

All non-engineered projects must meet the minimum California Building Code [CBC] Section 2308 Conventional Light-Frame Construction requirements. Structures of conventional light-framed construction shall not exceed two stories in height and are subjected to limitations of Sections 2308.2, 2308.11, and 2308.12.

Openings in Exterior Walls: A header shall be provided over each opening in exterior-bearing walls, and shall be of two pieces of normal 2-inch framing lumber set on edge and nailed together with 16d nails at 16" o. c., or of solid lumber of equivalent size. See CBC Table 2308.9.5 (attached) for minimum header sizes. Each end of a header shall have a length of bearing of not less than 1-1/2" for the full width of the header.

Openings in Interior Load-Bearing Partitions: A header shall be provided over each opening in interior bearing partitions, and shall be of two pieces of nominal 2-inch framing lumber set on edge and nailed together with 16d nails at 16" o. c., or of solid lumber of equivalent size. See CBC Table 2308.9.6 (attached) for minimum header sizes. Each end of a header shall have a length of bearing of not less than 1-1/2" for the full width of the header.

Openings in Interior Non-Load Bearing Partitions: Openings in nonbearing partitions are permitted to be framed with single studs and headers. Each end of a header shall have a length of bearing of not less than 1-1/2" for the full width of the header.

Pipes in Walls: Where plumbing, heating or other pipes are placed in or partly in a partition, necessitating the cutting of the soles or plates, a metal tie not less than 16 gage and 1-1/2" wide shall be fastened to each plate across and to each side of the opening with not less than six (6) 16d nails.

Cutting and Notching: In exterior walls and bearing partitions, wood stud is permitted to be cut or notched to a depth not exceeding 25% of its width. Cutting or notching of studs to a depth not greater than 40% of the width of the stud is permitted in nonbearing partitions supporting no loads other than the weight of the partition.

Boring Holes: A hole not greater in diameter than 40% of the stud width is permitted to be bored in any wood stud. Bored holes not greater than 60% of the width of the stud are permitted in nonbearing partitions or in any wall where each bored stud is doubled, provided not more than two such successive doubled studs are so bored. In no case shall the edge of the bored hole be nearer than 5/8" to the edge of the stud. Bored holes shall not be located at the same section of stud as a cut or notch.

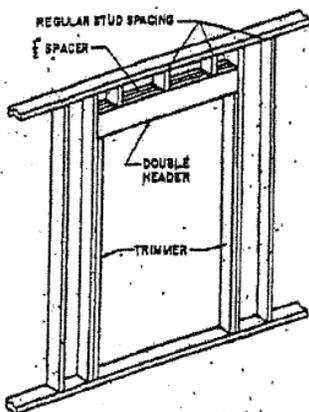


Figure 18-4 The trimmer studs support the header.

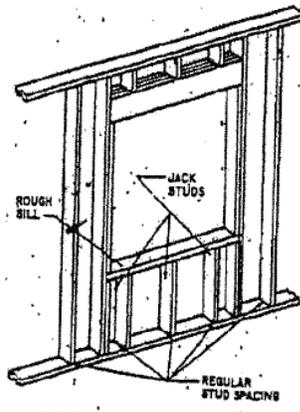


Figure 18-6 The spaces above and below the window opening are framed with jack or trimmer studs.

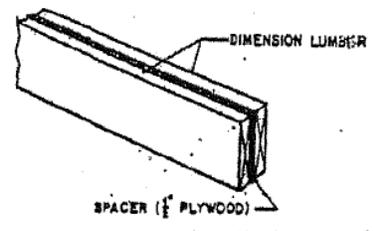


Figure 18-5 Solid wood header

**TABLE 2308.9.5
HEADER AND GIRDER SPANS^a FOR EXTERIOR BEARING WALLS
(Maximum Spans for Douglas Fir-Larch, Hem-Fir, Southern Pine and Spruce-Pine-Fir^b and Required Number of Jack Studs)**

HEADERS SUPPORTING	SIZE	GROUND SNOW LOAD (psf) ^c											
		30						50					
		Building width ^c (feet)											
		20		28		36		20		28		36	
Span	NJ ^d	Span	NJ ^d	Span	NJ ^d	Span	NJ ^d	Span	NJ ^d	Span	NJ ^d	Span	NJ ^d
Roof & Ceiling	2-2 x 4	3-6	1	3-2	1	2-10	1	3-2	1	2-9	1	2-6	1
	2-2 x 6	5-5	1	4-8	1	4-2	1	4-8	1	4-1	1	3-8	2
	2-2 x 8	6-10	1	5-11	2	5-4	2	5-11	2	5-2	2	4-7	2
	2-2 x 10	8-5	2	7-3	2	6-6	2	7-3	2	6-3	2	5-7	2
	2-2 x 12	9-9	2	8-5	2	7-6	2	8-5	2	7-3	2	6-6	2
	3-2 x 8	8-4	1	7-5	1	6-8	1	7-5	1	6-5	2	5-9	2
	3-2 x 10	10-6	1	9-1	2	8-2	2	9-1	2	7-10	2	7-0	2
	3-2 x 12	12-2	2	10-7	2	9-5	2	10-7	2	9-2	2	8-2	2
	4-2 x 8	9-2	1	8-4	1	7-8	1	8-4	1	7-5	1	6-8	1
4-2 x 10	11-8	1	10-6	1	9-5	2	10-6	1	9-1	2	8-2	2	
4-2 x 12	14-1	1	12-2	2	10-11	2	12-2	2	10-7	2	9-5	2	
Roof, Ceiling & 1 Center-Bearing Floor	2-2 x 4	3-1	1	2-9	1	2-5	1	2-9	1	2-5	1	2-2	1
	2-2 x 6	4-6	1	4-0	1	3-7	2	4-1	1	3-7	2	3-3	2
	2-2 x 8	5-9	2	5-0	2	4-6	2	5-2	2	4-6	2	4-1	2
	2-2 x 10	7-0	2	6-2	2	5-6	2	6-4	2	5-6	2	5-0	2
	2-2 x 12	8-1	2	7-1	2	6-5	2	7-4	2	6-5	2	5-9	3
	3-2 x 8	7-2	1	6-3	2	5-8	2	6-5	2	5-8	2	5-1	2
	3-2 x 10	8-9	2	7-8	2	6-11	2	7-11	2	6-11	2	6-3	2
	3-2 x 12	10-2	2	8-11	2	8-0	2	9-2	2	8-0	2	7-3	2
	4-2 x 8	8-1	1	7-3	1	6-7	1	7-5	1	6-6	1	5-11	2
4-2 x 10	10-1	1	8-10	2	8-0	2	9-1	2	8-0	2	7-2	2	
4-2 x 12	11-9	2	10-3	2	9-3	2	10-7	2	9-3	2	8-4	2	
Roof, Ceiling & 1 Clear Span Floor	2-2 x 4	2-8	1	2-4	1	2-1	1	2-7	1	2-3	1	2-0	1
	2-2 x 6	3-11	1	3-5	2	3-0	2	3-10	2	3-4	2	3-0	2
	2-2 x 8	5-0	2	4-4	2	3-10	2	4-10	2	4-2	2	3-9	2
	2-2 x 10	6-1	2	5-3	2	4-8	2	5-11	2	5-1	2	4-7	3
	2-2 x 12	7-1	2	6-1	3	5-5	3	6-10	2	5-11	3	5-4	3
	3-2 x 8	6-3	2	5-5	2	4-10	2	6-1	2	5-3	2	4-8	2
	3-2 x 10	7-7	2	6-7	2	5-11	2	7-5	2	6-5	2	5-9	2
	3-2 x 12	8-10	2	7-8	2	6-10	2	8-7	2	7-5	2	6-8	2
	4-2 x 8	7-2	1	6-3	2	5-7	2	7-0	1	6-1	2	5-5	2
4-2 x 10	8-9	2	7-7	2	6-10	2	8-7	2	7-5	2	6-7	2	
4-2 x 12	10-2	2	8-10	2	7-11	2	9-11	2	8-7	2	7-8	2	

(continued)

TABLE 2308.9.5—continued
HEADER AND GIRDER SPANS^a FOR EXTERIOR BEARING WALLS
(Maximum Spans for Douglas Fir-Larch, Hem-Fir, Southern Pine and Spruce-Pine-Fir^b and Required Number of Jack Studs)

HEADERS SUPPORTING	SIZE	GROUND SNOW LOAD (psf) ^c											
		30						50					
		Building width ^d (feet)											
		20		28		36		20		28		36	
Span	NJ ^e	Span	NJ ^e	Span	NJ ^e	Span	NJ ^e	Span	NJ ^e	Span	NJ ^e	Span	NJ ^e
Roof, Ceiling & 2 Center-Bearing Floors	2-2 x 4	2-7	1	2-3	1	2-0	1	2-6	1	2-2	1	1-11	1
	2-2 x 6	3-9	2	3-3	2	2-11	2	3-8	2	3-2	2	2-10	2
	2-2 x 8	4-9	2	4-2	2	3-9	2	4-7	2	4-0	2	3-8	2
	2-2 x 10	5-9	2	5-1	2	4-7	3	5-8	2	4-11	2	4-5	3
	2-2 x 12	6-8	2	5-10	3	5-3	3	6-6	2	5-9	3	5-2	3
	3-2 x 8	5-11	2	5-2	2	4-8	2	5-9	2	5-1	2	4-7	2
	3-2 x 10	7-3	2	6-4	2	5-8	2	7-1	2	6-2	2	5-7	2
	3-2 x 12	8-5	2	7-4	2	6-7	2	8-2	2	7-2	2	6-5	3
	4-2 x 8	6-10	1	6-0	2	5-5	2	6-8	1	5-10	2	5-3	2
	4-2 x 10	8-4	2	7-4	2	6-7	2	8-2	2	7-2	2	6-5	2
4-2 x 12	9-8	2	8-6	2	7-8	2	9-5	2	8-3	2	7-5	2	
Roof, Ceiling & 2 Clear Span Floors	2-2 x 4	2-1	1	1-8	1	1-6	2	2-0	1	1-8	1	1-5	2
	2-2 x 6	3-1	2	2-8	2	2-4	2	3-0	2	2-7	2	2-3	2
	2-2 x 8	3-10	2	3-4	2	3-0	3	3-10	2	3-4	2	2-11	3
	2-2 x 10	4-9	2	4-1	3	3-8	3	4-8	2	4-0	3	3-7	3
	2-2 x 12	5-6	3	4-9	3	4-3	3	5-5	3	4-8	3	4-2	3
	3-2 x 8	4-10	2	4-2	2	3-9	2	4-9	2	4-1	2	3-8	2
	3-2 x 10	5-11	2	5-1	2	4-7	3	5-10	2	5-0	2	4-6	3
	3-2 x 12	6-10	2	5-11	3	5-4	3	6-9	2	5-10	3	5-3	3
	4-2 x 8	5-7	2	4-10	2	4-4	2	5-6	2	4-9	2	4-3	2
	4-2 x 10	6-10	2	5-11	2	5-3	2	6-9	2	5-10	2	5-2	2
4-2 x 12	7-11	2	6-10	2	6-2	3	7-9	2	6-9	2	6-0	3	

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 47.8 N/m².

a. Spans are given in feet and inches (ft-in).

b. Tabulated values are for No. 2 grade lumber.

c. Building width is measured perpendicular to the ridge. For widths between those shown, spans are permitted to be interpolated.

d. NJ - Number of jack studs required to support each end. Where the number of required jack studs equals one, the header is permitted to be supported by an *approved* framing anchor attached to the full-height wall stud and to the header.

e. Use 30 pounds per square foot ground snow load for cases in which ground snow load is less than 30 pounds per square foot and the roof live load is equal to or less than 20 pounds per square foot.

TABLE 2308.9.6

HEADER AND GIRDER SPANS* FOR INTERIOR BEARING WALLS

(Maximum Spans for Douglas Fir-Larch, Hem-Fir, Southern Pine and Spruce-Pine-Fir^b and Required Number of Jack Studs)

HEADERS AND GIRDERS SUPPORTING	SIZE	BUILDING WIDTH ^c (feet)					
		20		28		36	
		Span	NJ ^d	Span	NJ ^d	Span	NJ ^d
One Floor Only	2-2 x 4	3-1	1	2-8	1	2-5	1
	2-2 x 6	4-6	1	3-11	1	3-6	1
	2-2 x 8	5-9	1	5-0	2	4-5	2
	2-2 x 10	7-0	2	6-1	2	5-5	2
	2-2 x 12	8-1	2	7-0	2	6-3	2
	3-2 x 8	7-2	1	6-3	1	5-7	2
	3-2 x 10	8-9	1	7-7	2	6-9	2
	3-2 x 12	10-2	2	8-10	2	7-10	2
	4-2 x 8	9-0	1	7-8	1	6-9	1
	4-2 x 10	10-1	1	8-9	1	7-10	2
	4-2 x 12	11-9	1	10-2	2	9-1	2
Two Floors	2-2 x 4	2-2	1	1-10	1	1-7	1
	2-2 x 6	3-2	2	2-9	2	2-5	2
	2-2 x 8	4-1	2	3-6	2	3-2	2
	2-2 x 10	4-11	2	4-3	2	3-10	3
	2-2 x 12	5-9	2	5-0	3	4-5	3
	3-2 x 8	5-1	2	4-5	2	3-11	2
	3-2 x 10	6-2	2	5-4	2	4-10	2
	3-2 x 12	7-2	2	6-3	2	5-7	3
	4-2 x 8	6-1	1	5-3	2	4-8	2
	4-2 x 10	7-2	2	6-2	2	5-6	2
	4-2 x 12	8-4	2	7-2	2	6-5	2

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

a. Spans are given in feet and inches (ft-in).

b. Tabulated values are for No. 2 grade lumber.

c. Building width is measured perpendicular to the ridge. For widths between those shown, spans are permitted to be interpolated.

d. NJ - Number of jack studs required to support each end. Where the number of required jack studs equals one, the headers are permitted to be supported by an approved framing anchor attached to the full-height wall stud and to the header.