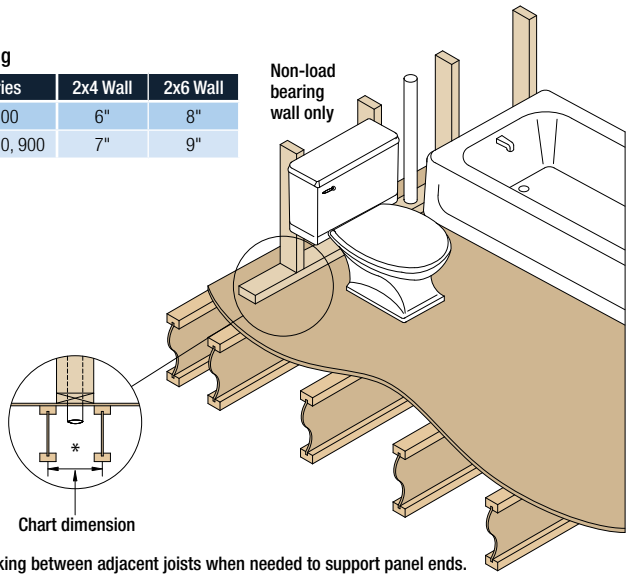


P1 JOIST SPACING BELOW PLUMBING WALL

Parallel to wall

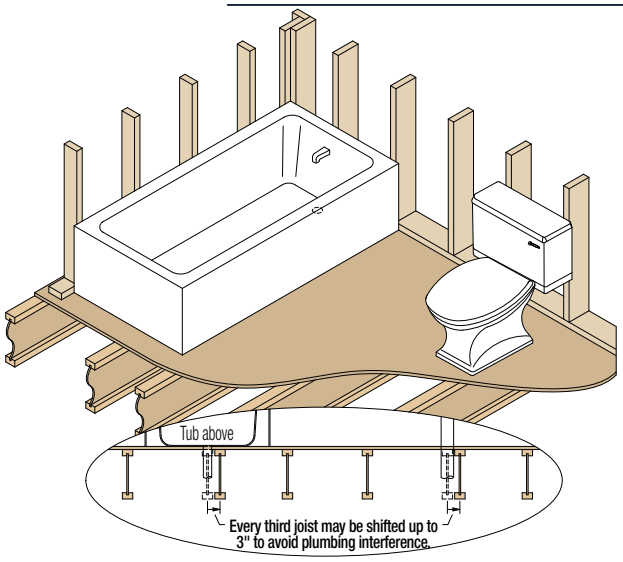
Joist Spacing

Joist Series	2x4 Wall	2x6 Wall
BLI 40, 60, 700	6"	8"
BLI 65, 80, 90, 900	7"	9"



*Provide blocking between adjacent joists when needed to support panel ends.

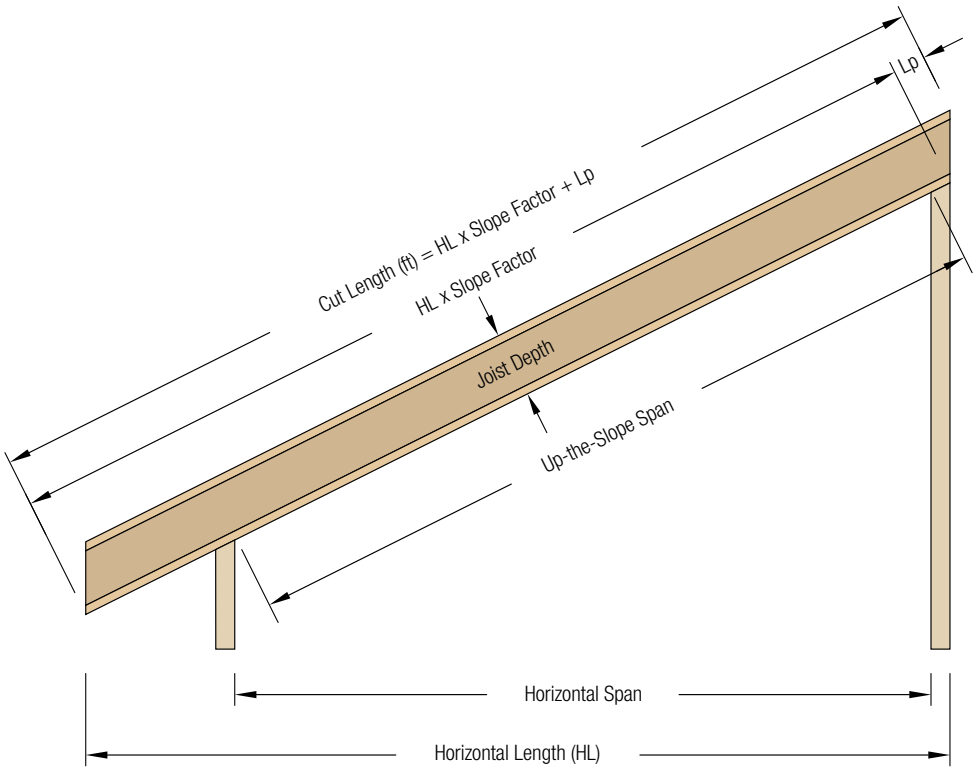
JOIST SPACING BELOW PLUMBING FIXTURES P2



May not be appropriate for some sheathing and finished flooring applications.

ROOF SLOPE FACTORS & PLUMB CUT INCREASES

	Slope (/12) & Slope Factor												
	2½	3	3½	4	4½	5	6	7	8	9	10	11	12
	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
Joist Depth	Amount to Increase Length for Plumb Cut (Lp in feet)												
9½"	0.165	0.198	0.231	0.264	0.297	0.330	0.396	0.462	0.528	0.594	0.660	0.726	0.792
11⅞"	0.206	0.247	0.289	0.330	0.371	0.412	0.495	0.577	0.660	0.742	0.825	0.907	0.990
14"	0.243	0.292	0.340	0.389	0.438	0.486	0.583	0.681	0.778	0.875	0.972	1.069	1.167
16"	0.278	0.333	0.389	0.444	0.500	0.556	0.667	0.778	0.889	1.000	1.111	1.222	1.333
18"	0.313	0.375	0.438	0.500	0.563	0.625	0.750	0.875	1.000	1.125	1.250	1.375	1.500

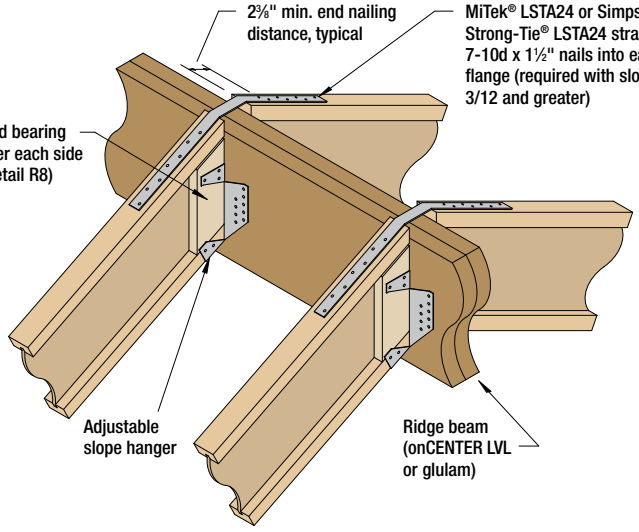


EXAMPLE:

11⅞" BLI joists, 6/12 slope, 15' 8½" Horizontal Span, 2' overhang (horizontal) and 3½" walls.

HL = 2' + 3½" + 15' 8½" + 3½" = 18' 3½"
3.5"/12 = .292' , 18' + .292' = 18.292'
18.292' x 1.118 (Slope Factor from chart) = 20.45'
20.45' + .495' (Lp from chart) = 20.945' (20')
0.945' x 12 = 11.34" (11")
0.34" x 16 = 5.44, round to 6 (sixteenths)
Cut Length = 20' 11⅜"

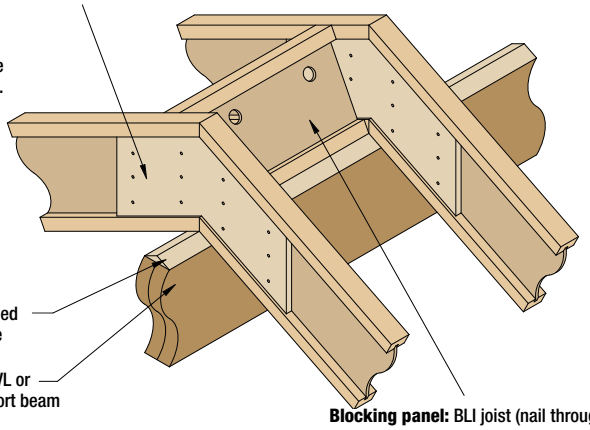
R1 RIDGE-JOIST CONNECTION
12/12 maximum slope



Additional uplift connections may be required.

R2 JOISTS ABOVE RIDGE SUPPORT BEAM
12/12 maximum slope

²³⁄₃₂" x 2'-0" 48/24 APA Rated Sheathing gusset (strength axis horizontal) each side with 12-8d nails clinched or strap with 16-10d x 1½" nails applied to top flange per detail R1.

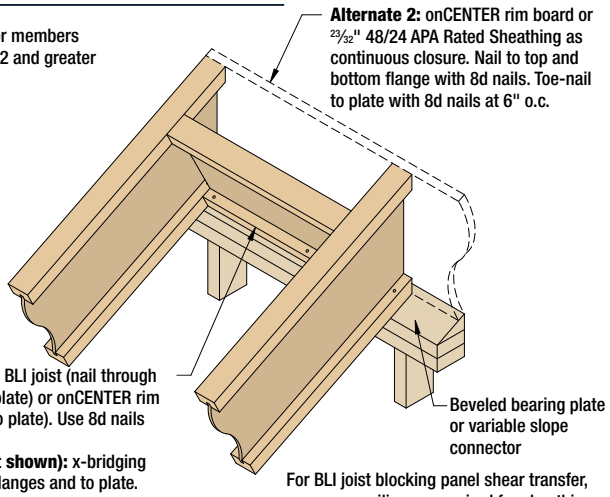


For BLI joist blocking panel shear transfer, use same nailing as required for sheathing, but complying with Installation Note 7. For rim board shear transfer, see APA EWS Y250.

Blocking panel: BLI joist (nail through top of flange to plate) or onCENTER rim board (toe-nail to plate). Use 8d nails at 6" o.c.
Alternate (not shown): x-bridging attached to top flanges and to plate.

R3 UPPER END, BEARING ON WALL
12/12 maximum slope

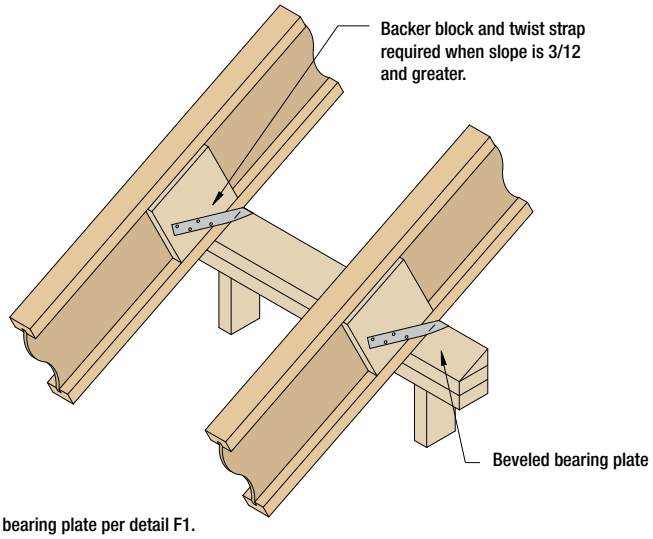
Strap required for members with slope of 3/12 and greater



For BLI joist blocking panel shear transfer, use same nailing as required for sheathing, but complying with Installation Note 7. For rim board or continuous closure shear transfer, see APA EWS Y250.

Attach to bearing plate per detail F1. Additional uplift connections may be required.

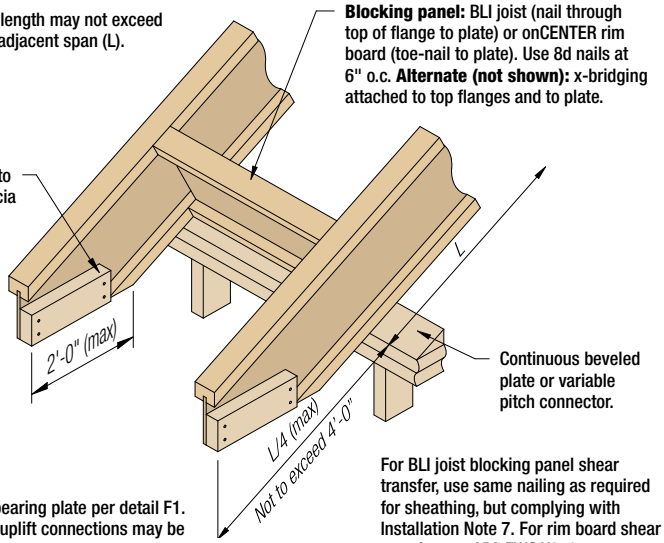
R4 INTERMEDIATE BEARING
12/12 maximum slope



Attach to bearing plate per detail F1. Additional uplift connections may be required.

R5 JOISTS ON BEVELED PLATE
12/12 maximum slope

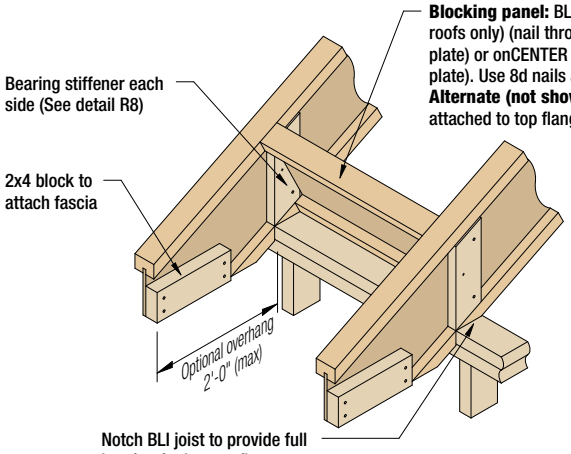
Cantilever length may not exceed 1/4 of the adjacent span (L).



For BLI joist blocking panel shear transfer, use same nailing as required for sheathing, but complying with Installation Note 7. For rim board shear transfer, see APA EWS Y250.

Attach to bearing plate per detail F1. Additional uplift connections may be required.

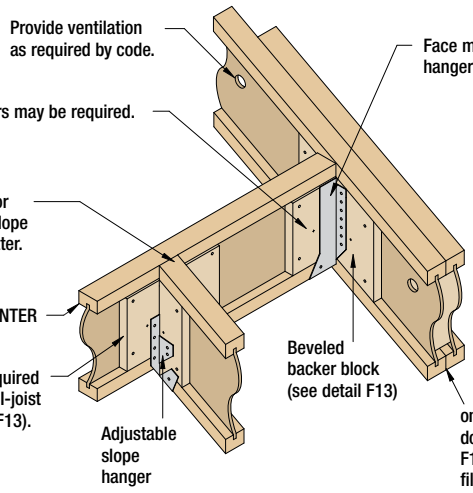
R6 BIRDSMOUTH CUT
Low end of joist only. 12/12 maximum slope



For BLI joist blocking panel shear transfer, use same nailing as required for sheathing, but complying with Installation Note 7. For rim board shear transfer, see APA EWS Y250.

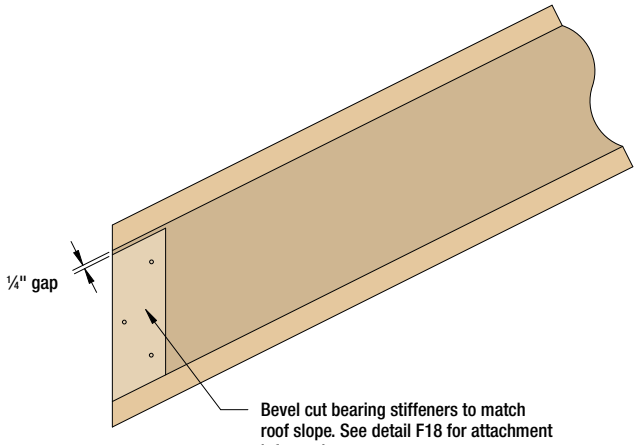
Attach to bearing plate per detail F1. Additional uplift connections may be required.

R7 ROOF OPENING, FACE MOUNT HANGERS
12/12 maximum slope



Additional uplift connections may be required.

R8 BEVELED CUT BEARING STIFFENERS
12/12 maximum slope



R9 OPTIONAL OVERHANG EXTENSIONS
12/12 maximum slope

May be used with detail R5 and R6 (low end only)

A

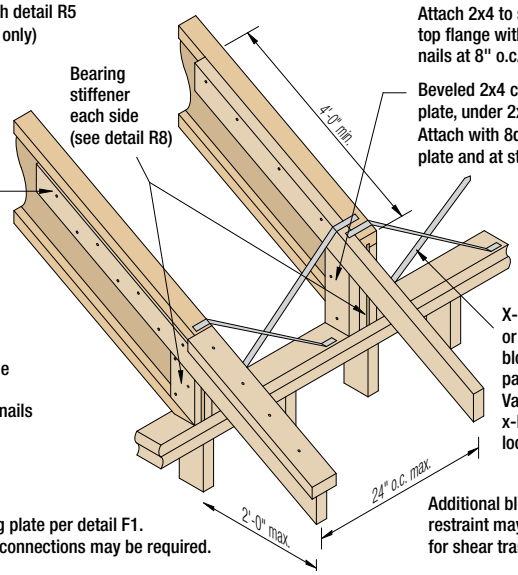
Locate top edge of 2x4 1½" down from top of joist. Attach to joist web with 2 rows of 8d nails at 8" o.c. clinched.

Fasten 2x4 flange extension to 2x4 support with 8d nails at 8" o.c.

B

Attach 2x4 to side of top flange with 10d box nails at 8" o.c.

Beveled 2x4 cripple at plate, under 2x4 overhang. Attach with 8d nail at plate and at stiffener.

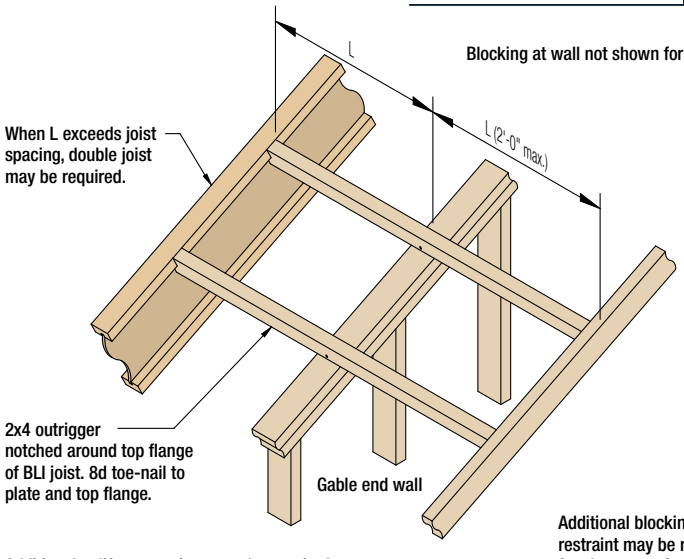


Attach to bearing plate per detail F1. Additional uplift connections may be required.

Additional blocking or restraint may be required for shear transfer.

R10 OVERHANG PARALLEL TO JOIST
12/12 maximum slope

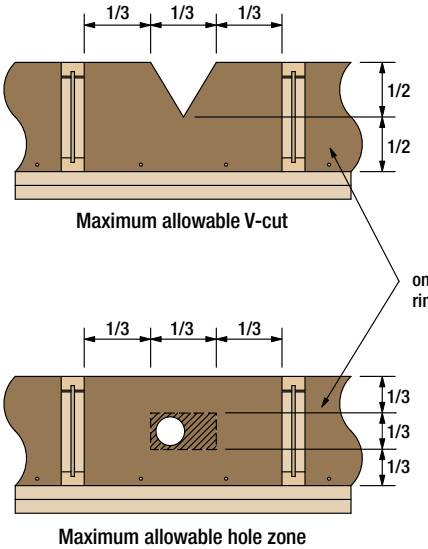
Blocking at wall not shown for clarity

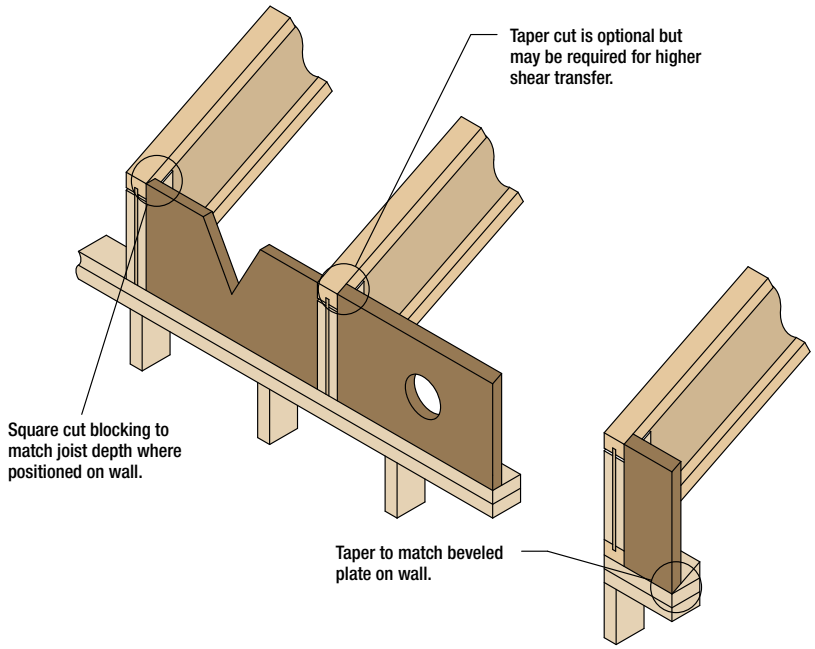


Additional uplift connections may be required.

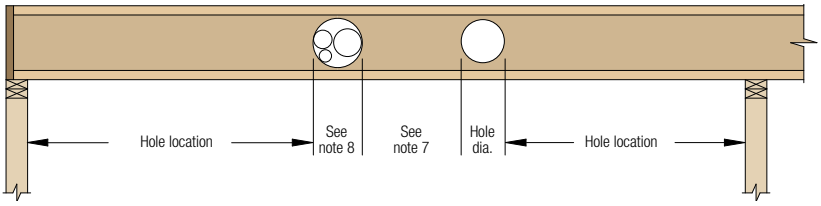
Additional blocking or restraint may be required for shear transfer

R11 ROOF BLOCKING WITH PERMITTED VENTILATION





HOLES



Hole location is minimum distance from inside face of support to nearest edge of hole.

DO NOT cut or drill flanges.

Allowable Hole Location for BLI 40, 60, 65, 80, 90, 700, and 900 (Simple or Multiple Span)

Joist Depth	Clear Span	Hole Diameter 2"	3"	4"	5"	6¼"	7"	8"	8⅝"	9"	10"	10¾"	11"	12"	12¾"
9½"	10'	0'-6"	0'-6"	0'-9"	1'-9"	3'-3"									
	12'	0'-6"	1'-3"	2'-3"	3'-3"	4'-6"									
	14'	0'-6"	1'-0"	2'-3"	3'-6"	5'-6"									
	16'	0'-6"	0'-6"	2'-0"	3'-6"	5'-9"									
	18'	0'-6"	0'-6"	0'-9"	2'-6"	5'-0"									
11⅞"	12'	0'-6"	0'-6"	0'-9"	1'-0"	1'-9"	2'-6"	3'-9"	4'-6"						
	14'	0'-6"	0'-6"	0'-9"	1'-9"	3'-3"	4'-0"	5'-3"	6'-0"						
	16'	0'-6"	1'-3"	2'-3"	3'-3"	4'-6"	5'-6"	6'-6"	7'-6"						
	18'	1'-6"	2'-6"	3'-6"	4'-6"	6'-0"	6'-9"	8'-0"							
	20'	0'-9"	2'-0"	3'-3"	4'-6"	6'-3"	7'-3"	8'-9"							
	22'	1'-6"	2'-9"	4'-0"	5'-6"	7'-3"	8'-3"	9'-9"							
	24'	0'-6"	1'-9"	3'-3"	4'-9"	7'-0"	8'-3"	10'-0"	11'-3"						
14"	14'	0'-6"	0'-6"	0'-9"	1'-0"	1'-0"	1'-6"	2'-6"	3'-3"	3'-9"	4'-9"	5'-9"			
	16'	0'-6"	0'-6"	0'-9"	1'-0"	2'-0"	2'-9"	4'-0"	4'-6"	5'-0"	6'-3"	7'-3"			
	18'	0'-6"	0'-6"	1'-0"	2'-0"	3'-3"	4'-3"	5'-3"	6'-0"	6'-6"	7'-9"				
	20'	0'-6"	0'-6"	0'-9"	1'-6"	3'-0"	4'-0"	5'-3"	6'-3"	6'-9"	8'-6"				
	22'	0'-6"	0'-6"	1'-6"	2'-9"	4'-3"	5'-6"	6'-9"	7'-9"	8'-3"	10'-0"				
	24'	0'-6"	1'-0"	2'-3"	3'-6"	5'-3"	6'-3"	7'-9"	8'-9"	9'-3"	10'-9"				
	26'	0'-6"	0'-6"	1'-0"	2'-6"	4'-6"	5'-9"	7'-6"	8'-6"	9'-3"	11'-3"				
	28'	0'-6"	0'-9"	2'-3"	3'-9"	5'-9"	7'-0"	8'-9"	10'-0"	10'-6"	12'-6"				
16"	14'	0'-6"	0'-6"	0'-9"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-3"	2'-6"	3'-3"	3'-6"	4'-9"	5'-6"
	16'	0'-6"	0'-6"	0'-9"	1'-0"	1'-0"	1'-0"	1'-6"	2'-3"	2'-9"	3'-9"	4'-6"	5'-0"	6'-3"	7'-0"
	18'	0'-6"	0'-6"	0'-9"	1'-0"	1'-0"	2'-0"	3'-0"	3'-6"	4'-0"	5'-3"	6'-0"	6'-3"	7'-6"	
	20'	0'-6"	0'-6"	0'-9"	1'-3"	2'-6"	3'-3"	4'-3"	5'-0"	5'-6"	6'-6"	7'-6"	7'-9"	9'-0"	
	22'	0'-6"	0'-6"	0'-9"	1'-0"	1'-9"	2'-9"	4'-0"	4'-9"	5'-3"	6'-9"	7'-9"	8'-3"	9'-9"	
	24'	0'-6"	0'-6"	0'-9"	1'-6"	3'-0"	4'-0"	5'-3"	6'-0"	6'-9"	8'-0"	9'-3"	9'-9"	11'-3"	
	26'	0'-6"	0'-6"	0'-9"	2'-0"	3'-9"	4'-9"	6'-0"	7'-0"	7'-6"	9'-0"	10'-3"	10'-6"	12'-3"	
	28'	0'-6"	0'-6"	0'-9"	1'-0"	2'-6"	3'-6"	5'-3"	6'-3"	7'-0"	8'-9"	10'-3"	10'-9"	12'-9"	
	30'	0'-6"	0'-6"	0'-9"	1'-9"	3'-9"	5'-0"	6'-6"	7'-6"	8'-3"	10'-0"	11'-6"	11'-9"	13'-9"	
	32'	0'-6"	0'-6"	0'-9"	1'-0"	2'-3"	3'-6"	5'-6"	6'-9"	7'-6"	9'-6"	11'-0"	11'-6"	13'-9"	
18"	16'	0'-6"	0'-6"	0'-9"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-6"	2'-3"	2'-6"	3'-6"	4'-6"
	18'	0'-6"	0'-6"	0'-9"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-6"	2'-6"	3'-3"	3'-9"	4'-9"	5'-9"
	20'	0'-6"	0'-6"	0'-9"	1'-0"	1'-0"	1'-0"	1'-9"	2'-3"	2'-9"	3'-9"	4'-9"	5'-0"	6'-3"	7'-3"
	22'	0'-6"	0'-6"	0'-9"	1'-0"	1'-0"	1'-0"	1'-0"	1'-6"	2'-0"	3'-6"	4'-6"	4'-9"	6'-3"	7'-6"
	24'	0'-6"	0'-6"	0'-9"	1'-0"	1'-0"	1'-0"	2'-0"	3'-0"	3'-3"	4'-9"	5'-9"	6'-3"	7'-9"	8'-9"
	26'	0'-6"	0'-6"	0'-9"	1'-0"	1'-0"	1'-0"	2'-0"	2'-9"	3'-3"	4'-9"	6'-0"	6'-3"	8'-0"	9'-3"
	28'	0'-6"	0'-6"	0'-9"	1'-0"	1'-0"	1'-0"	1'-3"	2'-3"	3'-0"	4'-9"	6'-0"	6'-6"	8'-3"	9'-9"
	30'	0'-6"	0'-6"	0'-9"	1'-0"	1'-0"	1'-0"	2'-6"	3'-9"	4'-3"	6'-0"	7'-3"	7'-9"	9'-9"	11'-3"
	32'	0'-6"	0'-6"	0'-9"	1'-0"	1'-0"	1'-0"	1'-0"	1'-9"	2'-6"	4'-6"	6'-0"	6'-6"	8'-9"	10'-6"
	34'	0'-6"	0'-6"	0'-9"	1'-0"	1'-0"	1'-0"	1'-0"	2'-0"	2'-9"	4'-9"	6'-6"	7'-0"	9'-3"	11'-3"

EXAMPLE:

Determine the allowable location for an 8" round hole in an 11⅞" BLI 60 joist spanning 17'- 4". In the leftmost column locate the joist depth of 11⅞". In the next column, find both the 16' row and the 18' row. Following the 16' row across to the column for an 8" diameter hole yields a distance of 6'-6". The 18' row yields a distance of 8'-0". The larger distance controls, so 8'-0" is the minimum clear distance for an 8" round hole.

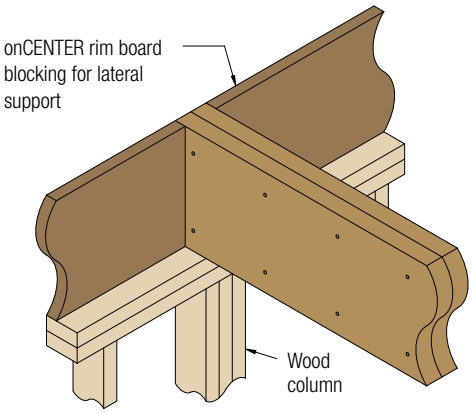
NOTES:

1. Hole locations are based on uniform loads of 40 psf live and 10 or 20 psf dead, and worst case of simple or multiple spans.
2. For joist clear spans between those shown, check minimum distance for both spans adjacent to that span, and use the larger distance.
3. For multiple span applications, use longest span to determine permissible hole locations in either span.
4. Holes may be placed vertically anywhere in web, but a minimum clearance of ⅛" must be maintained from flange.
5. To determine locations for rectangular holes, multiply longest side of rectangular hole by 1.33 and use table to find location for that round hole diameter. Then add (round hole diameter – rectangular hole length) / 2. Example: for a rectangular hole 4" long and 6" high, the longest side is 6", so the round hole diameter to look up would be 1.33 x 6, or 8". Say the tabulated minimum distance for the 8" hole is 10'-0". Adding (8"- 4") / 2, or 2" gives a minimum distance of 10'-2" for the rectangular hole.
6. Small holes (1½" diameter and less) may be located anywhere in web if: A) Spaced a minimum horizontal clear distance of 2 diameters, but no less than 1", from any hole, B) No more than 2 small holes are placed next to each other and/or adjacent to larger holes, and C) Adjacent groups of small holes are spaced a minimum horizontal clear distance of 12".
7. Holes larger than 1½" diameter must meet the following requirements for minimum clear distance between holes: A) Two round holes - 2 times the larger hole diameter. B) A rectangular hole and a round hole - 2 times the hole diameter or 2 times the rectangular hole width, whichever is greater.
8. Multiple round holes grouped closely together may be considered as a single hole circumscribing them.
9. For other conditions, or more precise hole locations, use isDesign® software.

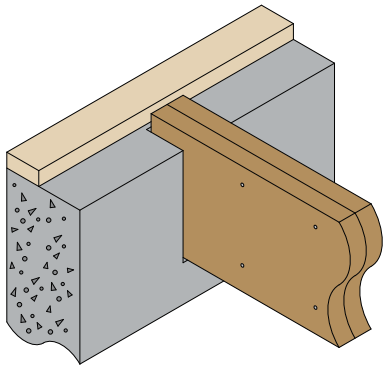
onCENTER LVL BEARING DETAILS

- Required bearing length depends on applied loads, but may not be less than 1½" for end and 3" for intermediate bearings.
- Verify adequacy of supporting material to carry applied loads

B1 BEARING ON WALL

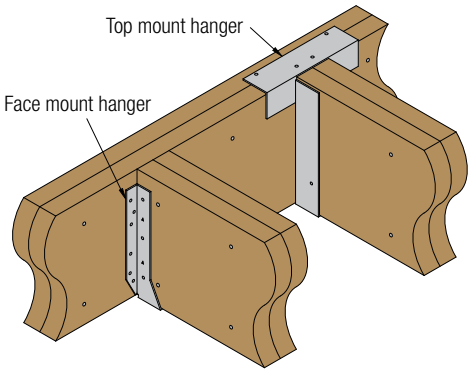


B2 BEARING ON CONCRETE WALL



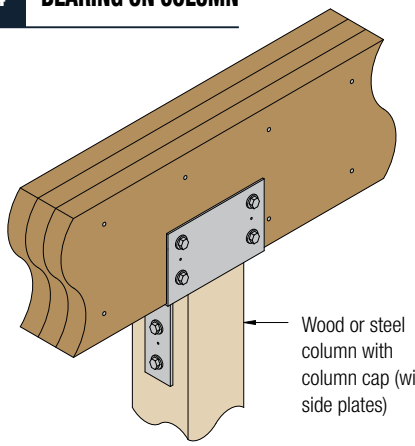
Protect onCENTER LVL from direct contact with concrete. Refer to local building code for requirements.

B3 BEAM-TO-BEAM CONNECTION



Install hangers per hanger manufacturer's instructions.

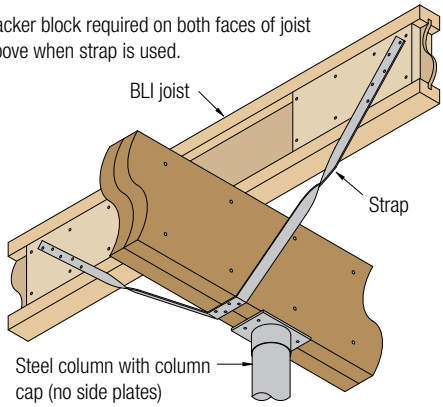
B4 BEARING ON COLUMN



Column caps with side plates provide lateral restraint and load transfer.

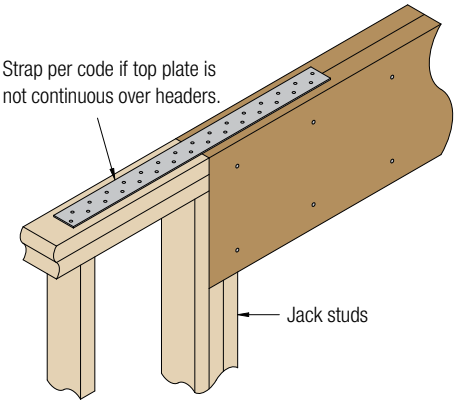
B5 BEAM-TO-COLUMN LATERAL BRACE

Backer block required on both faces of joist above when strap is used.

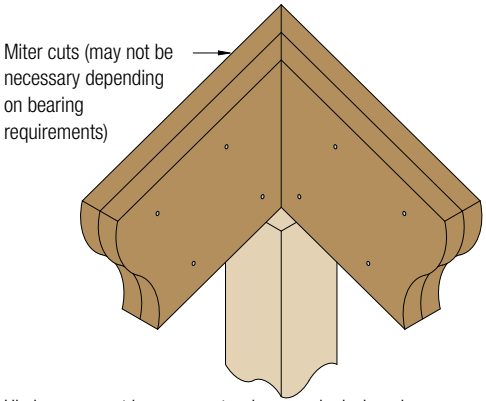


Strap not required if cap has side plates or if beam is connected to cap with four ⅜" x 2½" lag screws.

B6 BEARING FOR DOOR OR WINDOW HEADER

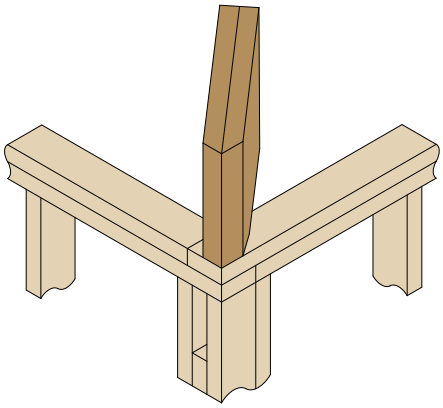


B7 HIGH END HIP BEARING



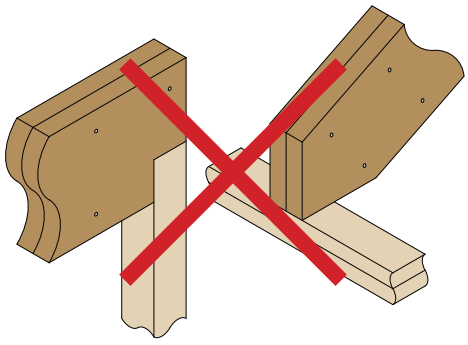
Hip beams must bear on post or in properly designed connector.

B8 LOW END HIP BEARING



Wall plate or post must fully support hip beam. Seat cut must not extend beyond inside face of bearing.

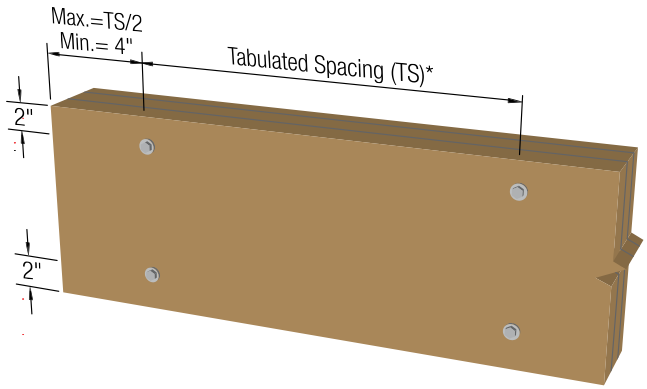
B9 NOTCHING / SEAT CUT



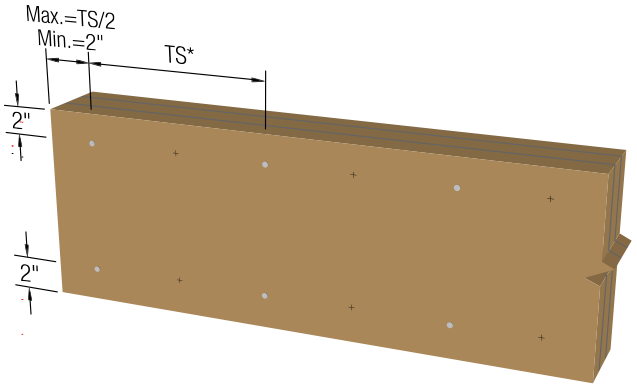
DO NOT notch beam at bearing. Seat cut must not extend beyond inside face of bearing.

MULTIPLE-PLY LVL FASTENING

Bolts & Screws

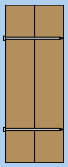
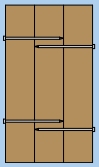
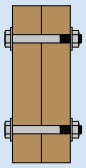
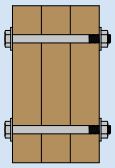
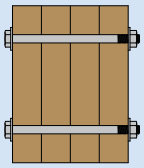
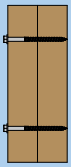
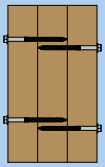
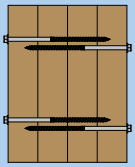
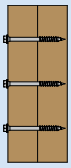
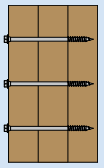
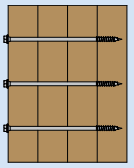


16d Nails



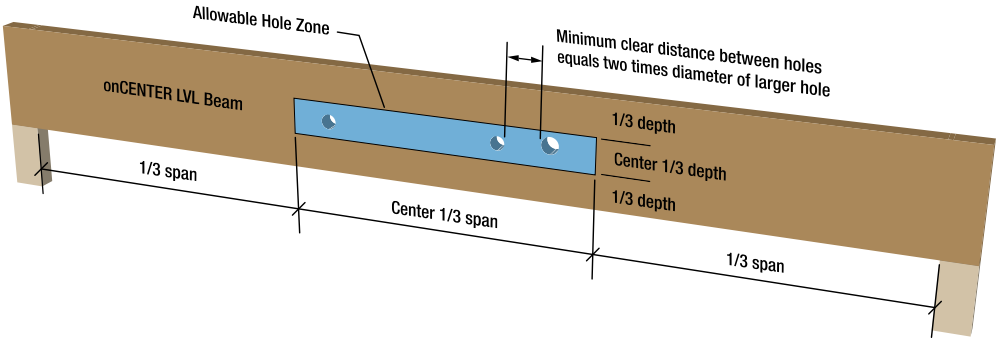
Graphic above shows 2 rows of nails applied to both faces.

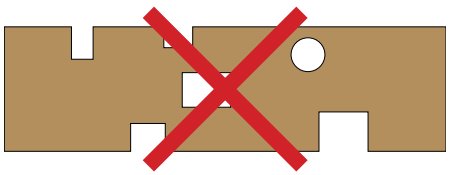
1. These minimum requirements are adequate only when all loads are evenly applied to the top surface of all plies. If loads are applied to the side face(s) of the beam, see designer's specifications.
2. Table below shows required fastener spacings and number of rows. End distances and edge distances must comply with diagram on the left. For offset fastening patterns, maximum end distance applies to all rows.
3. Fastening for depths less than 7¼" requires special consideration. Contact BlueLinx.
4. Fasteners must have full embedment of the shank, but must not be over-driven, over-tightened, or countersunk.
5. Bolt hole diameter must be 1/32" to 1/16" larger than bolt diameter. Bolts are to meet ASTM A307 or SAE J429 grades. Bolts must extend through full thickness of member and at least ½" beyond. Use a washer under head and nut.
6. Carriage bolts (½" diameter) may be used for through bolts. Carriage bolt heads may be drawn into the face of the LVL such that the top of the heads are even with the exterior face of the outer ply.
7. Spacings closer than those indicated may be acceptable, but require evaluation. Please contact BlueLinx.
8. WS and WSWH structural screws are produced by MiTek USA, Inc. SDS and SDW structural screws are produced by Simpson Strong-Tie® Company, Inc. FlatLOK® and TrussLOK® structural screws are produced by FastenMaster-OMG, Inc. Install screws per manufacturers' guidelines.

Fastener Type	LVL Depth	Fastener Rows	Fastener Spacing	3½" Wide (2-ply 1¾")	5¼" Wide (3-ply 1¾")	7" Wide (4-ply 1¾")
16d Nails (0.131" x 3.5") or Common (0.162" x 3.5")	7¼" - 11⅞"	2 (shown)	12"			Not Permitted
	14" - 18"	3	12"			
	24"	4	12"			
1/2" Through Bolts	7¼" - 18"	2 (shown)	24"			
	24"	3	24"			
				3½" Screw Length	3½" Screw Length	6" Screw Length
WS or SDS Screws	7¼" - 18"	2 (shown)	24"			
	24"	3	24"			
				3⅜" - 3½" Screw Length	5" Screw Length	6¾" Screw Length
SDW22, WSWH, FlatLOK, or TrussLOK Screws	7¼" - 18"	2	24"			
	24"	3 (shown)	24"			

Where fasteners are shown from both sides, fastener schedules must be repeated on each face, with fasteners on back face offset one-half the indicated spacing from front face.

ALLOWABLE HORIZONTAL HOLES IN onCENTER LVL





DO NOT cut, notch, or drill onCENTER LVL except as shown in this guide.

Allowable Hole Sizes

Beam Depth	Maximum Round Hole Diameter
4⅜"	¾"
5½"	1⅛"
7¼"	1½"
9¼" - 24"	2"

NOTES:

1. Hole(s) must be located entirely in the Allowable Hole Zone.
2. Rectangular holes not allowed.
3. No more than 3 holes allowed per span.
4. Table applies to single and multiple span uniformly loaded beams only. Not valid for cantilevers.
5. To avoid problems with rigid pipes, consider hole location, clearance, and effects of beam deflection.
6. Larger holes and/or locations outside of the Allowable Hole Zone may be possible. Please contact BlueLinx.

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