FRAMING TIPS

BUILDING DEPARTMENT
952-446-1660
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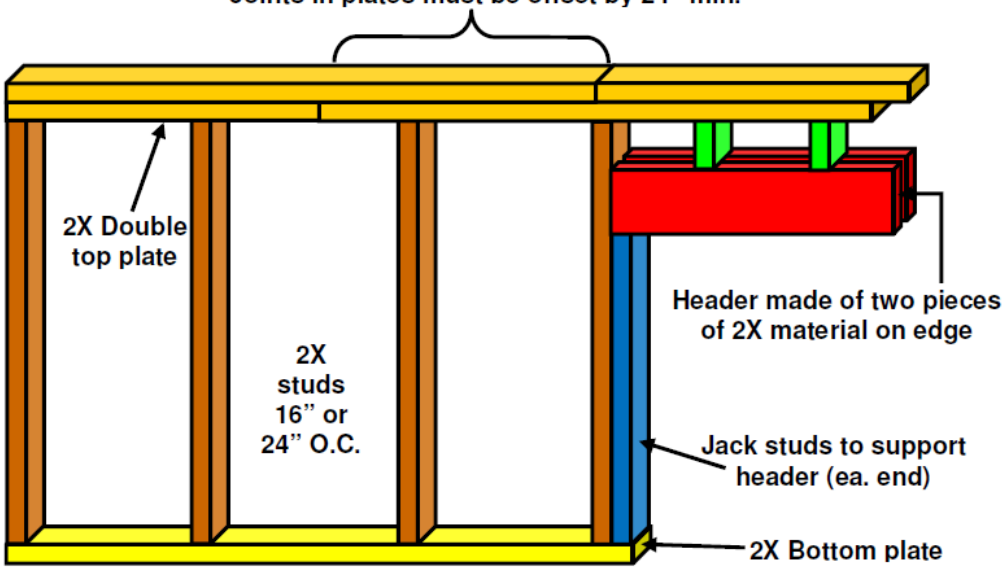
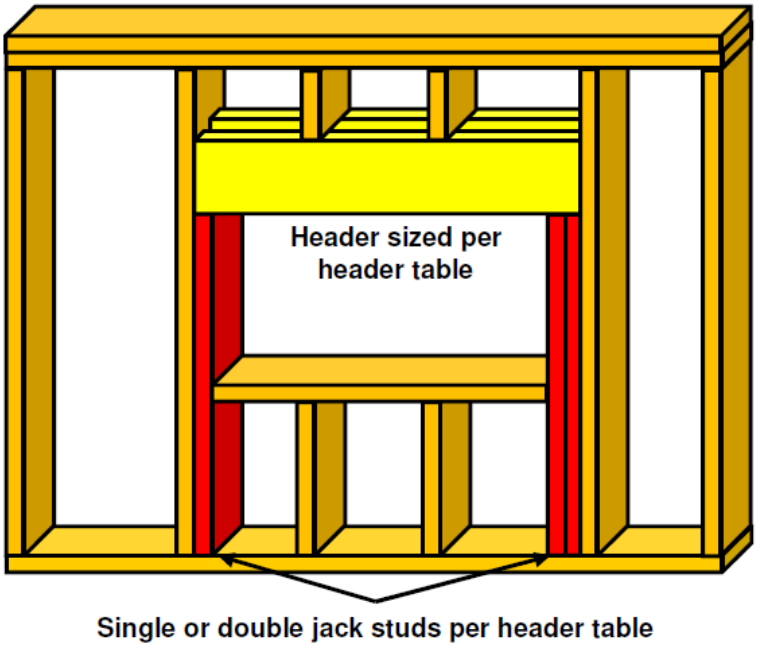
TYPICAL BEARING WALL FRAMING



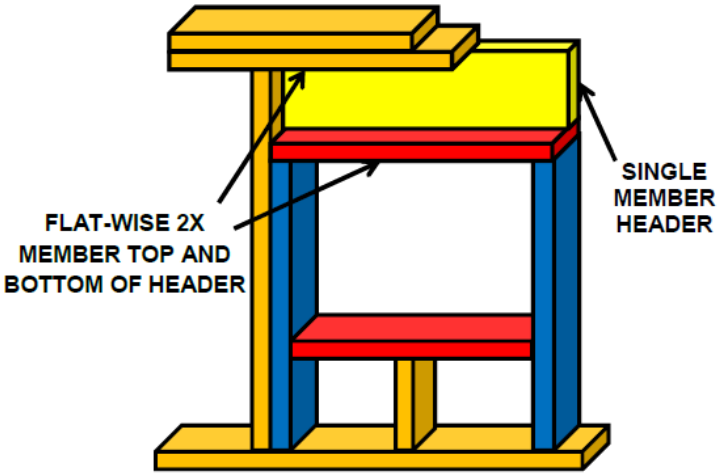
FRAMING OPENINGS IN BEARING WALLS

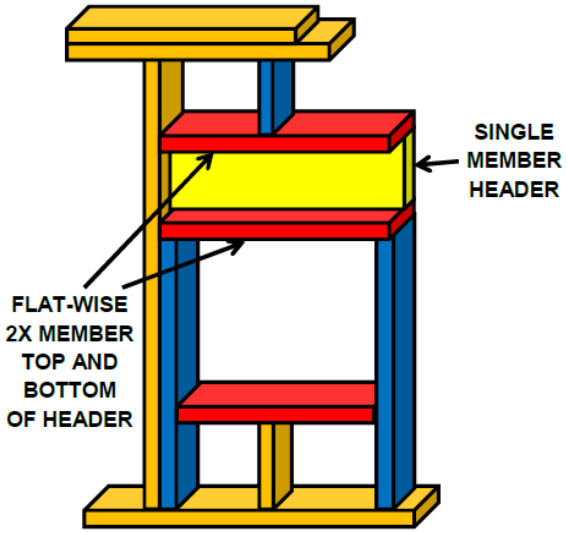


GIRDER SPANS AND HEADER SPANS FOR EXTERIOR BEARING WALLS - #2 HEM FIR OR SPF
TABLE R502.5(1)

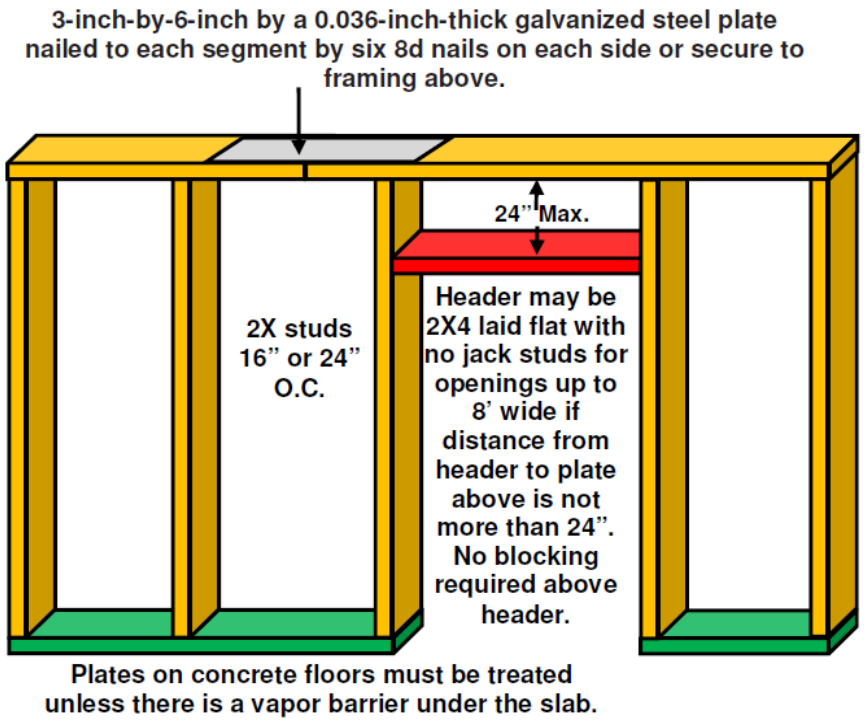
GIRDERS AND HEADERS SUPPORTING	SIZE	20		24		28		32	
		Span	NJ	Span	NJ	Span	NJ	Span	NJ
Roof and ceiling	2-2×4	3-2	1	2-6	1	2-9	1	2-8	1
	2-2×6	4-8	1	4-5	1	4-1	1	3-11	2
	2-2×8	5-11	2	5-7	2	5-2	2	4-11	2
	2-2×10	7-3	2	6-9	2	6-3	2	5-11	2
	2-2×12	8-5	2	7-10	2	7-3	2	6-11	2
	3-2×8	7-5	1	6-11	2	6-5	2	6-1	2
	3-2×10	9-1	2	8-6	2	7-10	2	7-5	2
	3-2×12	10-7	2	9-10	2	9-2	2	8-8	2
	4-2×8	8-4	1	7-11	1	7-5	1	7-1	1
	4-2×10	10-6	1	9-9	2	9-1	2	8-8	2
	4-2×12	12-2	2	11-5	2	10-7	2	10-0	2
Roof, ceiling and one center-bearing floor	2-2×4	2-9	1	2-7	1	2-5	1	2-4	1
	2-2×6	4-1	1	3-10	2	3-7	2	3-5	2
	2-2×8	5-2	2	4-10	2	4-6	2	4-4	2
	2-2×10	6-4	2	5-11	2	5-6	2	5-3	2
	2-2×12	7-4	2	6-11	2	6-5	2	6-1	3
	3-2×8	6-5	2	6-1	2	5-8	2	5-4	2
	3-2×10	7-11	2	7-5	2	6-11	2	6-7	2
	3-2×12	9-2	2	8-7	2	8-0	2	7-8	2
	4-2×8	7-5	1	7-0	1	6-6	1	6-3	2
	4-2×10	9-1	2	8-6	2	8-0	2	7-7	2
	4-2×12	10-7	2	9-11	2	9-3	2	8-10	2
Roof, ceiling and one clear span floor	2-2×4	2-7	1	2-5	1	2-3	1	2-2	1
	2-2×6	3-10	2	3-7	2	3-4	2	3-2	2
	2-2×8	4-10	2	4-6	2	4-2	2	4-0	2
	2-2×10	5-11	2	5-5	2	5-1	2	4-10	2
	2-2×12	6-10	2	6-5	3	5-11	3	5-8	3
	3-2×8	6-1	2	5-8	2	5-3	2	5-0	3
	3-2×10	7-5	2	6-11	2	6-5	2	6-1	2
	3-2×12	8-7	2	8-0	2	7-5	2	7-1	2
	4-2×8	7-0	1	6-6	2	6-1	2	5-9	2
	4-2×10	8-7	2	8-0	2	7-5	2	7-0	2
	4-2×12	9-11	2	9-5	2	8-7	2	8-2	2
Roof, ceiling and two center-bearing floors	2-2×4	2-6	1	2-4	1	2-2	1	2-0	1
	2-2×6	3-8	2	3-5	2	3-2	2	3-0	2
	2-2×8	4-7	2	4-4	2	4-0	2	3-10	2
	2-2×10	5-8	2	5-4	2	4-11	2	4-8	3
	2-2×12	6-6	2	6-2	3	5-9	3	5-6	3
	3-2×8	5-9	2	5-5	2	5-1	2	4-10	2
	3-2×10	7-1	2	6-8	2	6-2	2	5-11	2
	3-2×12	8-2	2	7-8	2	7-2	2	6-10	3
	4-2×8	6-8	1	6-3	2	5-10	2	5-7	2
	4-2×10	8-2	2	7-8	2	7-2	2	6-10	2
	4-2×12	9-5	2	8-10	2	8-3	2	7-10	2
Roof, ceiling, and two clear span floors	2-2×4	2-0	1	1-10	1	1-8	1	1-7	2
	2-2×6	3-0	2	2-10	2	2-7	2	2-5	2
	2-2×8	3-10	2	3-7	2	3-4	2	3-2	3
	2-2×10	4-8	2	4-4	3	4-0	3	3-10	3
	2-2×12	5-5	3	5-1	3	4-8	3	4-5	3
	3-2×8	4-9	2	4-5	2	4-1	2	3-11	2
	3-2×10	5-10	2	5-5	2	5-0	2	4-9	3
	3-2×12	6-9	2	6-4	3	5-10	3	5-7	3
	4-2×8	5-6	2	5-2	2	4-9	2	4-6	3
	4-2×10	6-9	2	6-4	2	5-10	2	5-6	2
	4-2×12	7-9	2	7-3	2	6-9	2	6-5	3

SIZE, HEIGHT AND SPACING OF WOOD STUDS TABLE R602.3(5)							
		BEARING WALLS				NONBEARING WALLS	
STUD SIZE	MAXIMUM HEIGHT	MAXIMUM SPACING SUPPORTING ROOF AND CEILING ONLY	MAXIMUM SPACING SUPPORTING ONE FLOOR, ROOF, AND CEILING	MAXIMUM SPACING SUPPORTING TWO FLOORS, ROOF AND CEILING	MAXIMUM SPACING SUPPORTING ONE FLOOR ONLY	MAXIMUM HEIGHT	MAXIMUM SPACING
2X4	10	24	16	-	24	14	24
2X6	10	24	24	16	24	20	24

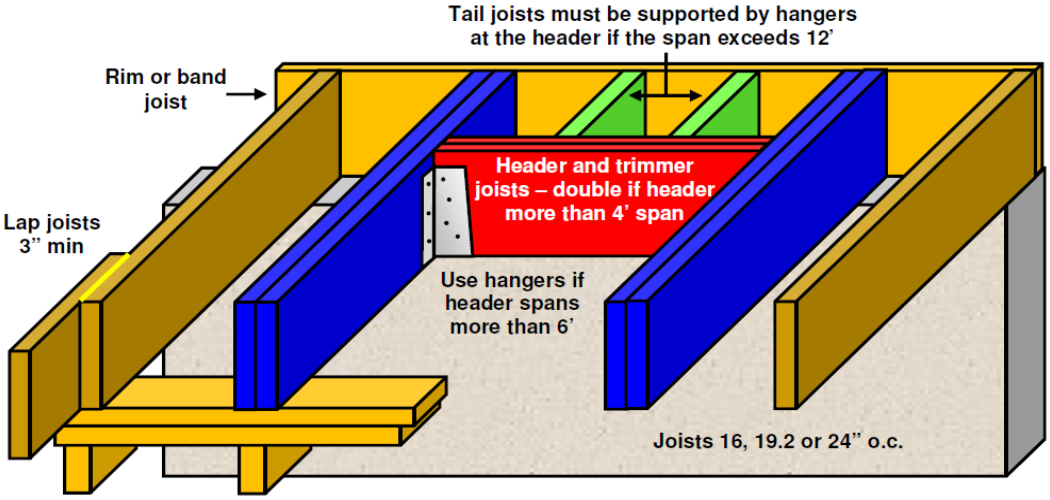




TYPICAL FRAMING FOR NON-BEARING WALLS OR BASEMENT WALLS

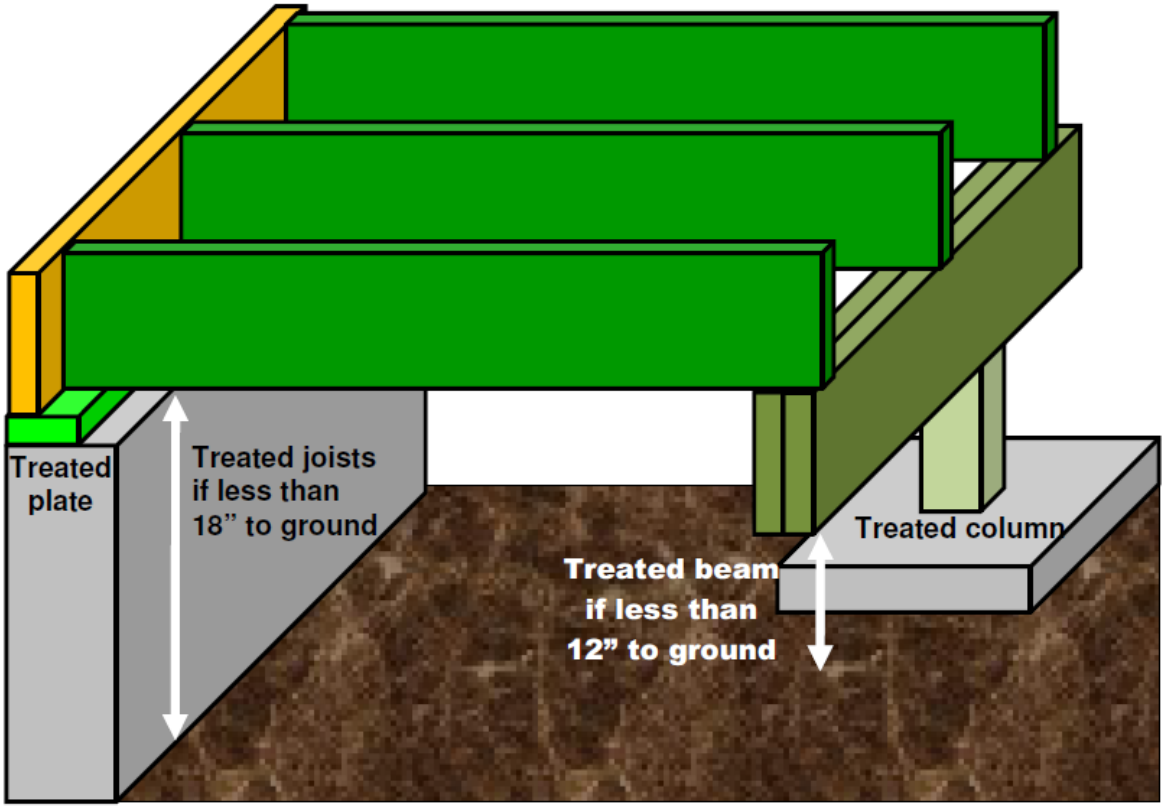


TYPICAL FLOOR FRAMING



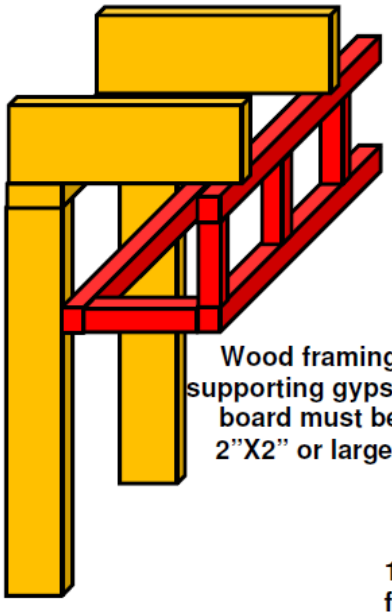
FLOOR JOIST SPANS TABLE R502.3.1(2) - TABLE BASED ON #2 GRADE LUMBER									
JOIST SPACING	SPECIES	DEAD LOAD = 10 PSF				DEAD LOAD = 20 PSF			
		2X6	2X8	2X10	2X12	2X6	2X8	2X10	2X12
12	HEM-FIR	10-0	13-2	16010	20-4	10-0	13-1	16-0	18-6
	S. PINE	10-9	14-2	18-0	21-9	10-9	14-2	16-11	19-10
	SPF	10-3	13-6	17-3	20-7	10-3	13-3	16-3	18-10
16	HEM-FIR	9-1	12-0	15-2	17-7	8-11	11-4	13-10	16-1
	S. PINE	9-9	12-10	16-1	18-10	9-6	12-4	14-8	17-2
	SPF	9-4	12-3	15-5	17-10	9-1	11-6	14-1	16-3
19.2	HEM-FIR	8-7	11-3	13-10	16-1	8-2	10-4	12-8	14-8
	S. PINE	9-2	12-1	14-8	17-2	8-8	11-3	13-5	15-8
	SPF	8-9	11-6	14-1	16-3	8-3	10-6	12-10	14-10
24	HEM-FIR	7-11	10-2	12-5	14-4	7-4	9-3	11-4	13-1
	S. PINE	8-6	11-0	13-1	15-5	7-9	10-0	12-0	14-0
	SPF	8-1	10-3	12-7	14-7	7-5	9-5	11-6	13-4

CRAWL SPACES

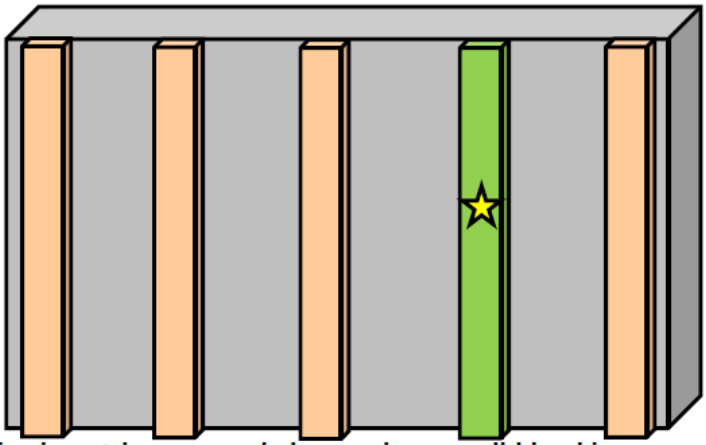


GIRDER AND HEADER SPANS FOR INTERIOR BEARING WALLS (IN FT/IN) TABLE R502.5(2) (#2Hem Fir or SPF)					
HEADERS AND GIRDERS SUPPORTING	SIZE	BUILDING WIDTH (FT)			
		20	24	28	32
		SPAN (JACK STUDS)	SPAN (JACK STUDS)	SPAN (JACK STUDS)	SPAN (JACK STUDS)
One floor only	2-2X4	3-1 (1)	2-11 (1)	2-8 (1)	2-7 (1)
	2-2X6	4-6 (1)	4-3 (1)	3-11 (1)	3-9 (1)
	2-2X8	9-1 (1)	5-4 (1)	5-0 (2)	4-9 (2)
	2-2X10	7-0 (2)	6-7 (2)	6-1 (2)	5-9 (2)
	2-2X12	8-1 (2)	7-7 (2)	7-0 (2)	6-7 (2)
	3-2X8	7-2 (1)	6-9 (1)	6-3 (1)	5-11 (2)
	3-2X10	8-9 (1)	8-2 (1)	7-7 (2)	7-2 (2)
	3-2X12	10-2 (2)	9-6 (2)	8-10 (2)	8-3 (2)
	4-2X8	9-0 (1)	8-3 (1)	7-8 (1)	7-3 (1)
	4-2X10	10-1 (1)	9-5 (1)	9-0 (1)	8-4 (2)
	4-2X12	11-9 (1)	10-11 (2)	10-2 (2)	9-8 (2)
Two floors	2-2X4	2-2 (1)	2-0 (1)	1-10 (1)	1-9 (1)
	2-2X6	3-2 (2)	3-0 (2)	2-9 (2)	2-7 (2)
	2-2X8	4-1 (2)	3-10 (2)	3-6 (2)	3-4 (2)
	2-2X10	4-11 (2)	4-7 (2)	4-3 (2)	4-1 (3)
	2-2X12	5-9 (2)	5-5 (3)	5-0 (3)	4-9 (3)
	3-2X8	5-1 (2)	4-9 (2)	4-5 (2)	4-2 (2)
	3-2X10	6-2 (2)	5-9 (2)	5-4 (2)	5-1 (2)
	3-2X12	7-2 (2)	6-9 (2)	6-3 (2)	5-11 (3)
	4-2X8	6-1 (1)	5-8 (2)	5-3 (2)	5-0 (2)
	4-2X10	7-2 (2)	6-8 (2)	6-2 (2)	5-10 (2)
	4-2X12	8-4 (2)	7-9 (2)	7-2 (2)	6-10 (2)

FURRING VS. FRAMING

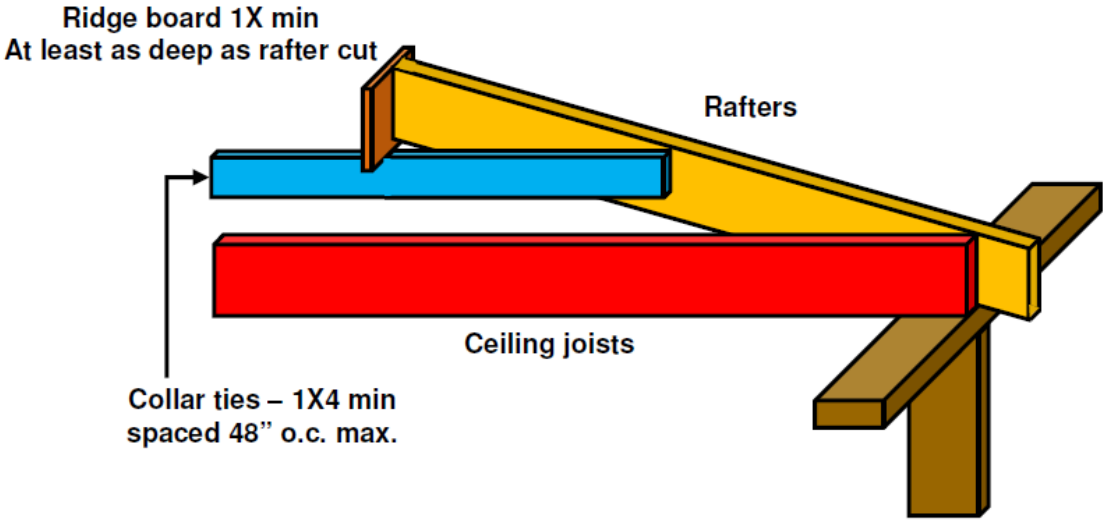


Wood framing supporting gypsum board must be 2"X2" or larger



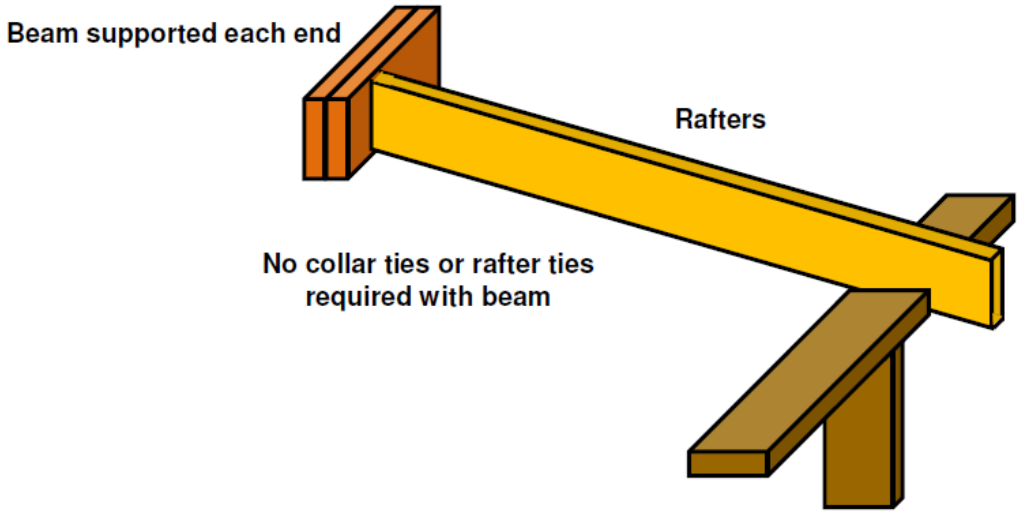
1 X Furring strips may only be used over solid backing or framing spaced not more than 24" o.c. ☆ Furring strips placed against a concrete or masonry wall must be treated unless a vapor retarder is placed between the wall and furring strips

ROOF FRAMING



RAFTER AND CEILING JOIST SPANS FOR #2 HEM FIR AND SPF (NO STORAGE IN ATTIC)									
		2 x 4		2 x 6		2 x 8		2 x 10	
		CEIL. JOIST	RAFTER	CEIL. JOIST	RAFTER	CEIL. JOIST	RAFTER	CEIL. JOIST	RAFTER
12" o.c.	Hem Fir	11-7	7-5	18-2	11-1	24-0	14-0	26+	17-2
	SPF	11-10	7-8	18-8	11-3	24-7	14-3	26+	17-5
16" o.c.	Hem Fir	10-6	6-7	16-6	9-7	21-9	12-2	26+	14-10
	SPF	10-9	6-8	16-11	9-9	22-4	12-4	26+	15-1
24" o.c.	Hem Fir	9-2	5-4	14-5	7-10	18-6	9-11	22-7	12-1
	SPF	9-5	5-5	14-9	7-11	18-9	10-1	22-11	12-4

ROOF FRAMING WITH BEAM



RIDGE BEAM SPANS GROUND SNOW LOAD – 50PSF ROOF DEAD LOAD – 10 PSF			
SIZE	BUILDING WIDTH		
	12	24	36
	MAXIMUM RIDGE BEAM SPANS (ft.-in.) FOR COMMON LUMBERSPECIES		
1-2X6	4-8	3-4	2-9
1-2X8	5-11	4-2	3-5
1-2X10	7-3	5-2	4-2
1-2X12	8-5	6-0	4-10
2-2X6	7-0	4-11	4-0
2-2X8	8-10	6-3	5-1
2-2X10	10-9	7-7	6-3
2-2X12	12-6	8-10	7-3
3-2X8	11-0	7-10	6-4
3-2X10	13-6	9-6	7-9
3-2X12	15-8	11-1	9-0
4-2X8	12-9	9-0	7-4
4-2X10	15-7	11-0	9-0
4-2X12	18-1	12-9	10-5
AF&PA WOOD FRAME CONSTRUCTION MANUAL - 2001			

ENGINEERED LUMBER

This handout does not cover engineered lumber such as floor or roof trusses, I joists, glue laminated members, structural composite lumber, and similar products. Use of engineered lumber must be accompanied by engineering supporting their use.