

ALLJoist®

BOISESM
Engineered Wood Products

INSTALLATION GUIDE USA



The Installation Guide is intended to provide general information for the designer and end-user.

For further information, please refer to the ALLJOIST® Specifier Guide or your local distributor.

PRODUCT WARRANTY

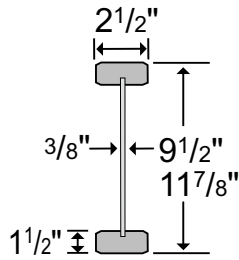
Boise warrants its ALLJOIST® products to comply with our specifications, to be free from defects in material and workmanship, and to meet or exceed our performance specifications for the normal and expected life of the structure when correctly stored, installed and used according to our Installation Guide.

For information about Boise's engineered wood products, including sales terms and conditions, warranties and disclaimers, visit our website at www.bc.com/EWP

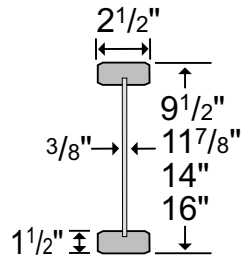
9th Edition
August 2005

Section Properties

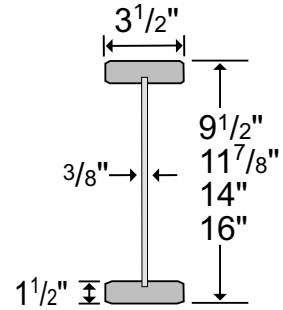
AJS™ 140



AJS™ 20



AJS™ 25



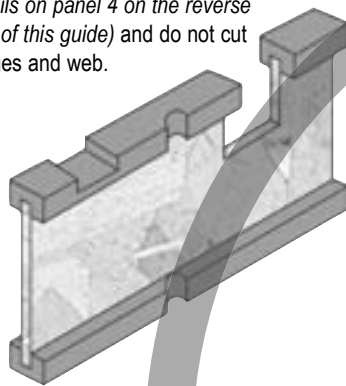
WARNING

BCI® Joists, VERSA-LAM® and ALLJOIST® must be stored, installed and used in accordance with the Boise EWP Installation Guide, building codes, and to the extent not inconsistent with the Boise EWP Installation Guide, usual and customary building practices and standards. VERSA-LAM®, ALLJOIST®, and BCI® Joists must be wrapped, covered, and stored off of the ground on stickers at all times prior to installation. VERSA-LAM®,

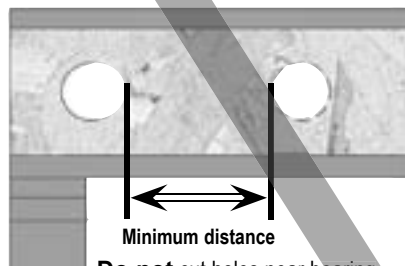
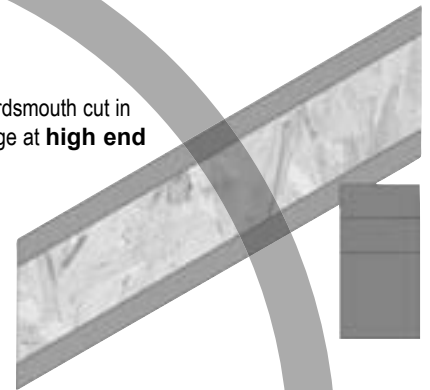
ALLJOIST® and BCI® Joists are intended only for applications that assure no exposure to weather or the elements and an environment that is free from moisture from any source, or any pest, organism or substance which degrades or damages wood or glue bonds. Failure to correctly store, use or install VERSA-LAM®, ALLJOIST®, and BCI® Joist in accordance with the Boise EWP Installation Guide will void the limited warranty.

DO NOT

Do not cut, notch, or drill flanges (except in roof details, see *Roof Details on panel 4 on the reverse side of this guide*) and do not cut flanges and web.



Do not birdsmouth cut in bottom flange at **high end of rafter**.

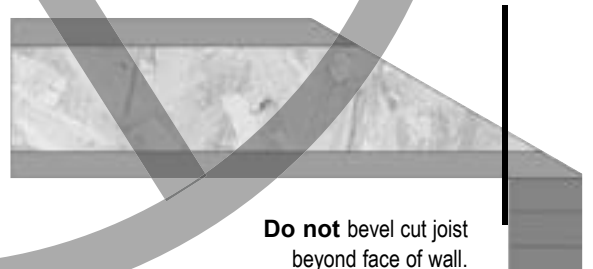


Do not cut holes near bearing support (see *hole cutting chart on the 3rd and 4th panels of this guide for allowable distance*).

Do not hang joist by top flange or web.



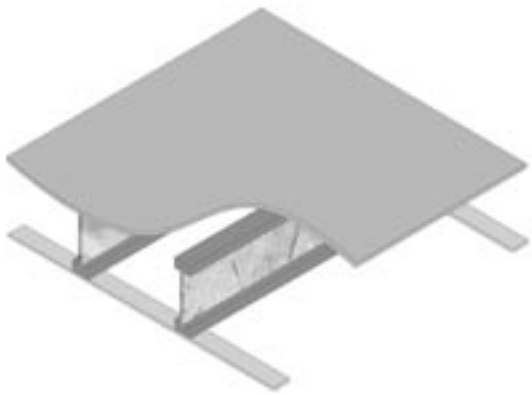
Do not bevel cut joist beyond face of wall.



Recommendation for Higher Floor Performance

An increase in floor stiffness will reduce the deflection caused by service loads. Also, the type of subfloor, and the addition of bridging and other components, such as gypsum board, will increase the rigidity of the assembly.

Minimum Criteria



Improved Performance

Using a live load deformation of $L/480$

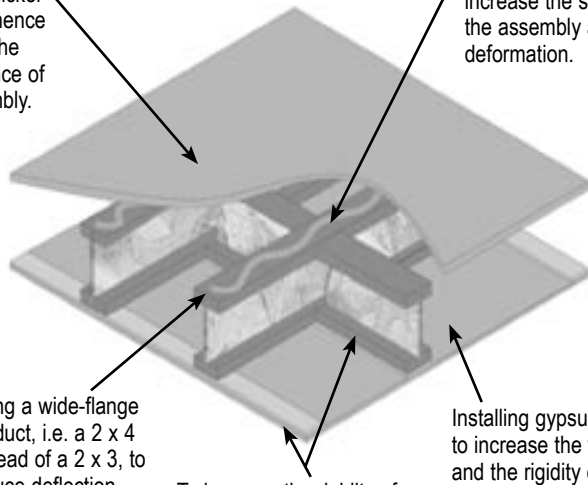
Using a thicker subfloor, hence boosting the performance of the assembly.

Gluing the subfloor to increase the stiffness of the assembly and reduce deformation.

Using a wide-flange product, i.e. a 2 x 4 instead of a 2 x 3, to reduce deflection.

To increase the rigidity of the assembly, add 1 x 3 strapping and bridging at mid-span.

Installing gypsum board to increase the weight and the rigidity of the assembly.



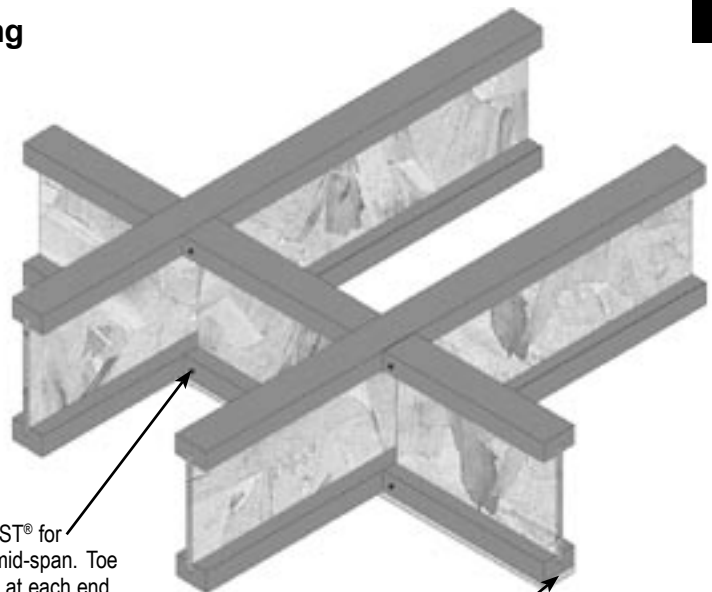
Floor Performance Can Be Improved By

- Reducing the spacing or using a deeper joist, will also reduce deformation and increase load sharing, thereby enhancing floor performance.
- Adding the weight of concrete toppings is another way of ensuring a high performance floor assembly.
- Using non load-bearing walls will also reduce the propagation of shock waves and boost floor performance. However, the contribution of nonbearing walls is difficult to quantify.

Each additional component increases the capacity of the floor to perform well under a dynamic load. By including those installation tips to increase floor performance in relation with consumer needs, you will ensure home owner satisfaction.

Bridging

6-A



Use ALLJOIST® for bridging at mid-span. Toe nail bridging at each end using 1 - 2 1/2" (8d) nail on each side of top and bottom flanges.

Use 1 x 3 strapping directly under bridging in order to optimize the floor performance. Nail strapping at each joist intersection and at mid-bridging with 2 - 2" (6d) nails.

Maximum Floor Spans — Simple Spans

Allowable Stress Design—100% Load Duration Glued and Nailed Subfloor

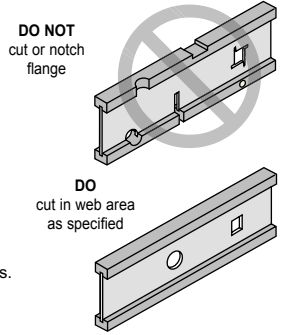
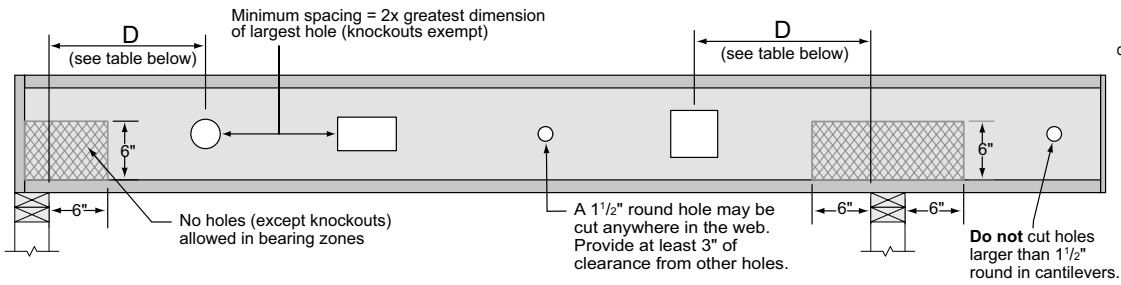
Notes:

- Spans are for simply supported spans.
- Minimum end bearing length is 1½", **except for bold spans which are 3½" bearing length.**
- Maximum spans are measured **in between the supports (clear span)** and are based on uniformly loaded joists.
- Total load deflection is limited to L/240.
- Allowable spans take into consideration the composite effect from the glued and nailed subfloor for deflection purposes only. Table values assume a minimum 23/32" plywood/OSB rated panel sheathing.
- The adhesives used should be approved for Field-Gluing Plywood to Lumber Framing for Floor Systems. Apply per manufacturer's written instructions.
- This table was designed to apply to a broad range of applications. It may be possible to exceed the limitations of this table by analyzing a specific application with the BC CALC® software.

ALLJOIST™ Joist Depth	Live/Dead Load (psf)	Minimum Code Criteria L/360 Live Load				Minimum Code Criteria L/480 Live Load					
		12"	16"	19.2"	24"	12"	16"	19.2"	24"		
AJS™ 140	9½"	40 / 10	19'-5"	17'-0"	15'-6"	13'-10"	17'-7"	16'-1"	15'-3"	13'-10"	
		40 / 15	18'-9"	16'-2"	14'-9"	13'-2"	17'-7"	16'-1"	14'-9"	13'-2"	
		40 / 20	17'-11"	15'-6"	14'-2"	12'-7"	17'-7"	15'-6"	14'-2"	12'-7"	
		40 / 30	16'-7"	14'-4"	13'-1"	11'-8"	16'-7"	14'-4"	13'-1"	11'-8"	
	117/8"	40 / 10	22'-5"	19'-4"	17'-8"	15'-9"	20'-11"	19'-2"	17'-8"	15'-9"	
		40 / 15	21'-4"	18'-5"	16'-10"	15'-0"	20'-11"	18'-5"	16'-10"	15'-0"	
		40 / 20	20'-5"	17'-8"	16'-1"	14'-5"	20'-5"	17'-8"	16'-1"	14'-5"	
		40 / 30	18'-11"	16'-4"	14'-11"	13'-4"	18'-11"	16'-4"	14'-11"	13'-4"	
AJS™ 20	9½"	40 / 10	20'-10"	19'-1"	18'-0"	16'-4"	18'-10"	17'-3"	16'-3"	15'-2"	
		40 / 15	20'-10"	19'-1"	17'-5"	15'-7"	18'-10"	17'-3"	16'-3"	15'-2"	
		40 / 20	20'-10"	18'-3"	16'-8"	14'-11"	18'-10"	17'-3"	16'-3"	14'-11"	
		40 / 30	19'-6"	16'-11"	15'-5"	13'-9"	18'-10"	16'-11"	15'-5"	13'-9"	
	117/8"	40 / 10	24'-9"	22'-8"	20'-10"	18'-7"	22'-5"	20'-6"	19'-4"	18'-0"	
		40 / 15	24'-9"	21'-9"	19'-10"	17'-9"	22'-5"	20'-6"	19'-4"	17'-9"	
		40 / 20	24'-1"	20'-10"	19'-0"	17'-0"	22'-5"	20'-6"	19'-0"	17'-0"	
		40 / 30	22'-3"	19'-3"	17'-7"	15'-8"	22'-3"	19'-3"	17'-7"	15'-8"	
	14"	40 / 10	28'-1"	25'-1"	22'-10"	20'-5"	25'-5"	23'-2"	21'-11"	20'-5"	
		40 / 15	27'-7"	23'-10"	21'-9"	19'-6"	25'-5"	23'-2"	21'-9"	19'-6"	
		40 / 20	26'-5"	22'-10"	20'-10"	18'-7"	25'-5"	22'-10"	20'-10"	18'-7"	
		40 / 30	24'-5"	21'-2"	19'-3"	17'-1"	24'-5"	21'-2"	19'-3"	17'-1"	
	16"	40 / 10	31'-1"	27'-0"	24'-7"	22'-0"	28'-1"	25'-8"	24'-3"	22'-0"	
		40 / 15	29'-9"	25'-9"	23'-6"	20'-10"	28'-1"	25'-8"	23'-6"	20'-10"	
		40 / 20	28'-5"	24'-7"	22'-5"	19'-11"	28'-1"	24'-7"	22'-5"	19'-11"	
		40 / 30	26'-4"	22'-9"	20'-7"	18'-5"	26'-4"	22'-9"	20'-7"	18'-5"	
	AJS™ 25	9½"	40 / 10	22'-11"	21'-0"	19'-10"	18'-6"	20'-9"	18'-11"	17'-10"	16'-8"
			40 / 15	22'-11"	21'-0"	19'-10"	18'-6"	20'-9"	18'-11"	17'-10"	16'-8"
			40 / 20	22'-11"	21'-0"	19'-10"	17'-9"	20'-9"	18'-11"	17'-10"	16'-8"
			40 / 30	21'-9"	19'-10"	18'-4"	16'-3"	20'-9"	18'-11"	17'-10"	16'-3"
117/8"		40 / 10	27'-3"	24'-11"	23'-6"	21'-11"	24'-8"	22'-6"	21'-3"	19'-9"	
		40 / 15	27'-3"	24'-11"	23'-6"	21'-0"	24'-8"	22'-6"	21'-3"	19'-9"	
		40 / 20	27'-3"	24'-11"	22'-8"	20'-1"	24'-8"	22'-6"	21'-3"	19'-9"	
		40 / 30	25'-10"	22'-11"	20'-9"	18'-6"	24'-8"	22'-6"	20'-9"	18'-6"	
14"		40 / 10	30'-11"	28'-2"	26'-8"	24'-2"	27'-11"	25'-6"	24'-1"	22'-5"	
		40 / 15	30'-11"	28'-2"	25'-10"	23'-0"	27'-11"	25'-6"	24'-1"	22'-5"	
		40 / 20	30'-11"	27'-3"	24'-8"	22'-0"	27'-11"	25'-6"	24'-1"	22'-0"	
		40 / 30	29'-2"	25'-0"	22'-10"	19'-6"	27'-11"	25'-0"	22'-10"	19'-6"	
16"		40 / 10	34'-2"	31'-3"	29'-6"	26'-1"	30'-11"	28'-3"	26'-7"	24'-9"	
		40 / 15	34'-2"	30'-8"	27'-10"	24'-10"	30'-11"	28'-3"	26'-7"	24'-9"	
		40 / 20	33'-11"	29'-2"	26'-7"	22'-9"	30'-11"	28'-3"	26'-7"	22'-9"	
		40 / 30	31'-5"	27'-0"	24'-5"	19'-6"	30'-11"	27'-0"	24'-5"	19'-6"	



Hole Cutting Charts for Residential Application (40/30)



Notes:

1. If more than one hole is to be cut, the length of uncut web between holes must be twice the longest dimension of the largest adjacent hole.
2. Holes may be positioned vertically anywhere in the web.

Round Holes (40/30)

Minimum distance from inside face of any support to nearest edge of hole
JOIST DEPTH (IN)

Table 1

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

Rectangular Holes (40/30)

Minimum distance from inside face of any support to nearest edge of hole
JOIST DEPTH (IN)

Table 2

Span (ft)	9 1/2"				11 7/8"				14"				16"			
	5x8	5x10	5x12	5x14	7x10	7x12	7x14	7x16	10x12	10x14	10x16	10x18	12x14	12x16	12x18	12x20
8	2'-6"	2'-6"	3'-0"	3'-6"	2'-0"	2'-6"	3'-0"	3'-6"	2'-6"	3'-0"	3'-6"	-	3'-0"	3'-6"	-	-
10	3'-6"	3'-6"	4'-0"	4'-6"	3'-0"	3'-6"	4'-0"	4'-6"	3'-6"	4'-0"	4'-6"	-	4'-0"	4'-6"	-	-
12	4'-6"	5'-0"	5'-6"	5'-6"	4'-6"	5'-0"	5'-0"	5'-6"	5'-0"	5'-6"	-	-	5'-0"	5'-6"	-	-
14	6'-0"	6'-0"	6'-6"	-	5'-6"	6'-0"	6'-6"	-	6'-0"	6'-6"	-	-	6'-6"	-	-	-
16	7'-0"	7'-6"	7'-6"	-	6'-6"	7'-0"	7'-6"	-	7'-0"	7'-6"	-	-	7'-6"	-	-	-
18	8'-0"	8'-6"	-	-	8'-0"	8'-6"	-	-	8'-6"	-	-	-	8'-6"	-	-	-
20	9'-6"	9'-6"	-	-	9'-0"	9'-6"	-	-	9'-6"	-	-	-	-	-	-	-
22	10'-6"	-	-	-	10'-0"	10'-6"	-	-	10'-6"	-	-	-	-	-	-	-
24	-	-	-	-	11'-6"	-	-	-	-	-	-	-	-	-	-	-
26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
34	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:

1. Tables 1 and 2 are for uniformly loaded maximum loads of 40 psf live loads and 30 psf dead loads on simple span application.
2. Tables 3, 4 and 5 are for uniformly loaded maximum loads of 40 psf live loads and 15 psf dead loads on simple span application.
3. For other loading conditions or hole openings contact your ALLJOIST® distributor.
4. It may be possible to exceed the limitation of these tables by analyzing a specific situation with the BC CALC® software.

Hole Cutting Charts for Residential Application (40/15)

Round Holes (40/15)

Minimum distance from inside face of any support to nearest edge of hole
JOIST DEPTH • HOLE SIZE (IN)

Table 3

Span (ft)	9 1/2"				11 7/8"				14"				16"			
	3	6	9	12	3	6	9	12	3	6	9	12	3	6	9	12
8	1'-0"	2'-0"	-	-	1'-0"	1'-0"	-	-	1'-0"	1'-0"	1'-0"	-	1'-0"	1'-0"	1'-0"	1'-0"
10	1'-0"	3'-0"	-	-	1'-0"	1'-0"	-	-	1'-0"	1'-0"	1'-0"	-	1'-0"	1'-0"	1'-0"	1'-0"
12	1'-0"	4'-0"	-	-	1'-0"	1'-0"	-	-	1'-0"	1'-0"	1'-0"	-	1'-0"	1'-0"	1'-0"	2'-0"
14	1'-6"	5'-6"	-	-	1'-0"	1'-6"	-	-	1'-0"	1'-0"	2'-0"	-	1'-0"	1'-0"	1'-0"	3'-0"
16	2'-6"	6'-6"	-	-	1'-0"	3'-0"	-	-	1'-0"	1'-0"	3'-6"	-	1'-0"	1'-0"	1'-0"	4'-0"
18	3'-6"	8'-0"	-	-	1'-0"	4'-0"	-	-	1'-0"	1'-0"	4'-6"	-	1'-0"	1'-0"	1'-6"	5'-0"
20	4'-6"	9'-0"	-	-	1'-6"	5'-0"	-	-	1'-0"	2'-0"	5'-6"	-	1'-0"	1'-0"	3'-0"	6'-6"
22	6'-0"	10'-6"	-	-	2'-6"	6'-0"	-	-	1'-0"	3'-0"	7'-0"	-	1'-0"	1'-0"	4'-0"	7'-6"
24	7'-0"	11'-6"	-	-	3'-6"	7'-6"	-	-	1'-0"	4'-6"	8'-0"	-	1'-0"	1'-6"	5'-0"	9'-0"
26	-	-	-	-	5'-0"	8'-6"	-	-	2'-0"	5'-6"	9'-0"	-	1'-0"	3'-0"	6'-0"	10'-0"
28	-	-	-	-	6'-0"	10'-0"	-	-	3'-0"	6'-6"	10'-6"	-	1'-0"	4'-0"	7'-6"	11'-6"
30	-	-	-	-	-	-	-	-	4'-0"	7'-6"	11'-6"	-	1'-6"	5'-0"	8'-6"	12'-6"
32	-	-	-	-	-	-	-	-	5'-6"	9'-0"	13'-0"	-	3'-0"	6'-0"	9'-6"	14'-0"
34	-	-	-	-	-	-	-	-	-	-	-	-	4'-0"	7'-0"	11'-0"	15'-0"

Square Holes (40/15)

Minimum distance from inside face of any support to nearest edge of hole
JOIST DEPTH • HOLE SIZE (IN)

Table 4

Span (ft)	9 1/2"				11 7/8"				14"				16"			
	3	6	9	12	3	6	9	12	3	6	9	12	3	6	9	12
8	1'-0"	2'-0"	-	-	1'-0"	1'-0"	-	-	1'-0"	1'-0"	1'-0"	-	1'-0"	1'-0"	1'-0"	1'-6"
10	1'-0"	3'-0"	-	-	1'-0"	1'-0"	-	-	1'-0"	1'-0"	1'-6"	-	1'-0"	1'-0"	1'-0"	2'-6"
12	2'-0"	4'-0"	-	-	1'-0"	2'-0"	-	-	1'-0"	1'-0"	3'-0"	-	1'-0"	1'-0"	1'-6"	4'-0"
14	3'-0"	5'-6"	-	-	1'-0"	3'-0"	-	-	1'-0"	1'-6"	4'-0"	-	1'-0"	1'-0"	2'-6"	5'-0"
16	4'-0"	6'-6"	-	-	2'-0"	4'-6"	-	-	1'-0"	2'-6"	5'-0"	-	1'-0"	1'-6"	3'-6"	6'-6"
18	5'-6"	8'-0"	-	-	3'-0"	5'-6"	-	-	1'-6"	4'-0"	6'-6"	-	1'-0"	2'-6"	5'-0"	7'-6"
20	6'-6"	9'-0"	-	-	4'-6"	7'-0"	-	-	2'-6"	5'-0"	7'-6"	-	1'-0"	3'-6"	6'-0"	9'-0"
22	7'-6"	10'-6"	-	-	5'-6"	8'-0"	-	-	3'-6"	6'-0"	9'-0"	-	2'-0"	4'-6"	7'-0"	10'-0"
24	9'-0"	11'-6"	-	-	6'-6"	9'-0"	-	-	5'-0"	7'-6"	10'-0"	-	3'-0"	5'-6"	8'-6"	11'-6"
26	-	-	-	-	8'-0"	10'-6"	-	-	6'-0"	8'-6"	11'-6"	-	4'-6"	7'-0"	9'-6"	12'-6"
28	-	-	-	-	9'-0"	11'-6"	-	-	7'-0"	9'-6"	12'-6"	-	5'-6"	8'-0"	11'-0"	-
30	-	-	-	-	-	-	-	-	8'-6"	11'-0"	14'-0"	-	6'-6"	9'-0"	12'-0"	-
32	-	-	-	-	-	-	-	-	9'-6"	12'-0"	15'-0"	-	7'-6"	10'-6"	13'-6"	-
34	-	-	-	-	-	-	-	-	-	-	-	-	9'-0"	11'-6"	14'-6"	-

Rectangular Holes (40/15)

Minimum distance from inside face of any support to nearest edge of hole
JOIST DEPTH • HOLE SIZE (IN)

Table 5

Span (ft)	9 1/2"				11 7/8"				14"				16"			
	5x8	5x10	5x12	5x14	7x10	7x12	7x14	7x16	10x12	10x14	10x16	10x18	12x14	12x16	12x18	12x20
8	1'-6"	2'-0"	2'-6"	3'-0"	1'-6"	2'-0"	2'-6"	3'-0"	2'-0"	2'-6"	3'-0"	-	2'-6"	3'-0"	-	-
10	3'-0"	3'-0"	3'-6"	4'-0"	2'-6"	3'-0"	3'-6"	4'-0"	3'-0"	3'-6"	4'-6"	-	3'-6"	4'-6"	-	-
12	4'-0"	4'-6"	5'-0"	5'-6"	3'-6"	4'-0"	5'-0"	5'-6"	4'-6"	5'-0"	5'-6"	-	4'-6"	5'-6"	-	-
14	5'-0"	5'-6"	6'-0"	6'-6"	5'-0"	5'-6"	6'-0"	6'-6"	5'-6"	6'-0"	-	-	6'-0"	-	-	-
16	6'-6"	7'-0"	7'-6"	-	6'-0"	6'-6"	7'-6"	-	6'-6"	7'-6"	-	-	7'-0"	-	-	-
18	7'-6"	8'-0"	8'-6"	-	7'-6"	8'-0"	8'-6"	-	8'-0"	-	-	-	8'-6"	-	-	-
20	9'-0"	9'-6"	-	-	8'-6"	9'-0"	-	-	9'-0"	-	-	-	9'-6"	-	-	-
22	10'-0"	10'-6"	-	-	10'-0"	10'-6"	-	-	10'-6"	-	-	-	-	-	-	-
24	11'-6"	-	-	-	11'-0"	11'-6"	-	-	-	-	-	-	-	-	-	-
26	-	-	-	-	12'-6"	-	-	-	-	-	-	-	-	-	-	-
28	-	-	-	-	13'-6"	-	-	-	-	-	-	-	-	-	-	-
30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
34	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

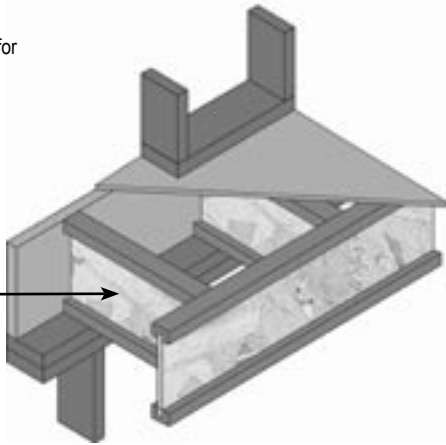
End Bearing Details

Exterior End - Wall Support

13-A

See Detail 14-A for rim board capacity

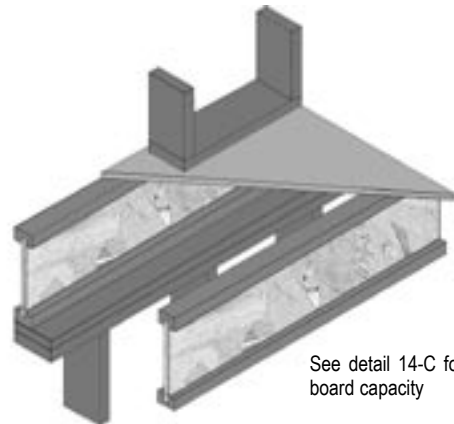
ALLJOIST® Blocking as required per governing building code.



Exterior End - Wall Support

13-C

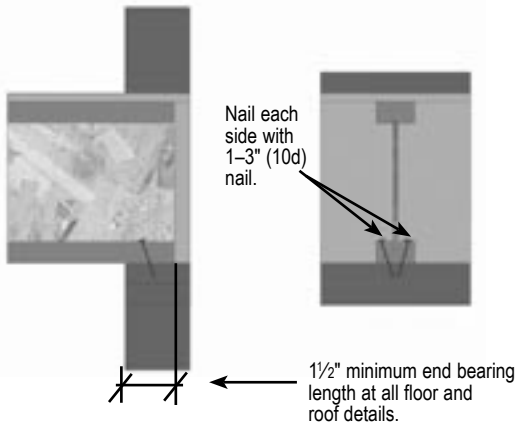
See detail 14-C for rim board capacity



Detail 13-B has been deleted.

Attachment at End

13-D



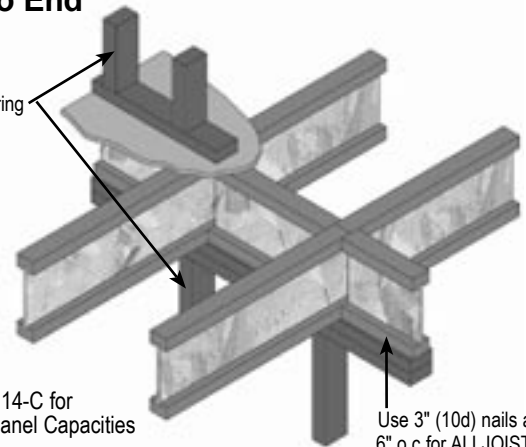
Blocking Panel at Interior Bearing End to End

13-E

Load bearing walls

See detail 14-C for Blocking Panel Capacities

Use 3" (10d) nails at 6" o.c for ALLJOIST® Blocking Panel



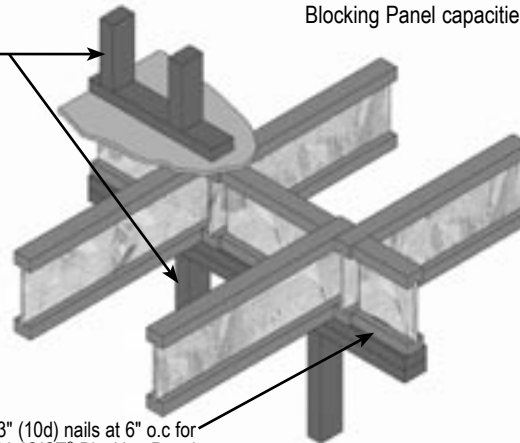
Blocking Panel at Interior Bearing Side by Side

13-F

See detail 14-C for Blocking Panel capacities

Load bearing walls

Use 3" (10d) nails at 6" o.c for ALLJOIST® Blocking Panel



End Bearing Details

Rim Board

14-A

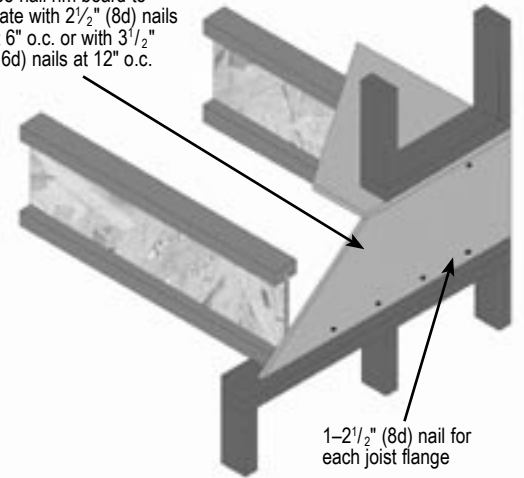
Maximum Vertical Load Transfer From Upper Wall (lbs/ft)

Type of Rimboard	Thickness	Depth	Vertical Load Transfer Capacity (plf)
BC RIM BOARD™	1"	≤ 16"	3300 plf
VERSA-RIM®	1 1/16"	≤ 16"	4250 plf
BC RIM BOARD™ OSB	1 1/8"	≤ 16"	4400 plf

Notes:

1. Dimension lumber is not suitable for use as a rim board in ALLJOIST® floor systems.
2. Install rim board to fully bear on the wall plate.
3. Rim board is to be full height of joist.
4. Rim board is an integral part of the floor diaphragm required to resist wind and seismic loads.

Toe nail rim board to plate with 2 1/2" (8d) nails at 6" o.c. or with 3 1/2" (16d) nails at 12" o.c.



1-2 1/2" (8d) nail for each joist flange

Squash Blocks

14-B

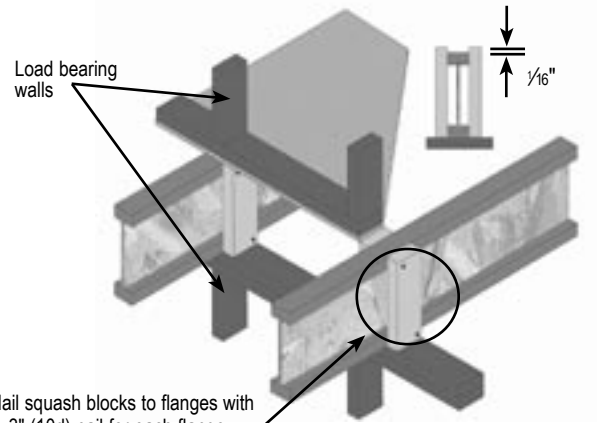
Maximum Vertical Load from Upper Wall (lbs/ft) for Each Squash Block

Size	Spacing of Each Squash Block (inches)			
	12"	16"	19.2"	24"
2 x 4	2230	1670	1390	1115
2 x 6	3500	2630	2190	1750

Notes:

1. Squash blocks are to be in full contact with upper floor and lower wall plate.
2. Squash blocks are to be 1/16" higher than joist.
3. Capacities shown are for a single squash block per joist.
4. Squash blocks are to be SPF #2 or better.
5. Solid block all posts to bearing below with 2 x 4 (min) squash blocks.
6. Web stiffeners are not recommended for this detail.
7. Add blocking panel (not shown) at 8'-0" o.c. for lateral support.

Load bearing walls



Nail squash blocks to flanges with 1-3" (10d) nail for each flange. Stagger nails to avoid splitting.

Blocking Panels and Starter Joists

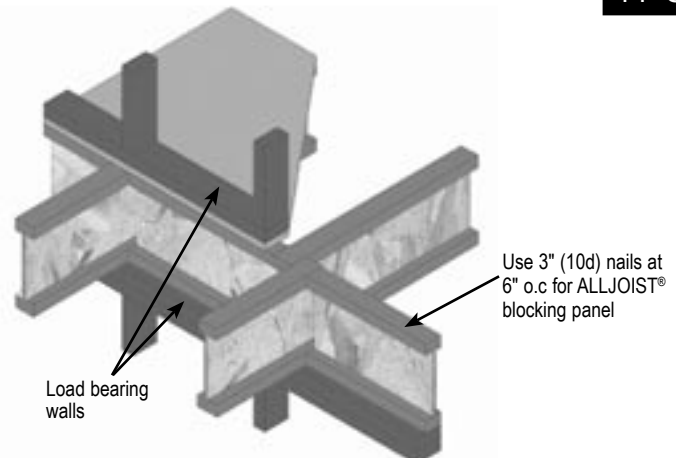
14-C

Blocking Panel (lbs/ft) Maximum Vertical Load Transfer

Joist Depth	lbs/ft
9 1/2"	2200
11 7/8"	1900
14"	1300
16"	1100

Notes:

1. Blocking panels are to be used in dry conditions only.
2. Blocking panels are to be in full contact with upper floor and lower wall plate.
3. Blocking panels must be adequately designed to act as a load transfer point for gravity loads from floor and roof above.

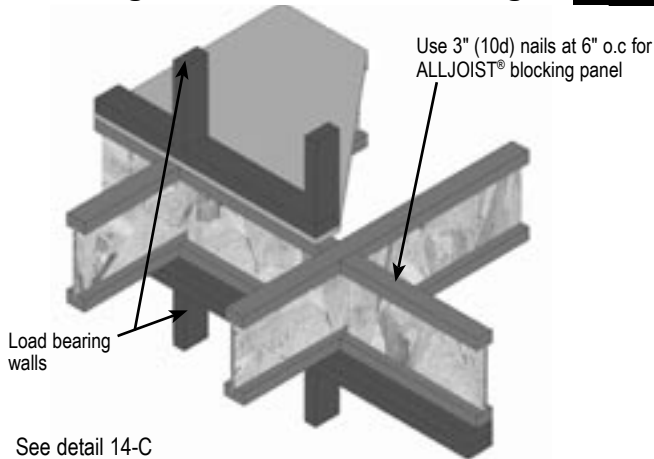


Load bearing walls

Use 3" (10d) nails at 6" o.c. for ALLJOIST® blocking panel

Interior Supports

Blocking Panel at Interior Bearing 15-A

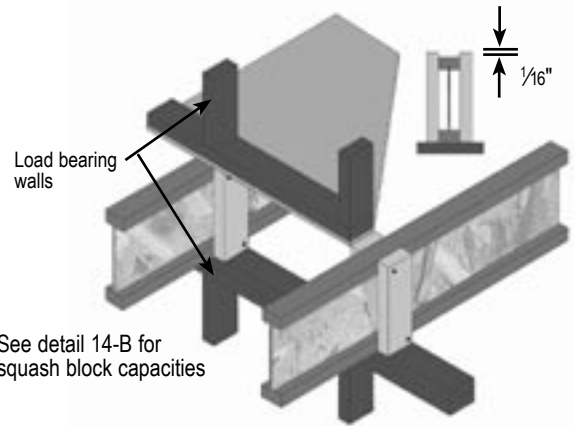


See detail 14-C for blocking panel capacities

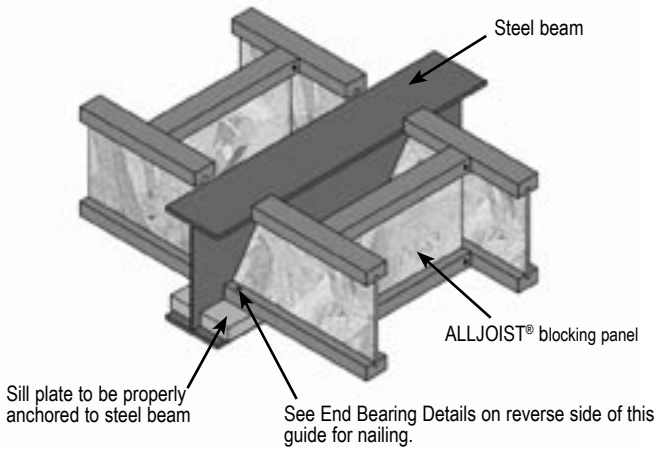
Note:
Squash blocks and blocking panels are not required when top wall is a non load-bearing wall.

Squash Blocks at Interior Bearing 15-B

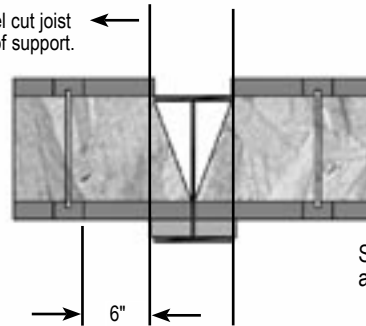
- Web stiffeners are not recommended for load transfer from wall above to wall below.



Connection on Steel Beam Bottom Flange 15-C

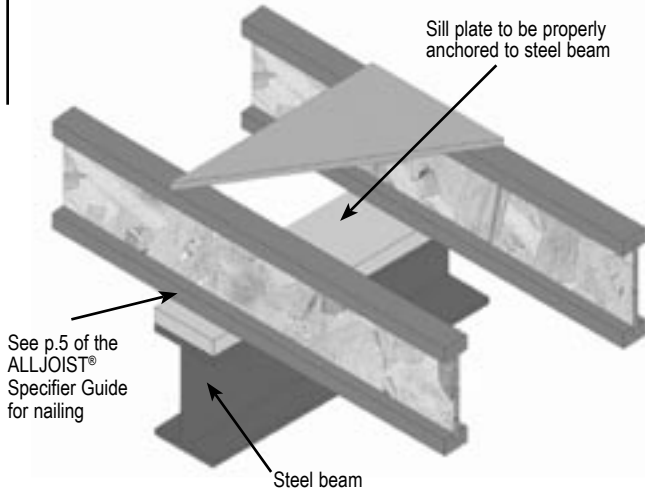


Do not bevel cut joist beyond face of support.

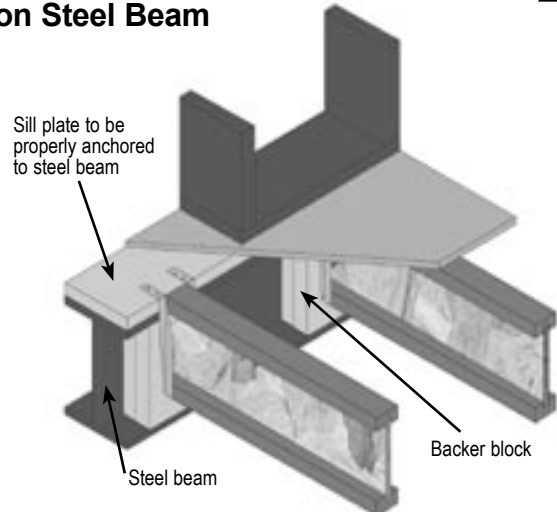


See detail 12-A for allowable bevel cut.

Connection on Steel Beam 15-D



Connection with Hanger on Steel Beam 15-E

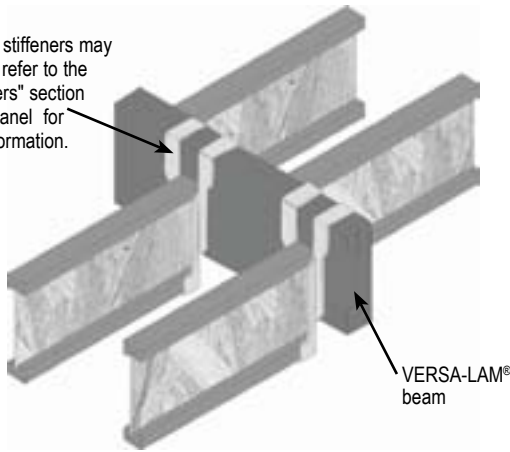


Interior Supports & Web Stiffeners

Joist to beam connection Step down

16-A

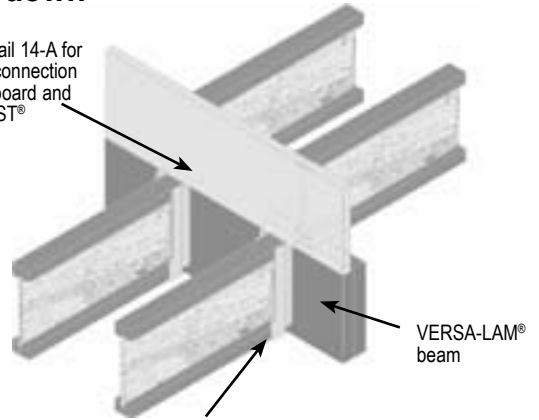
Hanger (web stiffeners may be required), refer to the "Web Stiffeners" section on the next panel for additional information.



Joist to beam connection Step down

16-B

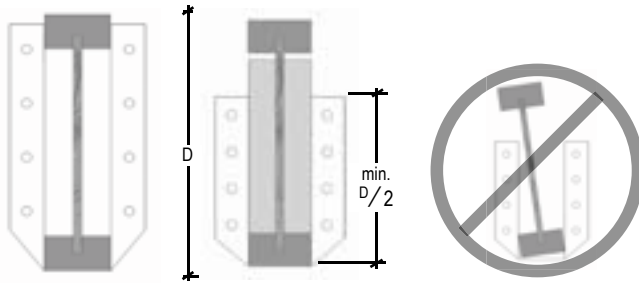
See detail 14-A for proper connection for rim board and ALLJOIST®



Hanger (web stiffeners may be required), refer to page 17 of for additional information.

Lateral Support at End Bearing

16-C



Web stiffeners are not required when top flange is restrained against rotation.

Minimum hanger size shall be half of joist depth.

Hanger Connections

16-D

- Backer blocks shall be at least 12" long per hanger.
- Nails shall be clinched when possible.
- Verify capacity and fastening requirements of hangers and connectors.



Top Mount

Spacing shall be located at bottom flange level. Backer block is not required when load transfer is less than 250 lbs.



Face Mount

Spacing shall be located at top flange level with backer blocks on both sides.

Web Stiffener

Stiffeners are required on both sides of the web:

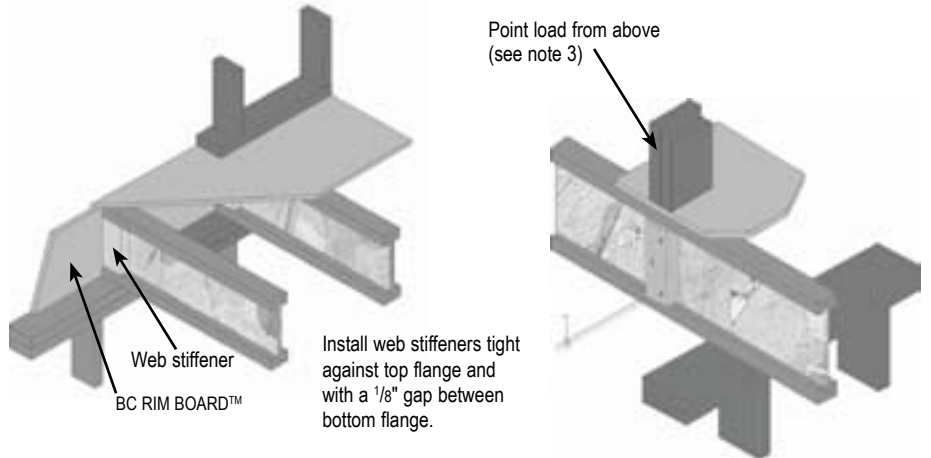
- Hangers with side nailing.
- Any hanger with sides not containing the top flange of the joist.
- Web stiffener nailed with 3-3" (10d) nails for 9½" and 11⅞" joists, and 5-3" (10d) nails for 14" and 16" joists.
- **Web Stiffener Requirements**
AJS® 20 Series: 1"x2⅝" min. panel.
AJS® 140 Series: 1"x2⅝" min. panel.
AJS® 25 Series: 1½"x3½" min. panel or 2x4 stud.

1/8"



Web Stiffeners

16-E

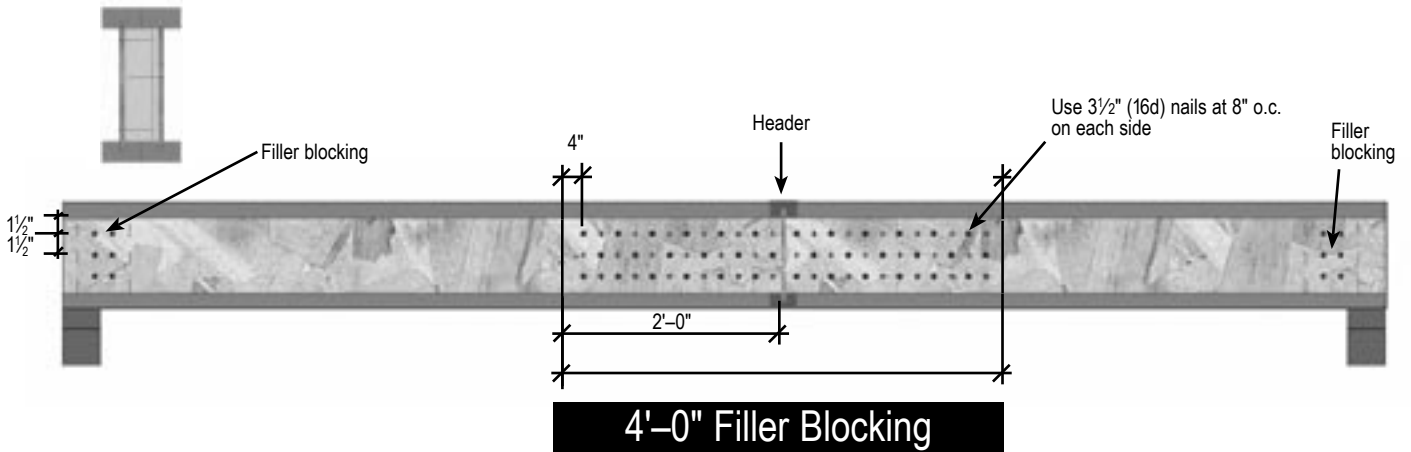
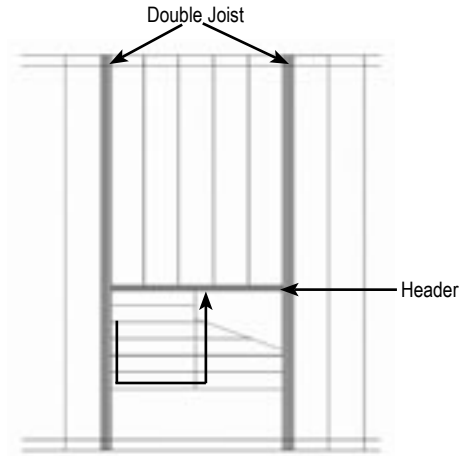
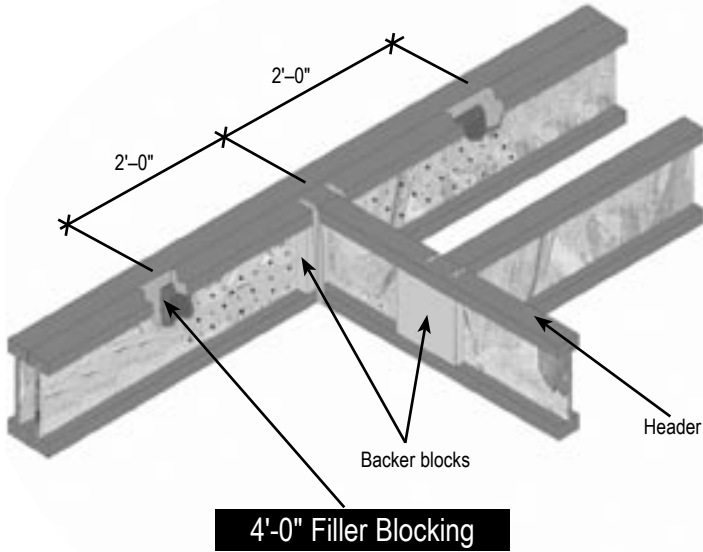


Notes:

1. Web stiffeners are required when joist hangers do not laterally support the top flange of the joist.
2. Web stiffeners are required to prevent buckling of web as loads are being transferred to end reactions or when concentrated loads are being transferred along the span.
3. Web stiffeners are required when point load exceeds 1000 lbs.
4. Verify adequacy of joist to carry concentrated load.

Double Joist with One Header

17-A



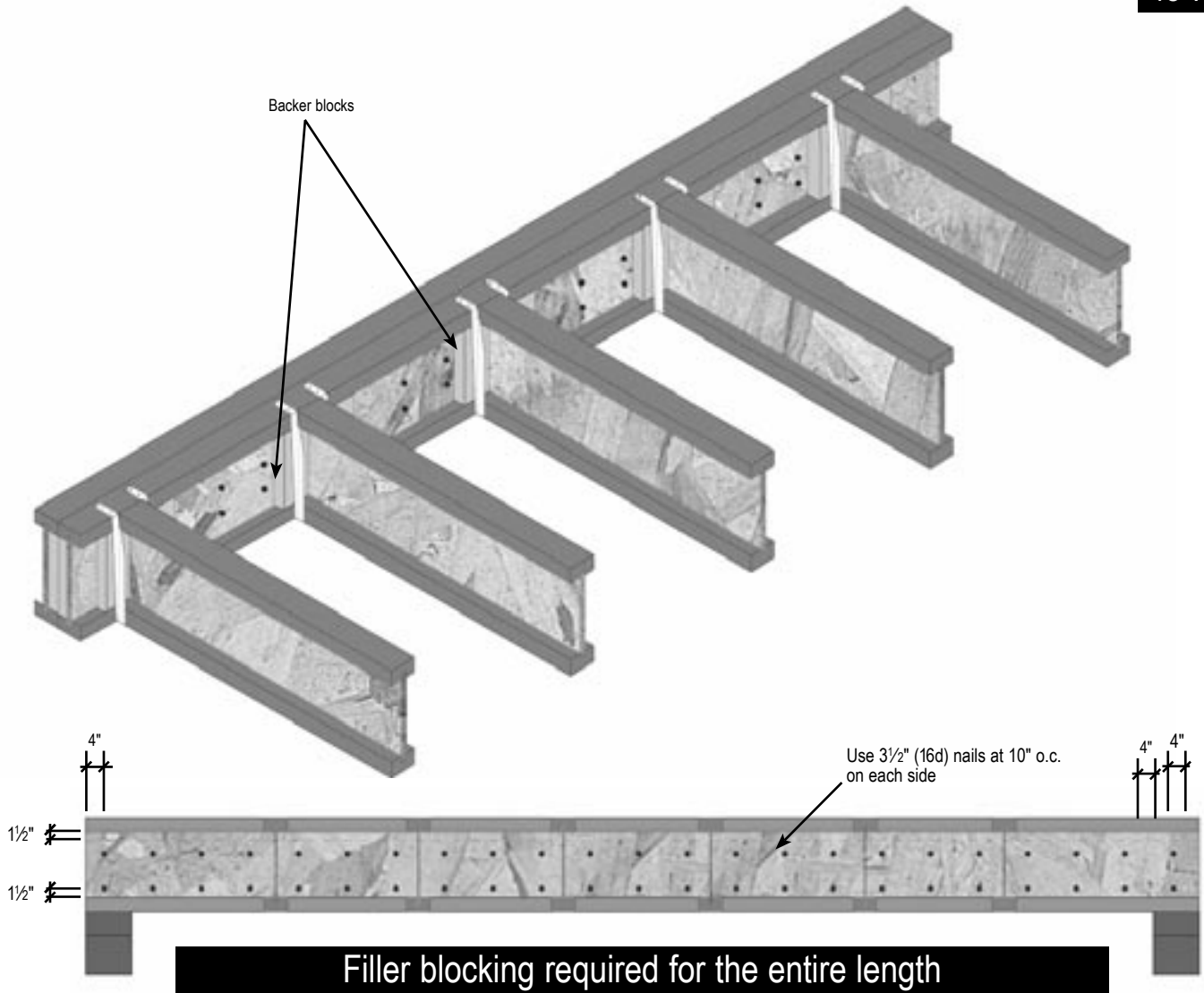
ALLJOIST®	Filler Blocking	Rows of Nails on Each Side	Backer Block	Number of Nails
AJS™ 140 AJS™ 20	Joist Depth	Use 3 1/2" (16d) nails		Use 2 1/2" (8d) nails
	9 1/2"	2x6 + 5/8" Plywood	2	1 1/8" OSB
	11 7/8"	2x8 + 5/8" Plywood	3	1 1/8" OSB
	14"	2x10 + 5/8" Plywood	4	1 1/8" OSB
	16"	2x12 + 5/8" Plywood	4	1 1/8" OSB
AJS™ 25	Joist Depth	Use 3 1/2" (16d) nails		Use 3" (10d) nails
	9 1/2"	2 - 2x6	2	2x6
	11 7/8"	2 - 2x8	3	2x8
	14"	2 - 2x10	4	2x10
	16"	2 - 2x12	4	2x12

Plywood can be replaced by OSB.

Note: Multi ply filler block must be nailed together with above requirements.

Double Joist with More than One Header

18-A

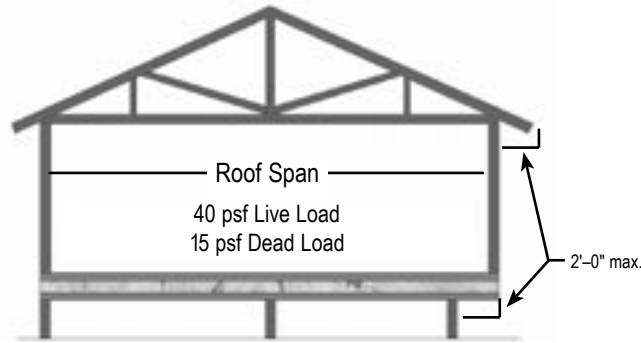


ALLJOIST®		Filler Blocking	Rows of Nails on Each Side	Backer Block	Number of Nails
AJS™ 140 AJS™ 20	Joist Depth	Use 3 1/2" (16d) nails			Use 2 1/2" (8d) nails
	9 1/2"	2x6 + 5/8" Plywood	2	1 1/8" OSB	Use same amount as required per hanger
	11 7/8"	2x8 + 5/8" Plywood	3	1 1/8" OSB	
	14"	2x10 + 5/8" Plywood	4	1 1/8" OSB	
	16"	2x12 + 5/8" Plywood	4	1 1/8" OSB	
AJS™ 25	Joist Depth	Use 3 1/2" (16d) nails			Use 3" (10d) nails
	9 1/2"	2 – 2x6	2	2x6	Use same amount as required per hanger
	11 7/8"	2 – 2x8	3	2x8	
	14"	2 – 2x10	4	2x10	
	16"	2 – 2x12	4	2x12	

Plywood can be replaced by OSB.

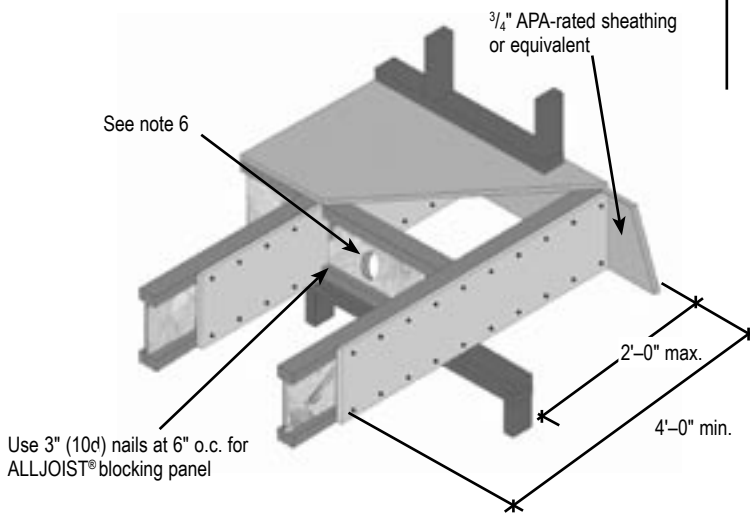
Note: Multi ply filler block must be nailed together with above requirements.

Load-Bearing Cantilever



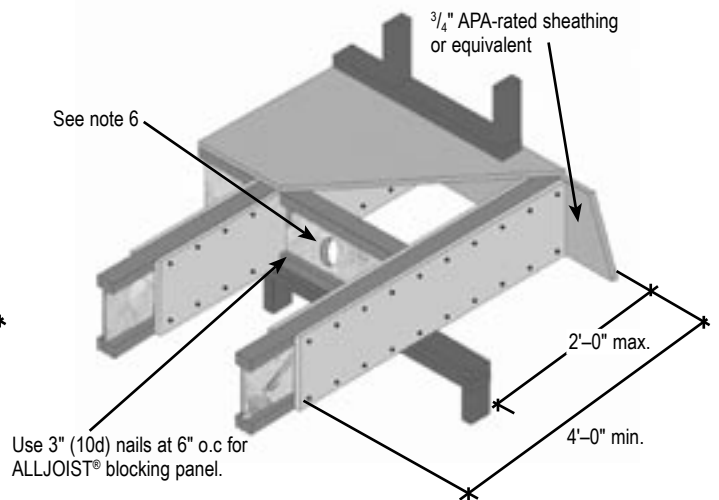
Plywood Reinforcement

19-A



Double Plywood Reinforcement

19-B



Reinforcement Requirements

Joist Depth (inches)	Roof Truss Span (ft)	Roof Live Load (psf)											
		20 psf			30 psf			40 psf			50 psf		
		Joist Spacing o.c.											
		12"	16"	19.2"	12"	16"	19.2"	12"	16"	19.2"	12"	16"	19.2"
9 1/2"	24'	0	0	0	0	0	1	0	1	X	0	X	X
	26'	0	0	0	0	0	1	0	1	X	1	X	X
	28'	0	0	1	0	1	X	0	1	X	1	X	X
	30'	0	0	1	0	1	X	0	X	X	X	X	X
	32'	0	0	X	0	X	X	1	X	X	X	X	X
	34'	0	0	X	0	X	X	X	X	X	X	X	X
11 7/8"	24'	0	0	0	0	0	0	0	0	1	0	0	1
	26'	0	0	0	0	0	0	0	0	1	0	1	1
	28'	0	0	0	0	0	0	0	0	1	0	1	X
	30'	0	0	0	0	0	1	0	1	1	0	1	X
	32'	0	0	0	0	0	1	0	1	1	0	1	X
	34'	0	0	0	0	0	1	0	1	X	0	X	X
14"	24'	0	0	0	0	0	0	0	0	0	0	0	0
	26'	0	0	0	0	0	0	0	0	0	0	0	1
	28'	0	0	0	0	0	0	0	0	0	0	0	1
	30'	0	0	0	0	0	0	0	0	1	0	0	X
	32'	0	0	0	0	0	0	0	0	1	0	1	X
	34'	0	0	0	0	0	0	0	0	1	0	1	X

Reinforcement Legend:

- 0 = No reinforcement required.
- 1 = Reinforcement required on one side of joist.
- 2 = Reinforcement required on both sides of joist.
- X = Reinforcement will not work. Reduce spacing of joist and recheck.

Notes:

1. Use 3/4" APA-rated sheathing 48/24 4-ply or more for exterior exposure or equivalent. Install full depth of joist with face grain parallel to joist. Plywood reinforcement to bear fully on wall plate. Nail plywood to top and bottom joist flanges with 2 1/2" (8d) nails at 6" o.c. When reinforcing both sides, stagger nails to avoid splitting.
2. Minimum bearing length 3 1/2".
3. Provide full depth blocking between joists.
4. Use 4'-0" length of plywood, minimum.
5. Maximum cantilever length is 2'-0".
6. Edge of hole shall be at a minimum of 3" from end of blocking panel.

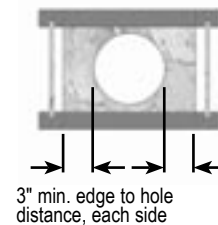
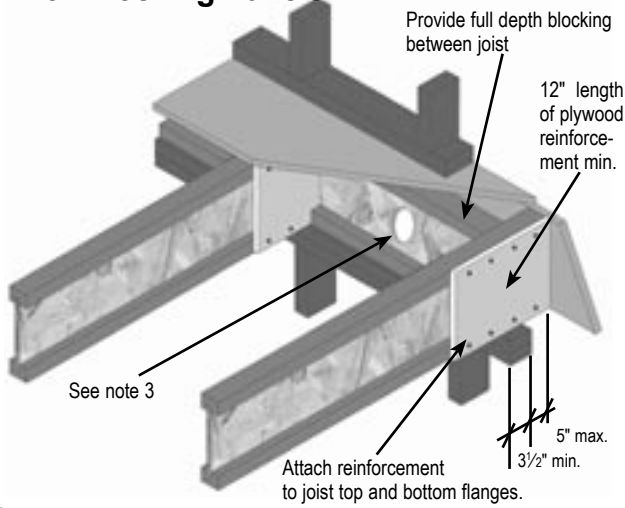


Table assumes a 40 psf live load and a 15 psf dead load on the floor, an 80 plf wall dead load, and a 15 psf roof dead load.

Load-Bearing Cantilever (Brick Edge)

Brick Ledge With Blocking Panels

20-A

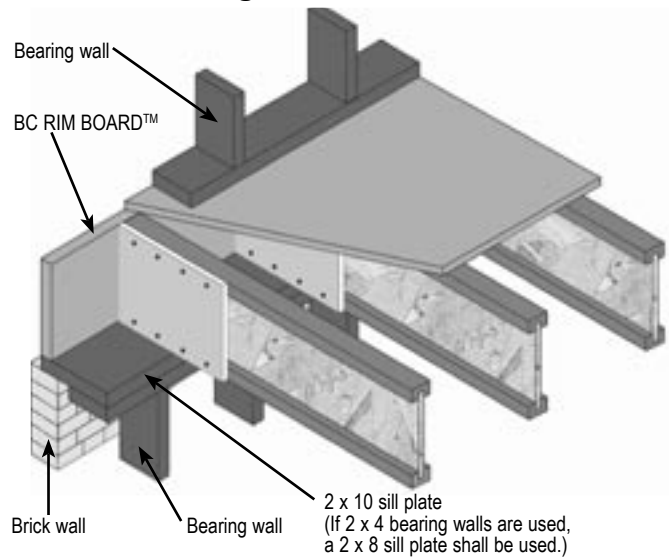


Notes:

1. Use 3/4" APA-rated sheathing 4/24 4 ply or more for exterior exposure or equivalent. Install full depth of joist with face grain parallel to joist. Plywood reinforcement to bear fully on wall plate. Nail plywood to top and bottom joist flanges with 2 1/2" (8d) nails at 3" on center except 9 1/2" joists, install nails at 2 1/2" on center.
2. Provide full depth blocking between joists.
3. Edge of hole shall be at a minimum of 3" from end of blocking panel.

Brick Ledge Without Blocking Panels

20-B



Notes:

1. Use 3/4" APA-rated sheathing 4/24 4-ply or more for exterior exposure or equivalent. Install full depth of joist with face grain parallel to joist. Plywood reinforcement to bear fully on wall plate. Nail plywood to top and bottom joist flanges with 2 1/2" (8d) nails at 3" on center except 9 1/2" joists, install nails at 2 1/2" on center.
2. Minimum bearing length 3 1/2".
3. Sill plate shall be properly nailed to wall.
4. See detail 13-D for joist connection.
5. See detail 14-A for rim board connection.

Reinforcement Requirements

Joist Depth (inches)	Roof Truss Span (ft)	Roof Live Load (psf)											
		20 psf			30 psf			40 psf			50 psf		
		Joist Spacing o.c.											
		12"	16"	19.2"	12"	16"	19.2"	12"	16"	19.2"	12"	16"	19.2"
9 1/2"	24'	0	0	0	0	0	1	0	1	1	0	1	1
	26'	0	0	0	0	0	1	0	1	1	0	1	2
	28'	0	0	0	0	0	1	0	1	1	0	1	2
	30'	0	0	0	0	0	1	0	1	1	1	1	2
	32'	0	0	1	0	1	1	0	1	2	1	2	2
	34'	0	0	X	0	X	X	0	1	X	1	2	X
	36'	0	X	X	0	X	X	1	X	X	1	X	X
11 7/8"	24'	0	0	0	0	0	0	0	0	0	0	0	1
	26'	0	0	0	0	0	0	0	0	0	0	0	1
	28'	0	0	0	0	0	0	0	0	1	0	1	1
	30'	0	0	0	0	0	0	0	0	1	0	1	1
	32'	0	0	0	0	0	0	0	0	1	0	1	1
	34'	0	0	0	0	1	1	0	1	1	0	1	1
	36'	0	0	0	0	1	1	0	1	1	0	1	X
14"	24'	0	0	0	0	0	0	0	0	0	0	0	0
	26'	0	0	0	0	0	0	0	0	0	0	0	0
	28'	0	0	0	0	0	0	0	0	0	0	0	1
	30'	0	0	0	0	0	0	0	0	0	0	0	1
	32'	0	0	0	0	0	0	0	0	0	0	0	1
	34'	0	0	0	0	0	0	0	0	1	0	0	1
	36'	0	0	0	0	0	0	0	0	1	0	1	X

Table assumes a 40 psf live load and a 15 psf dead load on the floors, an 80 plf wall load, and a 15 psf dead load on the roof.

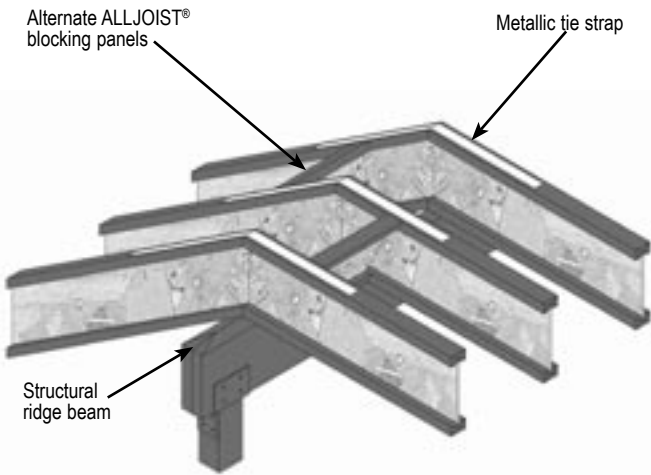
Reinforcement Legend:

- 0 = No reinforcement required.
- 1 = Reinforcement required on one side of joist.
- 2 = Reinforcement required on both sides of joist.
- X = Reinforcement will not work. Reduce spacing of joist and recheck.

Roof Details

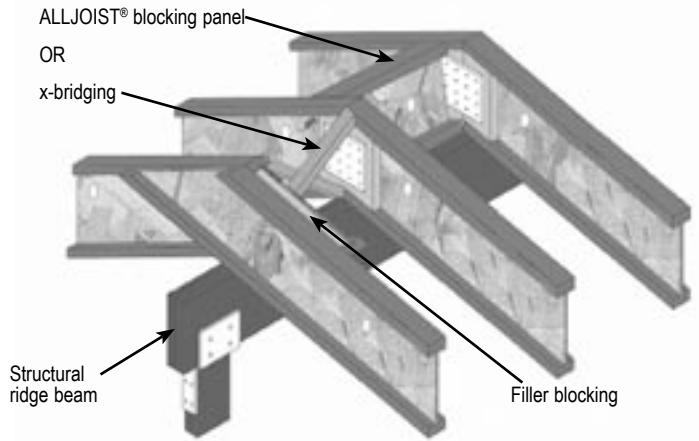
Ridge Detail

25-A



Ridge Detail

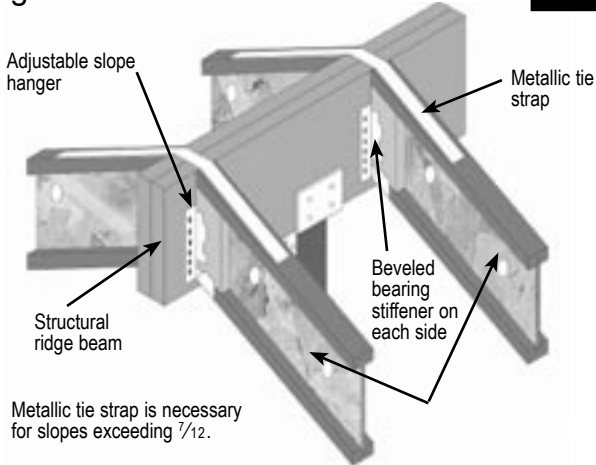
25-B



Metallic tie strap is necessary for slopes exceeding 1/12.

Ridge Rafter Connection

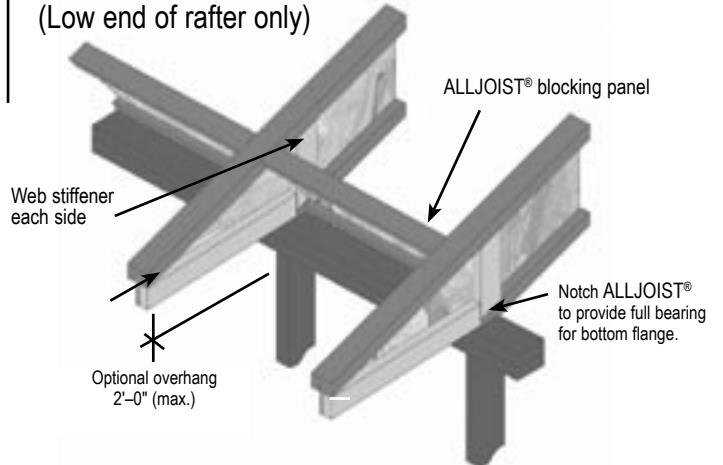
25-C



Metallic tie strap is necessary for slopes exceeding 1/12.

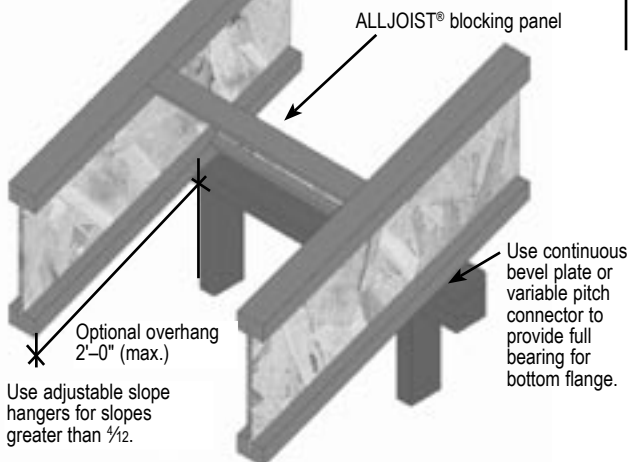
Notched Bottom Flange, Cantilever
(Low end of rafter only)

25-D



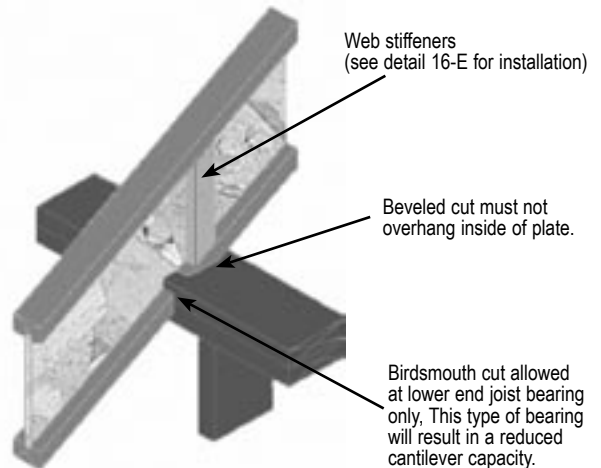
Cantilever Roof Joist

25-E



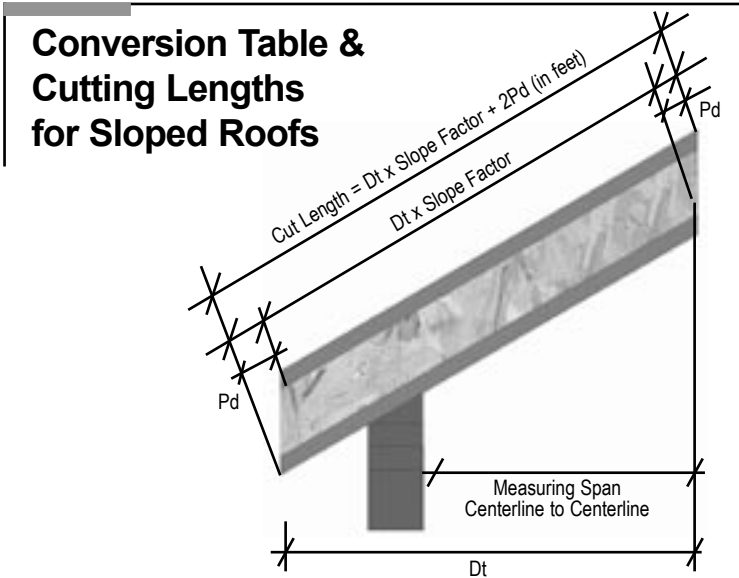
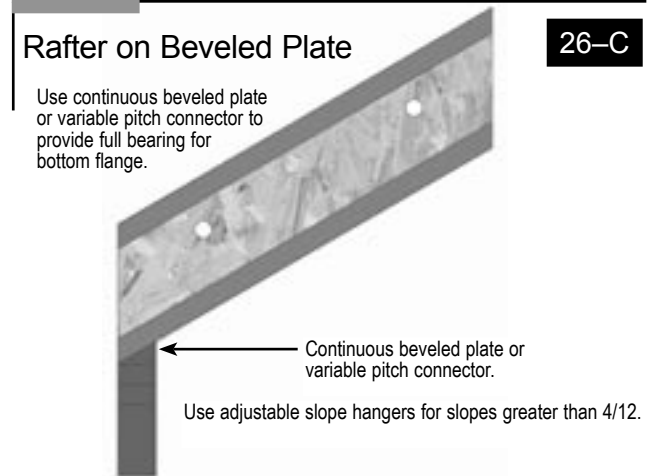
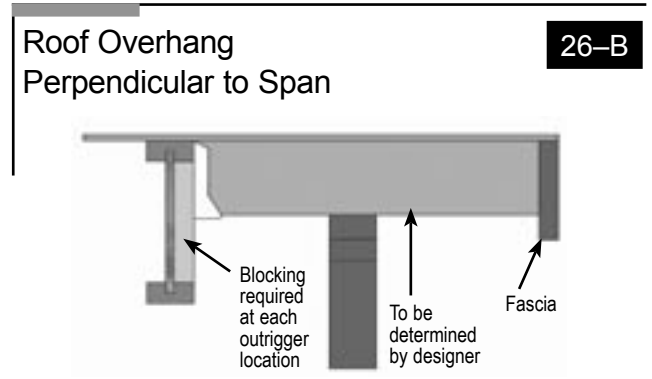
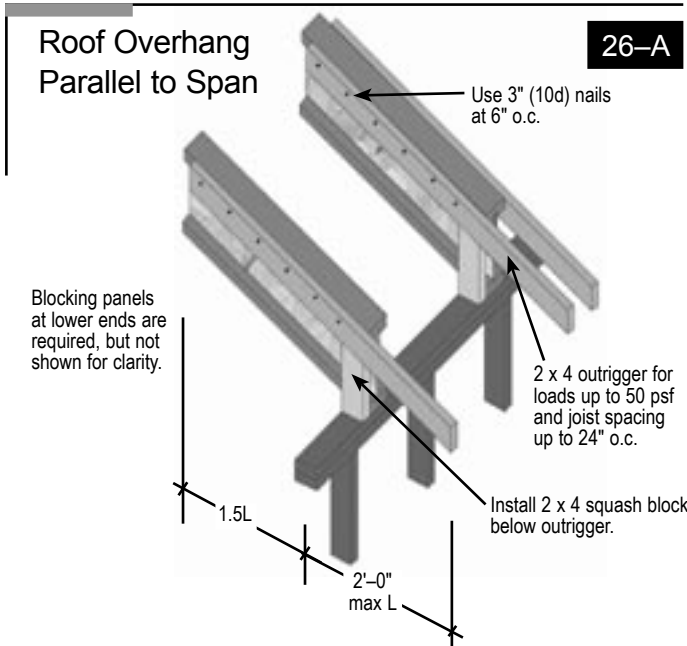
Birdsmouth Cut Sloped Bearing Condition

25-F



Check for proper code ventilation requirements when using ALLJOIST® as roof systems.

Roof Details

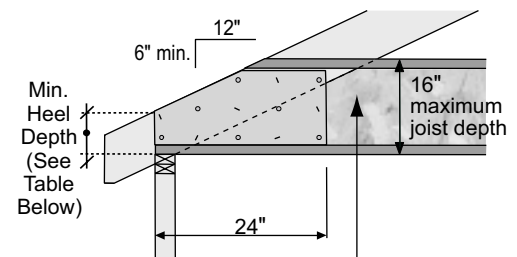


Slope Conversion Table

Slope in 12	Slope Factor	Pd Length per Joist Depth			
		9 1/2"	11 7/8"	14"	16"
3	1.031	2 1/2"	3"	3 5/8"	4 1/8"
4	1.054	3 1/4"	4"	4 3/4"	5 3/8"
5	1.083	4"	5"	5 7/8"	6 3/4"
6	1.118	4 3/4"	6"	7"	8"
7	1.158	5 5/8"	7"	8 1/4"	9 3/8"
8	1.202	6 3/8"	8"	9 3/8"	10 3/4"
9	1.250	7 1/4"	9"	10 1/2"	12"
10	1.302	8"	10"	11 3/4"	13 3/8"
11	1.357	8 3/4"	11"	12 7/8"	14 3/4"
12	1.414	9 1/2"	11 7/8"	14"	16"

Slope Cut Joist Reinforcement

Connection of rafter to wall/reinforced joist per local building code requirements. 2x blocking required at bearing (not shown for clarity).



Min. $2^{3}/_{32}$ " min. plywood/OSB rated sheathing. Install on both sides of the joist, snug to the bottom flange. Coat contact faces with rated subfloor/joist adhesive and fasten with 3 rows of minimum 10d box nails at 6" o.c. Alternate nailing from each side and clinch.

End Wall Bearing	Minimum Heel Depth					
	Roof Pitch					
	6/12	7/12	8/12	9/12	10/12	12/12
2 x 4	4 3/8"	4 5/16"	4 1/4"	4 1/4"	4 1/4"	4 1/4"
2 x 6	3 3/8"	3 3/16"	2 5/16"	2 3/4"	2 9/16"	2 1/4"