

Building/Structural Code Requirements

Q: What are the requirements for notching and boring standard floor and ceiling joists?

Answer:

CABO, Section 502 Floor Framing

502.6 Drilling and Notching. Notches in the top or bottom of joists shall not exceed one-sixth the depth of the joist and shall not be located in the middle third of the span. Where joists are notched on the ends for a ledger, the notch shall not exceed one-fourth the joist depth. Cantilevered joists shall not be notched unless the reduced section properties and lumber defects are considered in the design.

502.7 Holes. Holes drilled or bored in joists shall not be within 2 inches (51 mm) of the top or bottom of joists, and their diameter shall not exceed one-third the depth of the joist.

CABO, Section 802 Roof Framing

802.6 Cutting and Notching. Notching at the ends of the rafter or ceiling joists shall not exceed one-fourth the depth. Notches in the top or bottom of the joists shall not exceed one-sixth the depth and shall not be located in the middle one-third of the span, except that a notch not exceeding one-third of the depth is permitted in the top of the rafter or ceiling joist not further from the face of the support than the depth of the member. The tension side of lumber 4 inches (102 mm) wide or greater shall not be notched except at the ends of the members. Cantilevered portions less than 4 inches (102 mm) wide shall not be notched unless the reduced section properties and lumber defects are considered in the design.

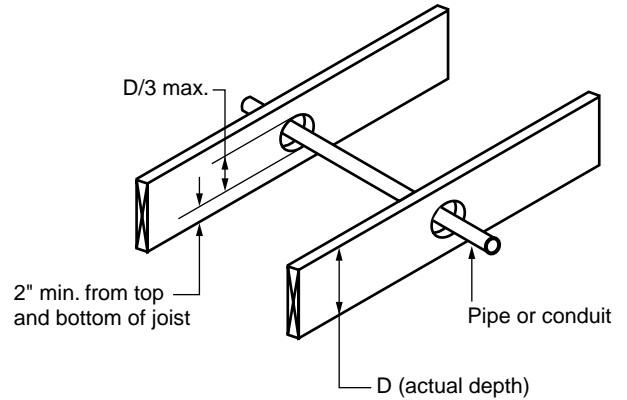
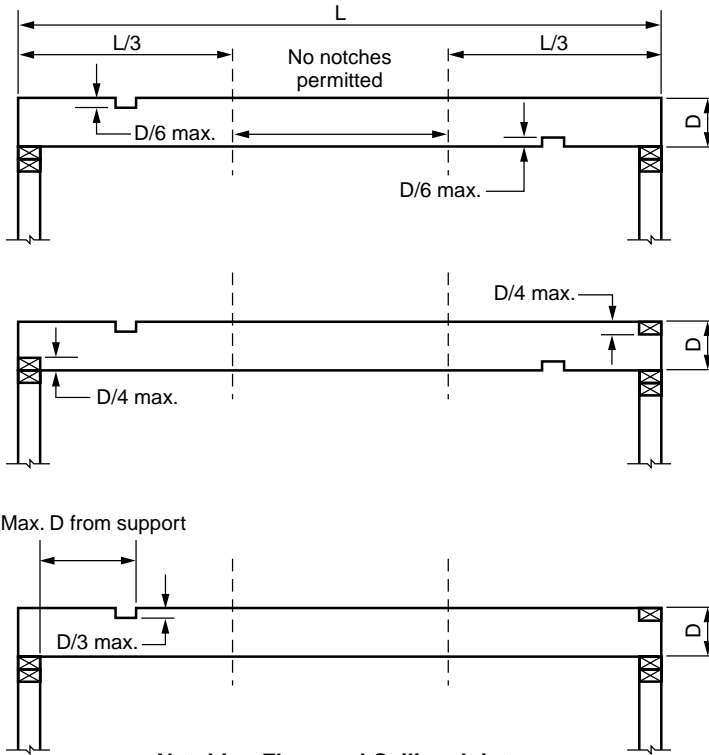
802.7 Bored holes. Holes bored in rafters or ceiling joists shall not be within 2 inches (51 mm) of the top and bottom and their diameter shall not exceed one-third the depth of the member.

See diagrams on next page.

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(Continued)



FLOOR JOIST SPANS, NOTCHING AND BORING						
Floor joist spans - 40 lb. live load				Notching		Boring
DF #2	12" o.c.	16" o.c.	24" o.c.	End	Outer 1/3	2" to edge
2x6	10' 9"	9' 9"	8' 6"	1 3/8"	7/8"	1 1/2"
2x8	14' 2"	12' 10"	11' 3"	1 7/8"	1 1/4"	2 3/8"
2x10	18'	16' 5"	14' 4"	2 5/16"	1 1/2"	3 1/16"
2x12	21' 11"	19' 11"	17' 5"	2 13/16"	1 7/8"	3 3/4"

Spans in this table are for Doug fir (DF) #2 (E1 1.6) only & are based on UBC Table 23-I-V-j-1. Modulus of elasticity E_1 derives from UBC Table 23-I-A-1.