



Residential Span Table and Nailing Schedule

THIS HANDOUT DEPICTS MINIMUM CODE REQUIREMENTS PER 2010 CBC. INFORMATION IS FOR REFERENCE ONLY AND IS NOT A SUBSTITUTE FOR ACCURATE DRAWINGS PREPARED FOR EACH PROPOSED CONSTRUCTION PROJECT.

ALLOWABLE JOIST AND RAFTER SPANS (Excerpted from CBC 2010, Tables 2308.8(2), 2308.10.2(1) & (2).)							
DF/Larch #2 Nominal Size (inches)	Spacing in inches on center	Floor Joist LL=40psf,DL=20 psf LL L/defl = 360	Floor Joist LL=40psf,DL=10psf LL L/defl = 360	Ceiling Joist(lim. Stor.) LL=20psf, DL=20psf LL L/defl = 240	Ceiling Joist(No stor.) LL=10psf, DL=10psf LL L/defl = 240	Rafter LL=20psf,DL=20psf LL L/defl = 240(recmnd)	Rafter LL=20psf,DL=10psf LL L/defl = 240(recmnd)
2 x 4	12"	Not in code	Not in code	9 - 10	12 - 5	9 - 10	9 - 10
	16"	Not in code	Not in code	8 - 9	11 - 3	8 - 6	8 - 11
	24"	Not in code	Not in code	7 - 2	9 - 10	6 - 11	7 - 10
2 x 6	12"	10 - 6	10 - 9	14 - 0	19 - 6	14 - 4	15 - 6
	16"	9 - 1	9 - 9	12 - 10	17 - 8	12 - 5	14 - 1
	24"	7 - 5	8 - 1	10 - 6	14 - 0	10 - 2	11 - 9
2 x 8	12"	13 - 3	14 - 2	18 - 10	25 - 8	18 - 2	20 - 5
	16"	11 - 6	12 - 7	16 - 3	23 - 0	15 - 9	18 - 2
	24"	9 - 5	10 - 3	13 - 3	18 - 9	12 - 10	14 - 10
2 x 10	12"	16 - 3	17 - 9	22 - 11	Note a	22 - 3	25 - 8
	16"	14 - 1	15 - 5	19 - 10	Note a	19 - 3	22 - 3
	24"	11 - 6	12 - 7	16 - 3	22 - 11	15 - 8	18 - 2
2 x 12	12"	18 - 10	20 - 7	Not in code	Not in code	25 - 9	Note a
	16"	16 - 3	17 - 10	Not in code	Not in code	22 - 4	25 - 9
	24"	13 - 4	14 - 7	Not in code	Not in code	18 - 3	21 - 0

Note a: Exceeds probable availability (typically 24'-0" to 26'-0" max. length. Check local sources)

NOTE: HDRS BASED ON RF LL = 20 PSF, SEE CHAPTER 23 FOR OPTIONS

NOTE: NAILING REQUIREMENTS ARE FOR COMMON NAILS. (see dim. below)

ALLOWABLE HEADER SPANS (From Table 2308.9.5)					
DF/Larch #2 Nominal Size (inches)	Building Width (Span of structure in ft.)	Roof + Clg. + One Floor (Clear Span)	No. of Jack Studs	Roof + Clg. Only (Clear Span)	No. of Jack Studs
2 - 2 x 4 (4 x 4)	20'	2 - 8	1	3 - 6	1
	28'	2 - 4	1	3 - 2	1
	36'	2 - 1	1	2 - 10	1
2 - 2 x 6 (4 x 6)	20'	3 - 11	1	5 - 5	1
	28'	3 - 5	2	4 - 8	1
	36'	3 - 0	2	4 - 2	1
2 - 2 x 8 (4 x 8)	20'	5 - 0	2	6 - 10	1
	28'	4 - 4	2	5 - 11	2
	36'	3 - 10	2	5 - 4	2
2 - 2 x 10 (4 x 10)	20'	6 - 1	2	8 - 5	2
	28'	5 - 3	2	7 - 3	2
	36'	4 - 8	2	6 - 6	2
2 - 2 x 12 (4 x 12)	20'	7 - 1	2	9 - 9	2
	28'	6 - 1	3	8 - 5	2
	36'	5 - 5	3	7 - 6	2
3 - 2 x 8 (6 x 8)	20'	6 - 3	2	8 - 4	1
	28'	5 - 5	2	7 - 6	1
	36'	4 - 10	2	6 - 8	2
3 - 2 x 10 (6 x 10)	20'	7 - 7	2	10 - 6	1
	28'	6 - 7	2	9 - 1	2
	36'	5 - 11	2	8 - 2	2
3 - 2 x 12 (6 x 12)	20'	8 - 10	2	12 - 2	2
	28'	7 - 8	2	10 - 7	2
	36'	6 - 10	2	9 - 5	2

Notes: 1. Built-up headers must be fastened per nailing schedule.
 2. Conditions shown are for exterior wall. Tributary area width of joist is 1/2 bldg. width.
 3. Where jack stud is req'd., an approved header hanger bracket may be used.

NAILING SCHEDULE (From Table 2304.9.1)			
1. Joist to sill or girder, toenail 3-8d.			
2. Bridging to joist, toenail each end 2-8d.			
3. Sole plate to joist or blocking, face-nail 16d @ 16" o.c.			
4. Sole plate to joist or blocking, at braced wall panels 3-16d per 16"			
5. Top plate to stud, end-nail 2-16d			
6. Stud to sole plate 4-8d toe nailed, or 2-16d end nailed			
7. Double studs, face-nailed 16d @ 24" o.c.			
8. Double top plates, face-nail 16d @ 16" o.c.			
9. Double top plates, lap spliced 8-16d			
10. Blocking between joists or rafters to top plate, toenail 3-8d			
11. Rim joist to top plate, toenail 8d @ 6" o.c.			
12. Continuous header, two pieces 16d @ 16" o.c. along each edge			
13. Continuous header to stud, toenail 4-8d			
14. Ceiling joist to plate, toenail 3-18d			
15. Ceiling joist, laps over wall, face nail 3-16d			
16. Rafter to plate, toenail 3-8d			
17. Built-up corner studs 16d @ 24" o.c.			
18. Built-up girders and beans 20d @ 32" o.c. face nail at top & bottom and staggered on opposite sides, plus 2-20d face nail at each end			
19. Collar tie to rafter, face nail, 3-10d			
20. Jack rafter to hip, toenail 3-10d, face nail at each end			
21. Roof rafter to 2x ridge beam, toenail or face nail 3-16d			
22. Joist to band joist, face nail, 3-16d			
23. Ledger strip, face nail 3-16d			
NOTE: Use common nails, not box, cooler, etc.			
20d	4" x 0.192" DIA	10d	3" x 0.148" DIA
16d	3 1/2" x 0.162" DIA	8d	2 1/2" x 0.131" DIA
12d	3 1/4" x 0.148" DIA	6d	2" x 0.113" DIA