



2013 ADDENDUM
to
ANSI/AF&PA WFCM-2001
WOOD FRAME CONSTRUCTION MANUAL FOR ONE- AND TWO-FAMILY DWELLINGS
(All printed and electronic versions prior to June 2013)

Effective June 1, 2013, the following tables in the 2001 Wood-Frame Construction Manual (WFCM) are revised to reflect changes to all grades of 2x4, 2x6, 2x8, 2x10, and 2x12 Southern Pine. These tables supersede tables published in the AWC May 2013 and May 2012 Addendum. In conjunction with this amendment to the 2001 WFCM, it is strongly advised that the 2012 NDS Supplement be used as the source for obtaining design values in general, and that the 2001 WFCM Supplement no longer be used in that regard.

2001 WFCM Table	Page Reference	Description	Action
Tables 3.18A and B	177 and 178	Floor joist spans for common lumber species.	<u>Replace</u> with revised Tables 3.18A and B as shown in this Attachment.
Tables 3.20A and A-3.20A	180, 181, 244, and 245	Maximum exterior stud lengths for common lumber species resisting interior zone wind loads. (<i>Fully sheathed with a minimum sheathing material</i>)	<u>Replace</u> with revised Tables 3.20A and A-3.20A, respectively, as shown in this Attachment.
Tables 3.20B and A-3.20B	182, 183, 246, and 247	Maximum exterior stud lengths for common lumber species resisting interior zone wind loads. (<i>Fully sheathed with a minimum of 3/8" wood structural panels</i>)	<u>Replace</u> with revised Tables 3.20B and A-3.20B, respectively, as shown in this Attachment.
Tables 3.22A through 3.22E	186 to 190	Header spans for exterior walls resisting gravity loads.	Revise Footnote 1 as follows: Tabulated spans are based on #2 Grade Hem-Fir, and are applicable to species with equal or greater F _b and E from the <u>NDS Supplement</u> (i.e., Douglas Fir-Larch, Southern Pine , or Spruce-Pine-Fir). <u>Where #2 Grade Southern Pine is used, tabulated spans shall be multiplied by 0.93 or, alternatively, #1 or higher grade of Southern Pine shall be required.</u> For #3 Grade lumber Hem-Fir, Douglas Fir-Larch, or Spruce-Pine-Fir , tabulated spans shall be multiplied by 0.75 <u>and, for #3 Grade Southern Pine, tabulated spans shall be multiplied by 0.70.</u>
Table 3.23A and A-3.23A	192, and 249	Header spans for exterior walls resisting (out-of-plane) wind loads.	Revise Footnote 4 as follows: Tabulated values are based on #2 Grade Hem-Fir, and are applicable to species with equal or greater F _b and E from the <u>NDS Supplement</u> (i.e., Douglas Fir-Larch, Southern Pine , or Spruce-Pine-Fir). <u>Where #2 Grade Southern Pine is used, tabulated spans shall be multiplied by 0.93 or, alternatively, #1 or higher grade of Southern Pine shall be required.</u>
Table 3.23B and A-3.23B	193, and 250	Header spans for non-loadbearing exterior walls and window sill plates resisting (out-of-plane) wind loads.	Revise Footnote 4 as follows: Tabulated values are based on #2 Grade Hem-Fir, and are applicable to species with equal or greater F _b and E from the <u>NDS Supplement</u> (i.e., Douglas Fir-Larch, Southern Pine , or Spruce-Pine-Fir). <u>Where #2 Grade Southern Pine is used, tabulated spans shall be</u>

			<u>multiplied by 0.93 or, alternatively, #1 or higher grade of Southern Pine shall be required.</u>
Tables 3.24A and B	195 and 196	Header spans for interior walls resisting gravity loads.	Revise Footnote 1 as follows: Tabulated spans are based on #2 Grade Hem-Fir, and are applicable to species with equal or greater F_b and E from the <u>NDS Supplement</u> (i.e., Douglas Fir-Larch, Southern Pine , or Spruce-Pine-Fir). <u>Where #2 Grade Southern Pine is used, tabulated spans shall be multiplied by 0.93 or, alternatively, #1 or higher grade of Southern Pine shall be required.</u> For #3 Grade lumber Hem-Fir, Douglas Fir-Larch, or Spruce-Pine-Fir, tabulated spans shall be multiplied by 0.75 and, for #3 Grade Southern Pine, tabulated spans shall be <u>multiplied by 0.70.</u>
Tables 3.25A and B	198 and 199	Ceiling joist spans for common lumber species.	<u>Replace</u> with revised Tables 3.25A and B as shown in this Attachment.
Tables 3.26A through H	200 to 207	Rafter spans for common lumber species.	<u>Replace</u> with revised Tables 3.26A through H as shown in this Attachment.
Table 3.28	210	Hip and valley beam sizes.	Revise Footnote 1 as follows: Tabulated values are based on #2 Grade Hem-Fir, and are applicable to species with equal or greater F_b and E from the <u>NDS Supplement</u> (i.e., Douglas Fir-Larch, Southern Pine , or Spruce-Pine-Fir). <u>Where #2 Grade Southern Pine is used, tabulated spans shall be multiplied by 0.93 or, alternatively, #1 or higher grade of Southern Pine shall be required.</u>
Tables 3.29A through D	211 to 214	Ridge beam spans.	Revise Footnote 1 as follows: Tabulated values are based on #2 Grade Hem-Fir, and are applicable to species with equal or greater F_b and E from the <u>NDS Supplement</u> (i.e., Douglas Fir-Larch, Southern Pine , or Spruce-Pine-Fir). <u>Where #2 Grade Southern Pine is used, tabulated spans shall be multiplied by 0.93 or, alternatively, #1 or higher grade of Southern Pine shall be required.</u>

Table 3.18A Floor Joist Spans for Common Lumber Species

(Residential Sleeping Areas, Live Load = 30 psf, L/Δ = 360)

Joist Spacing	Species and Grade	Dead Load = 10 psf				Dead Load = 20 psf			
		2x6	2x8	2x10	2x12	2x6	2x8	2x10	2x12
		Maximum Floor Joist Spans							
		(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)
12 in.	Douglas Fir-Larch SS	12 - 6	16 - 6	21 - 0	25 - 7	12 - 6	16 - 6	21 - 0	25 - 7
	Douglas Fir-Larch #1	12 - 0	15 - 10	20 - 3	24 - 8	12 - 0	15 - 7	19 - 0	22 - 0
	Douglas Fir-Larch #2	11 - 10	15 - 7	19 - 10	23 - 4	11 - 8	14 - 9	18 - 0	20 - 11
	Douglas Fir-Larch #3	9 - 11	12 - 7	15 - 5	17 - 10	8 - 11	11 - 3	13 - 9	16 - 0
	Hem-Fir SS	11 - 10	15 - 7	19 - 10	24 - 2	11 - 10	15 - 7	19 - 10	24 - 2
	Hem-Fir #1	11 - 7	15 - 3	19 - 5	23 - 7	11 - 7	15 - 3	18 - 9	21 - 9
	Hem-Fir #2	11 - 0	14 - 6	18 - 6	22 - 6	11 - 0	14 - 4	17 - 6	20 - 4
	Hem-Fir #3	9 - 8	12 - 4	15 - 0	17 - 5	8 - 8	11 - 0	13 - 5	15 - 7
	Southern Pine SS	12 - 3	16 - 2	20 - 8	25 - 1	12 - 3	16 - 2	20 - 8	25 - 1
	Southern Pine #1	11 - 10	15 - 7	19 - 10	24 - 2	11 - 10	15 - 7	18 - 7	22 - 0
	Southern Pine #2	11 - 3	14 - 11	18 - 1	21 - 4	10 - 9	13 - 8	16 - 2	19 - 1
	Southern Pine #3	9 - 2	11 - 6	14 - 0	16 - 6	8 - 2	10 - 3	12 - 6	14 - 9
	Spruce-Pine Fir SS	11 - 7	15 - 3	19 - 5	23 - 7	11 - 7	15 - 3	19 - 5	23 - 7
	Spruce-Pine Fir #1	11 - 3	14 - 11	19 - 0	23 - 0	11 - 3	14 - 7	17 - 9	20 - 7
	Spruce-Pine Fir #2	11 - 3	14 - 11	19 - 0	23 - 0	11 - 3	14 - 7	17 - 9	20 - 7
	Spruce-Pine Fir #3	9 - 8	12 - 4	15 - 0	17 - 5	8 - 8	11 - 0	13 - 5	15 - 7
16 in.	Douglas Fir-Larch SS	11 - 4	15 - 0	19 - 1	23 - 3	11 - 4	15 - 0	19 - 1	23 - 3
	Douglas Fir-Larch #1	10 - 11	14 - 5	18 - 5	21 - 4	10 - 8	13 - 6	16 - 5	19 - 1
	Douglas Fir-Larch #2	10 - 9	14 - 2	17 - 5	20 - 3	10 - 1	12 - 9	15 - 7	18 - 1
	Douglas Fir-Larch #3	8 - 7	10 - 11	13 - 4	15 - 5	7 - 8	9 - 9	11 - 11	13 - 10
	Hem-Fir SS	10 - 9	14 - 2	18 - 0	21 - 11	10 - 9	14 - 2	18 - 0	21 - 11
	Hem-Fir #1	10 - 6	13 - 10	17 - 8	21 - 1	10 - 6	13 - 4	16 - 3	18 - 10
	Hem-Fir #2	10 - 0	13 - 2	16 - 10	19 - 8	9 - 10	12 - 5	15 - 2	17 - 7
	Hem-Fir #3	8 - 5	10 - 8	13 - 0	15 - 1	7 - 6	9 - 6	11 - 8	13 - 6
	Southern Pine SS	11 - 2	14 - 8	18 - 9	22 - 10	11 - 2	14 - 8	18 - 9	22 - 10
	Southern Pine #1	10 - 9	14 - 2	18 - 0	21 - 4	10 - 9	13 - 9	16 - 1	19 - 1
	Southern Pine #2	10 - 3	13 - 3	15 - 8	18 - 6	9 - 4	11 - 10	14 - 0	16 - 6
	Southern Pine #3	7 - 11	10 - 0	12 - 1	14 - 4	7 - 1	8 - 11	10 - 10	12 - 10
	Spruce-Pine Fir SS	10 - 6	13 - 10	17 - 8	21 - 6	10 - 6	13 - 10	17 - 8	21 - 4
	Spruce-Pine Fir #1	10 - 3	13 - 6	17 - 2	19 - 11	9 - 11	12 - 7	15 - 5	17 - 10
	Spruce-Pine Fir #2	10 - 3	13 - 6	17 - 2	19 - 11	9 - 11	12 - 7	15 - 5	17 - 10
	Spruce-Pine Fir #3	8 - 5	10 - 8	13 - 0	15 - 1	7 - 6	9 - 6	11 - 8	13 - 6
19.2 in.	Douglas Fir-Larch SS	10 - 8	14 - 1	18 - 0	21 - 10	10 - 8	14 - 1	18 - 0	21 - 4
	Douglas Fir-Larch #1	10 - 4	13 - 7	16 - 9	19 - 6	9 - 8	12 - 4	15 - 0	17 - 5
	Douglas Fir-Larch #2	10 - 1	13 - 0	15 - 11	18 - 6	9 - 3	11 - 8	14 - 3	16 - 6
	Douglas Fir-Larch #3	7 - 10	10 - 0	12 - 2	14 - 1	7 - 0	8 - 11	10 - 11	12 - 7
	Hem-Fir SS	10 - 1	13 - 4	17 - 0	20 - 8	10 - 1	13 - 4	17 - 0	20 - 7
	Hem-Fir #1	9 - 10	13 - 0	16 - 7	19 - 3	9 - 7	12 - 2	14 - 10	17 - 2
	Hem-Fir #2	9 - 5	12 - 5	15 - 6	17 - 11	8 - 11	11 - 4	13 - 10	16 - 1
	Hem-Fir #3	7 - 8	9 - 9	11 - 10	13 - 9	6 - 10	8 - 8	10 - 7	12 - 4
	Southern Pine SS	10 - 6	13 - 10	17 - 8	21 - 6	10 - 6	13 - 10	17 - 8	21 - 6
	Southern Pine #1	10 - 1	13 - 4	16 - 5	19 - 6	9 - 11	12 - 7	14 - 8	17 - 5
	Southern Pine #2	9 - 6	12 - 1	14 - 4	16 - 10	8 - 6	10 - 10	12 - 10	15 - 1
	Southern Pine #3	7 - 3	9 - 1	11 - 0	13 - 1	6 - 5	8 - 2	9 - 10	11 - 8
	Spruce-Pine Fir SS	9 - 10	13 - 0	16 - 7	20 - 2	9 - 10	13 - 0	16 - 7	19 - 6
	Spruce-Pine Fir #1	9 - 8	12 - 9	15 - 8	18 - 3	9 - 1	11 - 6	14 - 1	16 - 3
	Spruce-Pine Fir #2	9 - 8	12 - 9	15 - 8	18 - 3	9 - 1	11 - 6	14 - 1	16 - 3
	Spruce-Pine Fir #3	7 - 8	9 - 9	11 - 10	13 - 9	6 - 10	8 - 8	10 - 7	12 - 4
24 in.	Douglas Fir-Larch SS	9 - 11	13 - 1	16 - 8	20 - 3	9 - 11	13 - 1	16 - 5	19 - 1
	Douglas Fir-Larch #1	9 - 7	12 - 4	15 - 0	17 - 5	8 - 8	11 - 0	13 - 5	15 - 7
	Douglas Fir-Larch #2	9 - 3	11 - 8	14 - 3	16 - 6	8 - 3	10 - 5	12 - 9	14 - 9
	Douglas Fir-Larch #3	7 - 0	8 - 11	10 - 11	12 - 7	6 - 3	8 - 0	9 - 9	11 - 3
	Hem-Fir SS	9 - 4	12 - 4	15 - 9	19 - 2	9 - 4	12 - 4	15 - 9	18 - 5
	Hem-Fir #1	9 - 2	12 - 1	14 - 10	17 - 2	8 - 7	10 - 10	13 - 3	15 - 5
	Hem-Fir #2	8 - 9	11 - 4	13 - 10	16 - 1	8 - 0	10 - 2	12 - 5	14 - 4
	Hem-Fir #3	6 - 10	8 - 8	10 - 7	12 - 4	6 - 2	7 - 9	9 - 6	11 - 0
	Southern Pine SS	9 - 9	12 - 10	16 - 5	19 - 11	9 - 9	12 - 10	16 - 5	19 - 8
	Southern Pine #1	9 - 4	12 - 4	14 - 8	17 - 5	8 - 10	11 - 3	13 - 1	15 - 7
	Southern Pine #2	8 - 6	10 - 10	12 - 10	15 - 1	7 - 7	9 - 8	11 - 5	13 - 6
	Southern Pine #3	6 - 5	8 - 2	9 - 10	11 - 8	5 - 9	7 - 3	8 - 10	10 - 5
	Spruce-Pine Fir SS	9 - 2	12 - 1	15 - 5	18 - 9	9 - 2	12 - 1	15 - 0	17 - 5
	Spruce-Pine Fir #1	9 - 0	11 - 6	14 - 1	16 - 3	8 - 1	10 - 3	12 - 7	14 - 7
	Spruce-Pine Fir #2	9 - 0	11 - 6	14 - 1	16 - 3	8 - 1	10 - 3	12 - 7	14 - 7
	Spruce-Pine Fir #3	6 - 10	8 - 8	10 - 7	12 - 4	6 - 2	7 - 9	9 - 6	11 - 0

Check sources for availability of lumber in lengths greater than 20 feet.

Table 3.18B Floor Joist Spans for Common Lumber Species

(Residential Living Areas, Live Load = 40 psf, L/Δ = 360)

Joist Spacing	Species and Grade	Dead Load = 10 psf				Dead Load = 20 psf				
		2x6	2x8	2x10	2x12	2x6	2x8	2x10	2x12	
		Maximum Floor Joist Spans								
		(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	
12 in.	Douglas Fir-Larch	SS	11 - 4	15 - 0	19 - 1	23 - 3	11 - 4	15 - 0	19 - 1	23 - 3
	Douglas Fir-Larch	#1	10 - 11	14 - 5	18 - 5	22 - 0	10 - 11	14 - 2	17 - 4	20 - 1
	Douglas Fir-Larch	#2	10 - 9	14 - 2	18 - 0	20 - 11	10 - 8	13 - 6	16 - 5	19 - 1
	Douglas Fir-Larch	#3	8 - 11	11 - 3	13 - 9	16 - 0	8 - 1	10 - 3	12 - 7	14 - 7
	Hem-Fir	SS	10 - 9	14 - 2	18 - 0	21 - 11	10 - 9	14 - 2	18 - 0	21 - 11
	Hem-Fir	#1	10 - 6	13 - 10	17 - 8	21 - 6	10 - 6	13 - 10	17 - 1	19 - 10
	Hem-Fir	#2	10 - 0	13 - 2	16 - 10	20 - 4	10 - 0	13 - 1	16 - 0	18 - 6
	Hem-Fir	#3	8 - 8	11 - 0	13 - 5	15 - 7	7 - 11	10 - 0	12 - 3	14 - 3
	Southern Pine	SS	11 - 2	14 - 8	18 - 9	22 - 10	11 - 2	14 - 8	18 - 9	22 - 10
	Southern Pine	#1	10 - 9	14 - 2	18 - 0	21 - 11	10 - 9	14 - 2	16 - 11	20 - 1
	Southern Pine	#2	10 - 3	13 - 6	16 - 2	19 - 1	9 - 10	12 - 6	14 - 9	17 - 5
	Southern Pine	#3	8 - 2	10 - 3	12 - 6	14 - 9	7 - 5	9 - 5	11 - 5	13 - 6
	Spruce-Pine Fir	SS	10 - 6	13 - 10	17 - 8	21 - 6	10 - 6	13 - 10	17 - 8	21 - 6
	Spruce-Pine Fir	#1	10 - 3	13 - 6	17 - 3	20 - 7	10 - 3	13 - 3	16 - 3	18 - 10
	Spruce-Pine Fir	#2	10 - 3	13 - 6	17 - 3	20 - 7	10 - 3	13 - 3	16 - 3	18 - 10
	Spruce-Pine Fir	#3	8 - 8	11 - 0	13 - 5	15 - 7	7 - 11	10 - 0	12 - 3	14 - 3
16 in.	Douglas Fir-Larch	SS	10 - 4	13 - 7	17 - 4	21 - 1	10 - 4	13 - 7	17 - 4	21 - 1
	Douglas Fir-Larch	#1	9 - 11	13 - 1	16 - 5	19 - 1	9 - 8	12 - 4	15 - 0	17 - 5
	Douglas Fir-Larch	#2	9 - 9	12 - 9	15 - 7	18 - 1	9 - 3	11 - 8	14 - 3	16 - 6
	Douglas Fir-Larch	#3	7 - 8	9 - 9	11 - 11	13 - 10	7 - 0	8 - 11	10 - 11	12 - 7
	Hem-Fir	SS	9 - 9	12 - 10	16 - 5	19 - 11	9 - 9	12 - 10	16 - 5	19 - 11
	Hem-Fir	#1	9 - 6	12 - 7	16 - 0	18 - 10	9 - 6	12 - 2	14 - 10	17 - 2
	Hem-Fir	#2	9 - 1	12 - 0	15 - 2	17 - 7	8 - 11	11 - 4	13 - 10	16 - 1
	Hem-Fir	#3	7 - 6	9 - 6	11 - 8	13 - 6	6 - 10	8 - 8	10 - 7	12 - 4
	Southern Pine	SS	10 - 2	13 - 4	17 - 0	20 - 9	10 - 2	13 - 4	17 - 0	20 - 9
	Southern Pine	#1	9 - 9	12 - 10	16 - 1	19 - 1	9 - 9	12 - 7	14 - 8	17 - 5
	Southern Pine	#2	9 - 4	11 - 10	14 - 0	16 - 6	8 - 6	10 - 10	12 - 10	15 - 1
	Southern Pine	#3	7 - 1	8 - 11	10 - 10	12 - 10	6 - 5	8 - 2	9 - 10	11 - 8
	Spruce-Pine Fir	SS	9 - 6	12 - 7	16 - 0	19 - 6	9 - 6	12 - 7	16 - 0	19 - 6
	Spruce-Pine Fir	#1	9 - 4	12 - 3	15 - 5	17 - 10	9 - 1	11 - 6	14 - 1	16 - 3
	Spruce-Pine Fir	#2	9 - 4	12 - 3	15 - 5	17 - 10	9 - 1	11 - 6	14 - 1	16 - 3
	Spruce-Pine Fir	#3	7 - 6	9 - 6	11 - 8	13 - 6	6 - 10	8 - 8	10 - 7	12 - 4
19.2 in.	Douglas Fir-Larch	SS	9 - 8	12 - 10	16 - 4	19 - 10	9 - 8	12 - 10	16 - 4	19 - 6
	Douglas Fir-Larch	#1	9 - 4	12 - 4	15 - 0	17 - 5	8 - 10	11 - 3	13 - 8	15 - 11
	Douglas Fir-Larch	#2	9 - 2	11 - 8	14 - 3	16 - 6	8 - 5	10 - 8	13 - 0	15 - 1
	Douglas Fir-Larch	#3	7 - 0	8 - 11	10 - 11	12 - 7	6 - 5	8 - 2	9 - 11	11 - 6
	Hem-Fir	SS	9 - 2	12 - 1	15 - 5	18 - 9	9 - 2	12 - 1	15 - 5	18 - 9
	Hem-Fir	#1	9 - 0	11 - 10	14 - 10	17 - 2	8 - 9	11 - 1	13 - 6	15 - 8
	Hem-Fir	#2	8 - 7	11 - 3	13 - 10	16 - 1	8 - 2	10 - 4	12 - 8	14 - 8
	Hem-Fir	#3	6 - 10	8 - 8	10 - 7	12 - 4	6 - 3	7 - 11	9 - 8	11 - 3
	Southern Pine	SS	9 - 6	12 - 7	16 - 0	19 - 6	9 - 6	12 - 7	16 - 0	19 - 6
	Southern Pine	#1	9 - 2	12 - 1	14 - 8	17 - 5	9 - 0	11 - 5	13 - 5	15 - 11
	Southern Pine	#2	8 - 6	10 - 10	12 - 10	15 - 1	7 - 9	9 - 10	11 - 8	13 - 9
	Southern Pine	#3	6 - 5	8 - 2	9 - 10	11 - 8	5 - 11	7 - 5	9 - 0	10 - 8
	Spruce-Pine Fir	SS	9 - 0	11 - 10	15 - 1	18 - 4	9 - 0	11 - 10	15 - 1	17 - 9
	Spruce-Pine Fir	#1	8 - 9	11 - 6	14 - 1	16 - 3	8 - 3	10 - 6	12 - 10	14 - 10
	Spruce-Pine Fir	#2	8 - 9	11 - 6	14 - 1	16 - 3	8 - 3	10 - 6	12 - 10	14 - 10
	Spruce-Pine Fir	#3	6 - 10	8 - 8	10 - 7	12 - 4	6 - 3	7 - 11	9 - 8	11 - 3
24 in.	Douglas Fir-Larch	SS	9 - 0	11 - 11	15 - 2	18 - 5	9 - 0	11 - 11	15 - 0	17 - 5
	Douglas Fir-Larch	#1	8 - 8	11 - 0	13 - 5	15 - 7	7 - 11	10 - 0	12 - 3	14 - 3
	Douglas Fir-Larch	#2	8 - 3	10 - 5	12 - 9	14 - 9	7 - 6	9 - 6	11 - 8	13 - 6
	Douglas Fir-Larch	#3	6 - 3	8 - 0	9 - 9	11 - 3	5 - 9	7 - 3	8 - 11	10 - 4
	Hem-Fir	SS	8 - 6	11 - 3	14 - 4	17 - 5	8 - 6	11 - 3	14 - 4	16 - 10
	Hem-Fir	#1	8 - 4	10 - 10	13 - 3	15 - 5	7 - 10	9 - 11	12 - 1	14 - 0
	Hem-Fir	#2	7 - 11	10 - 2	12 - 5	14 - 4	7 - 4	9 - 3	11 - 4	13 - 1
	Hem-Fir	#3	6 - 2	7 - 9	9 - 6	11 - 0	5 - 7	7 - 1	8 - 8	10 - 1
	Southern Pine	SS	8 - 10	11 - 8	14 - 11	18 - 1	8 - 10	11 - 8	14 - 11	18 - 0
	Southern Pine	#1	8 - 6	11 - 3	13 - 1	15 - 7	8 - 1	10 - 3	12 - 0	14 - 3
	Southern Pine	#2	7 - 7	9 - 8	11 - 5	13 - 6	7 - 0	8 - 10	10 - 5	12 - 4
	Southern Pine	#3	5 - 9	7 - 3	8 - 10	10 - 5	5 - 3	6 - 8	8 - 1	9 - 6
	Spruce-Pine Fir	SS	8 - 4	11 - 0	14 - 0	17 - 0	8 - 4	11 - 0	13 - 8	15 - 11
	Spruce-Pine Fir	#1	8 - 1	10 - 3	12 - 7	14 - 7	7 - 5	9 - 5	11 - 6	13 - 4
	Spruce-Pine Fir	#2	8 - 1	10 - 3	12 - 7	14 - 7	7 - 5	9 - 5	11 - 6	13 - 4
	Spruce-Pine Fir	#3	6 - 2	7 - 9	9 - 6	11 - 0	5 - 7	7 - 1	8 - 8	10 - 1

Check sources for availability of lumber in lengths greater than 20 feet.

Table 3.20A Maximum Exterior Loadbearing and Non-Loadbearing Stud Lengths for Common Lumber Species Resisting Interior Zone Wind Loads - Exposure B

(Fully Sheathed with a Minimum Sheathing Material)^a

Stud Spacing (in.)	Species	Grade	85			90			100			110		
			2x4	2x6	2x8	2x4	2x6	2x8	2x4	2x6	2x8	2x4	2x6	2x8
Maximum Allowable Stud Length (ft.-in.) ¹														
12	Douglas Fir-Larch	SS	17 - 4	†	†	16 - 7	†	†	15 - 5	†	†	14 - 5	†	†
	Douglas Fir-Larch	#1	16 - 8	†	†	16 - 0	†	†	14 - 10	†	†	13 - 11	†	†
	Douglas Fir-Larch	#2	16 - 3	†	†	15 - 8	†	†	14 - 6	†	†	13 - 7	†	†
	Douglas Fir-Larch	#3/Stud	15 - 3	†	†	14 - 4	†	†	12 - 10	19 - 3	†	11 - 7	17 - 5	†
	Douglas Fir-Larch	Standard	12 - 11	-	-	12 - 1	-	-	10 - 10	-	-	9 - 9	-	-
	Hem-Fir	SS	16 - 3	†	†	15 - 8	†	†	14 - 6	†	†	13 - 7	†	†
	Hem-Fir	#1	15 - 11	†	†	15 - 4	†	†	14 - 3	†	†	13 - 4	†	†
	Hem-Fir	#2	15 - 2	†	†	14 - 7	†	†	13 - 6	†	†	12 - 8	†	†
	Hem-Fir	#3/Stud	14 - 9	†	†	14 - 0	†	†	12 - 6	18 - 9	†	11 - 3	17 - 0	†
	Hem-Fir	Standard	12 - 7	-	-	11 - 10	-	-	10 - 7	-	-	9 - 7	-	-
	Southern Pine	SS	17 - 0	†	†	16 - 4	†	†	15 - 2	†	†	14 - 2	†	†
	Southern Pine	#1	16 - 3	†	†	15 - 8	†	†	14 - 6	†	†	13 - 7	†	†
	Southern Pine	#2	15 - 7	†	†	14 - 11	†	†	13 - 11	†	†	13 - 0	†	†
	Southern Pine	#3	13 - 9	†	†	12 - 11	19 - 8	†	11 - 7	17 - 7	†	10 - 5	15 - 10	†
	Southern Pine	Stud	13 - 9	†	†	12 - 11	19 - 8	†	11 - 7	17 - 7	†	10 - 5	15 - 10	†
	Southern Pine	Standard	11 - 8	-	-	10 - 11	-	-	9 - 9	-	-	8 - 10	-	-
	Spruce-Pine-Fir	SS	15 - 11	†	†	15 - 4	†	†	14 - 3	†	†	13 - 4	†	†
	Spruce-Pine-Fir	#1	15 - 7	†	†	14 - 11	†	†	13 - 11	†	†	13 - 0	†	†
	Spruce-Pine-Fir	#2	15 - 7	†	†	14 - 11	†	†	13 - 11	†	†	13 - 0	†	†
	Spruce-Pine-Fir	#3/Stud	14 - 9	†	†	14 - 0	†	†	12 - 6	18 - 9	†	11 - 3	17 - 0	†
Spruce-Pine-Fir	Standard	12 - 7	-	-	11 - 10	-	-	10 - 7	-	-	9 - 7	-	-	
16	Douglas Fir-Larch	SS	15 - 8	†	†	15 - 0	†	†	14 - 0	†	†	13 - 1	†	†
	Douglas Fir-Larch	#1	15 - 1	†	†	14 - 5	†	†	13 - 5	†	†	12 - 7	†	†
	Douglas Fir-Larch	#2	14 - 9	†	†	14 - 2	†	†	13 - 2	†	†	12 - 4	19 - 9	†
	Douglas Fir-Larch	#3/Stud	13 - 1	19 - 8	†	12 - 4	18 - 6	†	11 - 0	16 - 6	†	9 - 11	14 - 11	19 - 3
	Douglas Fir-Larch	Standard	11 - 1	-	-	10 - 5	-	-	9 - 3	-	-	8 - 5	-	-
	Hem-Fir	SS	14 - 9	†	†	14 - 2	†	†	13 - 2	†	†	12 - 4	19 - 9	†
	Hem-Fir	#1	14 - 5	†	†	13 - 10	†	†	12 - 10	†	†	12 - 0	19 - 4	†
	Hem-Fir	#2	13 - 8	†	†	13 - 2	†	†	12 - 3	19 - 8	†	11 - 5	18 - 5	†
	Hem-Fir	#3/Stud	12 - 9	19 - 2	†	12 - 0	18 - 0	†	10 - 8	16 - 1	†	9 - 8	14 - 6	18 - 9
	Hem-Fir	Standard	10 - 9	-	-	10 - 2	-	-	9 - 1	-	-	8 - 2	-	-
	Southern Pine	SS	15 - 4	†	†	14 - 9	†	†	13 - 8	†	†	12 - 10	†	†
	Southern Pine	#1	14 - 9	†	†	14 - 2	†	†	13 - 2	†	†	12 - 4	19 - 9	†
	Southern Pine	#2	14 - 1	†	†	13 - 6	†	†	12 - 7	†	†	11 - 9	18 - 4	†
	Southern Pine	#3	11 - 10	17 - 11	†	11 - 1	16 - 10	†	9 - 11	15 - 1	19 - 4	9 - 0	13 - 7	17 - 5
	Southern Pine	Stud	11 - 10	17 - 11	†	11 - 1	16 - 10	†	9 - 11	15 - 1	19 - 4	9 - 0	13 - 7	17 - 5
	Southern Pine	Standard	10 - 0	-	-	9 - 5	-	-	8 - 5	-	-	-	-	-
	Spruce-Pine-Fir	SS	14 - 5	†	†	13 - 10	†	†	12 - 10	†	†	12 - 0	19 - 4	†
	Spruce-Pine-Fir	#1	14 - 1	†	†	13 - 6	†	†	12 - 7	†	†	11 - 9	18 - 10	†
	Spruce-Pine-Fir	#2	14 - 1	†	†	13 - 6	†	†	12 - 7	†	†	11 - 9	18 - 10	†
	Spruce-Pine-Fir	#3/Stud	12 - 9	19 - 2	†	12 - 0	18 - 0	†	10 - 8	16 - 1	†	9 - 8	14 - 6	18 - 9
Spruce-Pine-Fir	Standard	10 - 9	-	-	10 - 2	-	-	9 - 1	-	-	8 - 2	-	-	
24	Douglas Fir-Larch	SS	13 - 7	†	†	13 - 1	†	†	12 - 1	19 - 6	†	11 - 4	18 - 3	†
	Douglas Fir-Larch	#1	13 - 1	†	†	12 - 7	†	†	11 - 8	18 - 9	†	10 - 11	17 - 0	†
	Douglas Fir-Larch	#2	12 - 9	†	†	12 - 3	19 - 9	†	11 - 5	17 - 9	†	10 - 8	16 - 0	†
	Douglas Fir-Larch	#3/Stud	10 - 6	15 - 10	†	9 - 11	14 - 11	19 - 2	8 - 10	13 - 3	17 - 1	8 - 0	12 - 0	15 - 5
	Douglas Fir-Larch	Standard	8 - 11	-	-	8 - 4	-	-	-	-	-	-	-	-
	Hem-Fir	SS	12 - 9	†	†	12 - 3	19 - 9	†	11 - 5	18 - 4	†	10 - 8	17 - 2	†
	Hem-Fir	#1	12 - 6	†	†	12 - 0	19 - 3	†	11 - 2	17 - 11	†	10 - 5	16 - 9	†
	Hem-Fir	#2	11 - 11	19 - 1	†	11 - 5	18 - 4	†	10 - 7	17 - 1	†	9 - 11	15 - 6	†
	Hem-Fir	#3/Stud	10 - 3	15 - 5	19 - 10	9 - 8	14 - 6	18 - 8	8 - 7	12 - 11	16 - 8	7 - 9	11 - 8	15 - 1
	Hem-Fir	Standard	8 - 8	-	-	8 - 2	-	-	-	-	-	-	-	-
	Southern Pine	SS	13 - 4	†	†	12 - 10	†	†	11 - 11	19 - 1	†	11 - 2	17 - 10	†
	Southern Pine	#1	12 - 9	†	†	12 - 3	19 - 9	†	11 - 5	18 - 4	†	10 - 8	17 - 2	†
	Southern Pine	#2	12 - 2	19 - 5	†	11 - 9	18 - 3	†	10 - 7	16 - 4	†	9 - 7	14 - 9	19 - 0
	Southern Pine	#3	9 - 6	14 - 5	18 - 6	8 - 11	13 - 7	17 - 5	8 - 0	12 - 1	15 - 6	-	10 - 11	14 - 0
	Southern Pine	Stud	9 - 6	14 - 5	18 - 6	8 - 11	13 - 7	17 - 5	8 - 0	12 - 1	15 - 6	-	10 - 11	14 - 0
	Southern Pine	Standard	8 - 0	-	-	-	-	-	-	-	-	-	-	-
	Spruce-Pine-Fir	SS	12 - 6	†	†	12 - 0	19 - 3	†	11 - 2	17 - 11	†	10 - 5	16 - 9	†
	Spruce-Pine-Fir	#1	12 - 2	19 - 7	†	11 - 9	18 - 10	†	10 - 11	17 - 6	†	10 - 2	15 - 9	†
	Spruce-Pine-Fir	#2	12 - 2	19 - 7	†	11 - 9	18 - 10	†	10 - 11	17 - 6	†	10 - 2	15 - 9	†
	Spruce-Pine-Fir	#3/Stud	10 - 3	15 - 5	19 - 10	9 - 8	14 - 6	18 - 8	8 - 7	12 - 11	16 - 8	7 - 9	11 - 8	15 - 1
Spruce-Pine-Fir	Standard	8 - 8	-	-	8 - 2	-	-	-	-	-	-	-	-	

† Allowable stud length exceeds 20 feet.

- Lumber grade not available or allowable stud length is less than 7 ft. - 9 in. (for 8 ft. wall height).

^a Maximum stud lengths in Table 3.20A are based on interior zone loads and assume that all studs are sheathed with minimum sheathing material. Studs within 4 feet of corners shall be sheathed on the exterior with a minimum of 3/8 inch wood structural panels and on the interior with minimum sheathing material, or stud spacings shall be multiplied by 0.85 for framing located within 4 feet of corners to account for the additional end zone loading requirements. The additional bending capacity provided by the wood structural panels or reduced stud spacing is assumed to be sufficient to resist the additional end zone loading requirements.

See Footnote 1.

Table 3.20A Maximum Exterior Loadbearing and Non-Loadbearing Stud Lengths for Common Lumber Species Resisting Interior Zone Wind Loads - Exposure B (Cont.)

(Fully Sheathed with a Minimum Sheathing Material)^a

Three Second Gust Wind Speed (mph)			120			130			140			150		
Stud Spacing (in.)	Species	Grade	2x4	2x6	2x8	2x4	2x6	2x8	2x4	2x6	2x8	2x4	2x6	2x8
			Maximum Allowable Stud Length (ft.-in.) ¹											
12	Douglas Fir-Larch	SS	13 - 7	†	†	12 - 10	†	†	12 - 2	19 - 7	†	11 - 8	18 - 8	†
	Douglas Fir-Larch	#1	13 - 1	†	†	12 - 4	19 - 10	†	11 - 9	18 - 10	†	11 - 2	17 - 8	†
	Douglas Fir-Larch	#2	12 - 10	†	†	12 - 1	19 - 5	†	11 - 6	17 - 11	†	11 - 0	16 - 8	†
	Douglas Fir-Larch	#3/Stud	10 - 7	15 - 10	†	9 - 8	14 - 7	18 - 9	8 - 11	13 - 5	17 - 4	8 - 4	12 - 6	16 - 1
	Douglas Fir-Larch	Standard	8 - 11	-	-	8 - 2	-	-	-	-	-	-	-	-
	Hem-Fir	SS	12 - 10	†	†	12 - 1	19 - 5	†	11 - 6	18 - 6	†	11 - 0	17 - 7	†
	Hem-Fir	#1	12 - 6	†	†	11 - 10	19 - 0	†	11 - 3	18 - 1	†	10 - 9	17 - 2	†
	Hem-Fir	#2	11 - 11	19 - 1	†	11 - 3	18 - 1	†	10 - 8	17 - 2	†	10 - 2	16 - 2	†
	Hem-Fir	#3/Stud	10 - 3	15 - 5	19 - 11	9 - 5	14 - 2	18 - 3	8 - 9	13 - 1	16 - 10	8 - 1	12 - 2	15 - 8
	Hem-Fir	Standard	8 - 8	-	-	8 - 0	-	-	-	-	-	-	-	-
	Southern Pine	SS	13 - 4	†	†	12 - 7	†	†	12 - 0	19 - 3	†	11 - 5	18 - 4	†
	Southern Pine	#1	12 - 10	†	†	12 - 1	19 - 5	†	11 - 6	18 - 6	†	11 - 0	17 - 7	†
	Southern Pine	#2	12 - 3	19 - 6	†	11 - 7	17 - 10	†	10 - 8	16 - 6	†	9 - 11	15 - 4	19 - 9
	Southern Pine	#3	9 - 6	14 - 5	18 - 6	8 - 9	13 - 3	17 - 0	8 - 1	12 - 3	15 - 8	-	11 - 5	14 - 7
	Southern Pine	Stud	9 - 6	14 - 5	18 - 6	8 - 9	13 - 3	17 - 0	8 - 1	12 - 3	15 - 8	-	11 - 5	14 - 7
	Southern Pine	Standard	8 - 1	-	-	-	-	-	-	-	-	-	-	-
	Spruce-Pine-Fir	SS	12 - 6	†	†	11 - 10	19 - 0	†	11 - 3	18 - 1	†	10 - 9	17 - 2	†
	Spruce-Pine-Fir	#1	12 - 3	19 - 7	†	11 - 7	18 - 7	†	11 - 0	17 - 7	†	10 - 6	16 - 5	†
	Spruce-Pine-Fir	#2	12 - 3	19 - 7	†	11 - 7	18 - 7	†	11 - 0	17 - 7	†	10 - 6	16 - 5	†
	Spruce-Pine-Fir	#3/Stud	10 - 3	15 - 5	19 - 11	9 - 5	14 - 2	18 - 3	8 - 9	13 - 1	16 - 10	8 - 1	12 - 2	15 - 8
Spruce-Pine-Fir	Standard	8 - 8	-	-	8 - 0	-	-	-	-	-	-	-	-	
16	Douglas Fir-Larch	SS	12 - 4	19 - 9	†	11 - 8	18 - 8	†	11 - 1	17 - 9	†	10 - 6	16 - 11	†
	Douglas Fir-Larch	#1	11 - 10	19 - 0	†	11 - 2	17 - 7	†	10 - 7	16 - 3	†	10 - 1	15 - 1	19 - 6
	Douglas Fir-Larch	#2	11 - 7	18 - 2	†	11 - 0	16 - 8	†	10 - 3	15 - 4	19 - 10	9 - 6	14 - 3	18 - 5
	Douglas Fir-Larch	#3/Stud	9 - 0	13 - 7	17 - 6	8 - 4	12 - 6	16 - 1	-	11 - 6	14 - 10	-	10 - 8	13 - 9
	Douglas Fir-Larch	Standard	-	-	-	-	-	-	-	-	-	-	-	-
	Hem-Fir	SS	11 - 7	18 - 7	†	11 - 0	17 - 7	†	10 - 5	16 - 8	†	9 - 11	15 - 11	†
	Hem-Fir	#1	11 - 4	18 - 2	†	10 - 9	17 - 2	†	10 - 2	16 - 1	†	9 - 8	14 - 11	19 - 2
	Hem-Fir	#2	10 - 9	17 - 4	†	10 - 2	16 - 2	†	9 - 8	14 - 11	19 - 3	9 - 3	13 - 10	17 - 10
	Hem-Fir	#3/Stud	8 - 10	13 - 3	17 - 1	8 - 1	12 - 2	15 - 8	-	11 - 3	14 - 5	-	10 - 5	13 - 5
	Hem-Fir	Standard	-	-	-	-	-	-	-	-	-	-	-	-
	Southern Pine	SS	12 - 1	19 - 5	†	11 - 5	18 - 4	†	10 - 10	17 - 5	†	10 - 4	16 - 7	†
	Southern Pine	#1	11 - 7	18 - 7	†	11 - 0	17 - 7	†	10 - 5	16 - 7	†	9 - 11	15 - 5	19 - 11
	Southern Pine	#2	10 - 10	16 - 8	†	9 - 11	15 - 4	19 - 9	9 - 2	14 - 2	18 - 3	8 - 6	13 - 1	16 - 11
	Southern Pine	#3	8 - 2	12 - 5	15 - 10	-	11 - 4	14 - 7	-	10 - 6	13 - 5	-	9 - 9	12 - 6
	Southern Pine	Stud	8 - 2	12 - 5	15 - 10	-	11 - 4	14 - 7	-	10 - 6	13 - 5	-	9 - 9	12 - 6
	Southern Pine	Standard	-	-	-	-	-	-	-	-	-	-	-	-
	Spruce-Pine-Fir	SS	11 - 4	18 - 2	†	10 - 9	17 - 2	†	10 - 2	16 - 4	†	9 - 8	15 - 7	†
	Spruce-Pine-Fir	#1	11 - 1	17 - 9	†	10 - 5	16 - 5	†	9 - 11	15 - 2	19 - 6	9 - 4	14 - 1	18 - 1
	Spruce-Pine-Fir	#2	11 - 1	17 - 9	†	10 - 5	16 - 5	†	9 - 11	15 - 2	19 - 6	9 - 4	14 - 1	18 - 1
	Spruce-Pine-Fir	#3/Stud	8 - 10	13 - 3	17 - 1	8 - 1	12 - 2	15 - 8	-	11 - 3	14 - 5	-	10 - 5	13 - 5
Spruce-Pine-Fir	Standard	-	-	-	-	-	-	-	-	-	-	-	-	
24	Douglas Fir-Larch	SS	10 - 8	17 - 2	†	10 - 1	16 - 2	†	9 - 7	15 - 5	†	9 - 2	14 - 8	19 - 6
	Douglas Fir-Larch	#1	10 - 3	15 - 5	19 - 11	9 - 5	14 - 2	18 - 3	8 - 9	13 - 1	16 - 10	8 - 1	12 - 2	15 - 8
	Douglas Fir-Larch	#2	9 - 9	14 - 7	18 - 10	8 - 11	13 - 5	17 - 3	8 - 3	12 - 4	15 - 11	-	11 - 6	14 - 10
	Douglas Fir-Larch	#3/Stud	-	10 - 11	14 - 1	-	10 - 0	12 - 11	-	9 - 3	11 - 11	-	8 - 7	11 - 1
	Douglas Fir-Larch	Standard	-	-	-	-	-	-	-	-	-	-	-	-
	Hem-Fir	SS	10 - 1	16 - 2	†	9 - 6	15 - 3	†	9 - 0	14 - 6	19 - 4	8 - 7	13 - 10	18 - 5
	Hem-Fir	#1	9 - 10	15 - 3	19 - 8	9 - 4	14 - 0	18 - 0	8 - 7	12 - 11	16 - 8	8 - 0	12 - 0	15 - 5
	Hem-Fir	#2	9 - 4	14 - 2	18 - 3	8 - 8	13 - 0	16 - 9	8 - 0	12 - 0	15 - 5	-	11 - 2	14 - 4
	Hem-Fir	#3/Stud	-	10 - 8	13 - 9	-	9 - 9	12 - 7	-	9 - 0	11 - 8	-	8 - 5	10 - 10
	Hem-Fir	Standard	-	-	-	-	-	-	-	-	-	-	-	-
	Southern Pine	SS	10 - 6	16 - 10	†	9 - 11	15 - 11	†	9 - 5	15 - 1	†	9 - 0	14 - 5	19 - 3
	Southern Pine	#1	10 - 1	15 - 9	†	9 - 5	14 - 6	18 - 8	8 - 9	13 - 4	17 - 3	8 - 1	12 - 5	16 - 0
	Southern Pine	#2	8 - 8	13 - 5	17 - 4	8 - 0	12 - 4	15 - 11	-	11 - 4	14 - 8	-	10 - 7	13 - 7
	Southern Pine	#3	-	10 - 0	12 - 9	-	9 - 2	11 - 9	-	8 - 6	10 - 10	-	7 - 10	10 - 1
	Southern Pine	Stud	-	10 - 0	12 - 9	-	9 - 2	11 - 9	-	8 - 6	10 - 10	-	7 - 10	10 - 1
	Southern Pine	Standard	-	-	-	-	-	-	-	-	-	-	-	-
	Spruce-Pine-Fir	SS	9 - 10	15 - 9	†	9 - 4	14 - 11	19 - 11	8 - 10	14 - 2	18 - 11	8 - 5	13 - 6	17 - 8
	Spruce-Pine-Fir	#1	9 - 7	14 - 4	18 - 6	8 - 9	13 - 2	17 - 0	8 - 1	12 - 2	15 - 8	-	11 - 4	14 - 7
	Spruce-Pine-Fir	#2	9 - 7	14 - 4	18 - 6	8 - 9	13 - 2	17 - 0	8 - 1	12 - 2	15 - 8	-	11 - 4	14 - 7
	Spruce-Pine-Fir	#3/Stud	-	10 - 8	13 - 9	-	9 - 9	12 - 7	-	9 - 0	11 - 8	-	8 - 5	10 - 10
Spruce-Pine-Fir	Standard	-	-	-	-	-	-	-	-	-	-	-	-	

† Allowable stud length exceeds 20 feet.

- Lumber grade not available or allowable stud length is less than 7 ft. - 9 in. (for 8 ft. wall height).

^a Maximum stud lengths in Table 3.20A are based on interior zone loads and assume that all studs are sheathed with minimum sheathing material. Studs within 4 feet of corners shall be sheathed on the exterior with a minimum of 3/8 inch wood structural panels and on the interior with minimum sheathing material, or stud spacings shall be multiplied by 0.85 for framing located within 4 feet of corners to account for the additional end zone loading requirements. The additional bending capacity provided by the wood structural panels or reduced stud spacing is assumed to be sufficient to resist the additional end zone loading requirements.

See Footnote 1.

Table A-3.20A Maximum Exterior Loadbearing and Non-Loadbearing Stud Lengths for Common Lumber Species Resisting Interior Zone Wind Loads - Exposure C

(Fully Sheathed with a Minimum Sheathing Material)^a

Three Second Gust Wind Speed (mph)			85			90			100			110			
Stud Spacing (in.)	Species	Grade	2x4	2x6	2x8	2x4	2x6	2x8	2x4	2x6	2x8	2x4	2x6	2x8	
			Maximum Allowable Stud Length (ft.-in.) ¹												
12	Douglas Fir-Larch	SS	15 - 5	†	†	14 - 10	†	†	13 - 9	†	†	12 - 11	†	†	
	Douglas Fir-Larch	#1	14 - 10	†	†	14 - 3	†	†	13 - 3	†	†	12 - 5	19 - 11	†	
	Douglas Fir-Larch	#2	14 - 6	†	†	14 - 0	†	†	13 - 0	†	†	12 - 2	19 - 6	†	
	Douglas Fir-Larch	#3/Stud	12 - 10	19 - 3	†	12 - 0	18 - 1	†	10 - 9	16 - 2	†	9 - 8	14 - 7	18 - 10	
	Douglas Fir-Larch	Standard	10 - 10	-	-	10 - 2	-	-	9 - 1	-	-	8 - 2	-	-	
	Hem-Fir	SS	14 - 6	†	†	14 - 0	†	†	13 - 0	†	†	12 - 2	19 - 6	†	
	Hem-Fir	#1	14 - 2	†	†	13 - 8	†	†	12 - 8	†	†	11 - 10	19 - 1	†	
	Hem-Fir	#2	13 - 6	†	†	13 - 0	†	†	12 - 1	19 - 4	†	11 - 3	18 - 1	†	
	Hem-Fir	#3/Stud	12 - 6	18 - 9	†	11 - 9	17 - 8	†	10 - 6	15 - 9	†	9 - 5	14 - 3	18 - 4	
	Hem-Fir	Standard	10 - 7	-	-	9 - 11	-	-	8 - 10	-	-	8 - 0	-	-	
	Southern Pine	SS	15 - 2	†	†	14 - 6	†	†	13 - 6	†	†	12 - 8	†	†	
	Southern Pine	#1	14 - 6	†	†	14 - 0	†	†	13 - 0	†	†	12 - 2	19 - 6	†	
	Southern Pine	#2	13 - 10	†	†	13 - 4	†	†	12 - 5	19 - 10	†	11 - 7	17 - 11	†	
	Southern Pine	#3	11 - 7	17 - 7	†	10 - 10	16 - 6	†	9 - 8	14 - 9	18 - 11	8 - 9	13 - 4	17 - 1	
	Southern Pine	Stud	11 - 7	17 - 7	†	10 - 10	16 - 6	†	9 - 8	14 - 9	18 - 11	8 - 9	13 - 4	17 - 1	
	Southern Pine	Standard	9 - 9	-	-	9 - 2	-	-	8 - 2	-	-	-	-	-	
	Spruce-Pine-Fir	SS	14 - 2	†	†	13 - 8	†	†	12 - 8	†	†	11 - 10	19 - 1	†	
	Spruce-Pine-Fir	#1	13 - 10	†	†	13 - 4	†	†	12 - 5	19 - 10	†	11 - 7	18 - 7	†	
	Spruce-Pine-Fir	#2	13 - 10	†	†	13 - 4	†	†	12 - 5	19 - 10	†	11 - 7	18 - 7	†	
	Spruce-Pine-Fir	#3/Stud	12 - 6	18 - 9	†	11 - 9	17 - 8	†	10 - 6	15 - 9	†	9 - 5	14 - 3	18 - 4	
	Spruce-Pine-Fir	Standard	10 - 7	-	-	9 - 11	-	-	8 - 10	-	-	8 - 0	-	-	
	16	Douglas Fir-Larch	SS	13 - 11	†	†	13 - 5	†	†	12 - 5	20 - 0	†	11 - 8	18 - 8	†
		Douglas Fir-Larch	#1	13 - 5	†	†	12 - 11	†	†	12 - 0	19 - 3	†	11 - 2	17 - 8	†
		Douglas Fir-Larch	#2	13 - 2	†	†	12 - 7	†	†	11 - 9	18 - 6	†	11 - 0	16 - 8	†
Douglas Fir-Larch		#3/Stud	11 - 0	16 - 6	†	10 - 4	15 - 6	20 - 0	9 - 3	13 - 10	17 - 10	8 - 4	12 - 6	16 - 1	
Douglas Fir-Larch		Standard	9 - 3	-	-	8 - 9	-	-	7 - 10	-	-	-	-	-	
Hem-Fir		SS	13 - 2	†	†	12 - 7	†	†	11 - 9	18 - 10	†	11 - 0	17 - 7	†	
Hem-Fir		#1	12 - 10	†	†	12 - 4	19 - 10	†	11 - 6	18 - 5	†	10 - 9	17 - 3	†	
Hem-Fir		#2	12 - 3	19 - 7	†	11 - 9	18 - 10	†	10 - 11	17 - 6	†	10 - 2	16 - 2	†	
Hem-Fir		#3/Stud	10 - 8	16 - 1	†	10 - 1	15 - 1	19 - 6	9 - 0	13 - 6	17 - 5	8 - 1	12 - 2	15 - 8	
Hem-Fir		Standard	9 - 1	-	-	8 - 6	-	-	-	-	-	-	-	-	
Southern Pine		SS	13 - 8	†	†	13 - 2	†	†	12 - 3	19 - 7	†	11 - 5	18 - 4	†	
Southern Pine		#1	13 - 2	†	†	12 - 7	†	†	11 - 9	18 - 10	†	11 - 0	17 - 7	†	
Southern Pine		#2	12 - 6	†	†	12 - 1	19 - 0	†	11 - 0	17 - 0	†	10 - 0	15 - 4	19 - 10	
Southern Pine		#3	9 - 11	15 - 0	19 - 3	9 - 4	14 - 2	18 - 1	8 - 4	12 - 8	16 - 2	-	11 - 5	14 - 7	
Southern Pine		Stud	9 - 11	15 - 0	19 - 3	9 - 4	14 - 2	18 - 1	8 - 4	12 - 8	16 - 2	-	11 - 5	14 - 7	
Southern Pine		Standard	8 - 4	-	-	7 - 10	-	-	-	-	-	-	-	-	
Spruce-Pine-Fir		SS	12 - 10	†	†	12 - 4	19 - 10	†	11 - 6	18 - 5	†	10 - 9	17 - 3	†	
Spruce-Pine-Fir		#1	12 - 6	†	†	12 - 1	19 - 4	†	11 - 2	18 - 0	†	10 - 6	16 - 5	†	
Spruce-Pine-Fir		#2	12 - 6	†	†	12 - 1	19 - 4	†	11 - 2	18 - 0	†	10 - 6	16 - 5	†	
Spruce-Pine-Fir		#3/Stud	10 - 8	16 - 1	†	10 - 1	15 - 1	19 - 6	9 - 0	13 - 6	17 - 5	8 - 1	12 - 2	15 - 8	
Spruce-Pine-Fir		Standard	9 - 1	-	-	8 - 6	-	-	-	-	-	-	-	-	
24		Douglas Fir-Larch	SS	12 - 1	19 - 5	†	11 - 8	18 - 8	†	10 - 10	17 - 4	†	10 - 1	16 - 3	†
		Douglas Fir-Larch	#1	11 - 8	18 - 8	†	11 - 2	17 - 8	†	10 - 5	15 - 9	†	9 - 5	14 - 3	18 - 4
		Douglas Fir-Larch	#2	11 - 5	17 - 9	†	11 - 0	16 - 8	†	9 - 11	14 - 11	19 - 2	8 - 11	13 - 5	17 - 4
	Douglas Fir-Larch	#3/Stud	8 - 10	13 - 3	17 - 1	8 - 4	12 - 6	16 - 1	-	11 - 2	14 - 4	-	10 - 1	13 - 0	
	Douglas Fir-Larch	Standard	-	-	-	-	-	-	-	-	-	-	-	-	
	Hem-Fir	SS	11 - 5	18 - 4	†	11 - 0	17 - 7	†	10 - 2	16 - 4	†	9 - 6	15 - 3	†	
	Hem-Fir	#1	11 - 2	17 - 11	†	10 - 9	17 - 2	†	10 - 0	15 - 6	†	9 - 4	14 - 0	18 - 1	
	Hem-Fir	#2	10 - 7	17 - 0	†	10 - 2	16 - 2	†	9 - 6	14 - 5	18 - 7	8 - 8	13 - 0	16 - 9	
	Hem-Fir	#3/Stud	8 - 7	12 - 11	16 - 8	8 - 1	12 - 2	15 - 8	-	10 - 10	14 - 0	-	9 - 10	12 - 8	
	Hem-Fir	Standard	-	-	-	-	-	-	-	-	-	-	-	-	
	Southern Pine	SS	11 - 11	19 - 1	†	11 - 5	18 - 4	†	10 - 7	17 - 0	†	9 - 11	15 - 11	†	
	Southern Pine	#1	11 - 5	18 - 4	†	11 - 0	17 - 7	†	10 - 2	16 - 1	†	9 - 5	14 - 6	18 - 9	
	Southern Pine	#2	10 - 7	16 - 3	†	9 - 11	15 - 4	19 - 9	8 - 10	13 - 8	17 - 8	8 - 0	12 - 4	15 - 11	
	Southern Pine	#3	8 - 0	12 - 1	15 - 6	-	11 - 5	14 - 7	-	10 - 2	13 - 0	-	9 - 2	11 - 9	
	Southern Pine	Stud	8 - 0	12 - 1	15 - 6	-	11 - 5	14 - 7	-	10 - 2	13 - 0	-	9 - 2	11 - 9	
	Southern Pine	Standard	-	-	-	-	-	-	-	-	-	-	-	-	
	Spruce-Pine-Fir	SS	11 - 2	17 - 11	†	10 - 9	17 - 2	†	10 - 0	16 - 0	†	9 - 4	14 - 11	20 - 0	
	Spruce-Pine-Fir	#1	10 - 11	17 - 5	†	10 - 6	16 - 5	†	9 - 9	14 - 8	18 - 11	8 - 10	13 - 3	17 - 1	
	Spruce-Pine-Fir	#2	10 - 11	17 - 5	†	10 - 6	16 - 5	†	9 - 9	14 - 8	18 - 11	8 - 10	13 - 3	17 - 1	
	Spruce-Pine-Fir	#3/Stud	8 - 7	12 - 11	16 - 8	8 - 1	12 - 2	15 - 8	-	10 - 10	14 - 0	-	9 - 10	12 - 8	
	Spruce-Pine-Fir	Standard	-	-	-	-	-	-	-	-	-	-	-	-	

† Allowable stud length exceeds 20 feet.

- Lumber grade not available or allowable stud length is less than 7 ft. - 9 in. (for 8 ft. wall height).

^a Maximum stud lengths in Table A-3.20A are based on interior zone loads and assume that all studs are sheathed with minimum sheathing material. Studs within 4 feet of corner shall be sheathed on the exterior with a minimum of 3/8 inch wood structural panels and on the interior with minimum sheathing material, or stud spacings shall be multiplied by 0.85 for framing located within 4 feet of corners to account for the additional end zone loading requirements. The additional bending capacity provided by the wood structural panels or reduced stud spacing is assumed to be sufficient to resist the additional end zone loading requirements.

See Footnote 1.

Table A-3.20A Maximum Exterior Loadbearing and Non-Loadbearing Stud Lengths for Common Lumber Species Resisting Interior Zone Wind Loads - Exposure C (Cont.)

(Fully Sheathed with a Minimum Sheathing Material)^a

Three Second Gust Wind Speed (mph)			120			130			140			150			
Stud Spacing (in.)	Species	Grade	2x4	2x6	2x8	2x4	2x6	2x8	2x4	2x6	2x8	2x4	2x6	2x8	
			Maximum Allowable Stud Length (ft.-in.) ¹												
12	Douglas Fir-Larch	SS	12 - 1	19 - 6	†	11 - 6	18 - 5	†	10 - 11	17 - 6	†	10 - 5	16 - 8	†	
	Douglas Fir-Larch	#1	11 - 8	18 - 9	†	11 - 0	17 - 3	†	10 - 6	15 - 11	†	9 - 10	14 - 9	19 - 1	
	Douglas Fir-Larch	#2	11 - 5	17 - 9	†	10 - 10	16 - 3	†	10 - 0	15 - 0	19 - 5	9 - 4	14 - 0	18 - 0	
	Douglas Fir-Larch	#3/Stud	8 - 10	13 - 3	17 - 1	8 - 1	12 - 2	15 - 9	-	11 - 3	14 - 6	-	10 - 6	13 - 6	
	Douglas Fir-Larch	Standard	-	-	-	-	-	-	-	-	-	-	-	-	
	Hem-Fir	SS	11 - 5	18 - 4	†	10 - 10	17 - 4	†	10 - 3	16 - 5	†	9 - 9	15 - 8	†	
	Hem-Fir	#1	11 - 2	17 - 11	†	10 - 7	16 - 11	†	10 - 0	15 - 8	†	9 - 7	14 - 7	18 - 9	
	Hem-Fir	#2	10 - 7	17 - 1	†	10 - 1	15 - 10	†	9 - 6	14 - 7	18 - 10	9 - 0	13 - 7	17 - 5	
	Hem-Fir	#3/Stud	8 - 7	12 - 11	16 - 8	7 - 11	11 - 11	15 - 4	-	11 - 0	14 - 2	-	10 - 2	13 - 2	
	Hem-Fir	Standard	-	-	-	-	-	-	-	-	-	-	-	-	
	Southern Pine	SS	11 - 11	19 - 1	†	11 - 3	18 - 1	†	10 - 8	17 - 2	†	10 - 2	16 - 4	†	
	Southern Pine	#1	11 - 5	18 - 4	†	10 - 10	17 - 4	†	10 - 3	16 - 3	†	9 - 9	15 - 1	19 - 6	
	Southern Pine	#2	10 - 7	16 - 4	†	9 - 8	15 - 0	19 - 4	9 - 0	13 - 10	17 - 10	8 - 4	12 - 10	16 - 7	
	Southern Pine	#3	8 - 0	12 - 1	15 - 6	-	11 - 2	14 - 3	-	10 - 3	13 - 2	-	9 - 7	12 - 3	
	Southern Pine	Stud	8 - 0	12 - 1	15 - 6	-	11 - 2	14 - 3	-	10 - 3	13 - 2	-	9 - 7	12 - 3	
	Southern Pine	Standard	-	-	-	-	-	-	-	-	-	-	-	-	
	Spruce-Pine-Fir	SS	11 - 2	17 - 11	†	10 - 7	16 - 11	†	10 - 0	16 - 1	†	9 - 7	15 - 4	†	
	Spruce-Pine-Fir	#1	10 - 11	17 - 6	†	10 - 4	16 - 0	†	9 - 9	14 - 10	19 - 1	9 - 2	13 - 9	17 - 9	
	Spruce-Pine-Fir	#2	10 - 11	17 - 6	†	10 - 4	16 - 0	†	9 - 9	14 - 10	19 - 1	9 - 2	13 - 9	17 - 9	
	Spruce-Pine-Fir	#3/Stud	8 - 7	12 - 11	16 - 8	7 - 11	11 - 11	15 - 4	-	11 - 0	14 - 2	-	10 - 2	13 - 2	
	Spruce-Pine-Fir	Standard	-	-	-	-	-	-	-	-	-	-	-	-	
	16	Douglas Fir-Larch	SS	11 - 0	17 - 7	†	10 - 4	16 - 8	†	9 - 10	15 - 10	†	9 - 5	15 - 1	†
		Douglas Fir-Larch	#1	10 - 7	16 - 1	†	9 - 10	14 - 9	19 - 0	9 - 1	13 - 8	17 - 7	8 - 5	12 - 8	16 - 4
		Douglas Fir-Larch	#2	10 - 1	15 - 2	19 - 7	9 - 3	14 - 0	18 - 0	8 - 7	12 - 11	16 - 7	8 - 0	12 - 0	15 - 5
Douglas Fir-Larch		#3/Stud	-	11 - 5	14 - 8	-	10 - 5	13 - 6	-	9 - 8	12 - 5	-	9 - 0	11 - 7	
Douglas Fir-Larch		Standard	-	-	-	-	-	-	-	-	-	-	-	-	
Hem-Fir		SS	10 - 4	16 - 7	†	9 - 9	15 - 8	†	9 - 3	14 - 11	19 - 11	8 - 10	14 - 2	18 - 11	
Hem-Fir		#1	10 - 1	15 - 10	†	9 - 7	14 - 7	18 - 9	9 - 0	13 - 5	17 - 4	8 - 4	12 - 6	16 - 1	
Hem-Fir		#2	9 - 7	14 - 9	19 - 0	9 - 0	13 - 6	17 - 5	8 - 4	12 - 6	16 - 1	-	11 - 7	15 - 0	
Hem-Fir		#3/Stud	-	11 - 1	14 - 4	-	10 - 2	13 - 1	-	9 - 5	12 - 1	-	8 - 9	11 - 3	
Hem-Fir		Standard	-	-	-	-	-	-	-	-	-	-	-	-	
Southern Pine		SS	10 - 9	17 - 3	†	10 - 2	16 - 4	†	9 - 8	15 - 6	†	9 - 3	14 - 9	19 - 9	
Southern Pine		#1	10 - 4	16 - 5	†	9 - 9	15 - 1	19 - 5	9 - 1	13 - 11	18 - 0	8 - 5	12 - 11	16 - 8	
Southern Pine		#2	9 - 1	14 - 0	18 - 0	8 - 4	12 - 10	16 - 7	-	11 - 10	15 - 3	-	11 - 0	14 - 2	
Southern Pine		#3	-	10 - 5	13 - 4	-	9 - 6	12 - 3	-	8 - 10	11 - 3	-	8 - 2	10 - 6	
Southern Pine		Stud	-	10 - 5	13 - 4	-	9 - 6	12 - 3	-	8 - 10	11 - 3	-	8 - 2	10 - 6	
Southern Pine		Standard	-	-	-	-	-	-	-	-	-	-	-	-	
Spruce-Pine-Fir		SS	10 - 1	16 - 2	†	9 - 7	15 - 4	†	9 - 1	14 - 7	19 - 5	8 - 8	13 - 10	18 - 5	
Spruce-Pine-Fir		#1	9 - 10	15 - 0	19 - 4	9 - 2	13 - 9	17 - 9	8 - 5	12 - 8	16 - 4	7 - 10	11 - 10	15 - 2	
Spruce-Pine-Fir		#2	9 - 10	15 - 0	19 - 4	9 - 2	13 - 9	17 - 9	8 - 5	12 - 8	16 - 4	7 - 10	11 - 10	15 - 2	
Spruce-Pine-Fir		#3/Stud	-	11 - 1	14 - 4	-	10 - 2	13 - 1	-	9 - 5	12 - 1	-	8 - 9	11 - 3	
Spruce-Pine-Fir		Standard	-	-	-	-	-	-	-	-	-	-	-	-	
24		Douglas Fir-Larch	SS	9 - 6	15 - 3	†	9 - 0	14 - 5	19 - 0	8 - 7	13 - 8	17 - 7	8 - 2	12 - 8	16 - 4
		Douglas Fir-Larch	#1	8 - 7	12 - 11	16 - 8	7 - 11	11 - 11	15 - 4	-	11 - 0	14 - 2	-	10 - 2	13 - 2
		Douglas Fir-Larch	#2	8 - 2	12 - 3	15 - 9	-	11 - 3	14 - 6	-	10 - 5	13 - 4	-	9 - 8	12 - 5
	Douglas Fir-Larch	#3/Stud	-	9 - 2	11 - 10	-	8 - 5	10 - 10	-	7 - 9	10 - 0	-	-	9 - 4	
	Douglas Fir-Larch	Standard	-	-	-	-	-	-	-	-	-	-	-	-	
	Hem-Fir	SS	9 - 0	14 - 5	19 - 3	8 - 6	13 - 7	18 - 2	8 - 1	12 - 11	16 - 11	-	12 - 2	15 - 9	
	Hem-Fir	#1	8 - 6	12 - 9	16 - 5	7 - 10	11 - 9	15 - 1	-	10 - 10	13 - 11	-	10 - 1	13 - 0	
	Hem-Fir	#2	7 - 11	11 - 10	15 - 3	-	10 - 11	14 - 0	-	10 - 1	13 - 0	-	9 - 4	12 - 0	
	Hem-Fir	#3/Stud	-	8 - 11	11 - 6	-	8 - 2	10 - 7	-	-	9 - 9	-	-	9 - 1	
	Hem-Fir	Standard	-	-	-	-	-	-	-	-	-	-	-	-	
	Southern Pine	SS	9 - 4	15 - 0	†	8 - 10	14 - 2	18 - 11	8 - 5	13 - 6	18 - 0	8 - 0	12 - 10	17 - 0	
	Southern Pine	#1	8 - 7	13 - 3	17 - 1	7 - 11	12 - 2	15 - 8	-	11 - 2	14 - 5	-	10 - 5	13 - 5	
	Southern Pine	#2	-	11 - 3	14 - 6	-	10 - 4	13 - 4	-	9 - 6	12 - 4	-	8 - 10	11 - 5	
	Southern Pine	#3	-	8 - 4	10 - 9	-	-	9 - 10	-	-	9 - 1	-	-	8 - 5	
	Southern Pine	Stud	-	8 - 4	10 - 9	-	-	9 - 10	-	-	9 - 1	-	-	8 - 5	
	Southern Pine	Standard	-	-	-	-	-	-	-	-	-	-	-	-	
	Spruce-Pine-Fir	SS	8 - 9	14 - 1	18 - 9	8 - 4	13 - 4	17 - 3	7 - 11	12 - 4	15 - 11	-	11 - 6	14 - 10	
	Spruce-Pine-Fir	#1	8 - 0	12 - 1	15 - 6	-	11 - 1	14 - 3	-	10 - 3	13 - 2	-	9 - 6	12 - 3	
	Spruce-Pine-Fir	#2	8 - 0	12 - 1	15 - 6	-	11 - 1	14 - 3	-	10 - 3	13 - 2	-	9 - 6	12 - 3	
	Spruce-Pine-Fir	#3/Stud	-	8 - 11	11 - 6	-	8 - 2	10 - 7	-	-	9 - 9	-	-	9 - 1	
	Spruce-Pine-Fir	Standard	-	-	-	-	-	-	-	-	-	-	-	-	

† Allowable stud length exceeds 20 feet.

- Lumber grade not available or allowable stud length is less than 7 ft. - 9 in. (for 8 ft. wall height).

^a Maximum stud lengths in Table A-3.20A are based on interior zone loads and assume that all studs are sheathed with minimum sheathing material. Studs within 4 feet of corner shall be sheathed on the exterior with a minimum of 3/8 inch wood structural panels and on the interior with minimum sheathing material, or stud spacings shall be multiplied by 0.85 for framing located within 4 feet of corners to account for the additional end zone loading requirements. The additional bending capacity provided by the wood structural panels or reduced stud spacing is assumed to be sufficient to resist the additional end zone loading requirements.

See Footnote 1.

Table 3.20B Maximum Exterior Loadbearing and Non-Loadbearing Stud Lengths for Common Lumber Species Resisting Interior Zone Wind Loads - Exposure B

(Fully Sheathed with a Minimum of 3/8" Wood Structural Panels)^a

Three Second Gust Wind Speed (mph)			85			90			100			110		
Stud Spacing (in.)	Species	Grade	2x4	2x6	2x8	2x4	2x6	2x8	2x4	2x6	2x8	2x4	2x6	2x8
			Maximum Allowable Stud Length (ft.-in.) ¹											
12	Douglas Fir-Larch	SS	17 - 4	†	†	16 - 7	†	†	15 - 5	†	†	14 - 5	†	†
	Douglas Fir-Larch	#1	16 - 8	†	†	16 - 0	†	†	14 - 10	†	†	13 - 11	†	†
	Douglas Fir-Larch	#2	16 - 3	†	†	15 - 8	†	†	14 - 6	†	†	13 - 7	†	†
	Douglas Fir-Larch	#3/Stud	15 - 7	†	†	14 - 11	†	†	13 - 11	†	†	13 - 0	19 - 0	†
	Douglas Fir-Larch	Standard	14 - 10	-	-	14 - 0	-	-	12 - 6	-	-	11 - 3	-	-
	Hem-Fir	SS	16 - 3	†	†	15 - 8	†	†	14 - 6	†	†	13 - 7	†	†
	Hem-Fir	#1	15 - 11	†	†	15 - 4	†	†	14 - 3	†	†	13 - 4	†	†
	Hem-Fir	#2	15 - 2	†	†	14 - 7	†	†	13 - 6	†	†	12 - 8	†	†
	Hem-Fir	#3/Stud	14 - 9	†	†	14 - 2	†	†	13 - 2	†	†	12 - 4	18 - 6	†
	Hem-Fir	Standard	14 - 6	-	-	13 - 8	-	-	12 - 2	-	-	11 - 0	-	-
	Southern Pine	SS	17 - 0	†	†	16 - 4	†	†	15 - 2	†	†	14 - 2	†	†
	Southern Pine	#1	16 - 3	†	†	15 - 8	†	†	14 - 6	†	†	13 - 7	†	†
	Southern Pine	#2	15 - 7	†	†	14 - 11	†	†	13 - 11	†	†	13 - 0	†	†
	Southern Pine	#3	15 - 2	†	†	14 - 7	†	†	13 - 4	19 - 2	†	12 - 0	17 - 4	†
	Southern Pine	Stud	15 - 2	†	†	14 - 7	†	†	13 - 4	19 - 2	†	12 - 0	17 - 4	†
	Southern Pine	Standard	13 - 5	-	-	12 - 7	-	-	11 - 3	-	-	10 - 2	-	-
	Spruce-Pine-Fir	SS	15 - 11	†	†	15 - 4	†	†	14 - 3	†	†	13 - 4	†	†
	Spruce-Pine-Fir	#1	15 - 7	†	†	14 - 11	†	†	13 - 11	†	†	13 - 0	†	†
Spruce-Pine-Fir	#2	15 - 7	†	†	14 - 11	†	†	13 - 11	†	†	13 - 0	†	†	
Spruce-Pine-Fir	#3/Stud	14 - 9	†	†	14 - 2	†	†	13 - 2	†	†	12 - 4	18 - 6	†	
Spruce-Pine-Fir	Standard	14 - 6	-	-	13 - 8	-	-	12 - 2	-	-	11 - 0	-	-	
16	Douglas Fir-Larch	SS	15 - 8	†	†	15 - 0	†	†	14 - 0	†	†	13 - 1	†	†
	Douglas Fir-Larch	#1	15 - 1	†	†	14 - 5	†	†	13 - 5	†	†	12 - 7	†	†
	Douglas Fir-Larch	#2	14 - 9	†	†	14 - 2	†	†	13 - 2	†	†	12 - 4	19 - 9	†
	Douglas Fir-Larch	#3/Stud	14 - 1	†	†	13 - 6	†	†	12 - 7	18 - 0	†	11 - 5	16 - 3	†
	Douglas Fir-Larch	Standard	12 - 9	-	-	12 - 0	-	-	10 - 8	-	-	9 - 8	-	-
	Hem-Fir	SS	14 - 9	†	†	14 - 2	†	†	13 - 2	†	†	12 - 4	19 - 9	†
	Hem-Fir	#1	14 - 5	†	†	13 - 10	†	†	12 - 10	†	†	12 - 0	19 - 4	†
	Hem-Fir	#2	13 - 8	†	†	13 - 2	†	†	12 - 3	19 - 8	†	11 - 5	18 - 5	†
	Hem-Fir	#3/Stud	13 - 4	†	†	12 - 10	19 - 8	†	11 - 11	17 - 6	†	11 - 2	15 - 10	19 - 7
	Hem-Fir	Standard	12 - 5	-	-	11 - 8	-	-	10 - 5	-	-	9 - 5	-	-
	Southern Pine	SS	15 - 4	†	†	14 - 9	†	†	13 - 8	†	†	12 - 10	†	†
	Southern Pine	#1	14 - 9	†	†	14 - 2	†	†	13 - 2	†	†	12 - 4	19 - 9	†
	Southern Pine	#2	14 - 1	†	†	13 - 6	†	†	12 - 7	†	†	11 - 9	18 - 10	†
	Southern Pine	#3	13 - 7	19 - 7	†	12 - 10	18 - 5	†	11 - 5	16 - 5	†	10 - 4	14 - 10	18 - 3
	Southern Pine	Stud	13 - 7	19 - 7	†	12 - 10	18 - 5	†	11 - 5	16 - 5	†	10 - 4	14 - 10	18 - 3
	Southern Pine	Standard	11 - 6	-	-	10 - 10	-	-	9 - 8	-	-	8 - 9	-	-
	Spruce-Pine-Fir	SS	14 - 5	†	†	13 - 10	†	†	12 - 10	†	†	12 - 0	19 - 4	†
	Spruce-Pine-Fir	#1	14 - 1	†	†	13 - 6	†	†	12 - 7	†	†	11 - 9	18 - 10	†
Spruce-Pine-Fir	#2	14 - 1	†	†	13 - 6	†	†	12 - 7	†	†	11 - 9	18 - 10	†	
Spruce-Pine-Fir	#3/Stud	13 - 4	†	†	12 - 10	19 - 8	†	11 - 11	17 - 6	†	11 - 2	15 - 10	19 - 7	
Spruce-Pine-Fir	Standard	12 - 5	-	-	11 - 8	-	-	10 - 5	-	-	9 - 5	-	-	
24	Douglas Fir-Larch	SS	13 - 7	†	†	13 - 1	†	†	12 - 1	19 - 6	†	11 - 4	18 - 3	†
	Douglas Fir-Larch	#1	13 - 1	†	†	12 - 7	†	†	11 - 8	18 - 9	†	10 - 11	17 - 6	†
	Douglas Fir-Larch	#2	12 - 9	†	†	12 - 3	19 - 9	†	11 - 5	18 - 4	†	10 - 8	17 - 2	†
	Douglas Fir-Larch	#3/Stud	12 - 2	17 - 3	†	11 - 5	16 - 3	†	10 - 2	14 - 6	17 - 11	9 - 2	13 - 1	16 - 2
	Douglas Fir-Larch	Standard	10 - 3	-	-	9 - 8	-	-	8 - 7	-	-	7 - 9	-	-
	Hem-Fir	SS	12 - 9	†	†	12 - 3	19 - 9	†	11 - 5	18 - 4	†	10 - 8	17 - 2	†
	Hem-Fir	#1	12 - 6	†	†	12 - 0	19 - 3	†	11 - 2	17 - 11	†	10 - 5	16 - 9	†
	Hem-Fir	#2	11 - 11	19 - 1	†	11 - 5	18 - 4	†	10 - 7	17 - 1	†	9 - 11	15 - 11	†
	Hem-Fir	#3/Stud	11 - 7	16 - 10	†	11 - 1	15 - 10	19 - 6	9 - 11	14 - 1	17 - 5	9 - 0	12 - 9	15 - 9
	Hem-Fir	Standard	10 - 0	-	-	9 - 5	-	-	8 - 5	-	-	-	-	-
	Southern Pine	SS	13 - 4	†	†	12 - 10	†	†	11 - 11	19 - 1	†	11 - 2	17 - 10	†
	Southern Pine	#1	12 - 9	†	†	12 - 3	19 - 9	†	11 - 5	18 - 4	†	10 - 8	17 - 2	†
	Southern Pine	#2	12 - 2	19 - 7	†	11 - 9	18 - 10	†	10 - 11	17 - 6	†	10 - 2	16 - 1	19 - 10
	Southern Pine	#3	10 - 11	15 - 9	19 - 4	10 - 4	14 - 9	18 - 2	9 - 2	13 - 3	16 - 3	8 - 4	11 - 11	14 - 8
	Southern Pine	Stud	10 - 11	15 - 9	19 - 4	10 - 4	14 - 9	18 - 2	9 - 2	13 - 3	16 - 3	8 - 4	11 - 11	14 - 8
	Southern Pine	Standard	9 - 3	-	-	8 - 9	-	-	7 - 9	-	-	-	-	-
	Spruce-Pine-Fir	SS	12 - 6	†	†	12 - 0	19 - 3	†	11 - 2	17 - 11	†	10 - 5	16 - 9	†
	Spruce-Pine-Fir	#1	12 - 2	19 - 7	†	11 - 9	18 - 10	†	10 - 11	17 - 6	†	10 - 2	16 - 4	†
Spruce-Pine-Fir	#2	12 - 2	19 - 7	†	11 - 9	18 - 10	†	10 - 11	17 - 6	†	10 - 2	16 - 4	†	
Spruce-Pine-Fir	#3/Stud	11 - 7	16 - 10	†	11 - 1	15 - 10	19 - 6	9 - 11	14 - 1	17 - 5	9 - 0	12 - 9	15 - 9	
Spruce-Pine-Fir	Standard	10 - 0	-	-	9 - 5	-	-	8 - 5	-	-	-	-	-	

† Allowable stud length exceeds 20 feet.

- Lumber grade not available or allowable stud length is less than 7 ft. - 9 in. (for 8 ft. wall height).

^a Maximum stud lengths in Table 3.20B are based on interior zone loads and assume that all studs are sheathed on the exterior with minimum of 3/8 inch wood structural panels and on the interior with minimum sheathing material. Stud spacings shall be multiplied by 0.85 for framing located within 4 feet of corners to account for the additional end zone loading requirements.

See Footnote 1.

Table 3.20B Maximum Exterior Loadbearing and Non-Loadbearing Stud Lengths for Common Lumber Species Resisting Interior Zone Wind Loads - Exposure B (Cont.)

(Fully Sheathed with a Minimum of 3/8" Wood Structural Panels)^a

Three Second Gust Wind Speed (mph)			120			130			140			150		
Stud Spacing (in.)	Species	Grade	2x4	2x6	2x8	2x4	2x6	2x8	2x4	2x6	2x8	2x4	2x6	2x8
			Maximum Allowable Stud Length (ft.-in.) ¹											
12	Douglas Fir-Larch	SS	13 - 7	†	†	12 - 10	†	†	12 - 2	19 - 7	†	11 - 8	18 - 8	†
	Douglas Fir-Larch	#1	13 - 1	†	†	12 - 4	19 - 10	†	11 - 9	18 - 10	†	11 - 2	18 - 0	†
	Douglas Fir-Larch	#2	12 - 10	†	†	12 - 1	19 - 5	†	11 - 6	18 - 6	†	11 - 0	17 - 7	†
	Douglas Fir-Larch	#3/Stud	12 - 2	17 - 3	†	11 - 2	15 - 10	19 - 7	10 - 4	14 - 8	18 - 1	9 - 7	13 - 7	16 - 10
	Douglas Fir-Larch	Standard	10 - 3	-	-	9 - 5	-	-	8 - 9	-	-	8 - 1	-	-
	Hem-Fir	SS	12 - 10	†	†	12 - 1	19 - 5	†	11 - 6	18 - 6	†	11 - 0	17 - 7	†
	Hem-Fir	#1	12 - 6	†	†	11 - 10	19 - 0	†	11 - 3	18 - 1	†	10 - 9	17 - 2	†
	Hem-Fir	#2	11 - 11	19 - 1	†	11 - 3	18 - 1	†	10 - 8	17 - 2	†	10 - 2	16 - 4	†
	Hem-Fir	#3/Stud	11 - 7	16 - 10	†	10 - 10	15 - 5	19 - 1	10 - 0	14 - 3	17 - 8	9 - 4	13 - 3	16 - 5
	Hem-Fir	Standard	10 - 0	-	-	9 - 3	-	-	8 - 6	-	-	7 - 11	-	-
	Southern Pine	SS	13 - 4	†	†	12 - 7	†	†	12 - 0	19 - 3	†	11 - 5	18 - 4	†
	Southern Pine	#1	12 - 10	†	†	12 - 1	19 - 5	†	11 - 6	18 - 6	†	11 - 0	17 - 7	†
	Southern Pine	#2	12 - 3	19 - 7	†	11 - 7	18 - 7	†	11 - 0	17 - 7	†	10 - 6	16 - 8	†
	Southern Pine	#3	11 - 0	15 - 9	19 - 4	10 - 1	14 - 6	17 - 9	9 - 4	13 - 4	16 - 5	8 - 8	12 - 5	15 - 3
	Southern Pine	Stud	11 - 0	15 - 9	19 - 4	10 - 1	14 - 6	17 - 9	9 - 4	13 - 4	16 - 5	8 - 8	12 - 5	15 - 3
	Southern Pine	Standard	9 - 3	-	-	8 - 6	-	-	7 - 10	-	-	-	-	-
	Spruce-Pine-Fir	SS	12 - 6	†	†	11 - 10	19 - 0	†	11 - 3	18 - 1	†	10 - 9	17 - 2	†
	Spruce-Pine-Fir	#1	12 - 3	19 - 7	†	11 - 7	18 - 7	†	11 - 0	17 - 7	†	10 - 6	16 - 9	†
	Spruce-Pine-Fir	#2	12 - 3	19 - 7	†	11 - 7	18 - 7	†	11 - 0	17 - 7	†	10 - 6	16 - 9	†
	Spruce-Pine-Fir	#3/Stud	11 - 7	16 - 10	†	10 - 10	15 - 5	19 - 1	10 - 0	14 - 3	17 - 8	9 - 4	13 - 3	16 - 5
Spruce-Pine-Fir	Standard	10 - 0	-	-	9 - 3	-	-	8 - 6	-	-	7 - 11	-	-	
16	Douglas Fir-Larch	SS	12 - 4	19 - 9	†	11 - 8	18 - 8	†	11 - 1	17 - 9	†	10 - 6	16 - 11	†
	Douglas Fir-Larch	#1	11 - 10	19 - 0	†	11 - 2	18 - 0	†	10 - 7	17 - 1	†	10 - 1	16 - 3	†
	Douglas Fir-Larch	#2	11 - 7	18 - 7	†	11 - 0	17 - 7	†	10 - 5	16 - 8	†	9 - 11	15 - 7	19 - 3
	Douglas Fir-Larch	#3/Stud	10 - 5	14 - 10	18 - 4	9 - 7	13 - 7	16 - 10	8 - 10	12 - 7	15 - 6	8 - 3	11 - 8	14 - 5
	Douglas Fir-Larch	Standard	8 - 10	-	-	8 - 1	-	-	-	-	-	-	-	-
	Hem-Fir	SS	11 - 7	18 - 7	†	11 - 0	17 - 7	†	10 - 5	16 - 8	†	9 - 11	15 - 11	†
	Hem-Fir	#1	11 - 4	18 - 2	†	10 - 9	17 - 2	†	10 - 2	16 - 4	†	9 - 8	15 - 7	†
	Hem-Fir	#2	10 - 9	17 - 4	†	10 - 2	16 - 4	†	9 - 8	15 - 6	†	9 - 3	14 - 10	18 - 8
	Hem-Fir	#3/Stud	10 - 2	14 - 5	17 - 10	9 - 4	13 - 3	16 - 4	8 - 7	12 - 3	15 - 1	8 - 0	11 - 4	14 - 0
	Hem-Fir	Standard	8 - 7	-	-	7 - 11	-	-	-	-	-	-	-	-
	Southern Pine	SS	12 - 1	19 - 5	†	11 - 5	18 - 4	†	10 - 10	17 - 5	†	10 - 4	16 - 7	†
	Southern Pine	#1	11 - 7	18 - 7	†	11 - 0	17 - 7	†	10 - 5	16 - 8	†	9 - 11	15 - 11	†
	Southern Pine	#2	11 - 1	17 - 9	†	10 - 5	16 - 8	†	9 - 11	15 - 5	19 - 1	9 - 6	14 - 4	17 - 8
	Southern Pine	#3	9 - 5	13 - 6	16 - 7	8 - 8	12 - 5	15 - 3	8 - 0	11 - 5	14 - 1	-	10 - 8	13 - 1
	Southern Pine	Stud	9 - 5	13 - 6	16 - 7	8 - 8	12 - 5	15 - 3	8 - 0	11 - 5	14 - 1	-	10 - 8	13 - 1
	Southern Pine	Standard	8 - 0	-	-	-	-	-	-	-	-	-	-	-
	Spruce-Pine-Fir	SS	11 - 4	18 - 2	†	10 - 9	17 - 2	†	10 - 2	16 - 4	†	9 - 8	15 - 7	†
	Spruce-Pine-Fir	#1	11 - 1	17 - 9	†	10 - 5	16 - 9	†	9 - 11	15 - 11	†	9 - 6	15 - 2	19 - 0
	Spruce-Pine-Fir	#2	11 - 1	17 - 9	†	10 - 5	16 - 9	†	9 - 11	15 - 11	†	9 - 6	15 - 2	19 - 0
	Spruce-Pine-Fir	#3/Stud	10 - 2	14 - 5	17 - 10	9 - 4	13 - 3	16 - 4	8 - 7	12 - 3	15 - 1	8 - 0	11 - 4	14 - 0
Spruce-Pine-Fir	Standard	8 - 7	-	-	7 - 11	-	-	-	-	-	-	-	-	
24	Douglas Fir-Larch	SS	10 - 8	17 - 2	†	10 - 1	16 - 2	†	9 - 7	15 - 5	†	9 - 2	14 - 8	19 - 7
	Douglas Fir-Larch	#1	10 - 3	16 - 6	†	9 - 9	15 - 5	19 - 1	9 - 3	14 - 3	17 - 8	8 - 9	13 - 3	16 - 5
	Douglas Fir-Larch	#2	10 - 1	15 - 11	19 - 8	9 - 6	14 - 7	18 - 1	9 - 0	13 - 6	16 - 8	8 - 7	12 - 6	15 - 6
	Douglas Fir-Larch	#3/Stud	8 - 5	11 - 11	14 - 9	-	10 - 11	13 - 6	-	10 - 1	12 - 6	-	9 - 5	11 - 7
	Douglas Fir-Larch	Standard	-	-	-	-	-	-	-	-	-	-	-	-
	Hem-Fir	SS	10 - 1	16 - 2	†	9 - 6	15 - 3	†	9 - 0	14 - 6	19 - 4	8 - 7	13 - 10	18 - 5
	Hem-Fir	#1	9 - 10	15 - 9	†	9 - 4	14 - 11	18 - 10	8 - 10	14 - 1	17 - 5	8 - 5	13 - 1	16 - 2
	Hem-Fir	#2	9 - 4	15 - 0	19 - 1	8 - 10	14 - 2	17 - 6	8 - 5	13 - 1	16 - 2	8 - 0	12 - 2	15 - 0
	Hem-Fir	#3/Stud	8 - 2	11 - 7	14 - 4	-	10 - 8	13 - 2	-	9 - 10	12 - 2	-	9 - 2	11 - 4
	Hem-Fir	Standard	-	-	-	-	-	-	-	-	-	-	-	-
	Southern Pine	SS	10 - 6	16 - 10	†	9 - 11	15 - 11	†	9 - 5	15 - 1	†	9 - 0	14 - 5	19 - 3
	Southern Pine	#1	10 - 1	16 - 2	†	9 - 6	15 - 3	19 - 6	9 - 0	14 - 6	18 - 0	8 - 7	13 - 6	16 - 9
	Southern Pine	#2	9 - 7	14 - 7	18 - 1	9 - 1	13 - 5	16 - 7	8 - 6	12 - 5	15 - 4	7 - 11	11 - 6	14 - 3
	Southern Pine	#3	-	10 - 10	13 - 4	-	10 - 0	12 - 3	-	9 - 3	11 - 4	-	8 - 7	10 - 6
	Southern Pine	Stud	-	10 - 10	13 - 4	-	10 - 0	12 - 3	-	9 - 3	11 - 4	-	8 - 7	10 - 6
	Southern Pine	Standard	-	-	-	-	-	-	-	-	-	-	-	-
	Spruce-Pine-Fir	SS	9 - 10	15 - 9	†	9 - 4	14 - 11	19 - 11	8 - 10	14 - 2	18 - 11	8 - 5	13 - 6	18 - 0
	Spruce-Pine-Fir	#1	9 - 7	15 - 5	19 - 4	9 - 1	14 - 4	17 - 9	8 - 7	13 - 3	16 - 5	8 - 3	12 - 4	15 - 3
	Spruce-Pine-Fir	#2	9 - 7	15 - 5	19 - 4	9 - 1	14 - 4	17 - 9	8 - 7	13 - 3	16 - 5	8 - 3	12 - 4	15 - 3
	Spruce-Pine-Fir	#3/Stud	8 - 2	11 - 7	14 - 4	-	10 - 8	13 - 2	-	9 - 10	12 - 2	-	9 - 2	11 - 4
Spruce-Pine-Fir	Standard	-	-	-	-	-	-	-	-	-	-	-	-	

† Allowable stud length exceeds 20 feet.

- Lumber grade not available or allowable stud length is less than 7 ft. - 9 in. (for 8 ft. wall height).

^a Maximum stud lengths in Table 3.20B are based on interior zone loads and assume that all studs are sheathed on the exterior with minimum of 3/8 inch wood structural panels and on the interior with minimum sheathing material. Stud spacings shall be multiplied by 0.85 for framing located within 4 feet of corners to account for the additional end zone loading requirements.

See Footnote 1.

Table A-3.20B Maximum Exterior Loadbearing and Non-Loadbearing Stud Lengths for Common Lumber Species Resisting Interior Zone Wind Loads - Exposure C

(Fully Sheathed with a Minimum of 3/8" Wood Structural Panels)^a

Three Second Gust Wind Speed (mph)			85			90			100			110			
Stud Spacing (in.)	Species	Grade	2x4	2x6	2x8	2x4	2x6	2x8	2x4	2x6	2x8	2x4	2x6	2x8	
			Maximum Allowable Stud Length (ft.-in.) ¹												
12	Douglas Fir-Larch	SS	15 - 5	†	†	14 - 10	†	†	13 - 9	†	†	12 - 11	†	†	
	Douglas Fir-Larch	#1	14 - 10	†	†	14 - 3	†	†	13 - 3	†	†	12 - 5	19 - 11	†	
	Douglas Fir-Larch	#2	14 - 6	†	†	14 - 0	†	†	13 - 0	†	†	12 - 2	19 - 6	†	
	Douglas Fir-Larch	#3/Stud	13 - 10	†	†	13 - 4	19 - 9	†	12 - 5	17 - 7	†	11 - 2	15 - 11	19 - 8	
	Douglas Fir-Larch	Standard	12 - 6	-	-	11 - 9	-	-	10 - 6	-	-	9 - 5	-	-	
	Hem-Fir	SS	14 - 6	†	†	14 - 0	†	†	13 - 0	†	†	12 - 2	19 - 6	†	
	Hem-Fir	#1	14 - 2	†	†	13 - 8	†	†	12 - 8	†	†	11 - 10	19 - 1	†	
	Hem-Fir	#2	13 - 6	†	†	13 - 0	†	†	12 - 1	19 - 4	†	11 - 3	18 - 1	†	
	Hem-Fir	#3/Stud	13 - 2	†	†	12 - 7	19 - 3	†	11 - 9	17 - 2	†	10 - 11	15 - 6	19 - 2	
	Hem-Fir	Standard	12 - 2	-	-	11 - 5	-	-	10 - 3	-	-	9 - 3	-	-	
	Southern Pine	SS	15 - 2	†	†	14 - 6	†	†	13 - 6	†	†	12 - 8	†	†	
	Southern Pine	#1	14 - 6	†	†	14 - 0	†	†	13 - 0	†	†	12 - 2	19 - 6	†	
	Southern Pine	#2	13 - 10	†	†	13 - 4	†	†	12 - 5	19 - 10	†	11 - 7	18 - 7	†	
	Southern Pine	#3	13 - 4	19 - 2	†	12 - 6	18 - 0	†	11 - 2	16 - 1	19 - 9	10 - 1	14 - 6	17 - 10	
	Southern Pine	Stud	13 - 4	19 - 2	†	12 - 6	18 - 0	†	11 - 2	16 - 1	19 - 9	10 - 1	14 - 6	17 - 10	
	Southern Pine	Standard	11 - 3	-	-	10 - 7	-	-	9 - 5	-	-	8 - 6	-	-	
	Spruce-Pine-Fir	SS	14 - 2	†	†	13 - 8	†	†	12 - 8	†	†	11 - 10	19 - 1	†	
	Spruce-Pine-Fir	#1	13 - 10	†	†	13 - 4	†	†	12 - 5	19 - 10	†	11 - 7	18 - 7	†	
	Spruce-Pine-Fir	#2	13 - 10	†	†	13 - 4	†	†	12 - 5	19 - 10	†	11 - 7	18 - 7	†	
	Spruce-Pine-Fir	#3/Stud	13 - 2	†	†	12 - 7	19 - 3	†	11 - 9	17 - 2	†	10 - 11	15 - 6	19 - 2	
	Spruce-Pine-Fir	Standard	12 - 2	-	-	11 - 5	-	-	10 - 3	-	-	9 - 3	-	-	
	16	Douglas Fir-Larch	SS	13 - 11	†	†	13 - 5	†	†	12 - 5	20 - 0	†	11 - 8	18 - 8	†
		Douglas Fir-Larch	#1	13 - 5	†	†	12 - 11	†	†	12 - 0	19 - 3	†	11 - 2	18 - 0	†
		Douglas Fir-Larch	#2	13 - 2	†	†	12 - 7	†	†	11 - 9	18 - 10	†	11 - 0	17 - 7	†
Douglas Fir-Larch		#3/Stud	12 - 6	18 - 0	†	11 - 11	16 - 11	†	10 - 7	15 - 1	18 - 8	9 - 7	13 - 8	16 - 10	
Douglas Fir-Larch		Standard	10 - 8	-	-	10 - 1	-	-	9 - 0	-	-	8 - 1	-	-	
Hem-Fir		SS	13 - 2	†	†	12 - 7	†	†	11 - 9	18 - 10	†	11 - 0	17 - 7	†	
Hem-Fir		#1	12 - 10	†	†	12 - 4	19 - 10	†	11 - 6	18 - 5	†	10 - 9	17 - 3	†	
Hem-Fir		#2	12 - 3	19 - 7	†	11 - 9	18 - 10	†	10 - 11	17 - 6	†	10 - 2	16 - 5	†	
Hem-Fir		#3/Stud	11 - 11	17 - 6	†	11 - 5	16 - 6	†	10 - 4	14 - 8	18 - 2	9 - 4	13 - 3	16 - 5	
Hem-Fir		Standard	10 - 5	-	-	9 - 10	-	-	8 - 9	-	-	7 - 11	-	-	
Southern Pine		SS	13 - 8	†	†	13 - 2	†	†	12 - 3	19 - 7	†	11 - 5	18 - 4	†	
Southern Pine		#1	13 - 2	†	†	12 - 7	†	†	11 - 9	18 - 10	†	11 - 0	17 - 7	†	
Southern Pine		#2	12 - 6	†	†	12 - 1	19 - 4	†	11 - 2	18 - 0	†	10 - 6	16 - 9	†	
Southern Pine		#3	11 - 5	16 - 5	†	10 - 9	15 - 5	19 - 0	9 - 7	13 - 9	16 - 11	8 - 8	12 - 5	15 - 3	
Southern Pine		Stud	11 - 5	16 - 5	†	10 - 9	15 - 5	19 - 0	9 - 7	13 - 9	16 - 11	8 - 8	12 - 5	15 - 3	
Southern Pine		Standard	9 - 8	-	-	9 - 1	-	-	8 - 1	-	-	-	-	-	
Spruce-Pine-Fir		SS	12 - 10	†	†	12 - 4	19 - 10	†	11 - 6	18 - 5	†	10 - 9	17 - 3	†	
Spruce-Pine-Fir		#1	12 - 6	†	†	12 - 1	19 - 4	†	11 - 2	18 - 0	†	10 - 6	16 - 10	†	
Spruce-Pine-Fir		#2	12 - 6	†	†	12 - 1	19 - 4	†	11 - 2	18 - 0	†	10 - 6	16 - 10	†	
Spruce-Pine-Fir		#3/Stud	11 - 11	17 - 6	†	11 - 5	16 - 6	†	10 - 4	14 - 8	18 - 2	9 - 4	13 - 3	16 - 5	
Spruce-Pine-Fir		Standard	10 - 5	-	-	9 - 10	-	-	8 - 9	-	-	7 - 11	-	-	
24		Douglas Fir-Larch	SS	12 - 1	19 - 5	†	11 - 8	18 - 8	†	10 - 10	17 - 4	†	10 - 1	16 - 3	†
		Douglas Fir-Larch	#1	11 - 8	18 - 8	†	11 - 2	18 - 0	†	10 - 5	16 - 8	†	9 - 9	15 - 6	19 - 2
		Douglas Fir-Larch	#2	11 - 5	18 - 4	†	11 - 0	17 - 7	†	10 - 2	16 - 3	†	9 - 6	14 - 8	18 - 1
	Douglas Fir-Larch	#3/Stud	10 - 2	14 - 5	17 - 11	9 - 7	13 - 7	16 - 10	8 - 7	12 - 2	15 - 0	-	11 - 0	13 - 7	
	Douglas Fir-Larch	Standard	8 - 7	-	-	8 - 1	-	-	-	-	-	-	-	-	
	Hem-Fir	SS	11 - 5	18 - 4	†	11 - 0	17 - 7	†	10 - 2	16 - 4	†	9 - 6	15 - 3	†	
	Hem-Fir	#1	11 - 2	17 - 11	†	10 - 9	17 - 2	†	10 - 0	16 - 0	†	9 - 4	14 - 11	18 - 11	
	Hem-Fir	#2	10 - 7	17 - 0	†	10 - 2	16 - 4	†	9 - 6	15 - 2	19 - 5	8 - 10	14 - 2	17 - 7	
	Hem-Fir	#3/Stud	9 - 11	14 - 1	17 - 5	9 - 4	13 - 3	16 - 5	8 - 4	11 - 10	14 - 7	-	10 - 8	13 - 2	
	Hem-Fir	Standard	8 - 5	-	-	7 - 11	-	-	-	-	-	-	-	-	
	Southern Pine	SS	11 - 11	19 - 1	†	11 - 5	18 - 4	†	10 - 7	17 - 0	†	9 - 11	15 - 11	†	
	Southern Pine	#1	11 - 5	18 - 4	†	11 - 0	17 - 7	†	10 - 2	16 - 4	†	9 - 6	15 - 3	19 - 7	
	Southern Pine	#2	10 - 11	17 - 6	†	10 - 6	16 - 8	†	9 - 9	14 - 11	18 - 5	9 - 1	13 - 5	16 - 8	
	Southern Pine	#3	9 - 2	13 - 2	16 - 2	8 - 8	12 - 5	15 - 3	-	11 - 1	13 - 7	-	10 - 0	12 - 4	
	Southern Pine	Stud	9 - 2	13 - 2	16 - 2	8 - 8	12 - 5	15 - 3	-	11 - 1	13 - 7	-	10 - 0	12 - 4	
	Southern Pine	Standard	7 - 9	-	-	-	-	-	-	-	-	-	-	-	
	Spruce-Pine-Fir	SS	11 - 2	17 - 11	†	10 - 9	17 - 2	†	10 - 0	16 - 0	†	9 - 4	14 - 11	20 - 0	
	Spruce-Pine-Fir	#1	10 - 11	17 - 6	†	10 - 6	16 - 9	†	9 - 9	15 - 7	19 - 9	9 - 1	14 - 5	17 - 10	
	Spruce-Pine-Fir	#2	10 - 11	17 - 6	†	10 - 6	16 - 9	†	9 - 9	15 - 7	19 - 9	9 - 1	14 - 5	17 - 10	
	Spruce-Pine-Fir	#3/Stud	9 - 11	14 - 1	17 - 5	9 - 4	13 - 3	16 - 5	8 - 4	11 - 10	14 - 7	-	10 - 8	13 - 2	
	Spruce-Pine-Fir	Standard	8 - 5	-	-	7 - 11	-	-	-	-	-	-	-	-	

† Allowable stud length exceeds 20 feet.

- Lumber grade not available or allowable stud length is less than 7 ft. - 9 in. (for 8 ft. wall height).

^a Maximum stud lengths in Table A-3.20B are based on interior zone loads and assume that all studs are sheathed on the exterior with minimum of 3/8 inch wood structural panels and on the interior with minimum sheathing material. Stud spacings shall be multiplied by 0.85 for framing located within 4 feet of corners to account for the additional end zone loading requirements.

See Footnote 1.

Table A-3.20B Maximum Exterior Loadbearing and Non-Loadbearing Stud Lengths for Common Lumber Species Resisting Interior Zone Wind Loads - Exposure C (Cont.)

(Fully Sheathed with a Minimum of 3/8" Wood Structural Panels)^a

Three Second Gust Wind Speed (mph)			120			130			140			150			
Stud Spacing (in.)	Species	Grade	2x4	2x6	2x8	2x4	2x6	2x8	2x4	2x6	2x8	2x4	2x6	2x8	
			Maximum Allowable Stud Length (ft.-in.) ¹												
12	Douglas Fir-Larch	SS	12 - 1	19 - 6	†	11 - 6	18 - 5	†	10 - 11	17 - 6	†	10 - 5	16 - 8	†	
	Douglas Fir-Larch	#1	11 - 8	18 - 9	†	11 - 0	17 - 8	†	10 - 6	16 - 10	†	10 - 0	16 - 0	19 - 11	
	Douglas Fir-Larch	#2	11 - 5	18 - 4	†	10 - 10	17 - 4	†	10 - 3	16 - 5	†	9 - 9	15 - 3	18 - 10	
	Douglas Fir-Larch	#3/Stud	10 - 2	14 - 6	17 - 11	9 - 4	13 - 3	16 - 5	8 - 8	12 - 3	15 - 2	8 - 0	11 - 5	14 - 1	
	Douglas Fir-Larch	Standard	8 - 7	-	-	7 - 11	-	-	-	-	-	-	-	-	
	Hem-Fir	SS	11 - 5	18 - 4	†	10 - 10	17 - 4	†	10 - 3	16 - 5	†	9 - 9	15 - 8	†	
	Hem-Fir	#1	11 - 2	17 - 11	†	10 - 7	16 - 11	†	10 - 0	16 - 1	†	9 - 7	15 - 4	19 - 8	
	Hem-Fir	#2	10 - 7	17 - 1	†	10 - 1	16 - 1	†	9 - 6	15 - 4	19 - 8	9 - 1	14 - 7	18 - 3	
	Hem-Fir	#3/Stud	9 - 11	14 - 1	17 - 5	9 - 1	12 - 11	16 - 0	8 - 5	12 - 0	14 - 9	7 - 10	11 - 1	13 - 9	
	Hem-Fir	Standard	8 - 5	-	-	-	-	-	-	-	-	-	-	-	
	Southern Pine	SS	11 - 11	19 - 1	†	11 - 3	18 - 1	†	10 - 8	17 - 2	†	10 - 2	16 - 4	†	
	Southern Pine	#1	11 - 5	18 - 4	†	10 - 10	17 - 4	†	10 - 3	16 - 5	†	9 - 9	15 - 8	†	
	Southern Pine	#2	10 - 11	17 - 6	†	10 - 4	16 - 4	†	9 - 9	15 - 1	18 - 8	9 - 4	14 - 0	17 - 4	
	Southern Pine	#3	9 - 2	13 - 3	16 - 3	8 - 5	12 - 2	14 - 11	7 - 10	11 - 2	13 - 9	-	10 - 5	12 - 9	
	Southern Pine	Stud	9 - 2	13 - 3	16 - 3	8 - 5	12 - 2	14 - 11	7 - 10	11 - 2	13 - 9	-	10 - 5	12 - 9	
	Southern Pine	Standard	7 - 9	-	-	-	-	-	-	-	-	-	-	-	
	Spruce-Pine-Fir	SS	11 - 2	17 - 11	†	10 - 7	16 - 11	†	10 - 0	16 - 1	†	9 - 7	15 - 4	†	
	Spruce-Pine-Fir	#1	10 - 11	17 - 6	†	10 - 4	16 - 7	†	9 - 9	15 - 8	20 - 0	9 - 4	15 - 0	18 - 6	
	Spruce-Pine-Fir	#2	10 - 11	17 - 6	†	10 - 4	16 - 7	†	9 - 9	15 - 8	20 - 0	9 - 4	15 - 0	18 - 6	
	Spruce-Pine-Fir	#3/Stud	9 - 11	14 - 1	17 - 5	9 - 1	12 - 11	16 - 0	8 - 5	12 - 0	14 - 9	7 - 10	11 - 1	13 - 9	
	Spruce-Pine-Fir	Standard	8 - 5	-	-	-	-	-	-	-	-	-	-	-	
	16	Douglas Fir-Larch	SS	11 - 0	17 - 7	†	10 - 4	16 - 8	†	9 - 10	15 - 10	†	9 - 5	15 - 1	†
		Douglas Fir-Larch	#1	10 - 7	16 - 11	†	10 - 0	16 - 0	19 - 11	9 - 6	14 - 10	18 - 5	9 - 0	13 - 10	17 - 1
		Douglas Fir-Larch	#2	10 - 4	16 - 7	†	9 - 9	15 - 3	18 - 10	9 - 3	14 - 1	17 - 4	8 - 10	13 - 1	16 - 2
Douglas Fir-Larch		#3/Stud	8 - 9	12 - 5	15 - 4	8 - 0	11 - 5	14 - 1	-	10 - 6	13 - 0	-	9 - 9	12 - 1	
Douglas Fir-Larch		Standard	-	-	-	-	-	-	-	-	-	-	-	-	
Hem-Fir		SS	10 - 4	16 - 7	†	9 - 9	15 - 8	†	9 - 3	14 - 11	19 - 11	8 - 10	14 - 2	18 - 11	
Hem-Fir		#1	10 - 1	16 - 2	†	9 - 7	15 - 4	19 - 8	9 - 1	14 - 7	18 - 2	8 - 8	13 - 7	16 - 10	
Hem-Fir		#2	9 - 7	15 - 5	19 - 11	9 - 1	14 - 7	18 - 3	8 - 8	13 - 7	16 - 10	8 - 3	12 - 8	15 - 8	
Hem-Fir		#3/Stud	8 - 6	12 - 1	14 - 11	7 - 10	11 - 1	13 - 9	-	10 - 3	12 - 8	-	9 - 6	11 - 9	
Hem-Fir		Standard	-	-	-	-	-	-	-	-	-	-	-	-	
Southern Pine		SS	10 - 9	17 - 3	†	10 - 2	16 - 4	†	9 - 8	15 - 6	†	9 - 3	14 - 9	19 - 9	
Southern Pine		#1	10 - 4	16 - 7	†	9 - 9	15 - 8	†	9 - 3	14 - 11	18 - 9	8 - 10	14 - 1	17 - 5	
Southern Pine		#2	9 - 10	15 - 3	18 - 10	9 - 4	14 - 0	17 - 4	8 - 10	12 - 11	16 - 0	8 - 3	12 - 0	14 - 10	
Southern Pine		#3	7 - 11	11 - 4	13 - 11	-	10 - 5	12 - 9	-	9 - 7	11 - 10	-	8 - 11	11 - 0	
Southern Pine		Stud	7 - 11	11 - 4	13 - 11	-	10 - 5	12 - 9	-	9 - 7	11 - 10	-	8 - 11	11 - 0	
Southern Pine		Standard	-	-	-	-	-	-	-	-	-	-	-	-	
Spruce-Pine-Fir		SS	10 - 1	16 - 2	†	9 - 7	15 - 4	†	9 - 1	14 - 7	19 - 5	8 - 8	13 - 10	18 - 6	
Spruce-Pine-Fir		#1	9 - 10	15 - 10	†	9 - 4	15 - 0	18 - 6	8 - 10	13 - 10	17 - 1	8 - 5	12 - 10	15 - 11	
Spruce-Pine-Fir		#2	9 - 10	15 - 10	†	9 - 4	15 - 0	18 - 6	8 - 10	13 - 10	17 - 1	8 - 5	12 - 10	15 - 11	
Spruce-Pine-Fir		#3/Stud	8 - 6	12 - 1	14 - 11	7 - 10	11 - 1	13 - 9	-	10 - 3	12 - 8	-	9 - 6	11 - 9	
Spruce-Pine-Fir		Standard	-	-	-	-	-	-	-	-	-	-	-	-	
24		Douglas Fir-Larch	SS	9 - 6	15 - 3	†	9 - 0	14 - 5	19 - 4	8 - 7	13 - 9	18 - 4	8 - 2	13 - 1	17 - 1
		Douglas Fir-Larch	#1	9 - 2	14 - 1	17 - 5	8 - 8	12 - 11	16 - 0	8 - 3	12 - 0	14 - 9	7 - 10	11 - 1	13 - 9
		Douglas Fir-Larch	#2	9 - 0	13 - 4	16 - 6	8 - 6	12 - 3	15 - 2	8 - 0	11 - 4	14 - 0	-	10 - 6	13 - 0
	Douglas Fir-Larch	#3/Stud	-	10 - 0	12 - 4	-	9 - 2	11 - 4	-	8 - 6	10 - 6	-	7 - 10	9 - 9	
	Douglas Fir-Larch	Standard	-	-	-	-	-	-	-	-	-	-	-	-	
	Hem-Fir	SS	9 - 0	14 - 5	19 - 3	8 - 6	13 - 7	18 - 2	8 - 1	12 - 11	17 - 3	-	12 - 4	16 - 5	
	Hem-Fir	#1	8 - 9	13 - 11	17 - 3	8 - 4	12 - 9	15 - 10	7 - 11	11 - 10	14 - 7	-	11 - 0	13 - 7	
	Hem-Fir	#2	8 - 4	12 - 11	16 - 0	7 - 11	11 - 10	14 - 8	-	11 - 0	13 - 7	-	10 - 2	12 - 7	
	Hem-Fir	#3/Stud	-	9 - 9	12 - 0	-	8 - 11	11 - 0	-	8 - 3	10 - 2	-	-	9 - 6	
	Hem-Fir	Standard	-	-	-	-	-	-	-	-	-	-	-	-	
	Southern Pine	SS	9 - 4	15 - 0	†	8 - 10	14 - 2	18 - 11	8 - 5	13 - 6	18 - 0	8 - 0	12 - 10	17 - 2	
	Southern Pine	#1	9 - 0	14 - 5	17 - 10	8 - 6	13 - 3	16 - 4	8 - 1	12 - 2	15 - 1	-	11 - 4	14 - 0	
	Southern Pine	#2	8 - 5	12 - 3	15 - 2	-	11 - 3	13 - 11	-	10 - 5	12 - 10	-	9 - 8	11 - 11	
	Southern Pine	#3	-	9 - 1	11 - 2	-	8 - 4	10 - 3	-	-	9 - 6	-	-	8 - 10	
	Southern Pine	Stud	-	9 - 1	11 - 2	-	8 - 4	10 - 3	-	-	9 - 6	-	-	8 - 10	
	Southern Pine	Standard	-	-	-	-	-	-	-	-	-	-	-	-	
	Spruce-Pine-Fir	SS	8 - 9	14 - 1	18 - 9	8 - 4	13 - 4	17 - 9	7 - 11	12 - 8	16 - 8	-	12 - 0	15 - 6	
	Spruce-Pine-Fir	#1	8 - 7	13 - 2	16 - 3	8 - 1	12 - 1	14 - 11	-	11 - 2	13 - 9	-	10 - 4	12 - 9	
	Spruce-Pine-Fir	#2	8 - 7	13 - 2	16 - 3	8 - 1	12 - 1	14 - 11	-	11 - 2	13 - 9	-	10 - 4	12 - 9	
	Spruce-Pine-Fir	#3/Stud	-	9 - 9	12 - 0	-	8 - 11	11 - 0	-	8 - 3	10 - 2	-	-	9 - 6	
	Spruce-Pine-Fir	Standard	-	-	-	-	-	-	-	-	-	-	-	-	

† Allowable stud length exceeds 20 feet.

- Lumber grade not available or allowable stud length is less than 7 ft. - 9 in. (for 8 ft. wall height).

^a Maximum stud lengths in Table A-3.20B are based on interior zone loads and assume that all studs are sheathed on the exterior with minimum of 3/8 inch wood structural panels and on the interior with minimum sheathing material. Stud spacings shall be multiplied by 0.85 for framing located within 4 feet of corners to account for the additional end zone loading requirements.

See Footnote 1.

Table 3.25A Ceiling Joist Spans for Common Lumber Species

(Uninhabitable Attics Without Storage, Live Load = 10 psf, L/Δ = 240)

		Dead Load = 10 psf			
		2x4	2x6	2x8	2x10
		Maximum Ceiling Joist Spans ¹			
Joist Spacing	Species and Grade	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)
12 in.	Douglas Fir-Larch SS	13 - 2	20 - 8	*	*
	Douglas Fir-Larch #1	12 - 8	19 - 11	*	*
	Douglas Fir-Larch #2	12 - 5	19 - 6	25 - 8	*
	Douglas Fir-Larch #3	11 - 1	16 - 3	20 - 7	25 - 2
	Hem-Fir SS	12 - 5	19 - 6	25 - 8	*
	Hem-Fir #1	12 - 2	19 - 1	25 - 2	*
	Hem-Fir #2	11 - 7	18 - 2	24 - 0	*
	Hem-Fir #3	10 - 10	15 - 10	20 - 1	24 - 6
	Southern Pine SS	12 - 11	20 - 3	*	*
	Southern Pine #1	12 - 5	19 - 6	25 - 8	*
	Southern Pine #2	11 - 10	18 - 8	24 - 7	*
	Southern Pine #3	10 - 1	14 - 11	18 - 9	22 - 9
	Spruce-Pine Fir SS	12 - 2	19 - 1	25 - 2	*
	Spruce-Pine Fir #1	11 - 10	18 - 8	24 - 7	*
	Spruce-Pine Fir #2	11 - 10	18 - 8	24 - 7	*
	Spruce-Pine Fir #3	10 - 10	15 - 10	20 - 1	24 - 6
16 in.	Douglas Fir-Larch SS	11 - 11	18 - 9	24 - 8	*
	Douglas Fir-Larch #1	11 - 6	18 - 1	23 - 10	*
	Douglas Fir-Larch #2	11 - 3	17 - 8	23 - 4	*
	Douglas Fir-Larch #3	9 - 7	14 - 1	17 - 10	21 - 9
	Hem-Fir SS	11 - 3	17 - 8	23 - 4	*
	Hem-Fir #1	11 - 0	17 - 4	22 - 10	*
	Hem-Fir #2	10 - 6	16 - 6	21 - 9	*
	Hem-Fir #3	9 - 5	13 - 9	17 - 5	21 - 3
	Southern Pine SS	11 - 9	18 - 5	24 - 3	*
	Southern Pine #1	11 - 3	17 - 8	23 - 4	*
	Southern Pine #2	10 - 9	16 - 11	21 - 7	25 - 7
	Southern Pine #3	8 - 9	12 - 11	16 - 3	19 - 9
	Spruce-Pine Fir SS	11 - 0	17 - 4	22 - 10	*
	Spruce-Pine Fir #1	10 - 9	16 - 11	22 - 4	*
	Spruce-Pine Fir #2	10 - 9	16 - 11	22 - 4	*
	Spruce-Pine Fir #3	9 - 5	13 - 9	17 - 5	21 - 3
19.2 in.	Douglas Fir-Larch SS	11 - 3	17 - 8	23 - 3	*
	Douglas Fir-Larch #1	10 - 10	17 - 0	22 - 5	*
	Douglas Fir-Larch #2	10 - 7	16 - 8	21 - 4	*
	Douglas Fir-Larch #3	8 - 9	12 - 10	16 - 3	19 - 10
	Hem-Fir SS	10 - 7	16 - 8	22 - 0	*
	Hem-Fir #1	10 - 4	16 - 4	21 - 6	*
	Hem-Fir #2	9 - 11	15 - 7	20 - 6	25 - 3
	Hem-Fir #3	8 - 7	12 - 6	15 - 10	19 - 5
	Southern Pine SS	11 - 0	17 - 4	22 - 10	*
	Southern Pine #1	10 - 7	16 - 8	22 - 0	*
	Southern Pine #2	10 - 2	15 - 7	19 - 8	23 - 5
	Southern Pine #3	8 - 0	11 - 9	14 - 10	18 - 0
	Spruce-Pine Fir SS	10 - 4	16 - 4	21 - 6	*
	Spruce-Pine Fir #1	10 - 2	15 - 11	21 - 0	25 - 8
	Spruce-Pine Fir #2	10 - 2	15 - 11	21 - 0	25 - 8
	Spruce-Pine Fir #3	8 - 7	12 - 6	15 - 10	19 - 5
24 in.	Douglas Fir-Larch SS	10 - 5	16 - 4	21 - 7	*
	Douglas Fir-Larch #1	10 - 0	15 - 9	20 - 1	24 - 6
	Douglas Fir-Larch #2	9 - 10	15 - 0	19 - 1	23 - 3
	Douglas Fir-Larch #3	7 - 10	11 - 6	14 - 7	17 - 9
	Hem-Fir SS	9 - 10	15 - 6	20 - 5	*
	Hem-Fir #1	9 - 8	15 - 2	19 - 10	24 - 3
	Hem-Fir #2	9 - 2	14 - 5	18 - 6	22 - 7
	Hem-Fir #3	7 - 8	11 - 2	14 - 2	17 - 4
	Southern Pine SS	10 - 3	16 - 1	21 - 2	*
	Southern Pine #1	9 - 10	15 - 6	20 - 5	24 - 0
	Southern Pine #2	9 - 3	13 - 11	17 - 7	20 - 11
	Southern Pine #3	7 - 2	10 - 6	13 - 3	16 - 1
	Spruce-Pine Fir SS	9 - 8	15 - 2	19 - 11	25 - 5
	Spruce-Pine Fir #1	9 - 5	14 - 9	18 - 9	22 - 11
	Spruce-Pine Fir #2	9 - 5	14 - 9	18 - 9	22 - 11
	Spruce-Pine Fir #3	7 - 8	11 - 2	14 - 2	17 - 4

¹ Bracing shall be provided in accordance with 3.3.1.4.

* Spans are limited to 26 feet in length. Check sources for availability of lumber in lengths greater than 20 feet.

Table 3.25B Ceiling Joist Spans for Common Lumber Species

(Uninhabitable Attics With Limited Storage, Live Load = 20 psf, L/Δ = 240)

		Dead Load = 10 psf			
		2x4	2x6	2x8	2x10
		Maximum Ceiling Joist Spans ¹			
Joist Spacing	Species and Grade	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)
12 in.	Douglas Fir-Larch SS	10 - 5	16 - 4	21 - 7	*
	Douglas Fir-Larch #1	10 - 0	15 - 9	20 - 1	24 - 6
	Douglas Fir-Larch #2	9 - 10	15 - 0	19 - 1	23 - 3
	Douglas Fir-Larch #3	7 - 10	11 - 6	14 - 7	17 - 9
	Hem-Fir SS	9 - 10	15 - 6	20 - 5	*
	Hem-Fir #1	9 - 8	15 - 2	19 - 10	24 - 3
	Hem-Fir #2	9 - 2	14 - 5	18 - 6	22 - 7
	Hem-Fir #3	7 - 8	11 - 2	14 - 2	17 - 4
	Southern Pine SS	10 - 3	16 - 1	21 - 2	*
	Southern Pine #1	9 - 10	15 - 6	20 - 5	24 - 0
	Southern Pine #2	9 - 3	13 - 11	17 - 7	20 - 11
	Southern Pine #3	7 - 2	10 - 6	13 - 3	16 - 1
	Spruce-Pine Fir SS	9 - 8	15 - 2	19 - 11	25 - 5
	Spruce-Pine Fir #1	9 - 5	14 - 9	18 - 9	22 - 11
	Spruce-Pine Fir #2	9 - 5	14 - 9	18 - 9	22 - 11
	Spruce-Pine Fir #3	7 - 8	11 - 2	14 - 2	17 - 4
16 in.	Douglas Fir-Larch SS	9 - 6	14 - 11	19 - 7	25 - 0
	Douglas Fir-Larch #1	9 - 1	13 - 9	17 - 5	21 - 3
	Douglas Fir-Larch #2	8 - 11	13 - 0	16 - 6	20 - 2
	Douglas Fir-Larch #3	6 - 10	9 - 11	12 - 7	15 - 5
	Hem-Fir SS	8 - 11	14 - 1	18 - 6	23 - 8
	Hem-Fir #1	8 - 9	13 - 7	17 - 2	21 - 0
	Hem-Fir #2	8 - 4	12 - 8	16 - 0	19 - 7
	Hem-Fir #3	6 - 8	9 - 8	12 - 4	15 - 0
	Southern Pine SS	9 - 4	14 - 7	19 - 3	24 - 7
	Southern Pine #1	8 - 11	14 - 0	17 - 9	20 - 9
	Southern Pine #2	8 - 0	12 - 0	15 - 3	18 - 1
	Southern Pine #3	6 - 2	9 - 2	11 - 6	14 - 0
	Spruce-Pine Fir SS	8 - 9	13 - 9	18 - 2	23 - 1
	Spruce-Pine Fir #1	8 - 7	12 - 10	16 - 3	19 - 10
	Spruce-Pine Fir #2	8 - 7	12 - 10	16 - 3	19 - 10
	Spruce-Pine Fir #3	6 - 8	9 - 8	12 - 4	15 - 0
19.2 in.	Douglas Fir-Larch SS	8 - 11	14 - 0	18 - 5	23 - 7
	Douglas Fir-Larch #1	8 - 7	12 - 6	15 - 10	19 - 5
	Douglas Fir-Larch #2	8 - 2	11 - 11	15 - 1	18 - 5
	Douglas Fir-Larch #3	6 - 2	9 - 1	11 - 6	14 - 1
	Hem-Fir SS	8 - 5	13 - 3	17 - 5	22 - 3
	Hem-Fir #1	8 - 3	12 - 4	15 - 8	19 - 2
	Hem-Fir #2	7 - 10	11 - 7	14 - 8	17 - 10
	Hem-Fir #3	6 - 1	8 - 10	11 - 3	13 - 8
	Southern Pine SS	8 - 9	13 - 9	18 - 2	23 - 1
	Southern Pine #1	8 - 5	12 - 9	16 - 2	18 - 11
	Southern Pine #2	7 - 4	11 - 0	13 - 11	16 - 6
	Southern Pine #3	5 - 8	8 - 4	10 - 6	12 - 9
	Spruce-Pine Fir SS	8 - 3	12 - 11	17 - 1	21 - 8
	Spruce-Pine Fir #1	8 - 0	11 - 9	14 - 10	18 - 2
	Spruce-Pine Fir #2	8 - 0	11 - 9	14 - 10	18 - 2
	Spruce-Pine Fir #3	6 - 1	8 - 10	11 - 3	13 - 8
24 in.	Douglas Fir-Larch SS	8 - 3	13 - 0	17 - 2	21 - 3
	Douglas Fir-Larch #1	7 - 8	11 - 2	14 - 2	17 - 4
	Douglas Fir-Larch #2	7 - 3	10 - 8	13 - 6	16 - 5
	Douglas Fir-Larch #3	5 - 7	8 - 1	10 - 3	12 - 7
	Hem-Fir SS	7 - 10	12 - 3	16 - 2	20 - 6
	Hem-Fir #1	7 - 7	11 - 1	14 - 0	17 - 1
	Hem-Fir #2	7 - 1	10 - 4	13 - 1	16 - 0
	Hem-Fir #3	5 - 5	7 - 11	10 - 0	12 - 3
	Southern Pine SS	8 - 1	12 - 9	16 - 10	21 - 6
	Southern Pine #1	7 - 8	11 - 5	14 - 6	16 - 11
	Southern Pine #2	6 - 7	9 - 10	12 - 6	14 - 9
	Southern Pine #3	5 - 1	7 - 5	9 - 5	11 - 5
	Spruce-Pine Fir SS	7 - 8	12 - 0	15 - 10	19 - 5
	Spruce-Pine Fir #1	7 - 2	10 - 6	13 - 3	16 - 3
	Spruce-Pine Fir #2	7 - 2	10 - 6	13 - 3	16 - 3
	Spruce-Pine Fir #3	5 - 5	7 - 11	10 - 0	12 - 3

¹ Bracing shall be provided in accordance with 3.3.1.4.

* Spans are limited to 26 feet in length. Check sources for availability of lumber in lengths greater than 20 feet.

Table 3.26A Rafter Spans for Common Lumber Species

(Ceiling Not Attached to Rafters, Live Load = 20 psf, L/Δ = 180)

		Dead Load = 10 psf					Dead Load = 20 psf				
		2x4	2x6	2x8	2x10	2x12	2x4	2x6	2x8	2x10	2x12
		Maximum Rafter Spans ^{1,2,3}									
Joist Spacing	Species and Grade	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)
12 in.	Douglas Fir-Larch SS	11 - 6	18 - 0	23 - 9	*	*	11 - 6	18 - 0	23 - 9	*	*
	Douglas Fir-Larch #1	11 - 1	17 - 4	22 - 5	*	*	10 - 6	15 - 4	19 - 5	23 - 9	*
	Douglas Fir-Larch #2	10 - 10	16 - 10	21 - 4	*	*	10 - 0	14 - 7	18 - 5	22 - 6	*
	Douglas Fir-Larch #3	8 - 9	12 - 10	16 - 3	19 - 10	23 - 0	7 - 7	11 - 1	14 - 1	17 - 2	19 - 11
	Hem-Fir SS	10 - 10	17 - 0	22 - 5	*	*	10 - 10	17 - 0	22 - 5	*	*
	Hem-Fir #1	10 - 7	16 - 8	22 - 0	*	*	10 - 4	15 - 2	19 - 2	23 - 5	*
	Hem-Fir #2	10 - 1	15 - 11	20 - 8	25 - 3	*	9 - 8	14 - 2	17 - 11	21 - 11	25 - 5
	Hem-Fir #3	8 - 7	12 - 6	15 - 10	19 - 5	22 - 6	7 - 5	10 - 10	13 - 9	16 - 9	19 - 6
	Southern Pine SS	11 - 3	17 - 8	23 - 4	*	*	11 - 3	17 - 8	23 - 4	*	*
	Southern Pine #1	10 - 10	17 - 0	22 - 5	*	*	10 - 6	15 - 8	19 - 10	23 - 2	*
	Southern Pine #2	10 - 4	15 - 7	19 - 8	23 - 5	*	9 - 0	13 - 6	17 - 1	20 - 3	23 - 10
	Southern Pine #3	8 - 0	11 - 9	14 - 10	18 - 0	21 - 4	6 - 11	10 - 2	12 - 10	15 - 7	18 - 6
	Spruce-Pine Fir SS	10 - 7	16 - 8	22 - 0	*	*	10 - 7	16 - 8	21 - 9	*	*
	Spruce-Pine Fir #1	10 - 4	16 - 3	21 - 0	25 - 8	*	9 - 10	14 - 4	18 - 2	22 - 3	25 - 9
	Spruce-Pine Fir #2	10 - 4	16 - 3	21 - 0	25 - 8	*	9 - 10	14 - 4	18 - 2	22 - 3	25 - 9
	Spruce-Pine Fir #3	8 - 7	12 - 6	15 - 10	19 - 5	22 - 6	7 - 5	10 - 10	13 - 9	16 - 9	19 - 6
16 in.	Douglas Fir-Larch SS	10 - 5	16 - 4	21 - 7	*	*	10 - 5	16 - 3	20 - 7	25 - 2	*
	Douglas Fir-Larch #1	10 - 0	15 - 4	19 - 5	23 - 9	*	9 - 1	13 - 3	16 - 10	20 - 7	23 - 10
	Douglas Fir-Larch #2	9 - 10	14 - 7	18 - 5	22 - 6	*	8 - 7	12 - 7	16 - 0	19 - 6	22 - 7
	Douglas Fir-Larch #3	7 - 7	11 - 1	14 - 1	17 - 2	19 - 11	6 - 7	9 - 8	12 - 2	14 - 11	17 - 3
	Hem-Fir SS	9 - 10	15 - 6	20 - 5	*	*	9 - 10	15 - 6	19 - 11	24 - 4	*
	Hem-Fir #1	9 - 8	15 - 2	19 - 2	23 - 5	*	9 - 0	13 - 1	16 - 7	20 - 4	23 - 7
	Hem-Fir #2	9 - 2	14 - 2	17 - 11	21 - 11	25 - 5	8 - 5	12 - 3	15 - 6	19 - 0	22 - 0
	Hem-Fir #3	7 - 5	10 - 10	13 - 9	16 - 9	19 - 6	6 - 5	9 - 5	11 - 11	14 - 6	16 - 10
	Southern Pine SS	10 - 3	16 - 1	21 - 2	*	*	10 - 3	16 - 1	21 - 2	25 - 7	*
	Southern Pine #1	9 - 10	15 - 6	19 - 10	23 - 2	*	9 - 1	13 - 7	17 - 2	20 - 1	23 - 10
	Southern Pine #2	9 - 0	13 - 6	17 - 1	20 - 3	23 - 10	7 - 9	11 - 8	14 - 9	17 - 6	20 - 8
	Southern Pine #3	6 - 11	10 - 2	12 - 10	15 - 7	18 - 6	6 - 0	8 - 10	11 - 2	13 - 6	16 - 0
	Spruce-Pine Fir SS	9 - 8	15 - 2	19 - 11	25 - 5	*	9 - 8	14 - 10	18 - 10	23 - 0	*
	Spruce-Pine Fir #1	9 - 5	14 - 4	18 - 2	22 - 3	25 - 9	8 - 6	12 - 5	15 - 9	19 - 3	22 - 4
	Spruce-Pine Fir #2	9 - 5	14 - 4	18 - 2	22 - 3	25 - 9	8 - 6	12 - 5	15 - 9	19 - 3	22 - 4
	Spruce-Pine Fir #3	7 - 5	10 - 10	13 - 9	16 - 9	19 - 6	6 - 5	9 - 5	11 - 11	14 - 6	16 - 10
19.2 in.	Douglas Fir-Larch SS	9 - 10	15 - 5	20 - 4	25 - 11	*	9 - 10	14 - 10	18 - 10	23 - 0	*
	Douglas Fir-Larch #1	9 - 5	14 - 0	17 - 9	21 - 8	25 - 2	8 - 4	12 - 2	15 - 4	18 - 9	21 - 9
	Douglas Fir-Larch #2	9 - 1	13 - 3	16 - 10	20 - 7	23 - 10	7 - 10	11 - 6	14 - 7	17 - 10	20 - 8
	Douglas Fir-Larch #3	6 - 11	10 - 2	12 - 10	15 - 8	18 - 3	6 - 0	8 - 9	11 - 2	13 - 7	15 - 9
	Hem-Fir SS	9 - 3	14 - 7	19 - 2	24 - 6	*	9 - 3	14 - 4	18 - 2	22 - 3	25 - 9
	Hem-Fir #1	9 - 1	13 - 10	17 - 6	21 - 5	24 - 10	8 - 2	12 - 0	15 - 2	18 - 6	21 - 6
	Hem-Fir #2	8 - 8	12 - 11	16 - 4	20 - 0	23 - 2	7 - 8	11 - 2	14 - 2	17 - 4	20 - 1
	Hem-Fir #3	6 - 9	9 - 11	12 - 7	15 - 4	17 - 9	5 - 10	8 - 7	10 - 10	13 - 3	15 - 5
	Southern Pine SS	9 - 8	15 - 2	19 - 11	25 - 5	*	9 - 8	15 - 2	19 - 7	23 - 4	*
	Southern Pine #1	9 - 3	14 - 3	18 - 1	21 - 2	25 - 2	8 - 4	12 - 4	15 - 8	18 - 4	21 - 9
	Southern Pine #2	8 - 2	12 - 3	15 - 7	18 - 6	21 - 9	7 - 1	10 - 8	13 - 6	16 - 0	18 - 10
	Southern Pine #3	6 - 4	9 - 4	11 - 9	14 - 3	16 - 10	5 - 6	8 - 1	10 - 2	12 - 4	14 - 7
	Spruce-Pine Fir SS	9 - 1	14 - 3	18 - 9	24 - 0	*	9 - 1	13 - 7	17 - 2	21 - 0	24 - 4
	Spruce-Pine Fir #1	8 - 10	13 - 1	16 - 7	20 - 3	23 - 6	7 - 9	11 - 4	14 - 4	17 - 7	20 - 4
	Spruce-Pine Fir #2	8 - 10	13 - 1	16 - 7	20 - 3	23 - 6	7 - 9	11 - 4	14 - 4	17 - 7	20 - 4
	Spruce-Pine Fir #3	6 - 9	9 - 11	12 - 7	15 - 4	17 - 9	5 - 10	8 - 7	10 - 10	13 - 3	15 - 5
24 in.	Douglas Fir-Larch SS	9 - 1	14 - 4	18 - 10	23 - 9	*	9 - 1	13 - 3	16 - 10	20 - 7	23 - 10
	Douglas Fir-Larch #1	8 - 7	12 - 6	15 - 10	19 - 5	22 - 6	7 - 5	10 - 10	13 - 9	16 - 9	19 - 6
	Douglas Fir-Larch #2	8 - 2	11 - 11	15 - 1	18 - 5	21 - 4	7 - 0	10 - 4	13 - 0	15 - 11	18 - 6
	Douglas Fir-Larch #3	6 - 2	9 - 1	11 - 6	14 - 1	16 - 3	5 - 4	7 - 10	10 - 0	12 - 2	14 - 1
	Hem-Fir SS	8 - 7	13 - 6	17 - 10	22 - 9	*	8 - 7	12 - 10	16 - 3	19 - 10	23 - 0
	Hem-Fir #1	8 - 5	12 - 4	15 - 8	19 - 2	22 - 2	7 - 4	10 - 9	13 - 7	16 - 7	19 - 3
	Hem-Fir #2	7 - 11	11 - 7	14 - 8	17 - 10	20 - 9	6 - 10	10 - 0	12 - 8	15 - 6	17 - 11
	Hem-Fir #3	6 - 1	8 - 10	11 - 3	13 - 8	15 - 11	5 - 3	7 - 8	9 - 9	11 - 10	13 - 9
	Southern Pine SS	8 - 11	14 - 1	18 - 6	23 - 8	*	8 - 11	13 - 10	17 - 6	20 - 10	24 - 8
	Southern Pine #1	8 - 7	12 - 9	16 - 2	18 - 11	22 - 6	7 - 5	11 - 1	14 - 0	16 - 5	19 - 6
	Southern Pine #2	7 - 4	11 - 0	13 - 11	16 - 6	19 - 6	6 - 4	9 - 6	12 - 1	14 - 4	16 - 10
	Southern Pine #3	5 - 8	8 - 4	10 - 6	12 - 9	15 - 1	4 - 11	7 - 3	9 - 1	11 - 0	13 - 1
	Spruce-Pine Fir SS	8 - 5	13 - 3	17 - 5	21 - 8	25 - 2	8 - 4	12 - 2	15 - 4	18 - 9	21 - 9
	Spruce-Pine Fir #1	8 - 0	11 - 9	14 - 10	18 - 2	21 - 0	6 - 11	10 - 2	12 - 10	15 - 8	18 - 3
	Spruce-Pine Fir #2	8 - 0	11 - 9	14 - 10	18 - 2	21 - 0	6 - 11	10 - 2	12 - 10	15 - 8	18 - 3
	Spruce-Pine Fir #3	6 - 1	8 - 10	11 - 3	13 - 8	15 - 11	5 - 3	7 - 8	9 - 9	11 - 10	13 - 9

* Spans are limited to 26 feet in length. Check sources for availability of lumber in lengths greater than 20 feet.

See footnotes 1-3.

Table 3.26B Rafter Spans for Common Lumber Species

(Ceiling Attached to Rafters, Live Load = 20 psf, L/Δ = 240)

			Dead Load = 10 psf					Dead Load = 20 psf				
			2x4	2x6	2x8	2x10	2x12	2x4	2x6	2x8	2x10	2x12
			Maximum Rafter Spans ^{1,2,3}									
Joist Spacing	Species and Grade		(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)
12 in.	Douglas Fir-Larch	SS	10 - 5	16 - 4	21 - 7	*	*	10 - 5	16 - 4	21 - 7	*	*
	Douglas Fir-Larch	#1	10 - 0	15 - 9	20 - 10	*	*	10 - 0	15 - 4	19 - 5	23 - 9	*
	Douglas Fir-Larch	#2	9 - 10	15 - 6	20 - 5	*	*	9 - 10	14 - 7	18 - 5	22 - 6	*
	Douglas Fir-Larch	#3	8 - 9	12 - 10	16 - 3	19 - 10	23 - 0	7 - 7	11 - 1	14 - 1	17 - 2	19 - 11
	Hem-Fir	SS	9 - 10	15 - 6	20 - 5	*	*	9 - 10	15 - 6	20 - 5	*	*
	Hem-Fir	#1	9 - 8	15 - 2	19 - 11	25 - 5	*	9 - 8	15 - 2	19 - 2	23 - 5	*
	Hem-Fir	#2	9 - 2	14 - 5	19 - 0	24 - 3	*	9 - 2	14 - 2	17 - 11	21 - 11	25 - 5
	Hem-Fir	#3	8 - 7	12 - 6	15 - 10	19 - 5	22 - 6	7 - 5	10 - 10	13 - 9	16 - 9	19 - 6
	Southern Pine	SS	10 - 3	16 - 1	21 - 2	*	*	10 - 3	16 - 1	21 - 2	*	*
	Southern Pine	#1	9 - 10	15 - 6	20 - 5	*	*	9 - 10	15 - 6	19 - 10	23 - 2	*
	Southern Pine	#2	9 - 5	14 - 9	19 - 6	23 - 5	*	9 - 0	13 - 6	17 - 1	20 - 3	23 - 10
	Southern Pine	#3	8 - 0	11 - 9	14 - 10	18 - 0	21 - 4	6 - 11	10 - 2	12 - 10	15 - 7	18 - 6
	Spruce-Pine Fir	SS	9 - 8	15 - 2	19 - 11	25 - 5	*	9 - 8	15 - 2	19 - 11	25 - 5	*
	Spruce-Pine Fir	#1	9 - 5	14 - 9	19 - 6	24 - 10	*	9 - 5	14 - 4	18 - 2	22 - 3	25 - 9
	Spruce-Pine Fir	#2	9 - 5	14 - 9	19 - 6	24 - 10	*	9 - 5	14 - 4	18 - 2	22 - 3	25 - 9
	Spruce-Pine Fir	#3	8 - 7	12 - 6	15 - 10	19 - 5	22 - 6	7 - 5	10 - 10	13 - 9	16 - 9	19 - 6
16 in.	Douglas Fir-Larch	SS	9 - 6	14 - 11	19 - 7	25 - 0	*	9 - 6	14 - 11	19 - 7	25 - 0	*
	Douglas Fir-Larch	#1	9 - 1	14 - 4	18 - 11	23 - 9	*	9 - 1	13 - 3	16 - 10	20 - 7	23 - 10
	Douglas Fir-Larch	#2	8 - 11	14 - 1	18 - 5	22 - 6	*	8 - 7	12 - 7	16 - 0	19 - 6	22 - 7
	Douglas Fir-Larch	#3	7 - 7	11 - 1	14 - 1	17 - 2	19 - 11	6 - 7	9 - 8	12 - 2	14 - 11	17 - 3
	Hem-Fir	SS	8 - 11	14 - 1	18 - 6	23 - 8	*	8 - 11	14 - 1	18 - 6	23 - 8	*
	Hem-Fir	#1	8 - 9	13 - 9	18 - 2	23 - 1	*	8 - 9	13 - 1	16 - 7	20 - 4	23 - 7
	Hem-Fir	#2	8 - 4	13 - 1	17 - 3	21 - 11	25 - 5	8 - 4	12 - 3	15 - 6	19 - 0	22 - 0
	Hem-Fir	#3	7 - 5	10 - 10	13 - 9	16 - 9	19 - 6	6 - 5	9 - 5	11 - 11	14 - 6	16 - 10
	Southern Pine	SS	9 - 4	14 - 7	19 - 3	24 - 7	*	9 - 4	14 - 7	19 - 3	24 - 7	*
	Southern Pine	#1	8 - 11	14 - 1	18 - 6	23 - 2	*	8 - 11	13 - 7	17 - 2	20 - 1	23 - 10
	Southern Pine	#2	8 - 7	13 - 5	17 - 1	20 - 3	23 - 10	7 - 9	11 - 8	14 - 9	17 - 6	20 - 8
	Southern Pine	#3	6 - 11	10 - 2	12 - 10	15 - 7	18 - 6	6 - 0	8 - 10	11 - 2	13 - 6	16 - 0
	Spruce-Pine Fir	SS	8 - 9	13 - 9	18 - 2	23 - 1	*	8 - 9	13 - 9	18 - 2	23 - 0	*
	Spruce-Pine Fir	#1	8 - 7	13 - 5	17 - 9	22 - 3	25 - 9	8 - 6	12 - 5	15 - 9	19 - 3	22 - 4
	Spruce-Pine Fir	#2	8 - 7	13 - 5	17 - 9	22 - 3	25 - 9	8 - 6	12 - 5	15 - 9	19 - 3	22 - 4
	Spruce-Pine Fir	#3	7 - 5	10 - 10	13 - 9	16 - 9	19 - 6	6 - 5	9 - 5	11 - 11	14 - 6	16 - 10
19.2 in.	Douglas Fir-Larch	SS	8 - 11	14 - 0	18 - 5	23 - 7	*	8 - 11	14 - 0	18 - 5	23 - 0	*
	Douglas Fir-Larch	#1	8 - 7	13 - 6	17 - 9	21 - 8	25 - 2	8 - 4	12 - 2	15 - 4	18 - 9	21 - 9
	Douglas Fir-Larch	#2	8 - 5	13 - 3	16 - 10	20 - 7	23 - 10	7 - 10	11 - 6	14 - 7	17 - 10	20 - 8
	Douglas Fir-Larch	#3	6 - 11	10 - 2	12 - 10	15 - 8	18 - 3	6 - 0	8 - 9	11 - 2	13 - 7	15 - 9
	Hem-Fir	SS	8 - 5	13 - 3	17 - 5	22 - 3	*	8 - 5	13 - 3	17 - 5	22 - 3	25 - 9
	Hem-Fir	#1	8 - 3	12 - 11	17 - 1	21 - 5	24 - 10	8 - 2	12 - 0	15 - 2	18 - 6	21 - 6
	Hem-Fir	#2	7 - 10	12 - 4	16 - 3	20 - 0	23 - 2	7 - 8	11 - 2	14 - 2	17 - 4	20 - 1
	Hem-Fir	#3	6 - 9	9 - 11	12 - 7	15 - 4	17 - 9	5 - 10	8 - 7	10 - 10	13 - 3	15 - 5
	Southern Pine	SS	8 - 9	13 - 9	18 - 2	23 - 1	*	8 - 9	13 - 9	18 - 2	23 - 1	*
	Southern Pine	#1	8 - 5	13 - 3	17 - 5	21 - 2	25 - 2	8 - 4	12 - 4	15 - 8	18 - 4	21 - 9
	Southern Pine	#2	8 - 1	12 - 3	15 - 7	18 - 6	21 - 9	7 - 1	10 - 8	13 - 6	16 - 0	18 - 10
	Southern Pine	#3	6 - 4	9 - 4	11 - 9	14 - 3	16 - 10	5 - 6	8 - 1	10 - 2	12 - 4	14 - 7
	Spruce-Pine Fir	SS	8 - 3	12 - 11	17 - 1	21 - 9	*	8 - 3	12 - 11	17 - 1	21 - 0	24 - 4
	Spruce-Pine Fir	#1	8 - 1	12 - 8	16 - 7	20 - 3	23 - 6	7 - 9	11 - 4	14 - 4	17 - 7	20 - 4
	Spruce-Pine Fir	#2	8 - 1	12 - 8	16 - 7	20 - 3	23 - 6	7 - 9	11 - 4	14 - 4	17 - 7	20 - 4
	Spruce-Pine Fir	#3	6 - 9	9 - 11	12 - 7	15 - 4	17 - 9	5 - 10	8 - 7	10 - 10	13 - 3	15 - 5
24 in.	Douglas Fir-Larch	SS	8 - 3	13 - 0	17 - 2	21 - 10	*	8 - 3	13 - 0	16 - 10	20 - 7	23 - 10
	Douglas Fir-Larch	#1	8 - 0	12 - 6	15 - 10	19 - 5	22 - 6	7 - 5	10 - 10	13 - 9	16 - 9	19 - 6
	Douglas Fir-Larch	#2	7 - 10	11 - 11	15 - 1	18 - 5	21 - 4	7 - 0	10 - 4	13 - 0	15 - 11	18 - 6
	Douglas Fir-Larch	#3	6 - 2	9 - 1	11 - 6	14 - 1	16 - 3	5 - 4	7 - 10	10 - 0	12 - 2	14 - 1
	Hem-Fir	SS	7 - 10	12 - 3	16 - 2	20 - 8	25 - 1	7 - 10	12 - 3	16 - 2	19 - 10	23 - 0
	Hem-Fir	#1	7 - 8	12 - 0	15 - 8	19 - 2	22 - 2	7 - 4	10 - 9	13 - 7	16 - 7	19 - 3
	Hem-Fir	#2	7 - 3	11 - 5	14 - 8	17 - 10	20 - 9	6 - 10	10 - 0	12 - 8	15 - 6	17 - 11
	Hem-Fir	#3	6 - 1	8 - 10	11 - 3	13 - 8	15 - 11	5 - 3	7 - 8	9 - 9	11 - 10	13 - 9
	Southern Pine	SS	8 - 1	12 - 9	16 - 10	21 - 6	*	8 - 1	12 - 9	16 - 10	20 - 10	24 - 8
	Southern Pine	#1	7 - 10	12 - 3	16 - 2	18 - 11	22 - 6	7 - 5	11 - 1	14 - 0	16 - 5	19 - 6
	Southern Pine	#2	7 - 4	11 - 0	13 - 11	16 - 6	19 - 6	6 - 4	9 - 6	12 - 1	14 - 4	16 - 10
	Southern Pine	#3	5 - 8	8 - 4	10 - 6	12 - 9	15 - 1	4 - 11	7 - 3	9 - 1	11 - 0	13 - 1
	Spruce-Pine Fir	SS	7 - 8	12 - 0	15 - 10	20 - 2	24 - 7	7 - 8	12 - 0	15 - 4	18 - 9	21 - 9
	Spruce-Pine Fir	#1	7 - 6	11 - 9	14 - 10	18 - 2	21 - 0	6 - 11	10 - 2	12 - 10	15 - 8	18 - 3
	Spruce-Pine Fir	#2	7 - 6	11 - 9	14 - 10	18 - 2	21 - 0	6 - 11	10 - 2	12 - 10	15 - 8	18 - 3
	Spruce-Pine Fir	#3	6 - 1	8 - 10	11 - 3	13 - 8	15 - 11	5 - 3	7 - 8	9 - 9	11 - 10	13 - 9

* Spans are limited to 26 feet in length. Check sources for availability of lumber in lengths greater than 20 feet. See footnotes 1-3.

PRESCRIPTIVE DESIGN

Table 3.26C Rafter Spans for Common Lumber Species

(Ceiling Not Attached to Rafters, Ground Snow Load = 30 psf, L/Δ = 180)

		Dead Load = 10 psf					Dead Load = 20 psf				
		2x4	2x6	2x8	2x10	2x12	2x4	2x6	2x8	2x10	2x12
		Maximum Rafter Spans ^{1,2}									
Joist Spacing	Species and Grade	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)
12 in.	Douglas Fir-Larch SS	9-7	15-0	19-9	†	†	9-7	15-0	19-6	†	†
	Douglas Fir-Larch #1	9-2	13-11	17-8	†	†	8-7	12-7	15-11	19-6	†
	Douglas Fir-Larch #2	9-0	13-3	16-9	†	†	8-2	11-11	15-2	18-6	†
	Douglas Fir-Larch #3	6-11	10-1	12-9	15-7	18-1	6-3	9-2	11-7	14-1	16-4
	Hem-Fir SS	9-0	14-2	18-8	†	†	9-0	14-2	18-8	†	†
	Hem-Fir #1	8-10	13-9	17-5	†	†	8-6	12-5	15-9	19-3	†
	Hem-Fir #2	8-5	12-10	16-3	19-10	†	7-11	11-7	14-8	18-0	†
	Hem-Fir #3	6-9	9-10	12-6	15-3	17-8	6-1	8-11	11-3	13-9	16-0
	Southern Pine SS	9-5	14-9	19-5	†	†	9-5	14-9	19-5	†	†
	Southern Pine #1	9-0	14-2	18-0	†	†	8-7	12-10	16-3	19-0	†
	Southern Pine #2	8-2	12-3	15-6	18-5	†	7-4	11-1	14-0	16-7	19-7
	Southern Pine #3	6-3	9-3	11-8	14-2	16-9	5-8	8-5	10-7	12-10	15-2
	Spruce-Pine Fir SS	8-10	13-10	18-3	†	†	8-10	13-10	17-10	†	†
	Spruce-Pine Fir #1	8-7	13-0	16-6	†	†	8-1	11-9	14-11	18-3	†
	Spruce-Pine Fir #2	8-7	13-0	16-6	†	†	8-1	11-9	14-11	18-3	†
Spruce-Pine Fir #3	6-9	9-10	12-6	15-3	17-8	6-1	8-11	11-3	13-9	16-0	
16 in.	Douglas Fir-Larch SS	8-8	13-8	18-0	†	†	8-8	13-4	16-11	†	†
	Douglas Fir-Larch #1	8-3	12-1	15-3	18-8	†	7-5	10-11	13-10	16-10	19-7
	Douglas Fir-Larch #2	7-10	11-5	14-6	17-9	†	7-1	10-4	13-1	16-0	18-7
	Douglas Fir-Larch #3	6-0	8-9	11-1	13-6	15-8	5-5	7-11	10-0	12-3	14-2
	Hem-Fir SS	8-2	12-10	17-0	†	†	8-2	12-10	16-4	20-0	†
	Hem-Fir #1	8-0	11-11	15-1	18-5	†	7-4	10-9	13-8	16-8	19-4
	Hem-Fir #2	7-7	11-1	14-1	17-3	20-0	6-10	10-1	12-9	15-7	18-0
	Hem-Fir #3	5-10	8-6	10-10	13-2	15-4	5-3	7-9	9-9	11-11	13-10
	Southern Pine SS	8-6	13-5	17-8	†	†	8-6	13-5	17-7	†	†
	Southern Pine #1	8-2	12-4	15-7	18-3	†	7-5	11-1	14-1	16-6	19-7
	Southern Pine #2	7-1	10-7	13-5	15-11	18-9	6-5	9-7	12-2	14-5	16-11
	Southern Pine #3	5-5	8-0	10-1	12-3	14-6	4-11	7-3	9-2	11-1	13-2
	Spruce-Pine Fir SS	8-0	12-7	16-7	†	†	8-0	12-2	15-5	18-10	†
	Spruce-Pine Fir #1	7-9	11-3	14-4	17-6	†	7-0	10-2	12-11	15-9	18-4
	Spruce-Pine Fir #2	7-9	11-3	14-4	17-6	†	7-0	10-2	12-11	15-9	18-4
Spruce-Pine Fir #3	5-10	8-6	10-10	13-2	15-4	5-3	7-9	9-9	11-11	13-10	
19.2 in.	Douglas Fir-Larch SS	8-2	12-10	16-11	†	†	8-2	12-2	15-5	18-10	†
	Douglas Fir-Larch #1	7-6	11-0	14-0	17-0	19-9	6-10	10-0	12-7	15-5	17-10
	Douglas Fir-Larch #2	7-2	10-5	13-3	16-2	18-9	6-5	9-5	12-0	14-7	16-11
	Douglas Fir-Larch #3	5-5	8-0	10-1	12-4	14-4	4-11	7-3	9-2	11-2	12-11
	Hem-Fir SS	7-9	12-1	16-0	†	†	7-9	11-9	14-11	18-3	†
	Hem-Fir #1	7-5	10-11	13-9	16-10	19-6	6-9	9-10	12-5	15-3	17-8
	Hem-Fir #2	6-11	10-2	12-10	15-9	18-3	6-3	9-2	11-8	14-2	16-6
	Hem-Fir #3	5-4	7-9	9-10	12-1	14-0	4-10	7-0	8-11	10-11	12-8
	Southern Pine SS	8-0	12-7	16-7	†	†	8-0	12-7	16-1	19-2	†
	Southern Pine #1	7-6	11-3	14-3	16-8	19-9	6-10	10-2	12-10	15-1	17-10
	Southern Pine #2	6-5	9-8	12-3	14-6	17-1	5-10	8-9	11-1	13-2	15-6
	Southern Pine #3	5-0	7-4	9-3	11-2	13-3	4-6	6-7	8-4	10-1	12-0
	Spruce-Pine Fir SS	7-7	11-10	15-7	19-1	†	7-7	11-2	14-1	17-3	20-0
	Spruce-Pine Fir #1	7-1	10-4	13-1	15-11	18-6	6-4	9-4	11-10	14-5	16-8
	Spruce-Pine Fir #2	7-1	10-4	13-1	15-11	18-6	6-4	9-4	11-10	14-5	16-8
Spruce-Pine Fir #3	5-4	7-9	9-10	12-1	14-0	4-10	7-0	8-11	10-11	12-8	
24 in.	Douglas Fir-Larch SS	7-7	11-11	15-3	18-8	†	7-5	10-11	13-10	16-10	19-7
	Douglas Fir-Larch #1	6-9	9-10	12-6	15-3	17-8	6-1	8-11	11-3	13-9	16-0
	Douglas Fir-Larch #2	6-5	9-4	11-10	14-6	16-9	5-9	8-5	10-8	13-1	15-2
	Douglas Fir-Larch #3	4-11	7-2	9-0	11-1	12-10	4-5	6-5	8-2	10-0	11-7
	Hem-Fir SS	7-2	11-3	14-9	18-0	†	7-2	10-6	13-4	16-4	18-11
	Hem-Fir #1	6-8	9-9	12-4	15-1	17-5	6-0	8-10	11-2	13-7	15-9
	Hem-Fir #2	6-3	9-1	11-6	14-1	16-4	5-7	8-3	10-5	12-8	14-9
	Hem-Fir #3	4-9	7-0	8-10	10-9	12-6	4-4	6-4	8-0	9-9	11-4
	Southern Pine SS	7-5	11-8	15-5	18-11	†	7-5	11-4	14-5	17-2	†
	Southern Pine #1	6-9	10-0	12-9	14-11	17-8	6-1	9-1	11-6	13-6	16-0
	Southern Pine #2	5-9	8-8	11-0	13-0	15-4	5-3	7-10	9-11	11-9	13-10
	Southern Pine #3	4-5	6-7	8-3	10-0	11-10	4-0	5-11	7-6	9-1	10-9
	Spruce-Pine Fir SS	7-0	11-0	14-0	17-0	19-9	6-10	10-0	12-7	15-5	17-10
	Spruce-Pine Fir #1	6-4	9-3	11-8	14-3	16-6	5-8	8-4	10-7	12-11	14-11
	Spruce-Pine Fir #2	6-4	9-3	11-8	14-3	16-6	5-8	8-4	10-7	12-11	14-11
Spruce-Pine Fir #3	4-9	7-0	8-10	10-9	12-6	4-4	6-4	8-0	9-9	11-4	

† Spans are limited to 20 feet in length.
See footnotes 1-3.

Table 3.26D Rafter Spans for Common Lumber Species

(Ceiling Attached to Rafters, Ground Snow Load = 30 psf, L/Δ = 240)

Joist Spacing	Species and Grade	Dead Load = 10 psf					Dead Load = 20 psf				
		2x4	2x6	2x8	2x10	2x12	2x4	2x6	2x8	2x10	2x12
		Maximum Rafter Spans ^{1,2}									
		(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)
12 in.	Douglas Fir-Larch SS	8-8	13-8	18-0	†	†	8-8	13-8	18-0	†	†
	Douglas Fir-Larch #1	8-4	13-2	17-4	†	†	8-4	12-7	15-11	19-6	†
	Douglas Fir-Larch #2	8-2	12-10	16-9	†	†	8-2	11-11	15-2	18-6	†
	Douglas Fir-Larch #3	6-11	10-1	12-9	15-7	18-1	6-3	9-2	11-7	14-1	16-4
	Hem-Fir SS	8-2	12-10	17-0	†	†	8-2	12-10	17-0	†	†
	Hem-Fir #1	8-0	12-7	16-7	†	†	8-0	12-5	15-9	19-3	†
	Hem-Fir #2	7-8	12-0	15-10	19-10	†	7-8	11-7	14-8	18-0	†
	Hem-Fir #3	6-9	9-10	12-6	15-3	17-8	6-1	8-11	11-3	13-9	16-0
	Southern Pine SS	8-6	13-5	17-8	†	†	8-6	13-5	17-8	†	†
	Southern Pine #1	8-2	12-10	17-0	†	†	8-2	12-10	16-3	19-0	†
	Southern Pine #2	7-10	12-3	15-6	18-5	†	7-4	11-1	14-0	16-7	19-7
	Southern Pine #3	6-3	9-3	11-8	14-2	16-9	5-8	8-5	10-7	12-10	15-2
	Spruce-Pine Fir SS	8-0	12-7	16-7	†	†	8-0	12-7	16-7	†	†
	Spruce-Pine Fir #1	7-10	12-4	16-3	†	†	7-10	11-9	14-11	18-3	†
	Spruce-Pine Fir #2	7-10	12-4	16-3	†	†	7-10	11-9	14-11	18-3	†
	Spruce-Pine Fir #3	6-9	9-10	12-6	15-3	17-8	6-1	8-11	11-3	13-9	16-0
16 in.	Douglas Fir-Larch SS	7-11	12-5	16-4	†	†	7-11	12-5	16-4	†	†
	Douglas Fir-Larch #1	7-7	11-11	15-3	18-8	†	7-5	10-11	13-10	16-10	19-7
	Douglas Fir-Larch #2	7-5	11-5	14-6	17-9	†	7-1	10-4	13-1	16-0	18-7
	Douglas Fir-Larch #3	6-0	8-9	11-1	13-6	15-8	5-5	7-11	10-0	12-3	14-2
	Hem-Fir SS	7-5	11-8	15-5	19-8	†	7-5	11-8	15-5	19-8	†
	Hem-Fir #1	7-3	11-5	15-1	18-5	†	7-3	10-9	13-8	16-8	19-4
	Hem-Fir #2	6-11	10-11	14-1	17-3	20-0	6-10	10-1	12-9	15-7	18-0
	Hem-Fir #3	5-10	8-6	10-10	13-2	15-4	5-3	7-9	9-9	11-11	13-10
	Southern Pine SS	7-9	12-2	16-0	†	†	7-9	12-2	16-0	†	†
	Southern Pine #1	7-5	11-8	15-5	18-3	†	7-5	11-1	14-1	16-6	19-7
	Southern Pine #2	7-1	10-7	13-5	15-11	18-9	6-5	9-7	12-2	14-5	16-11
	Southern Pine #3	5-5	8-0	10-1	12-3	14-6	4-11	7-3	9-2	11-1	13-2
	Spruce-Pine Fir SS	7-3	11-5	15-1	19-3	†	7-3	11-5	15-1	18-10	†
	Spruce-Pine Fir #1	7-1	11-2	14-4	17-6	†	7-0	10-2	12-11	15-9	18-4
	Spruce-Pine Fir #2	7-1	11-2	14-4	17-6	†	7-0	10-2	12-11	15-9	18-4
	Spruce-Pine Fir #3	5-10	8-6	10-10	13-2	15-4	5-3	7-9	9-9	11-11	13-10
19.2 in.	Douglas Fir-Larch SS	7-5	11-8	15-4	19-7	†	7-5	11-8	15-4	18-10	†
	Douglas Fir-Larch #1	7-2	11-0	14-0	17-0	19-9	6-10	10-0	12-7	15-5	17-10
	Douglas Fir-Larch #2	7-0	10-5	13-3	16-2	18-9	6-5	9-5	12-0	14-7	16-11
	Douglas Fir-Larch #3	5-5	8-0	10-1	12-4	14-4	4-11	7-3	9-2	11-2	12-11
	Hem-Fir SS	7-0	11-0	14-6	18-6	†	7-0	11-0	14-6	18-3	†
	Hem-Fir #1	6-10	10-9	13-9	16-10	19-6	6-9	9-10	12-5	15-3	17-8
	Hem-Fir #2	6-6	10-2	12-10	15-9	18-3	6-3	9-2	11-8	14-2	16-6
	Hem-Fir #3	5-4	7-9	9-10	12-1	14-0	4-10	7-0	8-11	10-11	12-8
	Southern Pine SS	7-3	11-5	15-1	19-3	†	7-3	11-5	15-1	19-2	†
	Southern Pine #1	7-0	11-0	14-3	16-8	19-9	6-10	10-2	12-10	15-1	17-10
	Southern Pine #2	6-5	9-8	12-3	14-6	17-1	5-10	8-9	11-1	13-2	15-6
	Southern Pine #3	5-0	7-4	9-3	11-2	13-3	4-6	6-7	8-4	10-1	12-0
	Spruce-Pine Fir SS	6-10	10-9	14-2	18-1	†	6-10	10-9	14-1	17-3	20-0
	Spruce-Pine Fir #1	6-8	10-4	13-1	15-11	18-6	6-4	9-4	11-10	14-5	16-8
	Spruce-Pine Fir #2	6-8	10-4	13-1	15-11	18-6	6-4	9-4	11-10	14-5	16-8
	Spruce-Pine Fir #3	5-4	7-9	9-10	12-1	14-0	4-10	7-0	8-11	10-11	12-8
24 in.	Douglas Fir-Larch SS	6-11	10-10	14-3	18-2	†	6-11	10-10	13-10	16-10	19-7
	Douglas Fir-Larch #1	6-8	9-10	12-6	15-3	17-8	6-1	8-11	11-3	13-9	16-0
	Douglas Fir-Larch #2	6-5	9-4	11-10	14-6	16-9	5-9	8-5	10-8	13-1	15-2
	Douglas Fir-Larch #3	4-11	7-2	9-0	11-1	12-10	4-5	6-5	8-2	10-0	11-7
	Hem-Fir SS	6-6	10-3	13-6	17-2	†	6-6	10-3	13-4	16-4	18-11
	Hem-Fir #1	6-4	9-9	12-4	15-1	17-5	6-0	8-10	11-2	13-7	15-9
	Hem-Fir #2	6-1	9-1	11-6	14-1	16-4	5-7	8-3	10-5	12-8	14-9
	Hem-Fir #3	4-9	7-0	8-10	10-9	12-6	4-4	6-4	8-0	9-9	11-4
	Southern Pine SS	6-9	10-8	14-0	17-10	†	6-9	10-8	14-0	17-2	†
	Southern Pine #1	6-6	10-0	12-9	14-11	17-8	6-1	9-1	11-6	13-6	16-0
	Southern Pine #2	5-9	8-8	11-0	13-0	15-4	5-3	7-10	9-11	11-9	13-10
	Southern Pine #3	4-5	6-7	8-3	10-0	11-10	4-0	5-11	7-6	9-1	10-9
	Spruce-Pine Fir SS	6-4	10-0	13-2	16-10	19-9	6-4	10-0	12-7	15-5	17-10
	Spruce-Pine Fir #1	6-3	9-3	11-8	14-3	16-6	5-8	8-4	10-7	12-11	14-11
	Spruce-Pine Fir #2	6-3	9-3	11-8	14-3	16-6	5-8	8-4	10-7	12-11	14-11
	Spruce-Pine Fir #3	4-9	7-0	8-10	10-9	12-6	4-4	6-4	8-0	9-9	11-4

† Spans are limited to 20 feet in length.
See footnotes 1-3.

PRESCRIPTIVE DESIGN

Table 3.26E Rafter Spans for Common Lumber Species

(Ceiling Not Attached to Rafters, Ground Snow Load = 50 psf, L/Δ = 180)

Joist Spacing	Species and Grade	Dead Load = 10 psf					Dead Load = 20 psf					
		2x4	2x6	2x8	2x10	2x12	2x4	2x6	2x8	2x10	2x12	
		Maximum Rafter Spans ^{1,2}										
		(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	
12 in.	Douglas Fir-Larch SS	8-1	12-8	16-8	†	†	8-1	12-8	16-5	†	†	
	Douglas Fir-Larch #1	7-9	11-4	14-4	17-6	†	7-3	10-7	13-4	16-4	18-11	
	Douglas Fir-Larch #2	7-4	10-9	13-7	16-7	19-3	6-10	10-0	12-8	15-6	18-0	
	Douglas Fir-Larch #3	5-7	8-2	10-5	12-8	14-8	5-3	7-8	9-8	11-10	13-9	
	Hem-Fir SS	7-7	12-0	15-9	†	†	7-7	12-0	15-9	19-4	†	
	Hem-Fir #1	7-5	11-2	14-2	17-3	†	7-2	10-5	13-2	16-2	18-8	
	Hem-Fir #2	7-1	10-5	13-2	16-2	18-8	6-8	9-9	12-4	15-1	17-6	
	Hem-Fir #3	5-6	8-0	10-2	12-4	14-4	5-1	7-6	9-5	11-7	13-5	
	Southern Pine SS	7-11	12-5	16-5	†	†	7-11	12-5	16-5	†	†	
	Southern Pine #1	7-7	11-6	14-7	17-1	†	7-3	10-9	13-8	16-0	18-11	
	Southern Pine #2	6-7	9-11	12-7	14-11	17-7	6-2	9-3	11-9	13-11	16-5	
	Southern Pine #3	5-1	7-6	9-6	11-6	13-7	4-9	7-0	8-10	10-9	12-8	
	Spruce-Pine Fir SS	7-5	11-8	15-5	19-7	†	7-5	11-8	15-0	18-3	†	
	Spruce-Pine Fir #1	7-3	10-7	13-5	16-4	19-0	6-9	9-11	12-6	15-3	17-9	
	Spruce-Pine Fir #2	7-3	10-7	13-5	16-4	19-0	6-9	9-11	12-6	15-3	17-9	
	Spruce-Pine Fir #3	5-6	8-0	10-2	12-4	14-4	5-1	7-6	9-5	11-7	13-5	
	16 in.	Douglas Fir-Larch SS	7-4	11-6	15-2	18-7	†	7-4	11-2	14-2	17-4	†
		Douglas Fir-Larch #1	6-8	9-10	12-5	15-2	17-7	6-3	9-2	11-7	14-2	16-5
Douglas Fir-Larch #2		6-4	9-4	11-9	14-5	16-8	5-11	8-8	11-0	13-5	15-7	
Douglas Fir-Larch #3		4-10	7-1	9-0	11-0	12-9	4-6	6-8	8-5	10-3	11-11	
Hem-Fir SS		6-11	10-10	14-4	17-11	†	6-11	10-10	13-8	16-9	19-5	
Hem-Fir #1		6-7	9-8	12-3	15-0	17-4	6-2	9-0	11-5	14-0	16-2	
Hem-Fir #2		6-2	9-0	11-5	14-0	16-2	5-9	8-5	10-8	13-1	15-1	
Hem-Fir #3		4-9	6-11	8-9	10-9	12-5	4-5	6-6	8-2	10-0	11-7	
Southern Pine SS		7-2	11-4	14-11	18-10	†	7-2	11-4	14-9	17-7	†	
Southern Pine #1		6-8	10-0	12-8	14-10	17-7	6-3	9-4	11-10	13-10	16-5	
Southern Pine #2		5-9	8-7	10-11	12-11	15-3	5-4	8-0	10-2	12-1	14-2	
Southern Pine #3		4-5	6-6	8-2	10-0	11-9	4-1	6-1	7-8	9-4	11-0	
Spruce-Pine Fir SS		6-9	10-8	13-10	16-11	19-8	6-9	10-3	12-11	15-10	18-4	
Spruce-Pine Fir #1		6-3	9-2	11-7	14-2	16-5	5-10	8-7	10-10	13-3	15-4	
Spruce-Pine Fir #2		6-3	9-2	11-7	14-2	16-5	5-10	8-7	10-10	13-3	15-4	
Spruce-Pine Fir #3		4-9	6-11	8-9	10-9	12-5	4-5	6-6	8-2	10-0	11-7	
19.2 in.		Douglas Fir-Larch SS	6-11	10-10	13-10	16-11	19-8	6-11	10-3	12-11	15-10	18-4
		Douglas Fir-Larch #1	6-1	8-11	11-4	13-10	16-1	5-8	8-4	10-7	12-11	15-0
	Douglas Fir-Larch #2	5-10	8-6	10-9	13-1	15-3	5-5	7-11	10-0	12-3	14-2	
	Douglas Fir-Larch #3	4-5	6-6	8-2	10-0	11-7	4-2	6-1	7-8	9-4	10-10	
	Hem-Fir SS	6-6	10-3	13-5	16-4	19-0	6-6	9-11	12-6	15-3	17-9	
	Hem-Fir #1	6-0	8-10	11-2	13-8	15-10	5-8	8-3	10-5	12-9	14-9	
	Hem-Fir #2	5-8	8-3	10-5	12-9	14-9	5-3	7-8	9-9	11-11	13-10	
	Hem-Fir #3	4-4	6-4	8-0	9-9	11-4	4-0	5-11	7-6	9-2	10-7	
	Southern Pine SS	6-9	10-8	14-0	17-2	†	6-9	10-7	13-6	16-1	18-11	
	Southern Pine #1	6-1	9-1	11-7	13-6	16-1	5-8	8-6	10-9	12-7	15-0	
	Southern Pine #2	5-3	7-10	9-11	11-10	13-11	4-11	7-4	9-3	11-0	13-0	
	Southern Pine #3	4-0	5-11	7-6	9-1	10-9	3-9	5-7	7-0	8-6	10-1	
	Spruce-Pine Fir SS	6-4	10-0	12-8	15-6	17-11	6-4	9-4	11-10	14-5	16-9	
	Spruce-Pine Fir #1	5-9	8-4	10-7	12-11	15-0	5-4	7-10	9-11	12-1	14-0	
	Spruce-Pine Fir #2	5-9	8-4	10-7	12-11	15-0	5-4	7-10	9-11	12-1	14-0	
	Spruce-Pine Fir #3	4-4	6-4	8-0	9-9	11-4	4-0	5-11	7-6	9-2	10-7	
	24 in.	Douglas Fir-Larch SS	6-5	9-10	12-5	15-2	17-7	6-3	9-2	11-7	14-2	16-5
		Douglas Fir-Larch #1	5-6	8-0	10-2	12-4	14-4	5-1	7-6	9-5	11-7	13-5
Douglas Fir-Larch #2		5-2	7-7	9-7	11-9	13-7	4-10	7-1	9-0	11-0	12-8	
Douglas Fir-Larch #3		4-0	5-10	7-4	9-0	10-5	3-8	5-5	6-10	8-4	9-8	
Hem-Fir SS		6-0	9-6	12-0	14-8	17-0	6-0	8-10	11-2	13-8	15-10	
Hem-Fir #1		5-5	7-11	10-0	12-3	14-2	5-0	7-4	9-4	11-5	13-3	
Hem-Fir #2		5-0	7-4	9-4	11-5	13-3	4-8	6-11	8-9	10-8	12-4	
Hem-Fir #3		3-10	5-8	7-2	8-9	10-2	3-7	5-3	6-8	8-2	9-6	
Southern Pine SS		6-3	9-10	12-11	15-5	18-2	6-3	9-6	12-1	14-4	16-11	
Southern Pine #1		5-6	8-2	10-4	12-1	14-4	5-1	7-7	9-8	11-3	13-5	
Southern Pine #2		4-8	7-0	8-11	10-7	12-5	4-4	6-7	8-4	9-10	11-7	
Southern Pine #3		3-7	5-4	6-8	8-2	9-8	3-4	5-0	6-3	7-7	9-0	
Spruce-Pine Fir SS		5-11	8-11	11-4	13-10	16-1	5-8	8-4	10-7	12-11	15-0	
Spruce-Pine Fir #1		5-1	7-6	9-6	11-7	13-5	4-9	7-0	8-10	10-10	12-6	
Spruce-Pine Fir #2		5-1	7-6	9-6	11-7	13-5	4-9	7-0	8-10	10-10	12-6	
Spruce-Pine Fir #3		3-10	5-8	7-2	8-9	10-2	3-7	5-3	6-8	8-2	9-6	

† Spans are limited to 20 feet in length.

See footnotes 1-3.

Table 3.26F Rafter Spans for Common Lumber Species

(Ceiling Attached to Rafters, Ground Snow Load = 50 psf, L/Δ = 240)

Joist Spacing	Species and Grade	Dead Load = 10 psf					Dead Load = 20 psf				
		2x4	2x6	2x8	2x10	2x12	2x4	2x6	2x8	2x10	2x12
		Maximum Rafter Spans ^{1,2}									
		(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)
12 in.	Douglas Fir-Larch SS	7-4	11-6	15-2	19-4	†	7-4	11-6	15-2	19-4	†
	Douglas Fir-Larch #1	7-1	11-1	14-4	17-6	†	7-1	10-7	13-4	16-4	18-11
	Douglas Fir-Larch #2	6-11	10-9	13-7	16-7	19-3	6-10	10-0	12-8	15-6	18-0
	Douglas Fir-Larch #3	5-7	8-2	10-5	12-8	14-8	5-3	7-8	9-8	11-10	13-9
	Hem-Fir SS	6-11	10-10	14-4	18-3	†	6-11	10-10	14-4	18-3	†
	Hem-Fir #1	6-9	10-8	14-0	17-3	†	6-9	10-5	13-2	16-2	18-8
	Hem-Fir #2	6-5	10-2	13-2	16-2	18-8	6-5	9-9	12-4	15-1	17-6
	Hem-Fir #3	5-6	8-0	10-2	12-4	14-4	5-1	7-6	9-5	11-7	13-5
	Southern Pine SS	7-2	11-4	14-11	19-0	†	7-2	11-4	14-11	19-0	†
	Southern Pine #1	6-11	10-10	14-4	17-1	†	6-11	10-9	13-8	16-0	18-11
	Southern Pine #2	6-7	9-11	12-7	14-11	17-7	6-2	9-3	11-9	13-11	16-5
	Southern Pine #3	5-1	7-6	9-6	11-6	13-7	4-9	7-0	8-10	10-9	12-8
	Spruce-Pine Fir SS	6-9	10-8	14-0	17-10	†	6-9	10-8	14-0	17-10	†
	Spruce-Pine Fir #1	6-7	10-5	13-5	16-4	19-0	6-7	9-11	12-6	15-3	17-9
	Spruce-Pine Fir #2	6-7	10-5	13-5	16-4	19-0	6-7	9-11	12-6	15-3	17-9
Spruce-Pine Fir #3	5-6	8-0	10-2	12-4	14-4	5-1	7-6	9-5	11-7	13-5	
16 in.	Douglas Fir-Larch SS	6-8	10-5	13-9	17-7	†	6-8	10-5	13-9	17-4	†
	Douglas Fir-Larch #1	6-5	9-10	12-5	15-2	17-7	6-3	9-2	11-7	14-2	16-5
	Douglas Fir-Larch #2	6-3	9-4	11-9	14-5	16-8	5-11	8-8	11-0	13-5	15-7
	Douglas Fir-Larch #3	4-10	7-1	9-0	11-0	12-9	4-6	6-8	8-5	10-3	11-11
	Hem-Fir SS	6-3	9-10	13-0	16-7	†	6-3	9-10	13-0	16-7	19-5
	Hem-Fir #1	6-2	9-8	12-3	15-0	17-4	6-2	9-0	11-5	14-0	16-2
	Hem-Fir #2	5-10	9-0	11-5	14-0	16-2	5-9	8-5	10-8	13-1	15-1
	Hem-Fir #3	4-9	6-11	8-9	10-9	12-5	4-5	6-6	8-2	10-0	11-7
	Southern Pine SS	6-6	10-3	13-6	17-3	†	6-6	10-3	13-6	17-3	†
	Southern Pine #1	6-3	9-10	12-8	14-10	17-7	6-3	9-4	11-10	13-10	16-5
	Southern Pine #2	5-9	8-7	10-11	12-11	15-3	5-4	8-0	10-2	12-1	14-2
	Southern Pine #3	4-5	6-6	8-2	10-0	11-9	4-1	6-1	7-8	9-4	11-0
	Spruce-Pine Fir SS	6-2	9-8	12-9	16-3	19-8	6-2	9-8	12-9	15-10	18-4
	Spruce-Pine Fir #1	6-0	9-2	11-7	14-2	16-5	5-10	8-7	10-10	13-3	15-4
	Spruce-Pine Fir #2	6-0	9-2	11-7	14-2	16-5	5-10	8-7	10-10	13-3	15-4
Spruce-Pine Fir #3	4-9	6-11	8-9	10-9	12-5	4-5	6-6	8-2	10-0	11-7	
19.2 in.	Douglas Fir-Larch SS	6-3	9-10	13-0	16-6	19-8	6-3	9-10	12-11	15-10	18-4
	Douglas Fir-Larch #1	6-0	8-11	11-4	13-10	16-1	5-8	8-4	10-7	12-11	15-0
	Douglas Fir-Larch #2	5-10	8-6	10-9	13-1	15-3	5-5	7-11	10-0	12-3	14-2
	Douglas Fir-Larch #3	4-5	6-6	8-2	10-0	11-7	4-2	6-1	7-8	9-4	10-10
	Hem-Fir SS	5-11	9-3	12-3	15-7	19-0	5-11	9-3	12-3	15-3	17-9
	Hem-Fir #1	5-9	8-10	11-2	13-8	15-10	5-8	8-3	10-5	12-9	14-9
	Hem-Fir #2	5-6	8-3	10-5	12-9	14-9	5-3	7-8	9-9	11-11	13-10
	Hem-Fir #3	4-4	6-4	8-0	9-9	11-4	4-0	5-11	7-6	9-2	10-7
	Southern Pine SS	6-2	9-8	12-9	16-3	19-9	6-2	9-8	12-9	16-1	18-11
	Southern Pine #1	5-11	9-1	11-7	13-6	16-1	5-8	8-6	10-9	12-7	15-0
	Southern Pine #2	5-3	7-10	9-11	11-10	13-11	4-11	7-4	9-3	11-0	13-0
	Southern Pine #3	4-0	5-11	7-6	9-1	10-9	3-9	5-7	7-0	8-6	10-1
	Spruce-Pine Fir SS	5-9	9-1	12-0	15-3	17-11	5-9	9-1	11-10	14-5	16-9
	Spruce-Pine Fir #1	5-8	8-4	10-7	12-11	15-0	5-4	7-10	9-11	12-1	14-0
	Spruce-Pine Fir #2	5-8	8-4	10-7	12-11	15-0	5-4	7-10	9-11	12-1	14-0
Spruce-Pine Fir #3	4-4	6-4	8-0	9-9	11-4	4-0	5-11	7-6	9-2	10-7	
24 in.	Douglas Fir-Larch SS	5-10	9-2	12-0	15-2	17-7	5-10	9-2	11-7	14-2	16-5
	Douglas Fir-Larch #1	5-6	8-0	10-2	12-4	14-4	5-1	7-6	9-5	11-7	13-5
	Douglas Fir-Larch #2	5-2	7-7	9-7	11-9	13-7	4-10	7-1	9-0	11-0	12-8
	Douglas Fir-Larch #3	4-0	5-10	7-4	9-0	10-5	3-8	5-5	6-10	8-4	9-8
	Hem-Fir SS	5-6	8-7	11-4	14-6	17-0	5-6	8-7	11-2	13-8	15-10
	Hem-Fir #1	5-4	7-11	10-0	12-3	14-2	5-0	7-4	9-4	11-5	13-3
	Hem-Fir #2	5-0	7-4	9-4	11-5	13-3	4-8	6-11	8-9	10-8	12-4
	Hem-Fir #3	3-10	5-8	7-2	8-9	10-2	3-7	5-3	6-8	8-2	9-6
	Southern Pine SS	5-8	9-0	11-10	15-1	18-2	5-8	9-0	11-10	14-4	16-11
	Southern Pine #1	5-6	8-2	10-4	12-1	14-4	5-1	7-7	9-8	11-3	13-5
	Southern Pine #2	4-8	7-0	8-11	10-7	12-5	4-4	6-7	8-4	9-10	11-7
	Southern Pine #3	3-7	5-4	6-8	8-2	9-8	3-4	5-0	6-3	7-7	9-0
	Spruce-Pine Fir SS	5-4	8-5	11-1	13-10	16-1	5-4	8-4	10-7	12-11	15-0
	Spruce-Pine Fir #1	5-1	7-6	9-6	11-7	13-5	4-9	7-0	8-10	10-10	12-6
	Spruce-Pine Fir #2	5-1	7-6	9-6	11-7	13-5	4-9	7-0	8-10	10-10	12-6
Spruce-Pine Fir #3	3-10	5-8	7-2	8-9	10-2	3-7	5-3	6-8	8-2	9-6	

† Spans are limited to 20 feet in length.
See footnotes 1-3.

Table 3.26G Rafter Spans for Common Lumber Species(Ceiling Not Attached to Rafters, Ground Snow Load = 70 psf, $L/\Delta = 180$)

		Dead Load = 10 psf					Dead Load = 20 psf				
		2x4	2x6	2x8	2x10	2x12	2x4	2x6	2x8	2x10	2x12
		Maximum Rafter Spans ^{1,2}									
Joist Spacing	Species and Grade	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)
12 in.	Douglas Fir-Larch SS	7-2	11-4	14-11	18-6	†	7-2	11-4	14-5	17-7	†
	Douglas Fir-Larch #1	6-8	9-9	12-4	15-1	17-6	6-4	9-3	11-9	14-4	16-8
	Douglas Fir-Larch #2	6-4	9-3	11-9	14-4	16-7	6-0	8-10	11-2	13-7	15-9
	Douglas Fir-Larch #3	4-10	7-1	9-0	10-11	12-8	4-7	6-9	8-6	10-5	12-1
	Hem-Fir SS	6-10	10-8	14-1	17-11	†	6-10	10-8	13-11	17-0	19-8
	Hem-Fir #1	6-7	9-8	12-3	14-11	17-4	6-3	9-2	11-7	14-2	16-5
	Hem-Fir #2	6-2	9-0	11-5	13-11	16-2	5-10	8-7	10-10	13-3	15-4
	Hem-Fir #3	4-9	6-11	8-9	10-8	12-5	4-6	6-7	8-4	10-2	11-9
	Southern Pine SS	7-1	11-1	14-8	18-8	†	7-1	11-1	14-8	17-10	†
	Southern Pine #1	6-8	10-0	12-8	14-9	17-6	6-4	9-5	12-0	14-0	16-8
	Southern Pine #2	5-9	8-7	10-10	12-11	15-2	5-5	8-2	10-4	12-3	14-5
	Southern Pine #3	4-5	6-6	8-2	9-11	11-9	4-2	6-2	7-9	9-5	11-2
	Spruce-Pine Fir SS	6-8	10-5	13-9	16-11	19-7	6-8	10-4	13-2	16-0	18-7
	Spruce-Pine Fir #1	6-3	9-2	11-7	14-2	16-5	5-11	8-8	11-0	13-5	15-7
	Spruce-Pine Fir #2	6-3	9-2	11-7	14-2	16-5	5-11	8-8	11-0	13-5	15-7
	Spruce-Pine Fir #3	4-9	6-11	8-9	10-8	12-5	4-6	6-7	8-4	10-2	11-9
16 in.	Douglas Fir-Larch SS	6-6	10-3	13-1	16-0	18-7	6-6	9-10	12-5	15-3	17-8
	Douglas Fir-Larch #1	5-9	8-6	10-9	13-1	15-2	5-6	8-0	10-2	12-5	14-5
	Douglas Fir-Larch #2	5-6	8-0	10-2	12-5	14-5	5-2	7-7	9-8	11-9	13-8
	Douglas Fir-Larch #3	4-2	6-2	7-9	9-6	11-0	4-0	5-10	7-4	9-0	10-5
	Hem-Fir SS	6-2	9-8	12-8	15-6	18-0	6-2	9-6	12-0	14-8	17-1
	Hem-Fir #1	5-9	8-4	10-7	12-11	15-0	5-5	7-11	10-0	12-3	14-3
	Hem-Fir #2	5-4	7-10	9-11	12-1	14-0	5-1	7-5	9-4	11-5	13-3
	Hem-Fir #3	4-1	6-0	7-7	9-3	10-9	3-11	5-8	7-2	8-9	10-2
	Southern Pine SS	6-5	10-1	13-4	16-3	19-2	6-5	10-1	13-0	15-5	18-3
	Southern Pine #1	5-9	8-7	10-11	12-9	15-2	5-6	8-2	10-5	12-2	14-5
	Southern Pine #2	5-0	7-5	9-5	11-2	13-2	4-8	7-1	8-11	10-7	12-6
	Southern Pine #3	3-10	5-8	7-1	8-7	10-2	3-7	5-4	6-9	8-2	9-8
	Spruce-Pine Fir SS	6-1	9-5	12-0	14-8	17-0	6-1	9-0	11-4	13-11	16-1
	Spruce-Pine Fir #1	5-5	7-11	10-0	12-3	14-2	5-2	7-6	9-6	11-7	13-6
	Spruce-Pine Fir #2	5-5	7-11	10-0	12-3	14-2	5-2	7-6	9-6	11-7	13-6
	Spruce-Pine Fir #3	4-1	6-0	7-7	9-3	10-9	3-11	5-8	7-2	8-9	10-2
19.2 in.	Douglas Fir-Larch SS	6-2	9-5	12-0	14-8	17-0	6-2	9-0	11-4	13-11	16-1
	Douglas Fir-Larch #1	5-3	7-9	9-9	11-11	13-10	5-0	7-4	9-3	11-4	13-2
	Douglas Fir-Larch #2	5-0	7-4	9-3	11-4	13-2	4-9	7-0	8-10	10-9	12-6
	Douglas Fir-Larch #3	3-10	5-7	7-1	8-8	10-0	3-8	5-4	6-9	8-3	9-6
	Hem-Fir SS	5-10	9-2	11-7	14-2	16-5	5-10	8-8	11-0	13-5	15-7
	Hem-Fir #1	5-3	7-7	9-8	11-10	13-8	4-11	7-3	9-2	11-2	13-0
	Hem-Fir #2	4-10	7-1	9-0	11-0	12-9	4-7	6-9	8-7	10-5	12-1
	Hem-Fir #3	3-9	5-6	6-11	8-5	9-10	3-7	5-2	6-7	8-0	9-4
	Southern Pine SS	6-1	9-6	12-6	14-10	17-6	6-1	9-4	11-10	14-1	16-8
	Southern Pine #1	5-3	7-10	10-0	11-8	13-10	5-0	7-6	9-6	11-1	13-2
	Southern Pine #2	4-6	6-9	8-7	10-2	12-0	4-3	6-5	8-2	9-8	11-5
	Southern Pine #3	3-6	5-2	6-6	7-10	9-4	3-4	4-10	6-2	7-5	8-10
	Spruce-Pine Fir SS	5-8	8-8	10-11	13-4	15-6	5-7	8-2	10-5	12-8	14-8
	Spruce-Pine Fir #1	4-11	7-3	9-2	11-2	13-0	4-8	6-10	8-8	10-7	12-4
	Spruce-Pine Fir #2	4-11	7-3	9-2	11-2	13-0	4-8	6-10	8-8	10-7	12-4
	Spruce-Pine Fir #3	3-9	5-6	6-11	8-5	9-10	3-7	5-2	6-7	8-0	9-4
24 in.	Douglas Fir-Larch SS	5-9	8-6	10-9	13-1	15-2	5-6	8-0	10-2	12-5	14-5
	Douglas Fir-Larch #1	4-9	6-11	8-9	10-8	12-5	4-6	6-7	8-4	10-2	11-9
	Douglas Fir-Larch #2	4-6	6-7	8-4	10-2	11-9	4-3	6-3	7-11	9-7	11-2
	Douglas Fir-Larch #3	3-5	5-0	6-4	7-9	9-0	3-3	4-9	6-0	7-4	8-6
	Hem-Fir SS	5-5	8-2	10-4	12-8	14-8	5-4	7-9	9-10	12-0	13-11
	Hem-Fir #1	4-8	6-10	8-8	10-7	12-3	4-5	6-6	8-2	10-0	11-7
	Hem-Fir #2	4-4	6-4	8-1	9-10	11-5	4-2	6-1	7-8	9-4	10-10
	Hem-Fir #3	3-4	4-11	6-2	7-7	8-9	3-2	4-8	5-10	7-2	8-4
	Southern Pine SS	5-7	8-9	11-2	13-3	15-8	5-7	8-4	10-7	12-7	14-11
	Southern Pine #1	4-9	7-0	8-11	10-5	12-5	4-6	6-8	8-6	9-11	11-9
	Southern Pine #2	4-1	6-1	7-8	9-1	10-9	3-10	5-9	7-3	8-8	10-2
	Southern Pine #3	3-1	4-7	5-9	7-0	8-4	2-11	4-4	5-6	6-8	7-11
	Spruce-Pine Fir SS	5-3	7-9	9-9	11-11	13-10	5-0	7-4	9-3	11-4	13-2
	Spruce-Pine Fir #1	4-5	6-6	8-2	10-0	11-7	4-2	6-2	7-9	9-6	11-0
	Spruce-Pine Fir #2	4-5	6-6	8-2	10-0	11-7	4-2	6-2	7-9	9-6	11-0
	Spruce-Pine Fir #3	3-4	4-11	6-2	7-7	8-9	3-2	4-8	5-10	7-2	8-4

† Spans are limited to 20 feet in length.

See footnotes 1-3.

Table 3.26H Rafter Spans for Common Lumber Species

(Ceiling Attached to Rafters, Ground Snow Load = 70 psf, L/Δ = 240)

Joist Spacing	Species and Grade	Dead Load = 10 psf					Dead Load = 20 psf				
		2x4	2x6	2x8	2x10	2x12	2x4	2x6	2x8	2x10	2x12
		Maximum Rafter Spans ^{1,2}									
		(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)
12 in.	Douglas Fir-Larch SS	6-6	10-3	13-7	17-3	†	6-6	10-3	13-7	17-3	†
	Douglas Fir-Larch #1	6-4	9-9	12-4	15-1	17-6	6-4	9-3	11-9	14-4	16-8
	Douglas Fir-Larch #2	6-2	9-3	11-9	14-4	16-7	6-0	8-10	11-2	13-7	15-9
	Douglas Fir-Larch #3	4-10	7-1	9-0	10-11	12-8	4-7	6-9	8-6	10-5	12-1
	Hem-Fir SS	6-2	9-8	12-10	16-4	19-10	6-2	9-8	12-10	16-4	19-8
	Hem-Fir #1	6-1	9-6	12-3	14-11	17-4	6-1	9-2	11-7	14-2	16-5
	Hem-Fir #2	5-9	9-0	11-5	13-11	16-2	5-9	8-7	10-10	13-3	15-4
	Hem-Fir #3	4-9	6-11	8-9	10-8	12-5	4-6	6-7	8-4	10-2	11-9
	Southern Pine SS	6-5	10-1	13-4	17-0	†	6-5	10-1	13-4	17-0	†
	Southern Pine #1	6-2	9-8	12-8	14-9	17-6	6-2	9-5	12-0	14-0	16-8
	Southern Pine #2	5-9	8-7	10-10	12-11	15-2	5-5	8-2	10-4	12-3	14-5
	Southern Pine #3	4-5	6-6	8-2	9-11	11-9	4-2	6-2	7-9	9-5	11-2
	Spruce-Pine Fir SS	6-1	9-6	12-6	16-0	19-5	6-1	9-6	12-6	16-0	18-7
	Spruce-Pine Fir #1	5-11	9-2	11-7	14-2	16-5	5-11	8-8	11-0	13-5	15-7
	Spruce-Pine Fir #2	5-11	9-2	11-7	14-2	16-5	5-11	8-8	11-0	13-5	15-7
	Spruce-Pine Fir #3	4-9	6-11	8-9	10-8	12-5	4-6	6-7	8-4	10-2	11-9
16 in.	Douglas Fir-Larch SS	5-11	9-4	12-4	15-8	18-7	5-11	9-4	12-4	15-3	17-8
	Douglas Fir-Larch #1	5-9	8-6	10-9	13-1	15-2	5-6	8-0	10-2	12-5	14-5
	Douglas Fir-Larch #2	5-6	8-0	10-2	12-5	14-5	5-2	7-7	9-8	11-9	13-8
	Douglas Fir-Larch #3	4-2	6-2	7-9	9-6	11-0	4-0	5-10	7-4	9-0	10-5
	Hem-Fir SS	5-7	8-10	11-8	14-10	18-0	5-7	8-10	11-8	14-8	17-1
	Hem-Fir #1	5-6	8-4	10-7	12-11	15-0	5-5	7-11	10-0	12-3	14-3
	Hem-Fir #2	5-3	7-10	9-11	12-1	14-0	5-1	7-5	9-4	11-5	13-3
	Hem-Fir #3	4-1	6-0	7-7	9-3	10-9	3-11	5-8	7-2	8-9	10-2
	Southern Pine SS	5-10	9-2	12-1	15-5	18-9	5-10	9-2	12-1	15-5	18-3
	Southern Pine #1	5-7	8-7	10-11	12-9	15-2	5-6	8-2	10-5	12-2	14-5
	Southern Pine #2	5-0	7-5	9-5	11-2	13-2	4-8	7-1	8-11	10-7	12-6
	Southern Pine #3	3-10	5-8	7-1	8-7	10-2	3-7	5-4	6-9	8-2	9-8
	Spruce-Pine Fir SS	5-6	8-8	11-5	14-6	17-0	5-6	8-8	11-4	13-11	16-1
	Spruce-Pine Fir #1	5-4	7-11	10-0	12-3	14-2	5-2	7-6	9-6	11-7	13-6
	Spruce-Pine Fir #2	5-4	7-11	10-0	12-3	14-2	5-2	7-6	9-6	11-7	13-6
	Spruce-Pine Fir #3	4-1	6-0	7-7	9-3	10-9	3-11	5-8	7-2	8-9	10-2
19.2 in.	Douglas Fir-Larch SS	5-7	8-9	11-7	14-8	17-0	5-7	8-9	11-4	13-11	16-1
	Douglas Fir-Larch #1	5-3	7-9	9-9	11-11	13-10	5-0	7-4	9-3	11-4	13-2
	Douglas Fir-Larch #2	5-0	7-4	9-3	11-4	13-2	4-9	7-0	8-10	10-9	12-6
	Douglas Fir-Larch #3	3-10	5-7	7-1	8-8	10-0	3-8	5-4	6-9	8-3	9-6
	Hem-Fir SS	5-3	8-4	10-11	14-0	16-5	5-3	8-4	10-11	13-5	15-7
	Hem-Fir #1	5-2	7-7	9-8	11-10	13-8	4-11	7-3	9-2	11-2	13-0
	Hem-Fir #2	4-10	7-1	9-0	11-0	12-9	4-7	6-9	8-7	10-5	12-1
	Hem-Fir #3	3-9	5-6	6-11	8-5	9-10	3-7	5-2	6-7	8-0	9-4
	Southern Pine SS	5-6	8-8	11-5	14-6	17-6	5-6	8-8	11-5	14-1	16-8
	Southern Pine #1	5-3	7-10	10-0	11-8	13-10	5-0	7-6	9-6	11-1	13-2
	Southern Pine #2	4-6	6-9	8-7	10-2	12-0	4-3	6-5	8-2	9-8	11-5
	Southern Pine #3	3-6	5-2	6-6	7-10	9-4	3-4	4-10	6-2	7-5	8-10
	Spruce-Pine Fir SS	5-2	8-1	10-8	13-4	15-6	5-2	8-1	10-5	12-8	14-8
	Spruce-Pine Fir #1	4-11	7-3	9-2	11-2	13-0	4-8	6-10	8-8	10-7	12-4
	Spruce-Pine Fir #2	4-11	7-3	9-2	11-2	13-0	4-8	6-10	8-8	10-7	12-4
	Spruce-Pine Fir #3	3-9	5-6	6-11	8-5	9-10	3-7	5-2	6-7	8-0	9-4
24 in.	Douglas Fir-Larch SS	5-2	8-2	10-9	13-1	15-2	5-2	8-0	10-2	12-5	14-5
	Douglas Fir-Larch #1	4-9	6-11	8-9	10-8	12-5	4-6	6-7	8-4	10-2	11-9
	Douglas Fir-Larch #2	4-6	6-7	8-4	10-2	11-9	4-3	6-3	7-11	9-7	11-2
	Douglas Fir-Larch #3	3-5	5-0	6-4	7-9	9-0	3-3	4-9	6-0	7-4	8-6
	Hem-Fir SS	4-11	7-8	10-2	12-8	14-8	4-11	7-8	9-10	12-0	13-11
	Hem-Fir #1	4-8	6-10	8-8	10-7	12-3	4-5	6-6	8-2	10-0	11-7
	Hem-Fir #2	4-4	6-4	8-1	9-10	11-5	4-2	6-1	7-8	9-4	10-10
	Hem-Fir #3	3-4	4-11	6-2	7-7	8-9	3-2	4-8	5-10	7-2	8-4
	Southern Pine SS	5-1	8-0	10-7	13-3	15-8	5-1	8-0	10-7	12-7	14-11
	Southern Pine #1	4-9	7-0	8-11	10-5	12-5	4-6	6-8	8-6	9-11	11-9
	Southern Pine #2	4-1	6-1	7-8	9-1	10-9	3-10	5-9	7-3	8-8	10-2
	Southern Pine #3	3-1	4-7	5-9	7-0	8-4	2-11	4-4	5-6	6-8	7-11
	Spruce-Pine Fir SS	4-10	7-6	9-9	11-11	13-10	4-10	7-4	9-3	11-4	13-2
	Spruce-Pine Fir #1	4-5	6-6	8-2	10-0	11-7	4-2	6-2	7-9	9-6	11-0
	Spruce-Pine Fir #2	4-5	6-6	8-2	10-0	11-7	4-2	6-2	7-9	9-6	11-0
	Spruce-Pine Fir #3	3-4	4-11	6-2	7-7	8-9	3-2	4-8	5-10	7-2	8-4

† Spans are limited to 20 feet in length.
See footnotes 1-3.

3 PRESCRIPTIVE DESIGN



2012 ADDENDUM
to
ANSI/AF&PA WFCM-2001
WOOD FRAME CONSTRUCTION MANUAL FOR ONE- AND TWO-FAMILY DWELLINGS
(All printed and electronic versions prior to June 2012)

Effective June 1, 2012, the following tables in the 2001 Wood-Frame Construction Manual (WFCM) are revised to reflect changes to 2x4 Southern Pine No.2, No.3, Construction, Standard, and Utility grades.

In conjunction with this amendment to the 2001 WFCM, it is strongly advised that the 2012 NDS Supplement be used as the source for obtaining design values in general, and that the 2001 WFCM Supplement no longer be used in that regard.

2001 WFCM Table	Page Reference	Description	Action
Tables 3.20A and A-3.20A	180, 181, 244, and 245	Maximum exterior stud lengths for common lumber species resisting interior zone wind loads. <i>(Fully sheathed with a minimum sheathing material)</i>	<u>Replace</u> with revised Tables 3.20A1 and 3.20A4, respectively, as shown in the Attachment.
Tables 3.20B and A-3.20B	182, 183, 246, and 247	Maximum exterior stud lengths for common lumber species resisting interior zone wind loads. <i>(Fully sheathed with a minimum of 3/8" wood structural panels)</i>	<u>Replace</u> with revised Tables 3.20B1 and 3.20B4, respectively, as shown in the Attachment.
Tables 3.22A through 3.22E	186 to 190	Header spans for exterior walls resisting gravity loads.	Tabulated spans for "2-2x4", <u>shall not apply</u> to Southern Pine.
Table 3.23A	192	Header spans for exterior walls resisting (out-of-plane) wind loads.	Tabulated spans for "2-2x4", <u>shall not apply</u> to Southern Pine.
Table 3.23B	193	Header spans for exterior walls and window sill plate spans resisting (out-of-plane) wind loads.	Tabulated spans for "2-2x4", <u>shall not apply</u> to Southern Pine.
Tables 3.24A and B	195 and 196	Header spans for interior walls resisting gravity loads.	Tabulated spans for "2-2x4", <u>shall not apply</u> to Southern Pine.
Tables 3.25A and B	198 and 199	Ceiling joist spans for common lumber species.	<u>Replace</u> with revised Tables 3.25A and B as shown in the Attachment.
Tables 3.26A through H	200 to 207	Rafter spans for common lumber species.	<u>Replace</u> with revised Tables 3.26A through H as shown in the Attachment.

Table 3.20A Maximum Exterior Loadbearing and Non-Loadbearing Stud Lengths for Common Lumber Species Resisting Interior Zone Wind Loads - Exposure B

(Fully Sheathed with a Minimum Sheathing Material)^a

Three Second Gust Wind Speed (mph)			85			90			100			110		
Stud Spacing (in.)	Species	Grade	2x4	2x6	2x8	2x4	2x6	2x8	2x4	2x6	2x8	2x4	2x6	2x8
			Maximum Allowable Stud Length (ft.-in.) ¹											
12	Douglas Fir-Larch	SS	17 - 4	†	†	16 - 7	†	†	15 - 5	†	†	14 - 5	†	†
	Douglas Fir-Larch	#1	16 - 8	†	†	16 - 0	†	†	14 - 10	†	†	13 - 11	†	†
	Douglas Fir-Larch	#2	16 - 3	†	†	15 - 8	†	†	14 - 6	†	†	13 - 7	†	†
	Douglas Fir-Larch	#3/Stud	15 - 3	†	†	14 - 4	†	†	12 - 10	19 - 3	†	11 - 7	17 - 5	†
	Douglas Fir-Larch	Standard	12 - 11	-	-	12 - 1	-	-	10 - 10	-	-	9 - 9	-	-
	Hem-Fir	SS	16 - 3	†	†	15 - 8	†	†	14 - 6	†	†	13 - 7	†	†
	Hem-Fir	#1	15 - 11	†	†	15 - 4	†	†	14 - 3	†	†	13 - 4	†	†
	Hem-Fir	#2	15 - 2	†	†	14 - 7	†	†	13 - 6	†	†	12 - 8	†	†
	Hem-Fir	#3/Stud	14 - 9	†	†	14 - 0	†	†	12 - 6	18 - 9	†	11 - 3	17 - 0	†
	Hem-Fir	Standard	12 - 7	-	-	11 - 10	-	-	10 - 7	-	-	9 - 7	-	-
	Southern Pine	SS	17 - 0	†	†	16 - 4	†	†	15 - 2	†	†	14 - 2	†	†
	Southern Pine	#1	16 - 8	†	†	16 - 0	†	†	14 - 10	†	†	13 - 11	†	†
	Southern Pine	#2	15 - 7	†	†	14 - 11	†	†	13 - 11	†	†	13 - 0	†	†
	Southern Pine	#3	13 - 2	†	†	12 - 5	†	†	11 - 1	†	†	10 - 0	18 - 4	†
	Southern Pine	Stud	13 - 2	†	†	12 - 5	†	†	11 - 1	†	†	10 - 0	18 - 4	†
	Southern Pine	Standard	11 - 4	-	-	10 - 8	-	-	9 - 6	-	-	8 - 7	-	-
	Spruce-Pine-Fir	SS	15 - 11	†	†	15 - 4	†	†	14 - 3	†	†	13 - 4	†	†
	Spruce-Pine-Fir	#1	15 - 7	†	†	14 - 11	†	†	13 - 11	†	†	13 - 0	†	†
Spruce-Pine-Fir	#2	15 - 7	†	†	14 - 11	†	†	13 - 11	†	†	13 - 0	†	†	
Spruce-Pine-Fir	#3/Stud	14 - 9	†	†	14 - 0	†	†	12 - 6	18 - 9	†	11 - 3	17 - 0	†	
Spruce-Pine-Fir	Standard	12 - 7	-	-	11 - 10	-	-	10 - 7	-	-	9 - 7	-	-	
16	Douglas Fir-Larch	SS	15 - 8	†	†	15 - 0	†	†	14 - 0	†	†	13 - 1	†	†
	Douglas Fir-Larch	#1	15 - 1	†	†	14 - 5	†	†	13 - 5	†	†	12 - 7	†	†
	Douglas Fir-Larch	#2	14 - 9	†	†	14 - 2	†	†	13 - 2	†	†	12 - 4	19 - 9	†
	Douglas Fir-Larch	#3/Stud	13 - 1	19 - 8	†	12 - 4	18 - 6	†	11 - 0	16 - 6	†	9 - 11	14 - 11	19 - 3
	Douglas Fir-Larch	Standard	11 - 1	-	-	10 - 5	-	-	9 - 3	-	-	8 - 5	-	-
	Hem-Fir	SS	14 - 9	†	†	14 - 2	†	†	13 - 2	†	†	12 - 4	19 - 9	†
	Hem-Fir	#1	14 - 5	†	†	13 - 10	†	†	12 - 10	†	†	12 - 0	19 - 4	†
	Hem-Fir	#2	13 - 8	†	†	13 - 2	†	†	12 - 3	19 - 8	†	11 - 5	18 - 5	†
	Hem-Fir	#3/Stud	12 - 9	19 - 2	†	12 - 0	18 - 0	†	10 - 8	16 - 1	†	9 - 8	14 - 6	18 - 9
	Hem-Fir	Standard	10 - 9	-	-	10 - 2	-	-	9 - 1	-	-	8 - 2	-	-
	Southern Pine	SS	15 - 4	†	†	14 - 9	†	†	13 - 8	†	†	12 - 10	†	†
	Southern Pine	#1	15 - 1	†	†	14 - 5	†	†	13 - 5	†	†	12 - 7	†	†
	Southern Pine	#2	14 - 1	†	†	13 - 6	†	†	12 - 7	†	†	11 - 7	19 - 9	†
	Southern Pine	#3	11 - 4	†	†	10 - 8	19 - 6	†	9 - 6	17 - 5	†	8 - 7	15 - 8	†
	Southern Pine	Stud	11 - 4	†	†	10 - 8	19 - 6	†	9 - 6	17 - 5	†	8 - 7	15 - 8	†
	Southern Pine	Standard	9 - 8	-	-	9 - 1	-	-	8 - 2	-	-	-	-	-
	Spruce-Pine-Fir	SS	14 - 5	†	†	13 - 10	†	†	12 - 10	†	†	12 - 0	19 - 4	†
	Spruce-Pine-Fir	#1	14 - 1	†	†	13 - 6	†	†	12 - 7	†	†	11 - 9	18 - 10	†
Spruce-Pine-Fir	#2	14 - 1	†	†	13 - 6	†	†	12 - 7	†	†	11 - 9	18 - 10	†	
Spruce-Pine-Fir	#3/Stud	12 - 9	19 - 2	†	12 - 0	18 - 0	†	10 - 8	16 - 1	†	9 - 8	14 - 6	18 - 9	
Spruce-Pine-Fir	Standard	10 - 9	-	-	10 - 2	-	-	9 - 1	-	-	8 - 2	-	-	
24	Douglas Fir-Larch	SS	13 - 7	†	†	13 - 1	†	†	12 - 1	19 - 6	†	11 - 4	18 - 3	†
	Douglas Fir-Larch	#1	13 - 1	†	†	12 - 7	†	†	11 - 8	18 - 9	†	10 - 11	17 - 0	†
	Douglas Fir-Larch	#2	12 - 9	†	†	12 - 3	19 - 9	†	11 - 5	17 - 9	†	10 - 8	16 - 0	†
	Douglas Fir-Larch	#3/Stud	10 - 6	15 - 10	†	9 - 11	14 - 11	19 - 2	8 - 10	13 - 3	17 - 1	8 - 0	12 - 0	15 - 5
	Douglas Fir-Larch	Standard	8 - 11	-	-	8 - 4	-	-	-	-	-	-	-	-
	Hem-Fir	SS	12 - 9	†	†	12 - 3	19 - 9	†	11 - 5	18 - 4	†	10 - 8	17 - 2	†
	Hem-Fir	#1	12 - 6	†	†	12 - 0	19 - 3	†	11 - 2	17 - 11	†	10 - 5	16 - 9	†
	Hem-Fir	#2	11 - 11	19 - 1	†	11 - 5	18 - 4	†	10 - 7	17 - 1	†	9 - 11	15 - 6	†
	Hem-Fir	#3/Stud	10 - 3	15 - 5	19 - 10	9 - 8	14 - 6	18 - 8	8 - 7	12 - 11	16 - 8	7 - 9	11 - 8	15 - 1
	Hem-Fir	Standard	8 - 8	-	-	8 - 2	-	-	-	-	-	-	-	-
	Southern Pine	SS	13 - 4	†	†	12 - 10	†	†	11 - 11	19 - 1	†	11 - 2	17 - 10	†
	Southern Pine	#1	13 - 1	†	†	12 - 7	†	†	11 - 8	18 - 9	†	10 - 11	17 - 6	†
	Southern Pine	#2	12 - 2	†	†	11 - 7	19 - 9	†	10 - 4	18 - 4	†	9 - 4	16 - 7	†
	Southern Pine	#3	9 - 1	16 - 8	†	8 - 7	15 - 8	†	-	14 - 0	18 - 1	-	12 - 7	16 - 4
	Southern Pine	Stud	9 - 1	16 - 8	†	8 - 7	15 - 8	†	-	14 - 0	18 - 1	-	12 - 7	16 - 4
	Southern Pine	Standard	7 - 10	-	-	-	-	-	-	-	-	-	-	-
	Spruce-Pine-Fir	SS	12 - 6	†	†	12 - 0	19 - 3	†	11 - 2	17 - 11	†	10 - 5	16 - 9	†
	Spruce-Pine-Fir	#1	12 - 2	19 - 7	†	11 - 9	18 - 10	†	10 - 11	17 - 6	†	10 - 2	15 - 9	†
Spruce-Pine-Fir	#2	12 - 2	19 - 7	†	11 - 9	18 - 10	†	10 - 11	17 - 6	†	10 - 2	15 - 9	†	
Spruce-Pine-Fir	#3/Stud	10 - 3	15 - 5	19 - 10	9 - 8	14 - 6	18 - 8	8 - 7	12 - 11	16 - 8	7 - 9	11 - 8	15 - 1	
Spruce-Pine-Fir	Standard	8 - 8	-	-	8 - 2	-	-	-	-	-	-	-	-	

† Allowable stud length exceeds 20 feet.

- Lumber grade not available or allowable stud length is less than 7 ft. - 9 in. (for 8 ft. wall height).

^a Maximum stud lengths in Table 3.20A are based on interior zone loads and assume that all studs are sheathed with minimum sheathing material. Studs within 4 feet of corners shall be sheathed on the exterior with a minimum of 3/8 inch wood structural panels and on the interior with minimum sheathing material, or stud spacings shall be multiplied by 0.85 for framing located within 4 feet of corners to account for the additional end zone loading requirements. The additional bending capacity provided by the wood structural panels or reduced stud spacing is assumed to be sufficient to resist the additional end zone loading requirements.

See Footnote 1.

Table 3.20A Maximum Exterior Loadbearing and Non-Loadbearing Stud Lengths for Common Lumber Species Resisting Interior Zone Wind Loads - Exposure B (Cont.)

(Fully Sheathed with a Minimum Sheathing Material)^a

Stud Spacing (in.)	Species	Grade	120			130			140			150		
			2x4	2x6	2x8	2x4	2x6	2x8	2x4	2x6	2x8	2x4	2x6	2x8
			Maximum Allowable Stud Length (ft.-in.) ¹											
12	Douglas Fir-Larch	SS	13 - 7	†	†	12 - 10	†	†	12 - 2	19 - 7	†	11 - 8	18 - 8	†
	Douglas Fir-Larch	#1	13 - 1	†	†	12 - 4	19 - 10	†	11 - 9	18 - 10	†	11 - 2	17 - 8	†
	Douglas Fir-Larch	#2	12 - 10	†	†	12 - 1	19 - 5	†	11 - 6	17 - 11	†	11 - 0	16 - 8	†
	Douglas Fir-Larch	#3/Stud	10 - 7	15 - 10	†	9 - 8	14 - 7	18 - 9	8 - 11	13 - 5	17 - 4	8 - 4	12 - 6	16 - 1
	Douglas Fir-Larch	Standard	8 - 11	-	-	8 - 2	-	-	-	-	-	-	-	-
	Hem-Fir	SS	12 - 10	†	†	12 - 1	19 - 5	†	11 - 6	18 - 6	†	11 - 0	17 - 7	†
	Hem-Fir	#1	12 - 6	†	†	11 - 10	19 - 0	†	11 - 3	18 - 1	†	10 - 9	17 - 2	†
	Hem-Fir	#2	11 - 11	19 - 1	†	11 - 3	18 - 1	†	10 - 8	17 - 2	†	10 - 2	16 - 2	†
	Hem-Fir	#3/Stud	10 - 3	15 - 5	19 - 11	9 - 5	14 - 2	18 - 3	8 - 9	13 - 1	16 - 10	8 - 1	12 - 2	15 - 8
	Hem-Fir	Standard	8 - 8	-	-	8 - 0	-	-	-	-	-	-	-	-
	Southern Pine	SS	13 - 4	†	†	12 - 7	†	†	12 - 0	19 - 3	†	11 - 5	18 - 4	†
	Southern Pine	#1	13 - 1	†	†	12 - 4	19 - 10	†	11 - 9	18 - 10	†	11 - 2	18 - 0	†
	Southern Pine	#2	12 - 3	†	†	11 - 3	19 - 5	†	10 - 5	18 - 6	†	9 - 8	17 - 3	†
	Southern Pine	#3	9 - 1	16 - 8	†	8 - 4	15 - 4	19 - 10	-	14 - 2	18 - 4	-	13 - 1	17 - 0
	Southern Pine	Stud	9 - 1	16 - 8	†	8 - 4	15 - 4	19 - 10	-	14 - 2	18 - 4	-	13 - 1	17 - 0
	Southern Pine	Standard	7 - 10	-	-	-	-	-	-	-	-	-	-	-
	Spruce-Pine-Fir	SS	12 - 6	†	†	11 - 10	19 - 0	†	11 - 3	18 - 1	†	10 - 9	17 - 2	†
	Spruce-Pine-Fir	#1	12 - 3	19 - 7	†	11 - 7	18 - 7	†	11 - 0	17 - 7	†	10 - 6	16 - 5	†
	Spruce-Pine-Fir	#2	12 - 3	19 - 7	†	11 - 7	18 - 7	†	11 - 0	17 - 7	†	10 - 6	16 - 5	†
	Spruce-Pine-Fir	#3/Stud	10 - 3	15 - 5	19 - 11	9 - 5	14 - 2	18 - 3	8 - 9	13 - 1	16 - 10	8 - 1	12 - 2	15 - 8
Spruce-Pine-Fir	Standard	8 - 8	-	-	8 - 0	-	-	-	-	-	-	-	-	
16	Douglas Fir-Larch	SS	12 - 4	19 - 9	†	11 - 8	18 - 8	†	11 - 1	17 - 9	†	10 - 6	16 - 11	†
	Douglas Fir-Larch	#1	11 - 10	19 - 0	†	11 - 2	17 - 7	†	10 - 7	16 - 3	†	10 - 1	15 - 1	19 - 6
	Douglas Fir-Larch	#2	11 - 7	18 - 2	†	11 - 0	16 - 8	†	10 - 3	15 - 4	19 - 10	9 - 6	14 - 3	18 - 5
	Douglas Fir-Larch	#3/Stud	9 - 0	13 - 7	17 - 6	8 - 4	12 - 6	16 - 1	-	11 - 6	14 - 10	-	10 - 8	13 - 9
	Douglas Fir-Larch	Standard	-	-	-	-	-	-	-	-	-	-	-	-
	Hem-Fir	SS	11 - 7	18 - 7	†	11 - 0	17 - 7	†	10 - 5	16 - 8	†	9 - 11	15 - 11	†
	Hem-Fir	#1	11 - 4	18 - 2	†	10 - 9	17 - 2	†	10 - 2	16 - 1	†	9 - 8	14 - 11	19 - 2
	Hem-Fir	#2	10 - 9	17 - 4	†	10 - 2	16 - 2	†	9 - 8	14 - 11	19 - 3	9 - 3	13 - 10	17 - 10
	Hem-Fir	#3/Stud	8 - 10	13 - 3	17 - 1	8 - 1	12 - 2	15 - 8	-	11 - 3	14 - 5	-	10 - 5	13 - 5
	Hem-Fir	Standard	-	-	-	-	-	-	-	-	-	-	-	-
	Southern Pine	SS	12 - 1	19 - 5	†	11 - 5	18 - 4	†	10 - 10	17 - 5	†	10 - 4	16 - 7	†
	Southern Pine	#1	11 - 10	19 - 0	†	11 - 2	18 - 0	†	10 - 7	17 - 1	†	10 - 1	16 - 3	†
	Southern Pine	#2	10 - 7	18 - 7	†	9 - 8	17 - 3	†	8 - 11	15 - 11	†	8 - 4	14 - 9	19 - 6
	Southern Pine	#3	7 - 10	14 - 3	18 - 6	-	13 - 1	17 - 0	-	12 - 1	15 - 8	-	11 - 3	14 - 7
	Southern Pine	Stud	7 - 10	14 - 3	18 - 6	-	13 - 1	17 - 0	-	12 - 1	15 - 8	-	11 - 3	14 - 7
	Southern Pine	Standard	-	-	-	-	-	-	-	-	-	-	-	-
	Spruce-Pine-Fir	SS	11 - 4	18 - 2	†	10 - 9	17 - 2	†	10 - 2	16 - 4	†	9 - 8	15 - 7	†
	Spruce-Pine-Fir	#1	11 - 1	17 - 9	†	10 - 5	16 - 5	†	9 - 11	15 - 2	19 - 6	9 - 4	14 - 1	18 - 1
	Spruce-Pine-Fir	#2	11 - 1	17 - 9	†	10 - 5	16 - 5	†	9 - 11	15 - 2	19 - 6	9 - 4	14 - 1	18 - 1
	Spruce-Pine-Fir	#3/Stud	8 - 10	13 - 3	17 - 1	8 - 1	12 - 2	15 - 8	-	11 - 3	14 - 5	-	10 - 5	13 - 5
Spruce-Pine-Fir	Standard	-	-	-	-	-	-	-	-	-	-	-	-	
24	Douglas Fir-Larch	SS	10 - 8	17 - 2	†	10 - 1	16 - 2	†	9 - 7	15 - 5	†	9 - 2	14 - 8	19 - 6
	Douglas Fir-Larch	#1	10 - 3	15 - 5	19 - 11	9 - 5	14 - 2	18 - 3	8 - 9	13 - 1	16 - 10	8 - 1	12 - 2	15 - 8
	Douglas Fir-Larch	#2	9 - 9	14 - 7	18 - 10	8 - 11	13 - 5	17 - 3	8 - 3	12 - 4	15 - 11	-	11 - 6	14 - 10
	Douglas Fir-Larch	#3/Stud	-	10 - 11	14 - 1	-	10 - 0	12 - 11	-	9 - 3	11 - 11	-	8 - 7	11 - 1
	Douglas Fir-Larch	Standard	-	-	-	-	-	-	-	-	-	-	-	-
	Hem-Fir	SS	10 - 1	16 - 2	†	9 - 6	15 - 3	†	9 - 0	14 - 6	19 - 4	8 - 7	13 - 10	18 - 5
	Hem-Fir	#1	9 - 10	15 - 3	19 - 8	9 - 4	14 - 0	18 - 0	8 - 7	12 - 11	16 - 8	8 - 0	12 - 0	15 - 5
	Hem-Fir	#2	9 - 4	14 - 2	18 - 3	8 - 8	13 - 0	16 - 9	8 - 0	12 - 0	15 - 5	-	11 - 2	14 - 4
	Hem-Fir	#3/Stud	-	10 - 8	13 - 9	-	9 - 9	12 - 7	-	9 - 0	11 - 8	-	8 - 5	10 - 10
	Hem-Fir	Standard	-	-	-	-	-	-	-	-	-	-	-	-
	Southern Pine	SS	10 - 6	16 - 10	†	9 - 11	15 - 11	†	9 - 5	15 - 1	†	9 - 0	14 - 5	19 - 3
	Southern Pine	#1	10 - 3	16 - 6	†	9 - 9	15 - 7	†	9 - 3	14 - 10	19 - 0	8 - 9	13 - 10	17 - 8
	Southern Pine	#2	8 - 6	15 - 1	19 - 11	7 - 10	13 - 10	18 - 3	-	12 - 10	16 - 10	-	11 - 11	15 - 8
	Southern Pine	#3	-	11 - 6	14 - 11	-	10 - 7	13 - 8	-	9 - 9	12 - 8	-	9 - 1	11 - 9
	Southern Pine	Stud	-	11 - 6	14 - 11	-	10 - 7	13 - 8	-	9 - 9	12 - 8	-	9 - 1	11 - 9
	Southern Pine	Standard	-	-	-	-	-	-	-	-	-	-	-	-
	Spruce-Pine-Fir	SS	9 - 10	15 - 9	†	9 - 4	14 - 11	19 - 11	8 - 10	14 - 2	18 - 11	8 - 5	13 - 6	17 - 8
	Spruce-Pine-Fir	#1	9 - 7	14 - 4	18 - 6	8 - 9	13 - 2	17 - 0	8 - 1	12 - 2	15 - 8	-	11 - 4	14 - 7
	Spruce-Pine-Fir	#2	9 - 7	14 - 4	18 - 6	8 - 9	13 - 2	17 - 0	8 - 1	12 - 2	15 - 8	-	11 - 4	14 - 7
	Spruce-Pine-Fir	#3/Stud	-	10 - 8	13 - 9	-	9 - 9	12 - 7	-	9 - 0	11 - 8	-	8 - 5	10 - 10
Spruce-Pine-Fir	Standard	-	-	-	-	-	-	-	-	-	-	-	-	

† Allowable stud length exceeds 20 feet.
 - Lumber grade not available or allowable stud length is less than 7 ft. - 9 in. (for 8 ft. wall height).
^a Maximum stud lengths in Table 3.20A are based on interior zone loads and assume that all studs are sheathed with minimum sheathing material. Studs within 4 feet of corners shall be sheathed on the exterior with a minimum of 3/8 inch wood structural panels and on the interior with minimum sheathing material, or stud spacings shall be multiplied by 0.85 for framing located within 4 feet of corners to account for the additional end zone loading requirements. The additional bending capacity provided by the wood structural panels or reduced stud spacing is assumed to be sufficient to resist the additional end zone loading requirements.

See Footnote 1.

PRESCRIPTIVE DESIGN

Table A-3.20A Maximum Exterior Loadbearing and Non-Loadbearing Stud Lengths for Common Lumber Species Resisting Interior Zone Wind Loads - Exposure C

(Fully Sheathed with a Minimum Sheathing Material)^a

Three Second Gust Wind Speed (mph)			85			90			100			110		
Stud Spacing (in.)	Species	Grade	2x4	2x6	2x8	2x4	2x6	2x8	2x4	2x6	2x8	2x4	2x6	2x8
			Maximum Allowable Stud Length (ft.-in.)											
12	Douglas Fir-Larch	SS	15 - 5	†	†	14 - 10	†	†	13 - 9	†	†	12 - 11	†	†
	Douglas Fir-Larch	#1	14 - 10	†	†	14 - 3	†	†	13 - 3	†	†	12 - 5	19 - 11	†
	Douglas Fir-Larch	#2	14 - 6	†	†	14 - 0	†	†	13 - 0	†	†	12 - 2	19 - 6	†
	Douglas Fir-Larch	#3/Stud	12 - 10	19 - 3	†	12 - 0	18 - 1	†	10 - 9	16 - 2	†	9 - 8	14 - 7	18 - 10
	Douglas Fir-Larch	Standard	10 - 10	-	-	10 - 2	-	-	9 - 1	-	-	8 - 2	-	-
	Hem-Fir	SS	14 - 6	†	†	14 - 0	†	†	13 - 0	†	†	12 - 2	19 - 6	†
	Hem-Fir	#1	14 - 2	†	†	13 - 8	†	†	12 - 8	†	†	11 - 10	19 - 1	†
	Hem-Fir	#2	13 - 6	†	†	13 - 0	†	†	12 - 1	19 - 4	†	11 - 3	18 - 1	†
	Hem-Fir	#3/Stud	12 - 6	18 - 9	†	11 - 9	17 - 8	†	10 - 6	15 - 9	†	9 - 5	14 - 3	18 - 4
	Hem-Fir	Standard	10 - 7	-	-	9 - 11	-	-	8 - 10	-	-	8 - 0	-	-
	Southern Pine	SS	15 - 2	†	†	14 - 6	†	†	13 - 6	†	†	12 - 8	†	†
	Southern Pine	#1	14 - 10	†	†	14 - 3	†	†	13 - 3	†	†	12 - 5	19 - 11	†
	Southern Pine	#2	13 - 10	†	†	13 - 4	†	†	12 - 4	†	†	11 - 4	19 - 6	†
	Southern Pine	#3	11 - 1	†	†	10 - 5	19 - 0	†	9 - 4	17 - 0	†	8 - 5	15 - 4	19 - 11
	Southern Pine	Stud	11 - 1	†	†	10 - 5	19 - 0	†	9 - 4	17 - 0	†	8 - 5	15 - 4	19 - 11
	Southern Pine	Standard	9 - 6	-	-	8 - 11	-	-	8 - 0	-	-	-	-	-
	Spruce-Pine-Fir	SS	14 - 2	†	†	13 - 8	†	†	12 - 8	†	†	11 - 10	19 - 1	†
	Spruce-Pine-Fir	#1	13 - 10	†	†	13 - 4	†	†	12 - 5	19 - 10	†	11 - 7	18 - 7	†
	Spruce-Pine-Fir	#2	13 - 10	†	†	13 - 4	†	†	12 - 5	19 - 10	†	11 - 7	18 - 7	†
	Spruce-Pine-Fir	#3/Stud	12 - 6	18 - 9	†	11 - 9	17 - 8	†	10 - 6	15 - 9	†	9 - 5	14 - 3	18 - 4
Spruce-Pine-Fir	Standard	10 - 7	-	-	9 - 11	-	-	8 - 10	-	-	8 - 0	-	-	
16	Douglas Fir-Larch	SS	13 - 11	†	†	13 - 5	†	†	12 - 5	20 - 0	†	11 - 8	18 - 8	†
	Douglas Fir-Larch	#1	13 - 5	†	†	12 - 11	†	†	12 - 0	19 - 3	†	11 - 2	17 - 8	†
	Douglas Fir-Larch	#2	13 - 2	†	†	12 - 7	†	†	11 - 9	18 - 6	†	11 - 0	16 - 8	†
	Douglas Fir-Larch	#3/Stud	11 - 0	16 - 6	†	10 - 4	15 - 6	20 - 0	9 - 3	13 - 10	17 - 10	8 - 4	12 - 6	16 - 1
	Douglas Fir-Larch	Standard	9 - 3	-	-	8 - 9	-	-	7 - 10	-	-	-	-	-
	Hem-Fir	SS	13 - 2	†	†	12 - 7	†	†	11 - 9	18 - 10	†	11 - 0	17 - 7	†
	Hem-Fir	#1	12 - 10	†	†	12 - 4	19 - 10	†	11 - 6	18 - 5	†	10 - 9	17 - 3	†
	Hem-Fir	#2	12 - 3	19 - 7	†	11 - 9	18 - 10	†	10 - 11	17 - 6	†	10 - 2	16 - 2	†
	Hem-Fir	#3/Stud	10 - 8	16 - 1	†	10 - 1	15 - 1	19 - 6	9 - 0	13 - 6	17 - 5	8 - 1	12 - 2	15 - 8
	Hem-Fir	Standard	9 - 1	-	-	8 - 6	-	-	-	-	-	-	-	-
	Southern Pine	SS	13 - 8	†	†	13 - 2	†	†	12 - 3	19 - 7	†	11 - 5	18 - 4	†
	Southern Pine	#1	13 - 5	†	†	12 - 11	†	†	12 - 0	19 - 3	†	11 - 2	18 - 0	†
	Southern Pine	#2	12 - 6	†	†	12 - 0	†	†	10 - 9	18 - 10	†	9 - 8	17 - 4	†
	Southern Pine	#3	9 - 6	17 - 4	†	8 - 11	16 - 4	†	8 - 0	14 - 7	18 - 11	-	13 - 2	17 - 1
	Southern Pine	Stud	9 - 6	17 - 4	†	8 - 11	16 - 4	†	8 - 0	14 - 7	18 - 11	-	13 - 2	17 - 1
	Southern Pine	Standard	8 - 2	-	-	-	-	-	-	-	-	-	-	-
	Spruce-Pine-Fir	SS	12 - 10	†	†	12 - 4	19 - 10	†	11 - 6	18 - 5	†	10 - 9	17 - 3	†
	Spruce-Pine-Fir	#1	12 - 6	†	†	12 - 1	19 - 4	†	11 - 2	18 - 0	†	10 - 6	16 - 5	†
	Spruce-Pine-Fir	#2	12 - 6	†	†	12 - 1	19 - 4	†	11 - 2	18 - 0	†	10 - 6	16 - 5	†
	Spruce-Pine-Fir	#3/Stud	10 - 8	16 - 1	†	10 - 1	15 - 1	19 - 6	9 - 0	13 - 6	17 - 5	8 - 1	12 - 2	15 - 8
Spruce-Pine-Fir	Standard	9 - 1	-	-	8 - 6	-	-	-	-	-	-	-	-	
24	Douglas Fir-Larch	SS	12 - 1	19 - 5	†	11 - 8	18 - 8	†	10 - 10	17 - 4	†	10 - 1	16 - 3	†
	Douglas Fir-Larch	#1	11 - 8	18 - 8	†	11 - 2	17 - 8	†	10 - 5	15 - 9	†	9 - 5	14 - 3	18 - 4
	Douglas Fir-Larch	#2	11 - 5	17 - 9	†	11 - 0	16 - 8	†	9 - 11	14 - 11	19 - 2	8 - 11	13 - 5	17 - 4
	Douglas Fir-Larch	#3/Stud	8 - 10	13 - 3	17 - 1	8 - 4	12 - 6	16 - 1	-	11 - 2	14 - 4	-	10 - 1	13 - 0
	Douglas Fir-Larch	Standard	-	-	-	-	-	-	-	-	-	-	-	-
	Hem-Fir	SS	11 - 5	18 - 4	†	11 - 0	17 - 7	†	10 - 2	16 - 4	†	9 - 6	15 - 3	†
	Hem-Fir	#1	11 - 2	17 - 11	†	10 - 9	17 - 2	†	10 - 0	15 - 6	†	9 - 4	14 - 0	18 - 1
	Hem-Fir	#2	10 - 7	17 - 0	†	10 - 2	16 - 2	†	9 - 6	14 - 5	18 - 7	8 - 8	13 - 0	16 - 9
	Hem-Fir	#3/Stud	8 - 7	12 - 11	16 - 8	8 - 1	12 - 2	15 - 8	-	10 - 10	14 - 0	-	9 - 10	12 - 8
	Hem-Fir	Standard	-	-	-	-	-	-	-	-	-	-	-	-
	Southern Pine	SS	11 - 11	19 - 1	†	11 - 5	18 - 4	†	10 - 7	17 - 0	†	9 - 11	15 - 11	†
	Southern Pine	#1	11 - 8	18 - 8	†	11 - 2	18 - 0	†	10 - 5	16 - 8	†	9 - 9	15 - 7	†
	Southern Pine	#2	10 - 4	18 - 4	†	9 - 8	17 - 3	†	8 - 8	15 - 5	†	7 - 10	13 - 11	18 - 4
	Southern Pine	#3	-	14 - 0	18 - 1	-	13 - 1	17 - 0	-	11 - 9	15 - 2	-	10 - 7	13 - 9
	Southern Pine	Stud	-	14 - 0	18 - 1	-	13 - 1	17 - 0	-	11 - 9	15 - 2	-	10 - 7	13 - 9
	Southern Pine	Standard	-	-	-	-	-	-	-	-	-	-	-	-
	Spruce-Pine-Fir	SS	11 - 2	17 - 11	†	10 - 9	17 - 2	†	10 - 0	16 - 0	†	9 - 4	14 - 11	20 - 0
	Spruce-Pine-Fir	#1	10 - 11	17 - 5	†	10 - 6	16 - 5	†	9 - 9	14 - 8	18 - 11	8 - 10	13 - 3	17 - 1
	Spruce-Pine-Fir	#2	10 - 11	17 - 5	†	10 - 6	16 - 5	†	9 - 9	14 - 8	18 - 11	8 - 10	13 - 3	17 - 1
	Spruce-Pine-Fir	#3/Stud	8 - 7	12 - 11	16 - 8	8 - 1	12 - 2	15 - 8	-	10 - 10	14 - 0	-	9 - 10	12 - 8
Spruce-Pine-Fir	Standard	-	-	-	-	-	-	-	-	-	-	-	-	

† Allowable stud length exceeds 20 feet.
 - Lumber grade not available or allowable stud length is less than 7 ft. - 9 in. (for 8 ft. wall height).
^a Maximum stud lengths in Table A-3.20A are based on interior zone loads and assume that all studs are sheathed with minimum sheathing material. Studs within 4 feet of corner shall be sheathed on the exterior with a minimum of 3/8 inch wood structural panels and on the interior with minimum sheathing material, or stud spacings shall be multiplied by 0.85 for framing located within 4 feet of corners to account for the additional end zone loading requirements. The additional bending capacity provided by the wood structural panels or reduced stud spacing is assumed to be sufficient to resist the additional end zone loading requirements.

See Footnote 1.

Table A-3.20A Maximum Exterior Loadbearing and Non-Loadbearing Stud Lengths for Common Lumber Species Resisting Interior Zone Wind Loads - Exposure C (Cont.)

(Fully Sheathed with a Minimum Sheathing Material)^a

Three Second Gust Wind Speed (mph)			120			130			140			150		
Stud Spacing (in.)	Species	Grade	2x4	2x6	2x8	2x4	2x6	2x8	2x4	2x6	2x8	2x4	2x6	2x8
			Maximum Allowable Stud Length (ft.-in.)											
12	Douglas Fir-Larch	SS	12 - 1	19 - 6	†	11 - 6	18 - 5	†	10 - 11	17 - 6	†	10 - 5	16 - 8	†
	Douglas Fir-Larch	#1	11 - 8	18 - 9	†	11 - 0	17 - 3	†	10 - 6	15 - 11	†	9 - 10	14 - 9	19 - 1
	Douglas Fir-Larch	#2	11 - 5	17 - 9	†	10 - 10	16 - 3	†	10 - 0	15 - 0	†	9 - 4	14 - 0	18 - 0
	Douglas Fir-Larch	#3/Stud	8 - 10	13 - 3	17 - 1	8 - 1	12 - 2	15 - 9	-	11 - 3	14 - 6	-	10 - 6	13 - 6
	Douglas Fir-Larch	Standard	-	-	-	-	-	-	-	-	-	-	-	-
	Hem-Fir	SS	11 - 5	18 - 4	†	10 - 10	17 - 4	†	10 - 3	16 - 5	†	9 - 9	15 - 8	†
	Hem-Fir	#1	11 - 2	17 - 11	†	10 - 7	16 - 11	†	10 - 0	15 - 8	†	9 - 7	14 - 7	18 - 9
	Hem-Fir	#2	10 - 7	17 - 1	†	10 - 1	15 - 10	†	9 - 6	14 - 7	18 - 10	9 - 0	13 - 7	17 - 5
	Hem-Fir	#3/Stud	8 - 7	12 - 11	16 - 8	7 - 11	11 - 11	15 - 4	-	11 - 0	14 - 2	-	10 - 2	13 - 2
	Hem-Fir	Standard	-	-	-	-	-	-	-	-	-	-	-	-
	Southern Pine	SS	11 - 11	19 - 1	†	11 - 3	18 - 1	†	10 - 8	17 - 2	†	10 - 2	16 - 4	†
	Southern Pine	#1	11 - 8	18 - 9	†	11 - 0	17 - 8	†	10 - 6	16 - 10	†	10 - 0	16 - 0	†
	Southern Pine	#2	10 - 4	18 - 4	†	9 - 6	16 - 10	†	8 - 9	15 - 7	†	8 - 2	14 - 6	19 - 1
	Southern Pine	#3	-	14 - 0	18 - 1	-	12 - 10	16 - 8	-	11 - 10	15 - 4	-	11 - 0	14 - 3
	Southern Pine	Stud	-	14 - 0	18 - 1	-	12 - 10	16 - 8	-	11 - 10	15 - 4	-	11 - 0	14 - 3
	Southern Pine	Standard	-	-	-	-	-	-	-	-	-	-	-	-
	Spruce-Pine-Fir	SS	11 - 2	17 - 11	†	10 - 7	16 - 11	†	10 - 0	16 - 1	†	9 - 7	15 - 4	†
	Spruce-Pine-Fir	#1	10 - 11	17 - 6	†	10 - 4	16 - 0	†	9 - 9	14 - 10	†	9 - 2	13 - 9	17 - 9
	Spruce-Pine-Fir	#2	10 - 11	17 - 6	†	10 - 4	16 - 0	†	9 - 9	14 - 10	†	9 - 2	13 - 9	17 - 9
	Spruce-Pine-Fir	#3/Stud	8 - 7	12 - 11	16 - 8	7 - 11	11 - 11	15 - 4	-	11 - 0	14 - 2	-	10 - 2	13 - 2
Spruce-Pine-Fir	Standard	-	-	-	-	-	-	-	-	-	-	-	-	
16	Douglas Fir-Larch	SS	11 - 0	17 - 7	†	10 - 4	16 - 8	†	9 - 10	15 - 10	†	9 - 5	15 - 1	†
	Douglas Fir-Larch	#1	10 - 7	16 - 1	†	9 - 10	14 - 9	19 - 0	9 - 1	13 - 8	17 - 7	8 - 5	12 - 8	16 - 4
	Douglas Fir-Larch	#2	10 - 1	15 - 2	19 - 7	9 - 3	14 - 0	18 - 0	8 - 7	12 - 11	16 - 7	8 - 0	12 - 0	15 - 5
	Douglas Fir-Larch	#3/Stud	-	11 - 5	14 - 8	-	10 - 5	13 - 6	-	9 - 8	12 - 5	-	9 - 0	11 - 7
	Douglas Fir-Larch	Standard	-	-	-	-	-	-	-	-	-	-	-	-
	Hem-Fir	SS	10 - 4	16 - 7	†	9 - 9	15 - 8	†	9 - 3	14 - 11	19 - 11	8 - 10	14 - 2	18 - 11
	Hem-Fir	#1	10 - 1	15 - 10	†	9 - 7	14 - 7	18 - 9	9 - 0	13 - 5	17 - 4	8 - 4	12 - 6	16 - 1
	Hem-Fir	#2	9 - 7	14 - 9	19 - 0	9 - 0	13 - 6	17 - 5	8 - 4	12 - 6	16 - 1	-	11 - 7	15 - 0
	Hem-Fir	#3/Stud	-	11 - 1	14 - 4	-	10 - 2	13 - 1	-	9 - 5	12 - 1	-	8 - 9	11 - 3
	Hem-Fir	Standard	-	-	-	-	-	-	-	-	-	-	-	-
	Southern Pine	SS	10 - 9	17 - 3	†	10 - 2	16 - 4	†	9 - 8	15 - 6	†	9 - 3	14 - 9	19 - 9
	Southern Pine	#1	10 - 7	16 - 11	†	10 - 0	16 - 0	†	9 - 6	15 - 2	19 - 10	9 - 0	14 - 5	18 - 5
	Southern Pine	#2	8 - 10	15 - 9	†	8 - 1	14 - 6	19 - 0	-	13 - 4	17 - 7	-	12 - 5	16 - 4
	Southern Pine	#3	-	12 - 0	15 - 6	-	11 - 0	14 - 3	-	10 - 2	13 - 2	-	9 - 5	12 - 3
	Southern Pine	Stud	-	12 - 0	15 - 6	-	11 - 0	14 - 3	-	10 - 2	13 - 2	-	9 - 5	12 - 3
	Southern Pine	Standard	-	-	-	-	-	-	-	-	-	-	-	-
	Spruce-Pine-Fir	SS	10 - 1	16 - 2	†	9 - 7	15 - 4	†	9 - 1	14 - 7	19 - 5	8 - 8	13 - 10	18 - 5
	Spruce-Pine-Fir	#1	9 - 10	15 - 0	19 - 4	9 - 2	13 - 9	17 - 9	8 - 5	12 - 8	16 - 4	7 - 10	11 - 10	15 - 2
	Spruce-Pine-Fir	#2	9 - 10	15 - 0	19 - 4	9 - 2	13 - 9	17 - 9	8 - 5	12 - 8	16 - 4	7 - 10	11 - 10	15 - 2
	Spruce-Pine-Fir	#3/Stud	-	11 - 1	14 - 4	-	10 - 2	13 - 1	-	9 - 5	12 - 1	-	8 - 9	11 - 3
Spruce-Pine-Fir	Standard	-	-	-	-	-	-	-	-	-	-	-	-	
24	Douglas Fir-Larch	SS	9 - 6	15 - 3	†	9 - 0	14 - 5	19 - 0	8 - 7	13 - 8	17 - 7	8 - 2	12 - 8	16 - 4
	Douglas Fir-Larch	#1	8 - 7	12 - 11	16 - 8	7 - 11	11 - 11	15 - 4	-	11 - 0	14 - 2	-	10 - 2	13 - 2
	Douglas Fir-Larch	#2	8 - 2	12 - 3	15 - 9	-	11 - 3	14 - 6	-	10 - 5	13 - 4	-	9 - 8	12 - 5
	Douglas Fir-Larch	#3/Stud	-	9 - 2	11 - 10	-	8 - 5	10 - 10	-	7 - 9	10 - 0	-	-	9 - 4
	Douglas Fir-Larch	Standard	-	-	-	-	-	-	-	-	-	-	-	-
	Hem-Fir	SS	9 - 0	14 - 5	19 - 3	8 - 6	13 - 7	18 - 2	8 - 1	12 - 11	16 - 11	-	12 - 2	15 - 9
	Hem-Fir	#1	8 - 6	12 - 9	16 - 5	7 - 10	11 - 9	15 - 1	-	10 - 10	13 - 11	-	10 - 1	13 - 0
	Hem-Fir	#2	7 - 11	11 - 10	15 - 3	-	10 - 11	14 - 0	-	10 - 1	13 - 0	-	9 - 4	12 - 0
	Hem-Fir	#3/Stud	-	8 - 11	11 - 6	-	8 - 2	10 - 7	-	-	9 - 9	-	-	9 - 1
	Hem-Fir	Standard	-	-	-	-	-	-	-	-	-	-	-	-
	Southern Pine	SS	9 - 4	15 - 0	†	8 - 10	14 - 2	18 - 11	8 - 5	13 - 6	18 - 0	8 - 0	12 - 10	17 - 2
	Southern Pine	#1	9 - 2	14 - 8	18 - 10	8 - 8	13 - 6	17 - 3	8 - 2	12 - 6	15 - 11	-	11 - 7	14 - 10
	Southern Pine	#2	-	12 - 8	16 - 8	-	11 - 8	15 - 4	-	10 - 9	14 - 2	-	10 - 0	13 - 2
	Southern Pine	#3	-	9 - 8	12 - 6	-	8 - 10	11 - 6	-	8 - 2	10 - 7	-	-	9 - 10
	Southern Pine	Stud	-	9 - 8	12 - 6	-	8 - 10	11 - 6	-	8 - 2	10 - 7	-	-	9 - 10
	Southern Pine	Standard	-	-	-	-	-	-	-	-	-	-	-	-
	Spruce-Pine-Fir	SS	8 - 9	14 - 1	18 - 9	8 - 4	13 - 4	17 - 3	7 - 11	12 - 4	15 - 11	-	11 - 6	14 - 10
	Spruce-Pine-Fir	#1	8 - 0	12 - 1	15 - 6	-	11 - 1	14 - 3	-	10 - 3	13 - 2	-	9 - 6	12 - 3
	Spruce-Pine-Fir	#2	8 - 0	12 - 1	15 - 6	-	11 - 1	14 - 3	-	10 - 3	13 - 2	-	9 - 6	12 - 3
	Spruce-Pine-Fir	#3/Stud	-	8 - 11	11 - 6	-	8 - 2	10 - 7	-	-	9 - 9	-	-	9 - 1
Spruce-Pine-Fir	Standard	-	-	-	-	-	-	-	-	-	-	-	-	

† Allowable stud length exceeds 20 feet.

- Lumber grade not available or allowable stud length is less than 7 ft. - 9 in. (for 8 ft. wall height).

^a Maximum stud lengths in Table A-3.20A are based on interior zone loads and assume that all studs are sheathed with minimum sheathing material. Studs within 4 feet of corner shall be sheathed on the exterior with a minimum of 3/8 inch wood structural panels and on the interior with minimum sheathing material, or stud spacings shall be multiplied by 0.85 for framing located within 4 feet of corners to account for the additional end zone loading requirements. The additional bending capacity provided by the wood structural panels or reduced stud spacing is assumed to be sufficient to resist the additional end zone loading requirements.

See Footnote 1.

Table 3.20B Maximum Exterior Loadbearing and Non-Loadbearing Stud Lengths for Common Lumber Species Resisting Interior Zone Wind Loads - Exposure B

(Fully Sheathed with a Minimum of 3/8" Wood Structural Panels)^a

Three Second Gust Wind Speed (mph)			85			90			100			110		
Stud Spacing (in.)	Species	Grade	2x4	2x6	2x8	2x4	2x6	2x8	2x4	2x6	2x8	2x4	2x6	2x8
			Maximum Allowable Stud Length (ft.-in.) ¹											
12	Douglas Fir-Larch	SS	17 - 4	†	†	16 - 7	†	†	15 - 5	†	†	14 - 5	†	†
	Douglas Fir-Larch	#1	16 - 8	†	†	16 - 0	†	†	14 - 10	†	†	13 - 11	†	†
	Douglas Fir-Larch	#2	16 - 3	†	†	15 - 8	†	†	14 - 6	†	†	13 - 7	†	†
	Douglas Fir-Larch	#3/Stud	15 - 7	†	†	14 - 11	†	†	13 - 11	†	†	13 - 0	19 - 0	†
	Douglas Fir-Larch	Standard	14 - 10	-	-	14 - 0	-	-	12 - 6	-	-	11 - 3	-	-
	Hem-Fir	SS	16 - 3	†	†	15 - 8	†	†	14 - 6	†	†	13 - 7	†	†
	Hem-Fir	#1	15 - 11	†	†	15 - 4	†	†	14 - 3	†	†	13 - 4	†	†
	Hem-Fir	#2	15 - 2	†	†	14 - 7	†	†	13 - 6	†	†	12 - 8	†	†
	Hem-Fir	#3/Stud	14 - 9	†	†	14 - 2	†	†	13 - 2	†	†	12 - 4	18 - 6	†
	Hem-Fir	Standard	14 - 6	-	-	13 - 8	-	-	12 - 2	-	-	11 - 0	-	-
	Southern Pine	SS	17 - 0	†	†	16 - 4	†	†	15 - 2	†	†	14 - 2	†	†
	Southern Pine	#1	16 - 8	†	†	16 - 0	†	†	14 - 10	†	†	13 - 11	†	†
	Southern Pine	#2	15 - 7	†	†	14 - 11	†	†	13 - 11	†	†	13 - 0	†	†
	Southern Pine	#3	14 - 9	†	†	14 - 2	†	†	12 - 9	†	†	11 - 6	20 - 0	†
	Southern Pine	Stud	14 - 9	†	†	14 - 2	†	†	12 - 9	†	†	11 - 6	20 - 0	†
	Southern Pine	Standard	13 - 0	-	-	12 - 3	-	-	11 - 0	-	-	9 - 11	-	-
	Spruce-Pine-Fir	SS	15 - 11	†	†	15 - 4	†	†	14 - 3	†	†	13 - 4	†	†
	Spruce-Pine-Fir	#1	15 - 7	†	†	14 - 11	†	†	13 - 11	†	†	13 - 0	†	†
Spruce-Pine-Fir	#2	15 - 7	†	†	14 - 11	†	†	13 - 11	†	†	13 - 0	†	†	
Spruce-Pine-Fir	#3/Stud	14 - 9	†	†	14 - 2	†	†	13 - 2	†	†	12 - 4	18 - 6	†	
Spruce-Pine-Fir	Standard	14 - 6	-	-	13 - 8	-	-	12 - 2	-	-	11 - 0	-	-	
16	Douglas Fir-Larch	SS	15 - 8	†	†	15 - 0	†	†	14 - 0	†	†	13 - 1	†	†
	Douglas Fir-Larch	#1	15 - 1	†	†	14 - 5	†	†	13 - 5	†	†	12 - 7	†	†
	Douglas Fir-Larch	#2	14 - 9	†	†	14 - 2	†	†	13 - 2	†	†	12 - 4	19 - 9	†
	Douglas Fir-Larch	#3/Stud	14 - 1	†	†	13 - 6	†	†	12 - 7	18 - 0	†	11 - 5	16 - 3	†
	Douglas Fir-Larch	Standard	12 - 9	-	-	12 - 0	-	-	10 - 8	-	-	9 - 8	-	-
	Hem-Fir	SS	14 - 9	†	†	14 - 2	†	†	13 - 2	†	†	12 - 4	19 - 9	†
	Hem-Fir	#1	14 - 5	†	†	13 - 10	†	†	12 - 10	†	†	12 - 0	19 - 4	†
	Hem-Fir	#2	13 - 8	†	†	13 - 2	†	†	12 - 3	19 - 8	†	11 - 5	18 - 5	†
	Hem-Fir	#3/Stud	13 - 4	†	†	12 - 10	19 - 8	†	11 - 11	17 - 6	†	11 - 2	15 - 10	19 - 7
	Hem-Fir	Standard	12 - 5	-	-	11 - 8	-	-	10 - 5	-	-	9 - 5	-	-
	Southern Pine	SS	15 - 4	†	†	14 - 9	†	†	13 - 8	†	†	12 - 10	†	†
	Southern Pine	#1	15 - 1	†	†	14 - 5	†	†	13 - 5	†	†	12 - 7	†	†
	Southern Pine	#2	14 - 1	†	†	13 - 6	†	†	12 - 7	†	†	11 - 9	19 - 9	†
	Southern Pine	#3	13 - 0	†	†	12 - 3	†	†	11 - 0	18 - 11	†	9 - 11	17 - 1	†
	Southern Pine	Stud	13 - 0	†	†	12 - 3	†	†	11 - 0	18 - 11	†	9 - 11	17 - 1	†
	Southern Pine	Standard	11 - 2	-	-	10 - 6	-	-	9 - 5	-	-	8 - 6	-	-
	Spruce-Pine-Fir	SS	14 - 5	†	†	13 - 10	†	†	12 - 10	†	†	12 - 0	19 - 4	†
	Spruce-Pine-Fir	#1	14 - 1	†	†	13 - 6	†	†	12 - 7	†	†	11 - 9	18 - 10	†
Spruce-Pine-Fir	#2	14 - 1	†	†	13 - 6	†	†	12 - 7	†	†	11 - 9	18 - 10	†	
Spruce-Pine-Fir	#3/Stud	13 - 4	†	†	12 - 10	19 - 8	†	11 - 11	17 - 6	†	11 - 2	15 - 10	19 - 7	
Spruce-Pine-Fir	Standard	12 - 5	-	-	11 - 8	-	-	10 - 5	-	-	9 - 5	-	-	
24	Douglas Fir-Larch	SS	13 - 7	†	†	13 - 1	†	†	12 - 1	19 - 6	†	11 - 4	18 - 3	†
	Douglas Fir-Larch	#1	13 - 1	†	†	12 - 7	†	†	11 - 8	18 - 9	†	10 - 11	17 - 6	†
	Douglas Fir-Larch	#2	12 - 9	†	†	12 - 3	19 - 9	†	11 - 5	18 - 4	†	10 - 8	17 - 2	†
	Douglas Fir-Larch	#3/Stud	12 - 2	17 - 3	†	11 - 5	16 - 3	†	10 - 2	14 - 6	17 - 11	9 - 2	13 - 1	16 - 2
	Douglas Fir-Larch	Standard	10 - 3	-	-	9 - 8	-	-	8 - 7	-	-	7 - 9	-	-
	Hem-Fir	SS	12 - 9	†	†	12 - 3	19 - 9	†	11 - 5	18 - 4	†	10 - 8	17 - 2	†
	Hem-Fir	#1	12 - 6	†	†	12 - 0	19 - 3	†	11 - 2	17 - 11	†	10 - 5	16 - 9	†
	Hem-Fir	#2	11 - 11	19 - 1	†	11 - 5	18 - 4	†	10 - 7	17 - 1	†	9 - 11	15 - 11	†
	Hem-Fir	#3/Stud	11 - 7	16 - 10	†	11 - 1	15 - 10	19 - 6	9 - 11	14 - 1	17 - 5	9 - 0	12 - 9	15 - 9
	Hem-Fir	Standard	10 - 0	-	-	9 - 5	-	-	8 - 5	-	-	-	-	-
	Southern Pine	SS	13 - 4	†	†	12 - 10	†	†	11 - 11	19 - 1	†	11 - 2	17 - 10	†
	Southern Pine	#1	13 - 1	†	†	12 - 7	†	†	11 - 8	18 - 9	†	10 - 11	17 - 6	†
	Southern Pine	#2	12 - 2	†	†	11 - 9	19 - 9	†	10 - 11	18 - 4	†	10 - 2	17 - 2	†
	Southern Pine	#3	10 - 6	18 - 2	†	9 - 10	17 - 1	†	8 - 10	15 - 3	19 - 0	8 - 0	13 - 9	17 - 1
	Southern Pine	Stud	10 - 6	18 - 2	†	9 - 10	17 - 1	†	8 - 10	15 - 3	19 - 0	8 - 0	13 - 9	17 - 1
	Southern Pine	Standard	9 - 0	-	-	8 - 6	-	-	-	-	-	-	-	-
	Spruce-Pine-Fir	SS	12 - 6	†	†	12 - 0	19 - 3	†	11 - 2	17 - 11	†	10 - 5	16 - 9	†
	Spruce-Pine-Fir	#1	12 - 2	19 - 7	†	11 - 9	18 - 10	†	10 - 11	17 - 6	†	10 - 2	16 - 4	†
Spruce-Pine-Fir	#2	12 - 2	19 - 7	†	11 - 9	18 - 10	†	10 - 11	17 - 6	†	10 - 2	16 - 4	†	
Spruce-Pine-Fir	#3/Stud	11 - 7	16 - 10	†	11 - 1	15 - 10	19 - 6	9 - 11	14 - 1	17 - 5	9 - 0	12 - 9	15 - 9	
Spruce-Pine-Fir	Standard	10 - 0	-	-	9 - 5	-	-	8 - 5	-	-	-	-	-	

† Allowable stud length exceeds 20 feet.

- Lumber grade not available or allowable stud length is less than 7 ft. - 9 in. (for 8 ft. wall height).

^a Maximum stud lengths in Table 3.20B are based on interior zone loads and assume that all studs are sheathed on the exterior with minimum of 3/8 inch wood structural panels and on the interior with minimum sheathing material. Stud spacings shall be multiplied by 0.85 for framing located within 4 feet of corners to account for the additional end zone loading requirements.

See Footnote 1.

Table 3.20B Maximum Exterior Loadbearing and Non-Loadbearing Stud Lengths for Common Lumber Species Resisting Interior Zone Wind Loads - Exposure B (Cont.)

(Fully Sheathed with a Minimum of 3/8" Wood Structural Panels)^a

Three Second Gust Wind Speed (mph)			120			130			140			150			
Stud Spacing (in.)	Species	Grade	2x4	2x6	2x8	2x4	2x6	2x8	2x4	2x6	2x8	2x4	2x6	2x8	
			Maximum Allowable Stud Length (ft.-in.) ¹												
12	Douglas Fir-Larch	SS	13 - 7	†	†	12 - 10	†	†	12 - 2	19 - 7	†	11 - 8	18 - 8	†	
	Douglas Fir-Larch	#1	13 - 1	†	†	12 - 4	19 - 10	†	11 - 9	18 - 10	†	11 - 2	18 - 0	†	
	Douglas Fir-Larch	#2	12 - 10	†	†	12 - 1	19 - 5	†	11 - 6	18 - 6	†	11 - 0	17 - 7	†	
	Douglas Fir-Larch	#3/Stud	12 - 2	17 - 3	†	11 - 2	15 - 10	19 - 7	10 - 4	14 - 8	18 - 1	9 - 7	13 - 7	16 - 10	
	Douglas Fir-Larch	Standard	10 - 3	-	-	9 - 5	-	-	8 - 9	-	-	8 - 1	-	-	
	Hem-Fir	SS	12 - 10	†	†	12 - 1	19 - 5	†	11 - 6	18 - 6	†	11 - 0	17 - 7	†	
	Hem-Fir	#1	12 - 6	†	†	11 - 10	19 - 0	†	11 - 3	18 - 1	†	10 - 9	17 - 2	†	
	Hem-Fir	#2	11 - 11	19 - 1	†	11 - 3	18 - 1	†	10 - 8	17 - 2	†	10 - 2	16 - 4	†	
	Hem-Fir	#3/Stud	11 - 7	16 - 10	†	10 - 10	15 - 5	19 - 1	10 - 0	14 - 3	17 - 8	9 - 4	13 - 3	16 - 5	
	Hem-Fir	Standard	10 - 0	-	-	9 - 3	-	-	8 - 6	-	-	7 - 11	-	-	
	Southern Pine	SS	13 - 4	†	†	12 - 7	†	†	12 - 0	19 - 3	†	11 - 5	18 - 4	†	
	Southern Pine	#1	13 - 1	†	†	12 - 4	19 - 10	†	11 - 9	18 - 10	†	11 - 2	18 - 0	†	
	Southern Pine	#2	12 - 3	†	†	11 - 7	19 - 5	†	11 - 0	18 - 6	†	10 - 6	17 - 7	†	
	Southern Pine	#3	10 - 6	18 - 2	†	9 - 8	16 - 8	†	8 - 11	15 - 5	19 - 2	8 - 3	14 - 4	17 - 9	
	Southern Pine	Stud	10 - 6	18 - 2	†	9 - 8	16 - 8	†	8 - 11	15 - 5	19 - 2	8 - 3	14 - 4	17 - 9	
	Southern Pine	Standard	9 - 0	-	-	8 - 3	-	-	-	-	-	-	-	-	
	Spruce-Pine-Fir	SS	12 - 6	†	†	11 - 10	19 - 0	†	11 - 3	18 - 1	†	10 - 9	17 - 2	†	
	Spruce-Pine-Fir	#1	12 - 3	19 - 7	†	11 - 7	18 - 7	†	11 - 0	17 - 7	†	10 - 6	16 - 9	†	
	Spruce-Pine-Fir	#2	12 - 3	19 - 7	†	11 - 7	18 - 7	†	11 - 0	17 - 7	†	10 - 6	16 - 9	†	
	Spruce-Pine-Fir	#3/Stud	11 - 7	16 - 10	†	10 - 10	15 - 5	19 - 1	10 - 0	14 - 3	17 - 8	9 - 4	13 - 3	16 - 5	
	Spruce-Pine-Fir	Standard	10 - 0	-	-	9 - 3	-	-	8 - 6	-	-	7 - 11	-	-	
	16	Douglas Fir-Larch	SS	12 - 4	19 - 9	†	11 - 8	18 - 8	†	11 - 1	17 - 9	†	10 - 6	16 - 11	†
		Douglas Fir-Larch	#1	11 - 10	19 - 0	†	11 - 2	18 - 0	†	10 - 7	17 - 1	†	10 - 1	16 - 3	†
		Douglas Fir-Larch	#2	11 - 7	18 - 7	†	11 - 0	17 - 7	†	10 - 5	16 - 8	†	9 - 11	15 - 7	19 - 3
Douglas Fir-Larch		#3/Stud	10 - 5	14 - 10	18 - 4	9 - 7	13 - 7	16 - 10	8 - 10	12 - 7	15 - 6	8 - 3	11 - 8	14 - 5	
Douglas Fir-Larch		Standard	8 - 10	-	-	8 - 1	-	-	-	-	-	-	-	-	
Hem-Fir		SS	11 - 7	18 - 7	†	11 - 0	17 - 7	†	10 - 5	16 - 8	†	9 - 11	15 - 11	†	
Hem-Fir		#1	11 - 4	18 - 2	†	10 - 9	17 - 2	†	10 - 2	16 - 4	†	9 - 8	15 - 7	†	
Hem-Fir		#2	10 - 9	17 - 4	†	10 - 2	16 - 4	†	9 - 8	15 - 6	†	9 - 3	14 - 10	18 - 8	
Hem-Fir		#3/Stud	10 - 2	14 - 5	17 - 10	9 - 4	13 - 3	16 - 4	8 - 7	12 - 3	15 - 1	8 - 0	11 - 4	14 - 0	
Hem-Fir		Standard	8 - 7	-	-	7 - 11	-	-	-	-	-	-	-	-	
Southern Pine		SS	12 - 1	19 - 5	†	11 - 5	18 - 4	†	10 - 10	17 - 5	†	10 - 4	16 - 7	†	
Southern Pine		#1	11 - 10	19 - 0	†	11 - 2	18 - 0	†	10 - 7	17 - 1	†	10 - 1	16 - 3	†	
Southern Pine		#2	11 - 1	18 - 7	†	10 - 5	17 - 7	†	9 - 11	16 - 8	†	9 - 6	15 - 11	†	
Southern Pine		#3	9 - 0	15 - 7	19 - 4	8 - 3	14 - 3	17 - 9	-	13 - 2	16 - 5	-	12 - 3	15 - 3	
Southern Pine		Stud	9 - 0	15 - 7	19 - 4	8 - 3	14 - 3	17 - 9	-	13 - 2	16 - 5	-	12 - 3	15 - 3	
Southern Pine		Standard	-	-	-	-	-	-	-	-	-	-	-	-	
Spruce-Pine-Fir		SS	11 - 4	18 - 2	†	10 - 9	17 - 2	†	10 - 2	16 - 4	†	9 - 8	15 - 7	†	
Spruce-Pine-Fir		#1	11 - 1	17 - 9	†	10 - 5	16 - 9	†	9 - 11	15 - 11	†	9 - 6	15 - 2	19 - 0	
Spruce-Pine-Fir		#2	11 - 1	17 - 9	†	10 - 5	16 - 9	†	9 - 11	15 - 11	†	9 - 6	15 - 2	19 - 0	
Spruce-Pine-Fir		#3/Stud	10 - 2	14 - 5	17 - 10	9 - 4	13 - 3	16 - 4	8 - 7	12 - 3	15 - 1	8 - 0	11 - 4	14 - 0	
Spruce-Pine-Fir		Standard	8 - 7	-	-	7 - 11	-	-	-	-	-	-	-	-	
24		Douglas Fir-Larch	SS	10 - 8	17 - 2	†	10 - 1	16 - 2	†	9 - 7	15 - 5	†	9 - 2	14 - 8	19 - 7
		Douglas Fir-Larch	#1	10 - 3	16 - 6	†	9 - 9	15 - 5	19 - 1	9 - 3	14 - 3	17 - 8	8 - 9	13 - 3	16 - 5
		Douglas Fir-Larch	#2	10 - 1	15 - 11	19 - 8	9 - 6	14 - 7	18 - 1	9 - 0	13 - 6	16 - 8	8 - 7	12 - 6	15 - 6
	Douglas Fir-Larch	#3/Stud	8 - 5	11 - 11	14 - 9	-	10 - 11	13 - 6	-	10 - 1	12 - 6	-	9 - 5	11 - 7	
	Douglas Fir-Larch	Standard	-	-	-	-	-	-	-	-	-	-	-	-	
	Hem-Fir	SS	10 - 1	16 - 2	†	9 - 6	15 - 3	†	9 - 0	14 - 6	†	8 - 7	13 - 10	18 - 5	
	Hem-Fir	#1	9 - 10	15 - 9	†	9 - 4	14 - 11	18 - 10	8 - 10	14 - 1	17 - 5	8 - 5	13 - 1	16 - 2	
	Hem-Fir	#2	9 - 4	15 - 0	19 - 1	8 - 10	14 - 2	17 - 6	8 - 5	13 - 1	16 - 2	8 - 0	12 - 2	15 - 0	
	Hem-Fir	#3/Stud	8 - 2	11 - 7	14 - 4	-	10 - 8	13 - 2	-	9 - 10	12 - 2	-	9 - 2	11 - 4	
	Hem-Fir	Standard	-	-	-	-	-	-	-	-	-	-	-	-	
	Southern Pine	SS	10 - 6	16 - 10	†	9 - 11	15 - 11	†	9 - 5	15 - 1	†	9 - 0	14 - 5	19 - 3	
	Southern Pine	#1	10 - 3	16 - 6	†	9 - 9	15 - 7	†	9 - 3	14 - 10	19 - 9	8 - 9	14 - 1	18 - 6	
	Southern Pine	#2	9 - 7	16 - 2	†	9 - 0	15 - 1	19 - 1	8 - 4	14 - 0	17 - 8	-	13 - 0	16 - 5	
	Southern Pine	#3	-	12 - 6	15 - 7	-	11 - 6	14 - 4	-	10 - 7	13 - 2	-	9 - 10	12 - 3	
	Southern Pine	Stud	-	12 - 6	15 - 7	-	11 - 6	14 - 4	-	10 - 7	13 - 2	-	9 - 10	12 - 3	
	Southern Pine	Standard	-	-	-	-	-	-	-	-	-	-	-	-	
	Spruce-Pine-Fir	SS	9 - 10	15 - 9	†	9 - 4	14 - 11	19 - 11	8 - 10	14 - 2	18 - 11	8 - 5	13 - 6	18 - 0	
	Spruce-Pine-Fir	#1	9 - 7	15 - 5	19 - 4	9 - 1	14 - 4	17 - 9	8 - 7	13 - 3	16 - 5	8 - 3	12 - 4	15 - 3	
	Spruce-Pine-Fir	#2	9 - 7	15 - 5	19 - 4	9 - 1	14 - 4	17 - 9	8 - 7	13 - 3	16 - 5	8 - 3	12 - 4	15 - 3	
	Spruce-Pine-Fir	#3/Stud	8 - 2	11 - 7	14 - 4	-	10 - 8	13 - 2	-	9 - 10	12 - 2	-	9 - 2	11 - 4	
	Spruce-Pine-Fir	Standard	-	-	-	-	-	-	-	-	-	-	-	-	

† Allowable stud length exceeds 20 feet.

- Lumber grade not available or allowable stud length is less than 7 ft. - 9 in. (for 8 ft. wall height).

^a Maximum stud lengths in Table 3.20B are based on interior zone loads and assume that all studs are sheathed on the exterior with minimum of 3/8 inch wood structural panels and on the interior with minimum sheathing material. Stud spacings shall be multiplied by 0.85 for framing located within 4 feet of corners to account for the additional end zone loading requirements.

See Footnote 1.

Table A-3.20B Maximum Exterior Loadbearing and Non-Loadbearing Stud Lengths for Common Lumber Species Resisting Interior Zone Wind Loads - Exposure C

(Fully Sheathed with a Minimum of 3/8" Wood Structural Panels)^a

Three Second Gust Wind Speed (mph)			85			90			100			110		
Stud Spacing (in.)	Species	Grade	2x4	2x6	2x8	2x4	2x6	2x8	2x4	2x6	2x8	2x4	2x6	2x8
			Maximum Allowable Stud Length (ft.-in.) [†]											
12	Douglas Fir-Larch	SS	15 - 5	†	†	14 - 10	†	†	13 - 9	†	†	12 - 11	†	†
	Douglas Fir-Larch	#1	14 - 10	†	†	14 - 3	†	†	13 - 3	†	†	12 - 5	19 - 11	†
	Douglas Fir-Larch	#2	14 - 6	†	†	14 - 0	†	†	13 - 0	†	†	12 - 2	19 - 6	†
	Douglas Fir-Larch	#3/Stud	13 - 10	†	†	13 - 4	19 - 9	†	12 - 5	17 - 7	†	11 - 2	15 - 11	19 - 8
	Douglas Fir-Larch	Standard	12 - 6	-	-	11 - 9	-	-	10 - 6	-	-	9 - 5	-	-
	Hem-Fir	SS	14 - 6	†	†	14 - 0	†	†	13 - 0	†	†	12 - 2	19 - 6	†
	Hem-Fir	#1	14 - 2	†	†	13 - 8	†	†	12 - 8	†	†	11 - 10	19 - 1	†
	Hem-Fir	#2	13 - 6	†	†	13 - 0	†	†	12 - 1	19 - 4	†	11 - 3	18 - 1	†
	Hem-Fir	#3/Stud	13 - 2	†	†	12 - 7	19 - 3	†	11 - 9	17 - 2	†	10 - 11	15 - 6	19 - 2
	Hem-Fir	Standard	12 - 2	-	-	11 - 5	-	-	10 - 3	-	-	9 - 3	-	-
	Southern Pine	SS	15 - 2	†	†	14 - 6	†	†	13 - 6	†	†	12 - 8	†	†
	Southern Pine	#1	14 - 10	†	†	14 - 3	†	†	13 - 3	†	†	12 - 5	19 - 11	†
	Southern Pine	#2	13 - 10	†	†	13 - 4	†	†	12 - 5	†	†	11 - 7	19 - 6	†
	Southern Pine	#3	12 - 9	†	†	12 - 0	†	†	10 - 9	18 - 6	†	9 - 8	16 - 9	†
	Southern Pine	Stud	12 - 9	†	†	12 - 0	†	†	10 - 9	18 - 6	†	9 - 8	16 - 9	†
	Southern Pine	Standard	10 - 11	-	-	10 - 3	-	-	9 - 2	-	-	8 - 4	-	-
	Spruce-Pine-Fir	SS	14 - 2	†	†	13 - 8	†	†	12 - 8	†	†	11 - 10	19 - 1	†
	Spruce-Pine-Fir	#1	13 - 10	†	†	13 - 4	†	†	12 - 5	19 - 10	†	11 - 7	18 - 7	†
	Spruce-Pine-Fir	#2	13 - 10	†	†	13 - 4	†	†	12 - 5	19 - 10	†	11 - 7	18 - 7	†
	Spruce-Pine-Fir	#3/Stud	13 - 2	†	†	12 - 7	19 - 3	†	11 - 9	17 - 2	†	10 - 11	15 - 6	19 - 2
Spruce-Pine-Fir	Standard	12 - 2	-	-	11 - 5	-	-	10 - 3	-	-	9 - 3	-	-	
16	Douglas Fir-Larch	SS	13 - 11	†	†	13 - 5	†	†	12 - 5	20 - 0	†	11 - 8	18 - 8	†
	Douglas Fir-Larch	#1	13 - 5	†	†	12 - 11	†	†	12 - 0	19 - 3	†	11 - 2	18 - 0	†
	Douglas Fir-Larch	#2	13 - 2	†	†	12 - 7	†	†	11 - 9	18 - 10	†	11 - 0	17 - 7	†
	Douglas Fir-Larch	#3/Stud	12 - 6	18 - 0	†	11 - 11	16 - 11	†	10 - 7	15 - 1	18 - 8	9 - 7	13 - 8	16 - 10
	Douglas Fir-Larch	Standard	10 - 8	-	-	10 - 1	-	-	9 - 0	-	-	8 - 1	-	-
	Hem-Fir	SS	13 - 2	†	†	12 - 7	†	†	11 - 9	18 - 10	†	11 - 0	17 - 7	†
	Hem-Fir	#1	12 - 10	†	†	12 - 4	19 - 10	†	11 - 6	18 - 5	†	10 - 9	17 - 3	†
	Hem-Fir	#2	12 - 3	19 - 7	†	11 - 9	18 - 10	†	10 - 11	17 - 6	†	10 - 2	16 - 5	†
	Hem-Fir	#3/Stud	11 - 11	17 - 6	†	11 - 5	16 - 6	†	10 - 4	14 - 8	18 - 2	9 - 4	13 - 3	16 - 5
	Hem-Fir	Standard	10 - 5	-	-	9 - 10	-	-	8 - 9	-	-	7 - 11	-	-
	Southern Pine	SS	13 - 8	†	†	13 - 2	†	†	12 - 3	19 - 7	†	11 - 5	18 - 4	†
	Southern Pine	#1	13 - 5	†	†	12 - 11	†	†	12 - 0	19 - 3	†	11 - 2	18 - 0	†
	Southern Pine	#2	12 - 6	†	†	12 - 1	†	†	11 - 2	18 - 10	†	10 - 6	17 - 7	†
	Southern Pine	#3	10 - 11	18 - 11	†	10 - 3	17 - 9	†	9 - 2	15 - 11	19 - 9	8 - 4	14 - 4	17 - 10
	Southern Pine	Stud	10 - 11	18 - 11	†	10 - 3	17 - 9	†	9 - 2	15 - 11	19 - 9	8 - 4	14 - 4	17 - 10
	Southern Pine	Standard	9 - 4	-	-	8 - 10	-	-	7 - 11	-	-	-	-	-
	Spruce-Pine-Fir	SS	12 - 10	†	†	12 - 4	19 - 10	†	11 - 6	18 - 5	†	10 - 9	17 - 3	†
	Spruce-Pine-Fir	#1	12 - 6	†	†	12 - 1	19 - 4	†	11 - 2	18 - 0	†	10 - 6	16 - 10	†
	Spruce-Pine-Fir	#2	12 - 6	†	†	12 - 1	19 - 4	†	11 - 2	18 - 0	†	10 - 6	16 - 10	†
	Spruce-Pine-Fir	#3/Stud	11 - 11	17 - 6	†	11 - 5	16 - 6	†	10 - 4	14 - 8	18 - 2	9 - 4	13 - 3	16 - 5
Spruce-Pine-Fir	Standard	10 - 5	-	-	9 - 10	-	-	8 - 9	-	-	7 - 11	-	-	
24	Douglas Fir-Larch	SS	12 - 1	19 - 5	†	11 - 8	18 - 8	†	10 - 10	17 - 4	†	10 - 1	16 - 3	†
	Douglas Fir-Larch	#1	11 - 8	18 - 8	†	11 - 2	18 - 0	†	10 - 5	16 - 8	†	9 - 9	15 - 6	19 - 2
	Douglas Fir-Larch	#2	11 - 5	18 - 4	†	11 - 0	17 - 7	†	10 - 2	16 - 3	†	9 - 6	14 - 8	18 - 1
	Douglas Fir-Larch	#3/Stud	10 - 2	14 - 5	17 - 11	9 - 7	13 - 7	16 - 10	8 - 7	12 - 2	15 - 0	-	11 - 0	13 - 7
	Douglas Fir-Larch	Standard	8 - 7	-	-	8 - 1	-	-	-	-	-	-	-	-
	Hem-Fir	SS	11 - 5	18 - 4	†	11 - 0	17 - 7	†	10 - 2	16 - 4	†	9 - 6	15 - 3	†
	Hem-Fir	#1	11 - 2	17 - 11	†	10 - 9	17 - 2	†	10 - 0	16 - 0	†	9 - 4	14 - 11	18 - 11
	Hem-Fir	#2	10 - 7	17 - 0	†	10 - 2	16 - 4	†	9 - 6	15 - 2	19 - 5	8 - 10	14 - 2	17 - 7
	Hem-Fir	#3/Stud	9 - 11	14 - 1	17 - 5	9 - 4	13 - 3	16 - 5	8 - 4	11 - 10	14 - 7	-	10 - 8	13 - 2
	Hem-Fir	Standard	8 - 5	-	-	7 - 11	-	-	-	-	-	-	-	-
	Southern Pine	SS	11 - 11	19 - 1	†	11 - 5	18 - 4	†	10 - 7	17 - 0	†	9 - 11	15 - 11	†
	Southern Pine	#1	11 - 8	18 - 8	†	11 - 2	18 - 0	†	10 - 5	16 - 8	†	9 - 9	15 - 7	†
	Southern Pine	#2	10 - 11	18 - 4	†	10 - 6	17 - 7	†	9 - 9	16 - 4	†	9 - 0	15 - 2	19 - 2
	Southern Pine	#3	8 - 10	15 - 2	18 - 11	8 - 3	14 - 4	17 - 9	-	12 - 9	15 - 11	-	11 - 6	14 - 4
	Southern Pine	Stud	8 - 10	15 - 2	18 - 11	8 - 3	14 - 4	17 - 9	-	12 - 9	15 - 11	-	11 - 6	14 - 4
	Southern Pine	Standard	-	-	-	-	-	-	-	-	-	-	-	-
	Spruce-Pine-Fir	SS	11 - 2	17 - 11	†	10 - 9	17 - 2	†	10 - 0	16 - 0	†	9 - 4	14 - 11	20 - 0
	Spruce-Pine-Fir	#1	10 - 11	17 - 6	†	10 - 6	16 - 9	†	9 - 9	15 - 7	19 - 9	9 - 1	14 - 5	17 - 10
	Spruce-Pine-Fir	#2	10 - 11	17 - 6	†	10 - 6	16 - 9	†	9 - 9	15 - 7	19 - 9	9 - 1	14 - 5	17 - 10
	Spruce-Pine-Fir	#3/Stud	9 - 11	14 - 1	17 - 5	9 - 4	13 - 3	16 - 5	8 - 4	11 - 10	14 - 7	-	10 - 8	13 - 2
Spruce-Pine-Fir	Standard	8 - 5	-	-	7 - 11	-	-	-	-	-	-	-	-	

† Allowable stud length exceeds 20 feet.

- Lumber grade not available or allowable stud length is less than 7 ft. - 9 in. (for 8 ft. wall height).

^a Maximum stud lengths in Table A-3.20B are based on interior zone loads and assume that all studs are sheathed on the exterior with minimum of 3/8 inch wood structural panels and on the interior with minimum sheathing material. Stud spacings shall be multiplied by 0.85 for framing located within 4 feet of corners to account for the additional end zone loading requirements.

See Footnote 1.

Table A-3.20B Maximum Exterior Loadbearing and Non-Loadbearing Stud Lengths for Common Lumber Species Resisting Interior Zone Wind Loads - Exposure C (Cont.)

(Fully Sheathed with a Minimum of 3/8" Wood Structural Panels)^a

Three Second Gust Wind Speed (mph)			120			130			140			150			
Stud Spacing (in.)	Species	Grade	2x4	2x6	2x8	2x4	2x6	2x8	2x4	2x6	2x8	2x4	2x6	2x8	
			Maximum Allowable Stud Length (ft.-in.)												
12	Douglas Fir-Larch	SS	12-1	19-6	†	11-6	18-5	†	10-11	17-6	†	10-5	16-8	†	
	Douglas Fir-Larch	#1	11-8	18-9	†	11-0	17-8	†	10-6	16-10	†	10-0	16-0	19-11	
	Douglas Fir-Larch	#2	11-5	18-4	†	10-10	17-4	†	10-3	16-5	†	9-9	15-3	18-10	
	Douglas Fir-Larch	#3/Stud	10-2	14-6	17-11	9-4	13-3	16-5	8-8	12-3	15-2	8-0	11-5	14-1	
	Douglas Fir-Larch	Standard	8-7	-	-	7-11	-	-	-	-	-	-	-	-	
	Hem-Fir	SS	11-5	18-4	†	10-10	17-4	†	10-3	16-5	†	9-9	15-8	†	
	Hem-Fir	#1	11-2	17-11	†	10-7	16-11	†	10-0	16-1	†	9-7	15-4	19-8	
	Hem-Fir	#2	10-7	17-1	†	10-1	16-1	†	9-6	15-4	19-8	9-1	14-7	18-3	
	Hem-Fir	#3/Stud	9-11	14-1	17-5	9-1	12-11	16-0	8-5	12-0	14-9	7-10	11-1	13-9	
	Hem-Fir	Standard	8-5	-	-	-	-	-	-	-	-	-	-	-	
	Southern Pine	SS	11-11	19-1	†	11-3	18-1	†	10-8	17-2	†	10-2	16-4	†	
	Southern Pine	#1	11-8	18-9	†	11-0	17-8	†	10-6	16-10	†	10-0	16-0	†	
	Southern Pine	#2	10-11	18-4	†	10-4	17-4	†	9-9	16-5	†	9-4	15-8	19-11	
	Southern Pine	#3	8-10	15-3	19-0	8-1	14-0	17-5	-	12-11	16-1	-	12-0	14-11	
	Southern Pine	Stud	8-10	15-3	19-0	8-1	14-0	17-5	-	12-11	16-1	-	12-0	14-11	
	Southern Pine	Standard	-	-	-	-	-	-	-	-	-	-	-	-	
	Spruce-Pine-Fir	SS	11-2	17-11	†	10-7	16-11	†	10-0	16-1	†	9-7	15-4	†	
	Spruce-Pine-Fir	#1	10-11	17-6	†	10-4	16-7	†	9-9	15-8	20-0	9-4	15-0	18-6	
	Spruce-Pine-Fir	#2	10-11	17-6	†	10-4	16-7	†	9-9	15-8	20-0	9-4	15-0	18-6	
	Spruce-Pine-Fir	#3/Stud	9-11	14-1	17-5	9-1	12-11	16-0	8-5	12-0	14-9	7-10	11-1	13-9	
	Spruce-Pine-Fir	Standard	8-5	-	-	-	-	-	-	-	-	-	-	-	
	16	Douglas Fir-Larch	SS	11-0	17-7	†	10-4	16-8	†	9-10	15-10	†	9-5	15-1	†
		Douglas Fir-Larch	#1	10-7	16-11	†	10-0	16-0	19-11	9-6	14-10	18-5	9-0	13-10	17-1
		Douglas Fir-Larch	#2	10-4	16-7	†	9-9	15-3	18-10	9-3	14-1	17-4	8-10	13-1	16-2
Douglas Fir-Larch		#3/Stud	8-9	12-5	15-4	8-0	11-5	14-1	-	10-6	13-0	-	9-9	12-1	
Douglas Fir-Larch		Standard	-	-	-	-	-	-	-	-	-	-	-	-	
Hem-Fir		SS	10-4	16-7	†	9-9	15-8	†	9-3	14-11	19-11	8-10	14-2	18-11	
Hem-Fir		#1	10-1	16-2	†	9-7	15-4	19-8	9-1	14-7	18-2	8-8	13-7	16-10	
Hem-Fir		#2	9-7	15-5	19-11	9-1	14-7	18-3	8-8	13-7	16-10	8-3	12-8	15-8	
Hem-Fir		#3/Stud	8-6	12-1	14-11	7-10	11-1	13-9	-	10-3	12-8	-	9-6	11-9	
Hem-Fir		Standard	-	-	-	-	-	-	-	-	-	-	-	-	
Southern Pine		SS	10-9	17-3	†	10-2	16-4	†	9-8	15-6	†	9-3	14-9	19-9	
Southern Pine		#1	10-7	16-11	†	10-0	16-0	†	9-6	15-2	†	9-0	14-6	19-3	
Southern Pine		#2	9-10	16-7	†	9-4	15-8	19-11	8-8	14-7	18-5	8-0	13-6	17-1	
Southern Pine		#3	-	13-1	16-3	-	12-0	14-11	-	11-1	13-9	-	10-3	12-9	
Southern Pine		Stud	-	13-1	16-3	-	12-0	14-11	-	11-1	13-9	-	10-3	12-9	
Southern Pine		Standard	-	-	-	-	-	-	-	-	-	-	-	-	
Spruce-Pine-Fir		SS	10-1	16-2	†	9-7	15-4	†	9-1	14-7	19-5	8-8	13-10	18-6	
Spruce-Pine-Fir		#1	9-10	15-10	†	9-4	15-0	18-6	8-10	13-10	17-1	8-5	12-10	15-11	
Spruce-Pine-Fir		#2	9-10	15-10	†	9-4	15-0	18-6	8-10	13-10	17-1	8-5	12-10	15-11	
Spruce-Pine-Fir		#3/Stud	8-6	12-1	14-11	7-10	11-1	13-9	-	10-3	12-8	-	9-6	11-9	
Spruce-Pine-Fir		Standard	-	-	-	-	-	-	-	-	-	-	-	-	
24		Douglas Fir-Larch	SS	9-6	15-3	†	9-0	14-5	19-4	8-7	13-9	18-4	8-2	13-1	17-1
		Douglas Fir-Larch	#1	9-2	14-1	17-5	8-8	12-11	16-0	8-3	12-0	14-9	7-10	11-1	13-9
		Douglas Fir-Larch	#2	9-0	13-4	16-6	8-6	12-3	15-2	8-0	11-4	14-0	-	10-6	13-0
	Douglas Fir-Larch	#3/Stud	-	10-0	12-4	-	9-2	11-4	-	8-6	10-6	-	7-10	9-9	
	Douglas Fir-Larch	Standard	-	-	-	-	-	-	-	-	-	-	-	-	
	Hem-Fir	SS	9-0	14-5	19-3	8-6	13-7	18-2	8-1	12-11	17-3	-	12-4	16-5	
	Hem-Fir	#1	8-9	13-11	17-3	8-4	12-9	15-10	7-11	11-10	14-7	-	11-0	13-7	
	Hem-Fir	#2	8-4	12-11	16-0	7-11	11-10	14-8	-	11-0	13-7	-	10-2	12-7	
	Hem-Fir	#3/Stud	-	9-9	12-0	-	8-11	11-0	-	8-3	10-2	-	-	9-6	
	Hem-Fir	Standard	-	-	-	-	-	-	-	-	-	-	-	-	
	Southern Pine	SS	9-4	15-0	†	8-10	14-2	18-11	8-5	13-6	18-0	8-0	12-10	17-2	
	Southern Pine	#1	9-2	14-8	19-8	8-8	13-11	18-1	8-3	13-2	16-8	7-10	12-7	15-6	
	Southern Pine	#2	8-3	13-10	17-5	-	12-8	16-0	-	11-9	14-9	-	10-11	13-9	
	Southern Pine	#3	-	10-6	13-1	-	9-8	12-0	-	8-11	11-1	-	8-3	10-3	
	Southern Pine	Stud	-	10-6	13-1	-	9-8	12-0	-	8-11	11-1	-	8-3	10-3	
	Southern Pine	Standard	-	-	-	-	-	-	-	-	-	-	-	-	
	Spruce-Pine-Fir	SS	8-9	14-1	18-9	8-4	13-4	17-9	7-11	12-8	16-8	-	12-0	15-6	
	Spruce-Pine-Fir	#1	8-7	13-2	16-3	8-1	12-1	14-11	-	11-2	13-9	-	10-4	12-9	
	Spruce-Pine-Fir	#2	8-7	13-2	16-3	8-1	12-1	14-11	-	11-2	13-9	-	10-4	12-9	
	Spruce-Pine-Fir	#3/Stud	-	9-9	12-0	-	8-11	11-0	-	8-3	10-2	-	-	9-6	
	Spruce-Pine-Fir	Standard	-	-	-	-	-	-	-	-	-	-	-	-	

† Allowable stud length exceeds 20 feet.

- Lumber grade not available or allowable stud length is less than 7 ft. - 9 in. (for 8 ft. wall height).

^a Maximum stud lengths in Table A-3.20B are based on interior zone loads and assume that all studs are sheathed on the exterior with minimum of 3/8 inch wood structural panels and on the interior with minimum sheathing material. Stud spacings shall be multiplied by 0.85 for framing located within 4 feet of corners to account for the additional end zone loading requirements.

See Footnote 1.

Table 3.25A Ceiling Joist Spans for Common Lumber Species(Uninhabitable Attics Without Storage, Live Load = 10 psf, $L/\Delta = 240$)

		Dead Load = 5 psf			
		2x4	2x6	2x8	2x10
		Maximum Ceiling Joist Spans ¹			
Joist Spacing	Species and Grade	(ft-in.)	(ft-in.)	(ft-in.)	(ft-in.)
12 in.	Douglas Fir-Larch SS	13 - 2	20 - 8	*	*
	Douglas Fir-Larch #1	12 - 8	19 - 11	*	*
	Douglas Fir-Larch #2	12 - 5	19 - 6	25 - 8	*
	Douglas Fir-Larch #3	11 - 1	16 - 3	20 - 7	25 - 2
	Hem-Fir SS	12 - 5	19 - 6	25 - 8	*
	Hem-Fir #1	12 - 2	19 - 1	25 - 2	*
	Hem-Fir #2	11 - 7	18 - 2	24 - 0	*
	Hem-Fir #3	10 - 10	15 - 10	20 - 1	24 - 6
	Southern Pine SS	12 - 11	20 - 3	*	*
	Southern Pine #1	12 - 8	19 - 11	*	*
	Southern Pine #2	11 - 10	19 - 6	25 - 8	*
	Southern Pine #3	9 - 8	17 - 0	21 - 8	25 - 7
	Spruce-Pine Fir SS	12 - 2	19 - 1	25 - 2	*
	Spruce-Pine Fir #1	11 - 10	18 - 8	24 - 7	*
	Spruce-Pine Fir #2	11 - 10	18 - 8	24 - 7	*
	Spruce-Pine Fir #3	10 - 10	15 - 10	20 - 1	24 - 6
16 in.	Douglas Fir-Larch SS	11 - 11	18 - 9	24 - 8	*
	Douglas Fir-Larch #1	11 - 6	18 - 1	23 - 10	*
	Douglas Fir-Larch #2	11 - 3	17 - 8	23 - 4	*
	Douglas Fir-Larch #3	9 - 7	14 - 1	17 - 10	21 - 9
	Hem-Fir SS	11 - 3	17 - 8	23 - 4	*
	Hem-Fir #1	11 - 0	17 - 4	22 - 10	*
	Hem-Fir #2	10 - 6	16 - 6	21 - 9	*
	Hem-Fir #3	9 - 5	13 - 9	17 - 5	21 - 3
	Southern Pine SS	11 - 9	18 - 5	24 - 3	*
	Southern Pine #1	11 - 6	18 - 1	23 - 10	*
	Southern Pine #2	10 - 9	17 - 8	23 - 4	*
	Southern Pine #3	8 - 5	14 - 9	18 - 9	22 - 2
	Spruce-Pine Fir SS	11 - 0	17 - 4	22 - 10	*
	Spruce-Pine Fir #1	10 - 9	16 - 11	22 - 4	*
	Spruce-Pine Fir #2	10 - 9	16 - 11	22 - 4	*
	Spruce-Pine Fir #3	9 - 5	13 - 9	17 - 5	21 - 3
19.2 in.	Douglas Fir-Larch SS	11 - 3	17 - 8	23 - 3	*
	Douglas Fir-Larch #1	10 - 10	17 - 0	22 - 5	*
	Douglas Fir-Larch #2	10 - 7	16 - 8	21 - 4	*
	Douglas Fir-Larch #3	8 - 9	12 - 10	16 - 3	19 - 10
	Hem-Fir SS	10 - 7	16 - 8	22 - 0	*
	Hem-Fir #1	10 - 4	16 - 4	21 - 6	*
	Hem-Fir #2	9 - 11	15 - 7	20 - 6	25 - 3
	Hem-Fir #3	8 - 7	12 - 6	15 - 10	19 - 5
	Southern Pine SS	11 - 0	17 - 4	22 - 10	*
	Southern Pine #1	10 - 10	17 - 0	22 - 5	*
	Southern Pine #2	10 - 2	16 - 8	22 - 0	*
	Southern Pine #3	7 - 8	13 - 6	17 - 2	20 - 3
	Spruce-Pine Fir SS	10 - 4	16 - 4	21 - 6	*
	Spruce-Pine Fir #1	10 - 2	15 - 11	21 - 0	25 - 8
	Spruce-Pine Fir #2	10 - 2	15 - 11	21 - 0	25 - 8
	Spruce-Pine Fir #3	8 - 7	12 - 6	15 - 10	19 - 5
24 in.	Douglas Fir-Larch SS	10 - 5	16 - 4	21 - 7	*
	Douglas Fir-Larch #1	10 - 0	15 - 9	20 - 1	24 - 6
	Douglas Fir-Larch #2	9 - 10	15 - 0	19 - 1	23 - 3
	Douglas Fir-Larch #3	7 - 10	11 - 6	14 - 7	17 - 9
	Hem-Fir SS	9 - 10	15 - 6	20 - 5	*
	Hem-Fir #1	9 - 8	15 - 2	19 - 10	24 - 3
	Hem-Fir #2	9 - 2	14 - 5	18 - 6	22 - 7
	Hem-Fir #3	7 - 8	11 - 2	14 - 2	17 - 4
	Southern Pine SS	10 - 3	16 - 1	21 - 2	*
	Southern Pine #1	10 - 0	15 - 9	20 - 10	*
	Southern Pine #2	9 - 1	15 - 6	20 - 1	24 - 0
	Southern Pine #3	6 - 10	12 - 0	15 - 4	18 - 1
	Spruce-Pine Fir SS	9 - 8	15 - 2	19 - 11	25 - 5
	Spruce-Pine Fir #1	9 - 5	14 - 9	18 - 9	22 - 11
	Spruce-Pine Fir #2	9 - 5	14 - 9	18 - 9	22 - 11
	Spruce-Pine Fir #3	7 - 8	11 - 2	14 - 2	17 - 4

¹ Bracing shall be provided in accordance with 3.3.1.4.

* Spans are limited to 26 feet in length. Check sources for availability of lumber in lengths greater than 20 feet.

Table 3.25B Ceiling Joist Spans for Common Lumber Species

(Uninhabitable Attics With Limited Storage, Live Load = 20 psf, L/Δ = 240)

Joist Spacing		Species and Grade		Dead Load = 10 psf			
				2x4	2x6	2x8	2x10
				Maximum Ceiling Joist Spans ¹			
		(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)		
12 in.	Douglas Fir-Larch	SS	10 - 5	16 - 4	21 - 7	*	
	Douglas Fir-Larch	#1	10 - 0	15 - 9	20 - 1	24 - 6	
	Douglas Fir-Larch	#2	9 - 10	15 - 0	19 - 1	23 - 3	
	Douglas Fir-Larch	#3	7 - 10	11 - 6	14 - 7	17 - 9	
	Hem-Fir	SS	9 - 10	15 - 6	20 - 5	*	
	Hem-Fir	#1	9 - 8	15 - 2	19 - 10	24 - 3	
	Hem-Fir	#2	9 - 2	14 - 5	18 - 6	22 - 7	
	Hem-Fir	#3	7 - 8	11 - 2	14 - 2	17 - 4	
	Southern Pine	SS	10 - 3	16 - 1	21 - 2	*	
	Southern Pine	#1	10 - 0	15 - 9	20 - 10	*	
	Southern Pine	#2	9 - 1	15 - 6	20 - 1	24 - 0	
	Southern Pine	#3	6 - 10	12 - 0	15 - 4	18 - 1	
	Spruce-Pine Fir	SS	9 - 8	15 - 2	19 - 11	25 - 5	
	Spruce-Pine Fir	#1	9 - 5	14 - 9	18 - 9	22 - 11	
	Spruce-Pine Fir	#2	9 - 5	14 - 9	18 - 9	22 - 11	
	Spruce-Pine Fir	#3	7 - 8	11 - 2	14 - 2	17 - 4	
16 in.	Douglas Fir-Larch	SS	9 - 6	14 - 11	19 - 7	25 - 0	
	Douglas Fir-Larch	#1	9 - 1	13 - 9	17 - 5	21 - 3	
	Douglas Fir-Larch	#2	8 - 11	13 - 0	16 - 6	20 - 2	
	Douglas Fir-Larch	#3	6 - 10	9 - 11	12 - 7	15 - 5	
	Hem-Fir	SS	8 - 11	14 - 1	18 - 6	23 - 8	
	Hem-Fir	#1	8 - 9	13 - 7	17 - 2	21 - 0	
	Hem-Fir	#2	8 - 4	12 - 8	16 - 0	19 - 7	
	Hem-Fir	#3	6 - 8	9 - 8	12 - 4	15 - 0	
	Southern Pine	SS	9 - 4	14 - 7	19 - 3	24 - 7	
	Southern Pine	#1	9 - 1	14 - 4	18 - 11	23 - 1	
	Southern Pine	#2	7 - 10	13 - 6	17 - 5	20 - 9	
	Southern Pine	#3	5 - 11	10 - 5	13 - 3	15 - 8	
	Spruce-Pine Fir	SS	8 - 9	13 - 9	18 - 2	23 - 1	
	Spruce-Pine Fir	#1	8 - 7	12 - 10	16 - 3	19 - 10	
	Spruce-Pine Fir	#2	8 - 7	12 - 10	16 - 3	19 - 10	
	Spruce-Pine Fir	#3	6 - 8	9 - 8	12 - 4	15 - 0	
19.2 in.	Douglas Fir-Larch	SS	8 - 11	14 - 0	18 - 5	23 - 7	
	Douglas Fir-Larch	#1	8 - 7	12 - 6	15 - 10	19 - 5	
	Douglas Fir-Larch	#2	8 - 2	11 - 11	15 - 1	18 - 5	
	Douglas Fir-Larch	#3	6 - 2	9 - 1	11 - 6	14 - 1	
	Hem-Fir	SS	8 - 5	13 - 3	17 - 5	22 - 3	
	Hem-Fir	#1	8 - 3	12 - 4	15 - 8	19 - 2	
	Hem-Fir	#2	7 - 10	11 - 7	14 - 8	17 - 10	
	Hem-Fir	#3	6 - 1	8 - 10	11 - 3	13 - 8	
	Southern Pine	SS	8 - 9	13 - 9	18 - 2	23 - 1	
	Southern Pine	#1	8 - 7	13 - 6	17 - 9	21 - 1	
	Southern Pine	#2	7 - 2	12 - 3	15 - 10	18 - 11	
	Southern Pine	#3	5 - 5	9 - 6	12 - 1	14 - 4	
	Spruce-Pine Fir	SS	8 - 3	12 - 11	17 - 1	21 - 8	
	Spruce-Pine Fir	#1	8 - 0	11 - 9	14 - 10	18 - 2	
	Spruce-Pine Fir	#2	8 - 0	11 - 9	14 - 10	18 - 2	
	Spruce-Pine Fir	#3	6 - 1	8 - 10	11 - 3	13 - 8	
24 in.	Douglas Fir-Larch	SS	8 - 3	13 - 0	17 - 2	21 - 3	
	Douglas Fir-Larch	#1	7 - 8	11 - 2	14 - 2	17 - 4	
	Douglas Fir-Larch	#2	7 - 3	10 - 8	13 - 6	16 - 5	
	Douglas Fir-Larch	#3	5 - 7	8 - 1	10 - 3	12 - 7	
	Hem-Fir	SS	7 - 10	12 - 3	16 - 2	20 - 6	
	Hem-Fir	#1	7 - 7	11 - 1	14 - 0	17 - 1	
	Hem-Fir	#2	7 - 1	10 - 4	13 - 1	16 - 0	
	Hem-Fir	#3	5 - 5	7 - 11	10 - 0	12 - 3	
	Southern Pine	SS	8 - 1	12 - 9	16 - 10	21 - 6	
	Southern Pine	#1	8 - 0	12 - 6	15 - 10	18 - 10	
	Southern Pine	#2	6 - 5	11 - 0	14 - 2	16 - 11	
	Southern Pine	#3	4 - 10	8 - 6	10 - 10	12 - 10	
	Spruce-Pine Fir	SS	7 - 8	12 - 0	15 - 10	19 - 5	
	Spruce-Pine Fir	#1	7 - 2	10 - 6	13 - 3	16 - 3	
	Spruce-Pine Fir	#2	7 - 2	10 - 6	13 - 3	16 - 3	
	Spruce-Pine Fir	#3	5 - 5	7 - 11	10 - 0	12 - 3	

¹ Bracing shall be provided in accordance with 3.3.1.4.

* Spans are limited to 26 feet in length. Check sources for availability of lumber in lengths greater than 20 feet.

Table 3.26A Rafter Spans for Common Lumber Species

(Ceiling Not Attached to Rafters, Live Load = 20 psf, L/Δ = 180)

		Dead Load = 10 psf					Dead Load = 20 psf				
		2x4	2x6	2x8	2x10	2x12	2x4	2x6	2x8	2x10	2x12
		Maximum Rafter Spans ^{1,2,3}									
Joist Spacing	Species and Grade	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)
12 in.	Douglas Fir-Larch SS	11 - 6	18 - 0	23 - 9	*	*	11 - 6	18 - 0	23 - 9	*	*
	Douglas Fir-Larch #1	11 - 1	17 - 4	22 - 5	*	*	10 - 6	15 - 4	19 - 5	23 - 9	*
	Douglas Fir-Larch #2	10 - 10	16 - 10	21 - 4	*	*	10 - 0	14 - 7	18 - 5	22 - 6	*
	Douglas Fir-Larch #3	8 - 9	12 - 10	16 - 3	19 - 10	23 - 0	7 - 7	11 - 1	14 - 1	17 - 2	19 - 11
	Hem-Fir SS	10 - 10	17 - 0	22 - 5	*	*	10 - 10	17 - 0	22 - 5	*	*
	Hem-Fir #1	10 - 7	16 - 8	22 - 0	*	*	10 - 4	15 - 2	19 - 2	23 - 5	*
	Hem-Fir #2	10 - 1	15 - 11	20 - 8	25 - 3	*	9 - 8	14 - 2	17 - 11	21 - 11	25 - 5
	Hem-Fir #3	8 - 7	12 - 6	15 - 10	19 - 5	22 - 6	7 - 5	10 - 10	13 - 9	16 - 9	19 - 6
	Southern Pine SS	11 - 3	17 - 8	23 - 4	*	*	11 - 3	17 - 8	23 - 4	*	*
	Southern Pine #1	11 - 1	17 - 4	22 - 11	*	*	11 - 1	17 - 3	21 - 9	25 - 10	*
	Southern Pine #2	10 - 2	17 - 0	22 - 5	*	*	8 - 9	15 - 1	19 - 5	23 - 2	*
	Southern Pine #3	7 - 8	13 - 6	17 - 2	20 - 3	24 - 1	6 - 8	11 - 8	14 - 10	17 - 6	20 - 11
	Spruce-Pine Fir SS	10 - 7	16 - 8	22 - 0	*	*	10 - 7	16 - 8	21 - 9	*	*
	Spruce-Pine Fir #1	10 - 4	16 - 3	21 - 0	25 - 8	*	9 - 10	14 - 4	18 - 2	22 - 3	25 - 9
	Spruce-Pine Fir #2	10 - 4	16 - 3	21 - 0	25 - 8	*	9 - 10	14 - 4	18 - 2	22 - 3	25 - 9
	Spruce-Pine Fir #3	8 - 7	12 - 6	15 - 10	19 - 5	22 - 6	7 - 5	10 - 10	13 - 9	16 - 9	19 - 6
16 in.	Douglas Fir-Larch SS	10 - 5	16 - 4	21 - 7	*	*	10 - 5	16 - 3	20 - 7	25 - 2	*
	Douglas Fir-Larch #1	10 - 0	15 - 4	19 - 5	23 - 9	*	9 - 1	13 - 3	16 - 10	20 - 7	23 - 10
	Douglas Fir-Larch #2	9 - 10	14 - 7	18 - 5	22 - 6	*	8 - 7	12 - 7	16 - 0	19 - 6	22 - 7
	Douglas Fir-Larch #3	7 - 7	11 - 1	14 - 1	17 - 2	19 - 11	6 - 7	9 - 8	12 - 2	14 - 11	17 - 3
	Hem-Fir SS	9 - 10	15 - 6	20 - 5	*	*	9 - 10	15 - 6	19 - 11	24 - 4	*
	Hem-Fir #1	9 - 8	15 - 2	19 - 2	23 - 5	*	9 - 0	13 - 1	16 - 7	20 - 4	23 - 7
	Hem-Fir #2	9 - 2	14 - 2	17 - 11	21 - 11	25 - 5	8 - 5	12 - 3	15 - 6	19 - 0	22 - 0
	Hem-Fir #3	7 - 5	10 - 10	13 - 9	16 - 9	19 - 6	6 - 5	9 - 5	11 - 11	14 - 6	16 - 10
	Southern Pine SS	10 - 3	16 - 1	21 - 2	*	*	10 - 3	16 - 1	21 - 2	*	*
	Southern Pine #1	10 - 0	15 - 9	20 - 10	25 - 10	*	10 - 0	15 - 0	18 - 10	22 - 4	*
	Southern Pine #2	8 - 9	15 - 1	19 - 5	23 - 2	*	7 - 7	13 - 0	16 - 10	20 - 1	23 - 7
	Southern Pine #3	6 - 8	11 - 8	14 - 10	17 - 6	20 - 11	5 - 9	10 - 1	12 - 10	15 - 2	18 - 1
	Spruce-Pine Fir SS	9 - 8	15 - 2	19 - 11	25 - 5	*	9 - 8	14 - 10	18 - 10	23 - 0	*
	Spruce-Pine Fir #1	9 - 5	14 - 4	18 - 2	22 - 3	25 - 9	8 - 6	12 - 5	15 - 9	19 - 3	22 - 4
	Spruce-Pine Fir #2	9 - 5	14 - 4	18 - 2	22 - 3	25 - 9	8 - 6	12 - 5	15 - 9	19 - 3	22 - 4
	Spruce-Pine Fir #3	7 - 5	10 - 10	13 - 9	16 - 9	19 - 6	6 - 5	9 - 5	11 - 11	14 - 6	16 - 10
19.2 in.	Douglas Fir-Larch SS	9 - 10	15 - 5	20 - 4	25 - 11	*	9 - 10	14 - 10	18 - 10	23 - 0	*
	Douglas Fir-Larch #1	9 - 5	14 - 0	17 - 9	21 - 8	25 - 2	8 - 4	12 - 2	15 - 4	18 - 9	21 - 9
	Douglas Fir-Larch #2	9 - 1	13 - 3	16 - 10	20 - 7	23 - 10	7 - 10	11 - 6	14 - 7	17 - 10	20 - 8
	Douglas Fir-Larch #3	6 - 11	10 - 2	12 - 10	15 - 8	18 - 3	6 - 0	8 - 9	11 - 2	13 - 7	15 - 9
	Hem-Fir SS	9 - 3	14 - 7	19 - 2	24 - 6	*	9 - 3	14 - 4	18 - 2	22 - 3	25 - 9
	Hem-Fir #1	9 - 1	13 - 10	17 - 6	21 - 5	24 - 10	8 - 2	12 - 0	15 - 2	18 - 6	21 - 6
	Hem-Fir #2	8 - 8	12 - 11	16 - 4	20 - 0	23 - 2	7 - 8	11 - 2	14 - 2	17 - 4	20 - 1
	Hem-Fir #3	6 - 9	9 - 11	12 - 7	15 - 4	17 - 9	5 - 10	8 - 7	10 - 10	13 - 3	15 - 5
	Southern Pine SS	9 - 8	15 - 2	19 - 11	25 - 5	*	9 - 8	15 - 2	19 - 11	25 - 5	*
	Southern Pine #1	9 - 5	14 - 10	19 - 7	23 - 7	*	9 - 3	13 - 8	17 - 2	20 - 5	24 - 4
	Southern Pine #2	8 - 0	13 - 9	17 - 9	21 - 2	24 - 10	6 - 11	11 - 11	15 - 4	18 - 4	21 - 6
	Southern Pine #3	6 - 1	10 - 8	13 - 7	16 - 0	19 - 1	5 - 3	9 - 3	11 - 9	13 - 10	16 - 6
	Spruce-Pine Fir SS	9 - 1	14 - 3	18 - 9	24 - 0	*	9 - 1	13 - 7	17 - 2	21 - 0	24 - 4
	Spruce-Pine Fir #1	8 - 10	13 - 1	16 - 7	20 - 3	23 - 6	7 - 9	11 - 4	14 - 4	17 - 7	20 - 4
	Spruce-Pine Fir #2	8 - 10	13 - 1	16 - 7	20 - 3	23 - 6	7 - 9	11 - 4	14 - 4	17 - 7	20 - 4
	Spruce-Pine Fir #3	6 - 9	9 - 11	12 - 7	15 - 4	17 - 9	5 - 10	8 - 7	10 - 10	13 - 3	15 - 5
24 in.	Douglas Fir-Larch SS	9 - 1	14 - 4	18 - 10	23 - 9	*	9 - 1	13 - 3	16 - 10	20 - 7	23 - 10
	Douglas Fir-Larch #1	8 - 7	12 - 6	15 - 10	19 - 5	22 - 6	7 - 5	10 - 10	13 - 9	16 - 9	19 - 6
	Douglas Fir-Larch #2	8 - 2	11 - 11	15 - 1	18 - 5	21 - 4	7 - 0	10 - 4	13 - 0	15 - 11	18 - 6
	Douglas Fir-Larch #3	6 - 2	9 - 1	11 - 6	14 - 1	16 - 3	5 - 4	7 - 10	10 - 0	12 - 2	14 - 1
	Hem-Fir SS	8 - 7	13 - 6	17 - 10	22 - 9	*	8 - 7	12 - 10	16 - 3	19 - 10	23 - 0
	Hem-Fir #1	8 - 5	12 - 4	15 - 8	19 - 2	22 - 2	7 - 4	10 - 9	13 - 7	16 - 7	19 - 3
	Hem-Fir #2	7 - 11	11 - 7	14 - 8	17 - 10	20 - 9	6 - 10	10 - 0	12 - 8	15 - 6	17 - 11
	Hem-Fir #3	6 - 1	8 - 10	11 - 3	13 - 8	15 - 11	5 - 3	7 - 8	9 - 9	11 - 10	13 - 9
	Southern Pine SS	8 - 11	14 - 1	18 - 6	23 - 8	*	8 - 11	14 - 1	18 - 6	22 - 11	*
	Southern Pine #1	8 - 9	13 - 9	17 - 9	21 - 1	25 - 2	8 - 3	12 - 3	15 - 4	18 - 3	21 - 9
	Southern Pine #2	7 - 2	12 - 3	15 - 10	18 - 11	22 - 2	6 - 2	10 - 8	13 - 9	16 - 5	19 - 3
	Southern Pine #3	5 - 5	9 - 6	12 - 1	14 - 4	17 - 1	4 - 8	8 - 3	10 - 6	12 - 5	14 - 9
	Spruce-Pine Fir SS	8 - 5	13 - 3	17 - 5	21 - 8	25 - 2	8 - 4	12 - 2	15 - 4	18 - 9	21 - 9
	Spruce-Pine Fir #1	8 - 0	11 - 9	14 - 10	18 - 2	21 - 0	6 - 11	10 - 2	12 - 10	15 - 8	18 - 3
	Spruce-Pine Fir #2	8 - 0	11 - 9	14 - 10	18 - 2	21 - 0	6 - 11	10 - 2	12 - 10	15 - 8	18 - 3
	Spruce-Pine Fir #3	6 - 1	8 - 10	11 - 3	13 - 8	15 - 11	5 - 3	7 - 8	9 - 9	11 - 10	13 - 9

* Spans are limited to 26 feet in length. Check sources for availability of lumber in lengths greater than 20 feet. See footnotes 1-3.

Table 3.26B Rafter Spans for Common Lumber Species

(Ceiling Attached to Rafters, Live Load = 20 psf, L/Δ = 240)

Joist Spacing	Species and Grade	Dead Load = 10 psf					Dead Load = 20 psf					
		2x4	2x6	2x8	2x10	2x12	2x4	2x6	2x8	2x10	2x12	
		Maximum Rafter Spans ^{1,2,3}										
		(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	
12 in.	Douglas Fir-Larch	SS	10 - 5	16 - 4	21 - 7	*	*	10 - 5	16 - 4	21 - 7	*	*
	Douglas Fir-Larch	#1	10 - 0	15 - 9	20 - 10	*	*	10 - 0	15 - 4	19 - 5	23 - 9	*
	Douglas Fir-Larch	#2	9 - 10	15 - 6	20 - 5	*	*	9 - 10	14 - 7	18 - 5	22 - 6	*
	Douglas Fir-Larch	#3	8 - 9	12 - 10	16 - 3	19 - 10	23 - 0	7 - 7	11 - 1	14 - 1	17 - 2	19 - 11
	Hem-Fir	SS	9 - 10	15 - 6	20 - 5	*	*	9 - 10	15 - 6	20 - 5	*	*
	Hem-Fir	#1	9 - 8	15 - 2	19 - 11	25 - 5	*	9 - 8	15 - 2	19 - 2	23 - 5	*
	Hem-Fir	#2	9 - 2	14 - 5	19 - 0	24 - 3	*	9 - 2	14 - 2	17 - 11	21 - 11	25 - 5
	Hem-Fir	#3	8 - 7	12 - 6	15 - 10	19 - 5	22 - 6	7 - 5	10 - 10	13 - 9	16 - 9	19 - 6
	Southern Pine	SS	10 - 3	16 - 1	21 - 2	*	*	10 - 3	16 - 1	21 - 2	*	*
	Southern Pine	#1	10 - 0	15 - 9	20 - 10	*	*	10 - 0	15 - 9	20 - 10	25 - 10	*
	Southern Pine	#2	9 - 5	15 - 6	20 - 5	*	*	8 - 9	15 - 1	19 - 5	23 - 2	*
	Southern Pine	#3	7 - 8	13 - 6	17 - 2	20 - 3	24 - 1	6 - 8	11 - 8	14 - 10	17 - 6	20 - 11
	Spruce-Pine Fir	SS	9 - 8	15 - 2	19 - 11	25 - 5	*	9 - 8	15 - 2	19 - 11	25 - 5	*
	Spruce-Pine Fir	#1	9 - 5	14 - 9	19 - 6	24 - 10	*	9 - 5	14 - 4	18 - 2	22 - 3	25 - 9
	Spruce-Pine Fir	#2	9 - 5	14 - 9	19 - 6	24 - 10	*	9 - 5	14 - 4	18 - 2	22 - 3	25 - 9
	Spruce-Pine Fir	#3	8 - 7	12 - 6	15 - 10	19 - 5	22 - 6	7 - 5	10 - 10	13 - 9	16 - 9	19 - 6
16 in.	Douglas Fir-Larch	SS	9 - 6	14 - 11	19 - 7	25 - 0	*	9 - 6	14 - 11	19 - 7	25 - 0	*
	Douglas Fir-Larch	#1	9 - 1	14 - 4	18 - 11	23 - 9	*	9 - 1	13 - 3	16 - 10	20 - 7	23 - 10
	Douglas Fir-Larch	#2	8 - 11	14 - 1	18 - 5	22 - 6	*	8 - 7	12 - 7	16 - 0	19 - 6	22 - 7
	Douglas Fir-Larch	#3	7 - 7	11 - 1	14 - 1	17 - 2	19 - 11	6 - 7	9 - 8	12 - 2	14 - 11	17 - 3
	Hem-Fir	SS	8 - 11	14 - 1	18 - 6	23 - 8	*	8 - 11	14 - 1	18 - 6	23 - 8	*
	Hem-Fir	#1	8 - 9	13 - 9	18 - 2	23 - 1	*	8 - 9	13 - 1	16 - 7	20 - 4	23 - 7
	Hem-Fir	#2	8 - 4	13 - 1	17 - 3	21 - 11	25 - 5	8 - 4	12 - 3	15 - 6	19 - 0	22 - 0
	Hem-Fir	#3	7 - 5	10 - 10	13 - 9	16 - 9	19 - 6	6 - 5	9 - 5	11 - 11	14 - 6	16 - 10
	Southern Pine	SS	9 - 4	14 - 7	19 - 3	24 - 7	*	9 - 4	14 - 7	19 - 3	24 - 7	*
	Southern Pine	#1	9 - 1	14 - 4	18 - 11	24 - 1	*	9 - 1	14 - 4	18 - 10	22 - 4	*
	Southern Pine	#2	8 - 7	14 - 1	18 - 6	23 - 2	*	7 - 7	13 - 0	16 - 10	20 - 1	23 - 7
	Southern Pine	#3	6 - 8	11 - 8	14 - 10	17 - 6	20 - 11	5 - 9	10 - 1	12 - 10	15 - 2	18 - 1
	Spruce-Pine Fir	SS	8 - 9	13 - 9	18 - 2	23 - 1	*	8 - 9	13 - 9	18 - 2	23 - 0	*
	Spruce-Pine Fir	#1	8 - 7	13 - 5	17 - 9	22 - 3	25 - 9	8 - 6	12 - 5	15 - 9	19 - 3	22 - 4
	Spruce-Pine Fir	#2	8 - 7	13 - 5	17 - 9	22 - 3	25 - 9	8 - 6	12 - 5	15 - 9	19 - 3	22 - 4
	Spruce-Pine Fir	#3	7 - 5	10 - 10	13 - 9	16 - 9	19 - 6	6 - 5	9 - 5	11 - 11	14 - 6	16 - 10
19.2 in.	Douglas Fir-Larch	SS	8 - 11	14 - 0	18 - 5	23 - 7	*	8 - 11	14 - 0	18 - 5	23 - 0	*
	Douglas Fir-Larch	#1	8 - 7	13 - 6	17 - 9	21 - 8	25 - 2	8 - 4	12 - 2	15 - 4	18 - 9	21 - 9
	Douglas Fir-Larch	#2	8 - 5	13 - 3	16 - 10	20 - 7	23 - 10	7 - 10	11 - 6	14 - 7	17 - 10	20 - 8
	Douglas Fir-Larch	#3	6 - 11	10 - 2	12 - 10	15 - 8	18 - 3	6 - 0	8 - 9	11 - 2	13 - 7	15 - 9
	Hem-Fir	SS	8 - 5	13 - 3	17 - 5	22 - 3	*	8 - 5	13 - 3	17 - 5	22 - 3	25 - 9
	Hem-Fir	#1	8 - 3	12 - 11	17 - 1	21 - 5	24 - 10	8 - 2	12 - 0	15 - 2	18 - 6	21 - 6
	Hem-Fir	#2	7 - 10	12 - 4	16 - 3	20 - 0	23 - 2	7 - 8	11 - 2	14 - 2	17 - 4	20 - 1
	Hem-Fir	#3	6 - 9	9 - 11	12 - 7	15 - 4	17 - 9	5 - 10	8 - 7	10 - 10	13 - 3	15 - 5
	Southern Pine	SS	8 - 9	13 - 9	18 - 2	23 - 1	*	8 - 9	13 - 9	18 - 2	23 - 1	*
	Southern Pine	#1	8 - 7	13 - 6	17 - 9	22 - 8	*	8 - 7	13 - 6	17 - 2	20 - 5	24 - 4
	Southern Pine	#2	8 - 0	13 - 3	17 - 5	21 - 2	24 - 10	6 - 11	11 - 11	15 - 4	18 - 4	21 - 6
	Southern Pine	#3	6 - 1	10 - 8	13 - 7	16 - 0	19 - 1	5 - 3	9 - 3	11 - 9	13 - 10	16 - 6
	Spruce-Pine Fir	SS	8 - 3	12 - 11	17 - 1	21 - 9	*	8 - 3	12 - 11	17 - 1	21 - 0	24 - 4
	Spruce-Pine Fir	#1	8 - 1	12 - 8	16 - 7	20 - 3	23 - 6	7 - 9	11 - 4	14 - 4	17 - 7	20 - 4
	Spruce-Pine Fir	#2	8 - 1	12 - 8	16 - 7	20 - 3	23 - 6	7 - 9	11 - 4	14 - 4	17 - 7	20 - 4
	Spruce-Pine Fir	#3	6 - 9	9 - 11	12 - 7	15 - 4	17 - 9	5 - 10	8 - 7	10 - 10	13 - 3	15 - 5
24 in.	Douglas Fir-Larch	SS	8 - 3	13 - 0	17 - 2	21 - 10	*	8 - 3	13 - 0	16 - 10	20 - 7	23 - 10
	Douglas Fir-Larch	#1	8 - 0	12 - 6	15 - 10	19 - 5	22 - 6	7 - 5	10 - 10	13 - 9	16 - 9	19 - 6
	Douglas Fir-Larch	#2	7 - 10	11 - 11	15 - 1	18 - 5	21 - 4	7 - 0	10 - 4	13 - 0	15 - 11	18 - 6
	Douglas Fir-Larch	#3	6 - 2	9 - 1	11 - 6	14 - 1	16 - 3	5 - 4	7 - 10	10 - 0	12 - 2	14 - 1
	Hem-Fir	SS	7 - 10	12 - 3	16 - 2	20 - 8	25 - 1	7 - 10	12 - 3	16 - 2	19 - 10	23 - 0
	Hem-Fir	#1	7 - 8	12 - 0	15 - 8	19 - 2	22 - 2	7 - 4	10 - 9	13 - 7	16 - 7	19 - 3
	Hem-Fir	#2	7 - 3	11 - 5	14 - 8	17 - 10	20 - 9	6 - 10	10 - 0	12 - 8	15 - 6	17 - 11
	Hem-Fir	#3	6 - 1	8 - 10	11 - 3	13 - 8	15 - 11	5 - 3	7 - 8	9 - 9	11 - 10	13 - 9
	Southern Pine	SS	8 - 1	12 - 9	16 - 10	21 - 6	*	8 - 1	12 - 9	16 - 10	21 - 6	*
	Southern Pine	#1	8 - 0	12 - 6	16 - 6	21 - 1	25 - 2	8 - 0	12 - 3	15 - 4	18 - 3	21 - 9
	Southern Pine	#2	7 - 2	12 - 3	15 - 10	18 - 11	22 - 2	6 - 2	10 - 8	13 - 9	16 - 5	19 - 3
	Southern Pine	#3	5 - 5	9 - 6	12 - 1	14 - 4	17 - 1	4 - 8	8 - 3	10 - 6	12 - 5	14 - 9
	Spruce-Pine Fir	SS	7 - 8	12 - 0	15 - 10	20 - 2	24 - 7	7 - 8	12 - 0	15 - 4	18 - 9	21 - 9
	Spruce-Pine Fir	#1	7 - 6	11 - 9	14 - 10	18 - 2	21 - 0	6 - 11	10 - 2	12 - 10	15 - 8	18 - 3
	Spruce-Pine Fir	#2	7 - 6	11 - 9	14 - 10	18 - 2	21 - 0	6 - 11	10 - 2	12 - 10	15 - 8	18 - 3
	Spruce-Pine Fir	#3	6 - 1	8 - 10	11 - 3	13 - 8	15 - 11	5 - 3	7 - 8	9 - 9	11 - 10	13 - 9

* Spans are limited to 26 feet in length. Check sources for availability of lumber in lengths greater than 20 feet.

See footnotes 1-3.

Table 3.26C Rafter Spans for Common Lumber Species

(Ceiling Not Attached to Rafters, Ground Snow Load = 30 psf, L/Δ = 180)

		Dead Load = 10 psf					Dead Load = 20 psf				
		2x4	2x6	2x8	2x10	2x12	2x4	2x6	2x8	2x10	2x12
		Maximum Rafter Spans ^{1,2}									
Joist Spacing	Species and Grade	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)
12 in.	Douglas Fir-Larch SS	9-7	15-0	19-9	†	†	9-7	15-0	19-6	†	†
	Douglas Fir-Larch #1	9-2	13-11	17-8	†	†	8-7	12-7	15-11	19-6	†
	Douglas Fir-Larch #2	9-0	13-3	16-9	†	†	8-2	11-11	15-2	18-6	†
	Douglas Fir-Larch #3	6-11	10-1	12-9	15-7	18-1	6-3	9-2	11-7	14-1	16-4
	Hem-Fir SS	9-0	14-2	18-8	†	†	9-0	14-2	18-8	†	†
	Hem-Fir #1	8-10	13-9	17-5	†	†	8-6	12-5	15-9	19-3	†
	Hem-Fir #2	8-5	12-10	16-3	19-10	†	7-11	11-7	14-8	18-0	†
	Hem-Fir #3	6-9	9-10	12-6	15-3	17-8	6-1	8-11	11-3	13-9	16-0
	Southern Pine SS	9-5	14-9	19-5	†	†	9-5	14-9	19-5	†	†
	Southern Pine #1	9-2	14-6	19-1	†	†	9-2	14-2	17-10	†	†
	Southern Pine #2	8-0	13-8	17-8	†	†	7-2	12-4	15-11	19-0	†
	Southern Pine #3	6-0	10-7	13-6	15-11	19-0	5-5	9-7	12-2	14-5	17-2
	Spruce-Pine Fir SS	8-10	13-10	18-3	†	†	8-10	13-10	17-10	†	†
	Spruce-Pine Fir #1	8-7	13-0	16-6	†	†	8-1	11-9	14-11	18-3	†
	Spruce-Pine Fir #2	8-7	13-0	16-6	†	†	8-1	11-9	14-11	18-3	†
	Spruce-Pine Fir #3	6-9	9-10	12-6	15-3	17-8	6-1	8-11	11-3	13-9	16-0
16 in.	Douglas Fir-Larch SS	8-8	13-8	18-0	†	†	8-8	13-4	16-11	†	†
	Douglas Fir-Larch #1	8-3	12-1	15-3	18-8	†	7-5	10-11	13-10	16-10	19-7
	Douglas Fir-Larch #2	7-10	11-5	14-6	17-9	†	7-1	10-4	13-1	16-0	18-7
	Douglas Fir-Larch #3	6-0	8-9	11-1	13-6	15-8	5-5	7-11	10-0	12-3	14-2
	Hem-Fir SS	8-2	12-10	17-0	†	†	8-2	12-10	16-4	20-0	†
	Hem-Fir #1	8-0	11-11	15-1	18-5	†	7-4	10-9	13-8	16-8	19-4
	Hem-Fir #2	7-7	11-1	14-1	17-3	20-0	6-10	10-1	12-9	15-7	18-0
	Hem-Fir #3	5-10	8-6	10-10	13-2	15-4	5-3	7-9	9-9	11-11	13-10
	Southern Pine SS	8-6	13-5	17-8	†	†	8-6	13-5	17-8	†	†
	Southern Pine #1	8-4	13-2	17-1	†	†	8-3	12-3	15-5	18-4	†
	Southern Pine #2	6-11	11-10	15-3	18-3	†	6-3	10-8	13-10	16-6	19-4
	Southern Pine #3	5-3	9-2	11-8	13-9	16-5	4-9	8-3	10-7	12-6	14-10
	Spruce-Pine Fir SS	8-0	12-7	16-7	†	†	8-0	12-2	15-5	18-10	†
	Spruce-Pine Fir #1	7-9	11-3	14-4	17-6	†	7-0	10-2	12-11	15-9	18-4
	Spruce-Pine Fir #2	7-9	11-3	14-4	17-6	†	7-0	10-2	12-11	15-9	18-4
	Spruce-Pine Fir #3	5-10	8-6	10-10	13-2	15-4	5-3	7-9	9-9	11-11	13-10
19.2 in.	Douglas Fir-Larch SS	8-2	12-10	16-11	†	†	8-2	12-2	15-5	18-10	†
	Douglas Fir-Larch #1	7-6	11-0	14-0	17-0	19-9	6-10	10-0	12-7	15-5	17-10
	Douglas Fir-Larch #2	7-2	10-5	13-3	16-2	18-9	6-5	9-5	12-0	14-7	16-11
	Douglas Fir-Larch #3	5-5	8-0	10-1	12-4	14-4	4-11	7-3	9-2	11-2	12-11
	Hem-Fir SS	7-9	12-1	16-0	†	†	7-9	11-9	14-11	18-3	†
	Hem-Fir #1	7-5	10-11	13-9	16-10	19-6	6-9	9-10	12-5	15-3	17-8
	Hem-Fir #2	6-11	10-2	12-10	15-9	18-3	6-3	9-2	11-8	14-2	16-6
	Hem-Fir #3	5-4	7-9	9-10	12-1	14-0	4-10	7-0	8-11	10-11	12-8
	Southern Pine SS	8-0	12-7	16-7	†	†	8-0	12-7	16-7	†	†
	Southern Pine #1	7-10	12-4	15-7	18-6	†	7-7	11-3	14-1	16-9	20-0
	Southern Pine #2	6-4	10-10	14-0	16-8	19-6	5-8	9-9	12-7	15-1	17-8
	Southern Pine #3	4-9	8-4	10-8	12-7	15-0	4-4	7-7	9-8	11-5	13-7
	Spruce-Pine Fir SS	7-7	11-10	15-7	19-1	†	7-7	11-2	14-1	17-3	20-0
	Spruce-Pine Fir #1	7-1	10-4	13-1	15-11	18-6	6-4	9-4	11-10	14-5	16-8
	Spruce-Pine Fir #2	7-1	10-4	13-1	15-11	18-6	6-4	9-4	11-10	14-5	16-8
	Spruce-Pine Fir #3	5-4	7-9	9-10	12-1	14-0	4-10	7-0	8-11	10-11	12-8
24 in.	Douglas Fir-Larch SS	7-7	11-11	15-3	18-8	†	7-5	10-11	13-10	16-10	19-7
	Douglas Fir-Larch #1	6-9	9-10	12-6	15-3	17-8	6-1	8-11	11-3	13-9	16-0
	Douglas Fir-Larch #2	6-5	9-4	11-10	14-6	16-9	5-9	8-5	10-8	13-1	15-2
	Douglas Fir-Larch #3	4-11	7-2	9-0	11-1	12-10	4-5	6-5	8-2	10-0	11-7
	Hem-Fir SS	7-2	11-3	14-9	18-0	†	7-2	10-6	13-4	16-4	18-11
	Hem-Fir #1	6-8	9-9	12-4	15-1	17-5	6-0	8-10	11-2	13-7	15-9
	Hem-Fir #2	6-3	9-1	11-6	14-1	16-4	5-7	8-3	10-5	12-8	14-9
	Hem-Fir #3	4-9	7-0	8-10	10-9	12-6	4-4	6-4	8-0	9-9	11-4
	Southern Pine SS	7-5	11-8	15-5	19-8	†	7-5	11-8	15-5	18-10	†
	Southern Pine #1	7-4	11-1	14-0	16-7	19-9	6-9	10-0	12-7	15-0	17-10
	Southern Pine #2	5-8	9-8	12-6	14-11	17-5	5-1	8-9	11-3	13-6	15-9
	Southern Pine #3	4-3	7-6	9-6	11-3	13-5	3-10	6-9	8-7	10-2	12-1
	Spruce-Pine Fir SS	7-0	11-0	14-0	17-0	19-9	6-10	10-0	12-7	15-5	17-10
	Spruce-Pine Fir #1	6-4	9-3	11-8	14-3	16-6	5-8	8-4	10-7	12-11	14-11
	Spruce-Pine Fir #2	6-4	9-3	11-8	14-3	16-6	5-8	8-4	10-7	12-11	14-11
	Spruce-Pine Fir #3	4-9	7-0	8-10	10-9	12-6	4-4	6-4	8-0	9-9	11-4

† Spans are limited to 20 feet in length.

See footnotes 1-3.

Table 3.26D Rafter Spans for Common Lumber Species

(Ceiling Attached to Rafters, Ground Snow Load = 30 psf, L/Δ = 240)

Joist Spacing	Species and Grade	Dead Load = 10 psf					Dead Load = 20 psf				
		2x4	2x6	2x8	2x10	2x12	2x4	2x6	2x8	2x10	2x12
		Maximum Rafter Spans ^{1,2}									
		(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)
12 in.	Douglas Fir-Larch SS	8-8	13-8	18-0	†	†	8-8	13-8	18-0	†	†
	Douglas Fir-Larch #1	8-4	13-2	17-4	†	†	8-4	12-7	15-11	19-6	†
	Douglas Fir-Larch #2	8-2	12-10	16-9	†	†	8-2	11-11	15-2	18-6	†
	Douglas Fir-Larch #3	6-11	10-1	12-9	15-7	18-1	6-3	9-2	11-7	14-1	16-4
	Hem-Fir SS	8-2	12-10	17-0	†	†	8-2	12-10	17-0	†	†
	Hem-Fir #1	8-0	12-7	16-7	†	†	8-0	12-5	15-9	19-3	†
	Hem-Fir #2	7-8	12-0	15-10	19-10	†	7-8	11-7	14-8	18-0	†
	Hem-Fir #3	6-9	9-10	12-6	15-3	17-8	6-1	8-11	11-3	13-9	16-0
	Southern Pine SS	8-6	13-5	17-8	†	†	8-6	13-5	17-8	†	†
	Southern Pine #1	8-4	13-2	17-4	†	†	8-4	13-2	17-4	†	†
	Southern Pine #2	7-10	12-10	17-0	†	†	7-2	12-4	15-11	19-0	†
	Southern Pine #3	6-0	10-7	13-6	15-11	19-0	5-5	9-7	12-2	14-5	17-2
	Spruce-Pine Fir SS	8-0	12-7	16-7	†	†	8-0	12-7	16-7	†	†
	Spruce-Pine Fir #1	7-10	12-4	16-3	†	†	7-10	11-9	14-11	18-3	†
	Spruce-Pine Fir #2	7-10	12-4	16-3	†	†	7-10	11-9	14-11	18-3	†
	Spruce-Pine Fir #3	6-9	9-10	12-6	15-3	17-8	6-1	8-11	11-3	13-9	16-0
16 in.	Douglas Fir-Larch SS	7-11	12-5	16-4	†	†	7-11	12-5	16-4	†	†
	Douglas Fir-Larch #1	7-7	11-11	15-3	18-8	†	7-5	10-11	13-10	16-10	19-7
	Douglas Fir-Larch #2	7-5	11-5	14-6	17-9	†	7-1	10-4	13-1	16-0	18-7
	Douglas Fir-Larch #3	6-0	8-9	11-1	13-6	15-8	5-5	7-11	10-0	12-3	14-2
	Hem-Fir SS	7-5	11-8	15-5	19-8	†	7-5	11-8	15-5	19-8	†
	Hem-Fir #1	7-3	11-5	15-1	18-5	†	7-3	10-9	13-8	16-8	19-4
	Hem-Fir #2	6-11	10-11	14-1	17-3	20-0	6-10	10-1	12-9	15-7	18-0
	Hem-Fir #3	5-10	8-6	10-10	13-2	15-4	5-3	7-9	9-9	11-11	13-10
	Southern Pine SS	7-9	12-2	16-0	†	†	7-9	12-2	16-0	†	†
	Southern Pine #1	7-7	11-11	15-9	†	†	7-7	11-11	15-5	18-4	†
	Southern Pine #2	6-11	11-8	15-3	18-3	†	6-3	10-8	13-10	16-6	19-4
	Southern Pine #3	5-3	9-2	11-8	13-9	16-5	4-9	8-3	10-7	12-6	14-10
	Spruce-Pine Fir SS	7-3	11-5	15-1	19-3	†	7-3	11-5	15-1	18-10	†
	Spruce-Pine Fir #1	7-1	11-2	14-4	17-6	†	7-0	10-2	12-11	15-9	18-4
	Spruce-Pine Fir #2	7-1	11-2	14-4	17-6	†	7-0	10-2	12-11	15-9	18-4
	Spruce-Pine Fir #3	5-10	8-6	10-10	13-2	15-4	5-3	7-9	9-9	11-11	13-10
19.2 in.	Douglas Fir-Larch SS	7-5	11-8	15-4	19-7	†	7-5	11-8	15-4	18-10	†
	Douglas Fir-Larch #1	7-2	11-0	14-0	17-0	19-9	6-10	10-0	12-7	15-5	17-10
	Douglas Fir-Larch #2	7-0	10-5	13-3	16-2	18-9	6-5	9-5	12-0	14-7	16-11
	Douglas Fir-Larch #3	5-5	8-0	10-1	12-4	14-4	4-11	7-3	9-2	11-2	12-11
	Hem-Fir SS	7-0	11-0	14-6	18-6	†	7-0	11-0	14-6	18-3	†
	Hem-Fir #1	6-10	10-9	13-9	16-10	19-6	6-9	9-10	12-5	15-3	17-8
	Hem-Fir #2	6-6	10-2	12-10	15-9	18-3	6-3	9-2	11-8	14-2	16-6
	Hem-Fir #3	5-4	7-9	9-10	12-1	14-0	4-10	7-0	8-11	10-11	12-8
	Southern Pine SS	7-3	11-5	15-1	19-3	†	7-3	11-5	15-1	19-3	†
	Southern Pine #1	7-2	11-3	14-10	18-6	†	7-2	11-3	14-1	16-9	20-0
	Southern Pine #2	6-4	10-10	14-0	16-8	19-6	5-8	9-9	12-7	15-1	17-8
	Southern Pine #3	4-9	8-4	10-8	12-7	15-0	4-4	7-7	9-8	11-5	13-7
	Spruce-Pine Fir SS	6-10	10-9	14-2	18-1	†	6-10	10-9	14-1	17-3	20-0
	Spruce-Pine Fir #1	6-8	10-4	13-1	15-11	18-6	6-4	9-4	11-10	14-5	16-8
	Spruce-Pine Fir #2	6-8	10-4	13-1	15-11	18-6	6-4	9-4	11-10	14-5	16-8
	Spruce-Pine Fir #3	5-4	7-9	9-10	12-1	14-0	4-10	7-0	8-11	10-11	12-8
24 in.	Douglas Fir-Larch SS	6-11	10-10	14-3	18-2	†	6-11	10-10	13-10	16-10	19-7
	Douglas Fir-Larch #1	6-8	9-10	12-6	15-3	17-8	6-1	8-11	11-3	13-9	16-0
	Douglas Fir-Larch #2	6-5	9-4	11-10	14-6	16-9	5-9	8-5	10-8	13-1	15-2
	Douglas Fir-Larch #3	4-11	7-2	9-0	11-1	12-10	4-5	6-5	8-2	10-0	11-7
	Hem-Fir SS	6-6	10-3	13-6	17-2	†	6-6	10-3	13-4	16-4	18-11
	Hem-Fir #1	6-4	9-9	12-4	15-1	17-5	6-0	8-10	11-2	13-7	15-9
	Hem-Fir #2	6-1	9-1	11-6	14-1	16-4	5-7	8-3	10-5	12-8	14-9
	Hem-Fir #3	4-9	7-0	8-10	10-9	12-6	4-4	6-4	8-0	9-9	11-4
	Southern Pine SS	6-9	10-8	14-0	17-10	†	6-9	10-8	14-0	17-10	†
	Southern Pine #1	6-8	10-5	13-9	16-7	19-9	6-8	10-0	12-7	15-0	17-10
	Southern Pine #2	5-8	9-8	12-6	14-11	17-5	5-1	8-9	11-3	13-6	15-9
	Southern Pine #3	4-3	7-6	9-6	11-3	13-5	3-10	6-9	8-7	10-2	12-1
	Spruce-Pine Fir SS	6-4	10-0	13-2	16-10	19-9	6-4	10-0	12-7	15-5	17-10
	Spruce-Pine Fir #1	6-3	9-3	11-8	14-3	16-6	5-8	8-4	10-7	12-11	14-11
	Spruce-Pine Fir #2	6-3	9-3	11-8	14-3	16-6	5-8	8-4	10-7	12-11	14-11
	Spruce-Pine Fir #3	4-9	7-0	8-10	10-9	12-6	4-4	6-4	8-0	9-9	11-4

† Spans are limited to 20 feet in length.
See footnotes 1-3.

PRESCRIPTIVE DESIGN

Table 3.26E Rafter Spans for Common Lumber Species

(Ceiling Not Attached to Rafters, Ground Snow Load = 50 psf, L/Δ = 180)

		Dead Load = 10 psf					Dead Load = 20 psf					
		2x4	2x6	2x8	2x10	2x12	2x4	2x6	2x8	2x10	2x12	
		Maximum Rafter Spans ^{1,2}										
Joist Spacing	Species and Grade	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	
12 in.	Douglas Fir-Larch SS	8-1	12-8	16-8	†	†	8-1	12-8	16-5	†	†	
	Douglas Fir-Larch #1	7-9	11-4	14-4	17-6	†	7-3	10-7	13-4	16-4	18-11	
	Douglas Fir-Larch #2	7-4	10-9	13-7	16-7	19-3	6-10	10-0	12-8	15-6	18-0	
	Douglas Fir-Larch #3	5-7	8-2	10-5	12-8	14-8	5-3	7-8	9-8	11-10	13-9	
	Hem-Fir SS	7-7	12-0	15-9	†	†	7-7	12-0	15-9	19-4	†	
	Hem-Fir #1	7-5	11-2	14-2	17-3	†	7-2	10-5	13-2	16-2	18-8	
	Hem-Fir #2	7-1	10-5	13-2	16-2	18-8	6-8	9-9	12-4	15-1	17-6	
	Hem-Fir #3	5-6	8-0	10-2	12-4	14-4	5-1	7-6	9-5	11-7	13-5	
	Southern Pine SS	7-11	12-5	16-5	†	†	7-11	12-5	16-5	†	†	
	Southern Pine #1	7-9	12-2	16-0	19-0	†	7-9	11-11	15-0	17-9	†	
	Southern Pine #2	6-6	11-1	14-4	17-1	†	6-0	10-4	13-4	16-0	18-8	
	Southern Pine #3	4-11	8-7	10-11	12-11	15-5	4-7	8-0	10-3	12-1	14-4	
	Spruce-Pine Fir SS	7-5	11-8	15-5	19-7	†	7-5	11-8	15-0	18-3	†	
	Spruce-Pine Fir #1	7-3	10-7	13-5	16-4	19-0	6-9	9-11	12-6	15-3	17-9	
	Spruce-Pine Fir #2	7-3	10-7	13-5	16-4	19-0	6-9	9-11	12-6	15-3	17-9	
	Spruce-Pine Fir #3	5-6	8-0	10-2	12-4	14-4	5-1	7-6	9-5	11-7	13-5	
	16 in.	Douglas Fir-Larch SS	7-4	11-6	15-2	18-7	†	7-4	11-2	14-2	17-4	†
		Douglas Fir-Larch #1	6-8	9-10	12-5	15-2	17-7	6-3	9-2	11-7	14-2	16-5
Douglas Fir-Larch #2		6-4	9-4	11-9	14-5	16-8	5-11	8-8	11-0	13-5	15-7	
Douglas Fir-Larch #3		4-10	7-1	9-0	11-0	12-9	4-6	6-8	8-5	10-3	11-11	
Hem-Fir SS		6-11	10-10	14-4	17-11	†	6-11	10-10	13-8	16-9	19-5	
Hem-Fir #1		6-7	9-8	12-3	15-0	17-4	6-2	9-0	11-5	14-0	16-2	
Hem-Fir #2		6-2	9-0	11-5	14-0	16-2	5-9	8-5	10-8	13-1	15-1	
Hem-Fir #3		4-9	6-11	8-9	10-9	12-5	4-5	6-6	8-2	10-0	11-7	
Southern Pine SS		7-2	11-4	14-11	19-0	†	7-2	11-4	14-11	19-0	†	
Southern Pine #1		7-1	11-0	13-10	16-6	19-8	6-11	10-4	12-11	15-5	18-4	
Southern Pine #2		5-7	9-7	12-5	14-10	17-4	5-3	9-0	11-7	13-10	16-2	
Southern Pine #3		4-3	7-5	9-6	11-2	13-4	4-0	6-11	8-10	10-5	12-5	
Spruce-Pine Fir SS		6-9	10-8	13-10	16-11	19-8	6-9	10-3	12-11	15-10	18-4	
Spruce-Pine Fir #1		6-3	9-2	11-7	14-2	16-5	5-10	8-7	10-10	13-3	15-4	
Spruce-Pine Fir #2		6-3	9-2	11-7	14-2	16-5	5-10	8-7	10-10	13-3	15-4	
Spruce-Pine Fir #3		4-9	6-11	8-9	10-9	12-5	4-5	6-6	8-2	10-0	11-7	
19.2 in.		Douglas Fir-Larch SS	6-11	10-10	13-10	16-11	19-8	6-11	10-3	12-11	15-10	18-4
		Douglas Fir-Larch #1	6-1	8-11	11-4	13-10	16-1	5-8	8-4	10-7	12-11	15-0
	Douglas Fir-Larch #2	5-10	8-6	10-9	13-1	15-3	5-5	7-11	10-0	12-3	14-2	
	Douglas Fir-Larch #3	4-5	6-6	8-2	10-0	11-7	4-2	6-1	7-8	9-4	10-10	
	Hem-Fir SS	6-6	10-3	13-5	16-4	19-0	6-6	9-11	12-6	15-3	17-9	
	Hem-Fir #1	6-0	8-10	11-2	13-8	15-10	5-8	8-3	10-5	12-9	14-9	
	Hem-Fir #2	5-8	8-3	10-5	12-9	14-9	5-3	7-8	9-9	11-11	13-10	
	Hem-Fir #3	4-4	6-4	8-0	9-9	11-4	4-0	5-11	7-6	9-2	10-7	
	Southern Pine SS	6-9	10-8	14-0	17-10	†	6-9	10-8	14-0	17-8	†	
	Southern Pine #1	6-8	10-1	12-8	15-0	17-11	6-4	9-5	11-10	14-0	16-9	
	Southern Pine #2	5-1	8-9	11-4	13-6	15-10	4-9	8-2	10-7	12-7	14-9	
	Southern Pine #3	3-10	6-10	8-8	10-3	12-2	3-7	6-4	8-1	9-6	11-4	
	Spruce-Pine Fir SS	6-4	10-0	12-8	15-6	17-11	6-4	9-4	11-10	14-5	16-9	
	Spruce-Pine Fir #1	5-9	8-4	10-7	12-11	15-0	5-4	7-10	9-11	12-1	14-0	
	Spruce-Pine Fir #2	5-9	8-4	10-7	12-11	15-0	5-4	7-10	9-11	12-1	14-0	
	Spruce-Pine Fir #3	4-4	6-4	8-0	9-9	11-4	4-0	5-11	7-6	9-2	10-7	
	24 in.	Douglas Fir-Larch SS	6-5	9-10	12-5	15-2	17-7	6-3	9-2	11-7	14-2	16-5
		Douglas Fir-Larch #1	5-6	8-0	10-2	12-4	14-4	5-1	7-6	9-5	11-7	13-5
Douglas Fir-Larch #2		5-2	7-7	9-7	11-9	13-7	4-10	7-1	9-0	11-0	12-8	
Douglas Fir-Larch #3		4-0	5-10	7-4	9-0	10-5	3-8	5-5	6-10	8-4	9-8	
Hem-Fir SS		6-0	9-6	12-0	14-8	17-0	6-0	8-10	11-2	13-8	15-10	
Hem-Fir #1		5-5	7-11	10-0	12-3	14-2	5-0	7-4	9-4	11-5	13-3	
Hem-Fir #2		5-0	7-4	9-4	11-5	13-3	4-8	6-11	8-9	10-8	12-4	
Hem-Fir #3		3-10	5-8	7-2	8-9	10-2	3-7	5-3	6-8	8-2	9-6	
Southern Pine SS		6-3	9-10	13-0	16-7	19-9	6-3	9-10	13-0	15-9	18-6	
Southern Pine #1		6-1	9-0	11-4	13-5	16-1	5-8	8-5	10-7	12-7	15-0	
Southern Pine #2		4-7	7-10	10-2	12-1	14-2	4-3	7-4	9-5	11-3	13-3	
Southern Pine #3		3-5	6-1	7-9	9-2	10-11	3-3	5-8	7-3	8-6	10-2	
Spruce-Pine Fir SS		5-11	8-11	11-4	13-10	16-1	5-8	8-4	10-7	12-11	15-0	
Spruce-Pine Fir #1		5-1	7-6	9-6	11-7	13-5	4-9	7-0	8-10	10-10	12-6	
Spruce-Pine Fir #2		5-1	7-6	9-6	11-7	13-5	4-9	7-0	8-10	10-10	12-6	
Spruce-Pine Fir #3		3-10	5-8	7-2	8-9	10-2	3-7	5-3	6-8	8-2	9-6	

† Spans are limited to 20 feet in length.

See footnotes 1-3.

Table 3.26F Rafter Spans for Common Lumber Species

(Ceiling Attached to Rafters, Ground Snow Load = 50 psf, L/Δ = 240)

Joist Spacing	Species and Grade	Dead Load = 10 psf					Dead Load = 20 psf				
		2x4	2x6	2x8	2x10	2x12	2x4	2x6	2x8	2x10	2x12
		Maximum Rafter Spans ^{1,2}									
		(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)
12 in.	Douglas Fir-Larch SS	7-4	11-6	15-2	19-4	†	7-4	11-6	15-2	19-4	†
	Douglas Fir-Larch #1	7-1	11-1	14-4	17-6	†	7-1	10-7	13-4	16-4	18-11
	Douglas Fir-Larch #2	6-11	10-9	13-7	16-7	19-3	6-10	10-0	12-8	15-6	18-0
	Douglas Fir-Larch #3	5-7	8-2	10-5	12-8	14-8	5-3	7-8	9-8	11-10	13-9
	Hem-Fir SS	6-11	10-10	14-4	18-3	†	6-11	10-10	14-4	18-3	†
	Hem-Fir #1	6-9	10-8	14-0	17-3	†	6-9	10-5	13-2	16-2	18-8
	Hem-Fir #2	6-5	10-2	13-2	16-2	18-8	6-5	9-9	12-4	15-1	17-6
	Hem-Fir #3	5-6	8-0	10-2	12-4	14-4	5-1	7-6	9-5	11-7	13-5
	Southern Pine SS	7-2	11-4	14-11	19-0	†	7-2	11-4	14-11	19-0	†
	Southern Pine #1	7-1	11-1	14-7	18-8	†	7-1	11-1	14-7	17-9	†
	Southern Pine #2	6-6	10-10	14-4	17-1	†	6-0	10-4	13-4	16-0	18-8
	Southern Pine #3	4-11	8-7	10-11	12-11	15-5	4-7	8-0	10-3	12-1	14-4
	Spruce-Pine Fir SS	6-9	10-8	14-0	17-10	†	6-9	10-8	14-0	17-10	†
	Spruce-Pine Fir #1	6-7	10-5	13-5	16-4	19-0	6-7	9-11	12-6	15-3	17-9
	Spruce-Pine Fir #2	6-7	10-5	13-5	16-4	19-0	6-7	9-11	12-6	15-3	17-9
	Spruce-Pine Fir #3	5-6	8-0	10-2	12-4	14-4	5-1	7-6	9-5	11-7	13-5
16 in.	Douglas Fir-Larch SS	6-8	10-5	13-9	17-7	†	6-8	10-5	13-9	17-4	†
	Douglas Fir-Larch #1	6-5	9-10	12-5	15-2	17-7	6-3	9-2	11-7	14-2	16-5
	Douglas Fir-Larch #2	6-3	9-4	11-9	14-5	16-8	5-11	8-8	11-0	13-5	15-7
	Douglas Fir-Larch #3	4-10	7-1	9-0	11-0	12-9	4-6	6-8	8-5	10-3	11-11
	Hem-Fir SS	6-3	9-10	13-0	16-7	†	6-3	9-10	13-0	16-7	19-5
	Hem-Fir #1	6-2	9-8	12-3	15-0	17-4	6-2	9-0	11-5	14-0	16-2
	Hem-Fir #2	5-10	9-0	11-5	14-0	16-2	5-9	8-5	10-8	13-1	15-1
	Hem-Fir #3	4-9	6-11	8-9	10-9	12-5	4-5	6-6	8-2	10-0	11-7
	Southern Pine SS	6-6	10-3	13-6	17-3	†	6-6	10-3	13-6	17-3	†
	Southern Pine #1	6-5	10-1	13-3	16-6	19-8	6-5	10-1	12-11	15-5	18-4
	Southern Pine #2	5-7	9-7	12-5	14-10	17-4	5-3	9-0	11-7	13-10	16-2
	Southern Pine #3	4-3	7-5	9-6	11-2	13-4	4-0	6-11	8-10	10-5	12-5
	Spruce-Pine Fir SS	6-2	9-8	12-9	16-3	19-8	6-2	9-8	12-9	15-10	18-4
	Spruce-Pine Fir #1	6-0	9-2	11-7	14-2	16-5	5-10	8-7	10-10	13-3	15-4
	Spruce-Pine Fir #2	6-0	9-2	11-7	14-2	16-5	5-10	8-7	10-10	13-3	15-4
	Spruce-Pine Fir #3	4-9	6-11	8-9	10-9	12-5	4-5	6-6	8-2	10-0	11-7
19.2 in.	Douglas Fir-Larch SS	6-3	9-10	13-0	16-6	19-8	6-3	9-10	12-11	15-10	18-4
	Douglas Fir-Larch #1	6-0	8-11	11-4	13-10	16-1	5-8	8-4	10-7	12-11	15-0
	Douglas Fir-Larch #2	5-10	8-6	10-9	13-1	15-3	5-5	7-11	10-0	12-3	14-2
	Douglas Fir-Larch #3	4-5	6-6	8-2	10-0	11-7	4-2	6-1	7-8	9-4	10-10
	Hem-Fir SS	5-11	9-3	12-3	15-7	19-0	5-11	9-3	12-3	15-3	17-9
	Hem-Fir #1	5-9	8-10	11-2	13-8	15-10	5-8	8-3	10-5	12-9	14-9
	Hem-Fir #2	5-6	8-3	10-5	12-9	14-9	5-3	7-8	9-9	11-11	13-10
	Hem-Fir #3	4-4	6-4	8-0	9-9	11-4	4-0	5-11	7-6	9-2	10-7
	Southern Pine SS	6-2	9-8	12-9	16-3	19-9	6-2	9-8	12-9	16-3	19-9
	Southern Pine #1	6-0	9-6	12-6	15-0	17-11	6-0	9-5	11-10	14-0	16-9
	Southern Pine #2	5-1	8-9	11-4	13-6	15-10	4-9	8-2	10-7	12-7	14-9
	Southern Pine #3	3-10	6-10	8-8	10-3	12-2	3-7	6-4	8-1	9-6	11-4
	Spruce-Pine Fir SS	5-9	9-1	12-0	15-3	17-11	5-9	9-1	11-10	14-5	16-9
	Spruce-Pine Fir #1	5-8	8-4	10-7	12-11	15-0	5-4	7-10	9-11	12-1	14-0
	Spruce-Pine Fir #2	5-8	8-4	10-7	12-11	15-0	5-4	7-10	9-11	12-1	14-0
	Spruce-Pine Fir #3	4-4	6-4	8-0	9-9	11-4	4-0	5-11	7-6	9-2	10-7
24 in.	Douglas Fir-Larch SS	5-10	9-2	12-0	15-2	17-7	5-10	9-2	11-7	14-2	16-5
	Douglas Fir-Larch #1	5-6	8-0	10-2	12-4	14-4	5-1	7-6	9-5	11-7	13-5
	Douglas Fir-Larch #2	5-2	7-7	9-7	11-9	13-7	4-10	7-1	9-0	11-0	12-8
	Douglas Fir-Larch #3	4-0	5-10	7-4	9-0	10-5	3-8	5-5	6-10	8-4	9-8
	Hem-Fir SS	5-6	8-7	11-4	14-6	17-0	5-6	8-7	11-2	13-8	15-10
	Hem-Fir #1	5-4	7-11	10-0	12-3	14-2	5-0	7-4	9-4	11-5	13-3
	Hem-Fir #2	5-0	7-4	9-4	11-5	13-3	4-8	6-11	8-9	10-8	12-4
	Hem-Fir #3	3-10	5-8	7-2	8-9	10-2	3-7	5-3	6-8	8-2	9-6
	Southern Pine SS	v	9-0	11-10	15-1	18-4	5-8	9-0	11-10	15-1	18-4
	Southern Pine #1	5-7	8-10	11-4	13-5	16-1	5-7	8-5	10-7	12-7	15-0
	Southern Pine #2	4-7	7-10	10-2	12-1	14-2	4-3	7-4	9-5	11-3	13-3
	Southern Pine #3	3-5	6-1	7-9	9-2	10-11	3-3	5-8	7-3	8-6	10-2
	Spruce-Pine Fir SS	5-4	8-5	11-1	13-10	16-1	5-4	8-4	10-7	12-11	15-0
	Spruce-Pine Fir #1	5-1	7-6	9-6	11-7	13-5	4-9	7-0	8-10	10-10	12-6
	Spruce-Pine Fir #2	5-1	7-6	9-6	11-7	13-5	4-9	7-0	8-10	10-10	12-6
	Spruce-Pine Fir #3	3-10	5-8	7-2	8-9	10-2	3-7	5-3	6-8	8-2	9-6

† Spans are limited to 20 feet in length.
See footnotes 1-3.

PRESCRIPTIVE DESIGN

Table 3.26G Rafter Spans for Common Lumber Species

(Ceiling Not Attached to Rafters, Ground Snow Load = 70 psf, L/Δ = 180)

Joist Spacing	Species and Grade	Dead Load = 10 psf					Dead Load = 20 psf				
		2x4	2x6	2x8	2x10	2x12	2x4	2x6	2x8	2x10	2x12
		Maximum Rafter Spans ^{1,2}									
		(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)
12 in.	Douglas Fir-Larch SS	7-2	11-4	14-11	18-6	†	7-2	11-4	14-5	17-7	†
	Douglas Fir-Larch #1	6-8	9-9	12-4	15-1	17-6	6-4	9-3	11-9	14-4	16-8
	Douglas Fir-Larch #2	6-4	9-3	11-9	14-4	16-7	6-0	8-10	11-2	13-7	15-9
	Douglas Fir-Larch #3	4-10	7-1	9-0	10-11	12-8	4-7	6-9	8-6	10-5	12-1
	Hem-Fir SS	6-10	10-8	14-1	17-11	†	6-10	10-8	13-11	17-0	19-8
	Hem-Fir #1	6-7	9-8	12-3	14-11	17-4	6-3	9-2	11-7	14-2	16-5
	Hem-Fir #2	6-2	9-0	11-5	13-11	16-2	5-10	8-7	10-10	13-3	15-4
	Hem-Fir #3	4-9	6-11	8-9	10-8	12-5	4-6	6-7	8-4	10-2	11-9
	Southern Pine SS	7-1	11-1	14-8	18-8	†	7-1	11-1	14-8	18-8	†
	Southern Pine #1	6-11	10-11	13-10	16-5	19-7	6-11	10-5	13-2	15-7	18-7
	Southern Pine #2	5-7	9-7	12-4	14-9	17-4	5-4	9-1	11-9	14-0	16-5
	Southern Pine #3	4-3	7-5	9-5	11-2	13-3	4-0	7-1	9-0	10-7	12-7
	Spruce-Pine Fir SS	6-8	10-5	13-9	16-11	19-7	6-8	10-4	13-2	16-0	18-7
	Spruce-Pine Fir #1	6-3	9-2	11-7	14-2	16-5	5-11	8-8	11-0	13-5	15-7
	Spruce-Pine Fir #2	6-3	9-2	11-7	14-2	16-5	5-11	8-8	11-0	13-5	15-7
	Spruce-Pine Fir #3	4-9	6-11	8-9	10-8	12-5	4-6	6-7	8-4	10-2	11-9
16 in.	Douglas Fir-Larch SS	6-6	10-3	13-1	16-0	18-7	6-6	9-10	12-5	15-3	17-8
	Douglas Fir-Larch #1	5-9	8-6	10-9	13-1	15-2	5-6	8-0	10-2	12-5	14-5
	Douglas Fir-Larch #2	5-6	8-0	10-2	12-5	14-5	5-2	7-7	9-8	11-9	13-8
	Douglas Fir-Larch #3	4-2	6-2	7-9	9-6	11-0	4-0	5-10	7-4	9-0	10-5
	Hem-Fir SS	6-2	9-8	12-8	15-6	18-0	6-2	9-6	12-0	14-8	17-1
	Hem-Fir #1	5-9	8-4	10-7	12-11	15-0	5-5	7-11	10-0	12-3	14-3
	Hem-Fir #2	5-4	7-10	9-11	12-1	14-0	5-1	7-5	9-4	11-5	13-3
	Hem-Fir #3	4-1	6-0	7-7	9-3	10-9	3-11	5-8	7-2	8-9	10-2
	Southern Pine SS	6-5	10-1	13-4	17-0	†	6-5	10-1	13-4	17-0	19-10
	Southern Pine #1	6-4	9-6	12-0	14-3	17-0	6-1	9-1	11-4	13-6	16-1
	Southern Pine #2	4-10	8-4	10-9	12-9	15-0	4-7	7-10	10-2	12-2	14-3
	Southern Pine #3	3-8	6-5	8-2	9-8	11-6	3-6	6-1	7-9	9-2	10-11
	Spruce-Pine Fir SS	6-1	9-5	12-0	14-8	17-0	6-1	9-0	11-4	13-11	16-1
	Spruce-Pine Fir #1	5-5	7-11	10-0	12-3	14-2	5-2	7-6	9-6	11-7	13-6
	Spruce-Pine Fir #2	5-5	7-11	10-0	12-3	14-2	5-2	7-6	9-6	11-7	13-6
	Spruce-Pine Fir #3	4-1	6-0	7-7	9-3	10-9	3-11	5-8	7-2	8-9	10-2
19.2 in.	Douglas Fir-Larch SS	6-2	9-5	12-0	14-8	17-0	6-2	9-0	11-4	13-11	16-1
	Douglas Fir-Larch #1	5-3	7-9	9-9	11-11	13-10	5-0	7-4	9-3	11-4	13-2
	Douglas Fir-Larch #2	5-0	7-4	9-3	11-4	13-2	4-9	7-0	8-10	10-9	12-6
	Douglas Fir-Larch #3	3-10	5-7	7-1	8-8	10-0	3-8	5-4	6-9	8-3	9-6
	Hem-Fir SS	5-10	9-2	11-7	14-2	16-5	5-10	8-8	11-0	13-5	15-7
	Hem-Fir #1	5-3	7-7	9-8	11-10	13-8	4-11	7-3	9-2	11-2	13-0
	Hem-Fir #2	4-10	7-1	9-0	11-0	12-9	4-7	6-9	8-7	10-5	12-1
	Hem-Fir #3	3-9	5-6	6-11	8-5	9-10	3-7	5-2	6-7	8-0	9-4
	Southern Pine SS	6-1	9-6	12-6	16-0	19-1	6-1	9-6	12-6	15-6	18-1
	Southern Pine #1	5-10	8-8	10-11	13-0	15-6	5-7	8-3	10-5	12-4	14-8
	Southern Pine #2	4-5	7-7	9-9	11-8	13-8	4-2	7-2	9-3	11-1	13-0
	Southern Pine #3	3-4	5-10	7-6	8-10	10-6	3-2	5-7	7-1	8-4	10-0
	Spruce-Pine Fir SS	5-8	8-8	10-11	13-4	15-6	5-7	8-2	10-5	12-8	14-8
	Spruce-Pine Fir #1	4-11	7-3	9-2	11-2	13-0	4-8	6-10	8-8	10-7	12-4
	Spruce-Pine Fir #2	4-11	7-3	9-2	11-2	13-0	4-8	6-10	8-8	10-7	12-4
	Spruce-Pine Fir #3	3-9	5-6	6-11	8-5	9-10	3-7	5-2	6-7	8-0	9-4
24 in.	Douglas Fir-Larch SS	5-9	8-6	10-9	13-1	15-2	5-6	8-0	10-2	12-5	14-5
	Douglas Fir-Larch #1	4-9	6-11	8-9	10-8	12-5	4-6	6-7	8-4	10-2	11-9
	Douglas Fir-Larch #2	4-6	6-7	8-4	10-2	11-9	4-3	6-3	7-11	9-7	11-2
	Douglas Fir-Larch #3	3-5	5-0	6-4	7-9	9-0	3-3	4-9	6-0	7-4	8-6
	Hem-Fir SS	5-5	8-2	10-4	12-8	14-8	5-4	7-9	9-10	12-0	13-11
	Hem-Fir #1	4-8	6-10	8-8	10-7	12-3	4-5	6-6	8-2	10-0	11-7
	Hem-Fir #2	4-4	6-4	8-1	9-10	11-5	4-2	6-1	7-8	9-4	10-10
	Hem-Fir #3	3-4	4-11	6-2	7-7	8-9	3-2	4-8	5-10	7-2	8-4
	Southern Pine SS	5-7	8-10	11-8	14-7	17-1	5-7	8-10	11-6	13-10	16-3
	Southern Pine #1	5-3	7-9	9-9	11-7	13-10	5-0	7-5	9-3	11-0	13-2
	Southern Pine #2	4-0	6-9	8-9	10-5	12-3	3-9	6-5	8-4	9-11	11-7
	Southern Pine #3	3-0	5-3	6-8	7-11	9-5	2-10	5-0	6-4	7-6	8-11
	Spruce-Pine Fir SS	5-3	7-9	9-9	11-11	13-10	5-0	7-4	9-3	11-4	13-2
	Spruce-Pine Fir #1	4-5	6-6	8-2	10-0	11-7	4-2	6-2	7-9	9-6	11-0
	Spruce-Pine Fir #2	4-5	6-6	8-2	10-0	11-7	4-2	6-2	7-9	9-6	11-0
	Spruce-Pine Fir #3	3-4	4-11	6-2	7-7	8-9	3-2	4-8	5-10	7-2	8-4

† Spans are limited to 20 feet in length.

See footnotes 1-3.

Table 3.26H Rafter Spans for Common Lumber Species

(Ceiling Attached to Rafters, Ground Snow Load = 70 psf, L/Δ = 240)

Joist Spacing	Species and Grade	Dead Load = 10 psf					Dead Load = 20 psf				
		2x4	2x6	2x8	2x10	2x12	2x4	2x6	2x8	2x10	2x12
		Maximum Rafter Spans ^{1,2}									
		(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)
12 in.	Douglas Fir-Larch SS	6-6	10-3	13-7	17-3	†	6-6	10-3	13-7	17-3	†
	Douglas Fir-Larch #1	6-4	9-9	12-4	15-1	17-6	6-4	9-3	11-9	14-4	16-8
	Douglas Fir-Larch #2	6-2	9-3	11-9	14-4	16-7	6-0	8-10	11-2	13-7	15-9
	Douglas Fir-Larch #3	4-10	7-1	9-0	10-11	12-8	4-7	6-9	8-6	10-5	12-1
	Hem-Fir SS	6-2	9-8	12-10	16-4	19-10	6-2	9-8	12-10	16-4	19-8
	Hem-Fir #1	6-1	9-6	12-3	14-11	17-4	6-1	9-2	11-7	14-2	16-5
	Hem-Fir #2	5-9	9-0	11-5	13-11	16-2	5-9	8-7	10-10	13-3	15-4
	Hem-Fir #3	4-9	6-11	8-9	10-8	12-5	4-6	6-7	8-4	10-2	11-9
	Southern Pine SS	6-5	10-1	13-4	17-0	†	6-5	10-1	13-4	17-0	†
	Southern Pine #1	6-4	9-11	13-1	16-5	19-7	6-4	9-11	13-1	15-7	18-7
	Southern Pine #2	5-7	9-7	12-4	14-9	17-4	5-4	9-1	11-9	14-0	16-5
	Southern Pine #3	4-3	7-5	9-5	11-2	13-3	4-0	7-1	9-0	10-7	12-7
	Spruce-Pine Fir SS	6-1	9-6	12-6	16-0	19-5	6-1	9-6	12-6	16-0	18-7
	Spruce-Pine Fir #1	5-11	9-2	11-7	14-2	16-5	5-11	8-8	11-0	13-5	15-7
	Spruce-Pine Fir #2	5-11	9-2	11-7	14-2	16-5	5-11	8-8	11-0	13-5	15-7
Spruce-Pine Fir #3	4-9	6-11	8-9	10-8	12-5	4-6	6-7	8-4	10-2	11-9	
16 in.	Douglas Fir-Larch SS	5-11	9-4	12-4	15-8	18-7	5-11	9-4	12-4	15-3	17-8
	Douglas Fir-Larch #1	5-9	8-6	10-9	13-1	15-2	5-6	8-0	10-2	12-5	14-5
	Douglas Fir-Larch #2	5-6	8-0	10-2	12-5	14-5	5-2	7-7	9-8	11-9	13-8
	Douglas Fir-Larch #3	4-2	6-2	7-9	9-6	11-0	4-0	5-10	7-4	9-0	10-5
	Hem-Fir SS	5-7	8-10	11-8	14-10	18-0	5-7	8-10	11-8	14-8	17-1
	Hem-Fir #1	5-6	8-4	10-7	12-11	15-0	5-5	7-11	10-0	12-3	14-3
	Hem-Fir #2	5-3	7-10	9-11	12-1	14-0	5-1	7-5	9-4	11-5	13-3
	Hem-Fir #3	4-1	6-0	7-7	9-3	10-9	3-11	5-8	7-2	8-9	10-2
	Southern Pine SS	5-10	9-2	12-1	15-5	18-9	5-10	9-2	12-1	15-5	18-9
	Southern Pine #1	5-9	9-0	11-10	14-3	17-0	5-9	9-0	11-4	13-6	16-1
	Southern Pine #2	4-10	8-4	10-9	12-9	15-0	4-7	7-10	10-2	12-2	14-3
	Southern Pine #3	3-8	6-5	8-2	9-8	11-6	3-6	6-1	7-9	9-2	10-11
	Spruce-Pine Fir SS	5-6	8-8	11-5	14-6	17-0	5-6	8-8	11-4	13-11	16-1
	Spruce-Pine Fir #1	5-4	7-11	10-0	12-3	14-2	5-2	7-6	9-6	11-7	13-6
	Spruce-Pine Fir #2	5-4	7-11	10-0	12-3	14-2	5-2	7-6	9-6	11-7	13-6
Spruce-Pine Fir #3	4-1	6-0	7-7	9-3	10-9	3-11	5-8	7-2	8-9	10-2	
19.2 in.	Douglas Fir-Larch SS	5-7	8-9	11-7	14-8	17-0	5-7	8-9	11-4	13-11	16-1
	Douglas Fir-Larch #1	5-3	7-9	9-9	11-11	13-10	5-0	7-4	9-3	11-4	13-2
	Douglas Fir-Larch #2	5-0	7-4	9-3	11-4	13-2	4-9	7-0	8-10	10-9	12-6
	Douglas Fir-Larch #3	3-10	5-7	7-1	8-8	10-0	3-8	5-4	6-9	8-3	9-6
	Hem-Fir SS	5-3	8-4	10-11	14-0	16-5	5-3	8-4	10-11	13-5	15-7
	Hem-Fir #1	5-2	7-7	9-8	11-10	13-8	4-11	7-3	9-2	11-2	13-0
	Hem-Fir #2	4-10	7-1	9-0	11-0	12-9	4-7	6-9	8-7	10-5	12-1
	Hem-Fir #3	3-9	5-6	6-11	8-5	9-10	3-7	5-2	6-7	8-0	9-4
	Southern Pine SS	5-6	8-8	11-5	14-6	17-8	5-6	8-8	11-5	14-6	17-8
	Southern Pine #1	5-5	8-6	10-11	13-0	15-6	5-5	8-3	10-5	12-4	14-8
	Southern Pine #2	4-5	7-7	9-9	11-8	13-8	4-2	7-2	9-3	11-1	13-0
	Southern Pine #3	3-4	5-10	7-6	8-10	10-6	3-2	5-7	7-1	8-4	10-0
	Spruce-Pine Fir SS	5-2	8-1	10-8	13-4	15-6	5-2	8-1	10-5	12-8	14-8
	Spruce-Pine Fir #1	4-11	7-3	9-2	11-2	13-0	4-8	6-10	8-8	10-7	12-4
	Spruce-Pine Fir #2	4-11	7-3	9-2	11-2	13-0	4-8	6-10	8-8	10-7	12-4
Spruce-Pine Fir #3	3-9	5-6	6-11	8-5	9-10	3-7	5-2	6-7	8-0	9-4	
24 in.	Douglas Fir-Larch SS	5-2	8-2	10-9	13-1	15-2	5-2	8-0	10-2	12-5	14-5
	Douglas Fir-Larch #1	4-9	6-11	8-9	10-8	12-5	4-6	6-7	8-4	10-2	11-9
	Douglas Fir-Larch #2	4-6	6-7	8-4	10-2	11-9	4-3	6-3	7-11	9-7	11-2
	Douglas Fir-Larch #3	3-5	5-0	6-4	7-9	9-0	3-3	4-9	6-0	7-4	8-6
	Hem-Fir SS	4-11	7-8	10-2	12-8	14-8	4-11	7-8	9-10	12-0	13-11
	Hem-Fir #1	4-8	6-10	8-8	10-7	12-3	4-5	6-6	8-2	10-0	11-7
	Hem-Fir #2	4-4	6-4	8-1	9-10	11-5	4-2	6-1	7-8	9-4	10-10
	Hem-Fir #3	3-4	4-11	6-2	7-7	8-9	3-2	4-8	5-10	7-2	8-4
	Southern Pine SS	5-1	8-0	10-7	13-6	16-5	5-1	8-0	10-7	13-6	16-3
	Southern Pine #1	5-0	7-9	9-9	11-7	13-10	5-0	7-5	9-3	11-0	13-2
	Southern Pine #2	4-0	6-9	8-9	10-5	12-3	3-9	6-5	8-4	9-11	11-7
	Southern Pine #3	3-0	5-3	6-8	7-11	9-5	2-10	5-0	6-4	7-6	8-11
	Spruce-Pine Fir SS	4-10	7-6	9-9	11-11	13-10	4-10	7-4	9-3	11-4	13-2
	Spruce-Pine Fir #1	4-5	6-6	8-2	10-0	11-7	4-2	6-2	7-9	9-6	11-0
	Spruce-Pine Fir #2	4-5	6-6	8-2	10-0	11-7	4-2	6-2	7-9	9-6	11-0
Spruce-Pine Fir #3	3-4	4-11	6-2	7-7	8-9	3-2	4-8	5-10	7-2	8-4	

† Spans are limited to 20 feet in length.
See footnotes 1-3.

PRESCRIPTIVE DESIGN



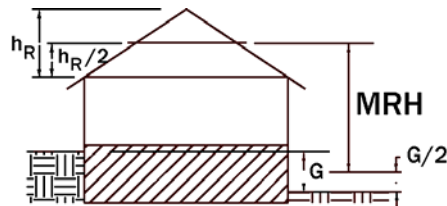
2007 ERRATA/ADDENDUM
 to
ANSI/AF&PA WFCM-2001
WOOD FRAME CONSTRUCTION MANUAL FOR ONE- AND TWO-FAMILY DWELLINGS
 (printing date 12-05 5M and earlier)

Page **Revision**

51 Figure 2.12c Top Chord Bearing on ~~Exterior~~ Interior Wall
 Figure 2.12d Top Chord Bearing on ~~Interior~~ Exterior Wall

107 3.1.3.1 Building Height
 The building shall not exceed three stories nor a mean roof height of 33 feet, measured from average grade to average roof elevation. For purposes of determining uplift, gravity loads, and lateral bracing requirements, the attic shall be considered an additional story when the roof slope is greater than 6 in 12 ~~or greater~~ (see Figure 3.1a).

118 Revise Figure 3.1a to be consistent with Section 3.1.3.1 as follows:



DETERMINING NUMBER OF STORIES ABOVE THE FOUNDATION	
O N E S T O R Y	
T W O S T O R Y	
T H R E E S T O R Y	
Foundation per section 1.1.4 MRH - Measured from average grade	



AMERICAN FOREST & PAPER ASSOCIATION

American Wood Council

Engineered and Traditional Wood Products

July 2003

To: Users of the 2001 *Wood Frame Construction Manual*

From: American Forest & Paper Association

Subject: Errata - 2001 *Wood Frame Construction Manual*

The 2001 *Wood Frame Construction Manual (WFCM) for One- and Two-Family Dwellings* (printing date 01-02 4M) contains erroneous spans for some depths of #2 grade Southern pine and all depths of #3 grade Southern pine floor joists in Tables 3.18A and 3.18B and some depths of Southern pine studs in Tables 3.20A, 3.20B, A-3.20A, and A-3.20B.

The following pages contain errata/addendum for the *WFCM*. Please correct the information in your copy of the *WFCM* per the errata immediately. If you have a copy of the *WFCM* with a printing date of 09-03 or later (see the back cover of the *WFCM* to verify), these changes have already been incorporated into the document.

Full-page replacements for Tables 3.18A, 3.18B, 3.20A, 3.20B, A-3.20A, and A-3.20B are also available at <http://www.awc.org/Publications/update/WFCM2001FullPage.pdf>. If you would like to receive self-adhesive tables that can be permanently inserted in your copy of the 2001 *WFCM*, please contact us with your mailing address at awcinfo@afandpa.org or by phone at (202) 463-4713.

We apologize for any inconvenience this may cause.



2003 ERRATA/ADDENDUM
 to
ANSI/AF&PA WFCM-2001
WOOD FRAME CONSTRUCTION MANUAL
FOR ONE- AND TWO-FAMILY DWELLINGS
 (printing date 01-02 4M)

Page Revision

73 Table 2.5B Replace lateral loads for a 1:12 roof pitch as follows:

Three Second Gust Wind Speed (mph)	85	90	100	110	120	130	140	150	
Roof Pitch	Roof Span (ft.)	Unit Lateral Loads for Roof Diaphragm, w_{roofll} , (plf) ^{1,2,3,4}							
1:12	24-60	37 43	42 48	52 60	63 72	74 86	87 101	101 117	116 134

87 Table 2.11 Replace unit header/girder beam loads as follows:

Ground Snow Load or Roof Live Load (psf)	RLL	GSL ²				RLL	GSL ³				RLL	GSL ⁴			
	20	30	50	70	20	30	50	70	20	30	50	70			
Roof Span (ft.)	Unit Header/Girder Beam Loads (plf) ¹														
12	200	285	408	531	380	451	575	698	629	656	741	864			
24	320	443	632	820	609	677	866	1054	1008	1046	1105	1288			
36	440	605	862	1118	838	907	1163	1420	1387	1438	1519	1721			
60	680	931	1326	1720	1295	1374	1762	2156	2144	2223	2346	2593			

148-149 Table 3.4 Replace lateral required capacity of connection loads for 19.2" o.c. spacing as follows:

Three Second Gust Wind Speed (mph)	85	90	100	110	120	130	140	150	
Rafter/Truss Spacing (in.)	Roof Span (ft.)	Required Capacity of Connections (lbs.) ^{1,2}							
		L	L	L	L	L	L	L	L
19.2	12-36	105	118	146	176	210	246	286	328
		126	142	175	212	252	296	343	394

162 Table 3.12A Replace minimum panel thickness for 24" o.c. rafter/truss spacing as follows:

Three Second Gust Wind Speed (mph)	85	90	100	110	120	130	140	150
Rafter/Truss Spacing (in.)	Minimum Panel Thickness (in.)							
24	3/8	3/8	3/8	3/8	7/16	7/16	15/32	15/32 19/32

Page Revision

180 Table 3.20A Replace Southern Pine maximum stud lengths as follows:

Three Second Gust Wind Speed (mph)		85			90			100			110		
Stud Spacing (in.)	Species/ Grade	2x4	2x6	2x8	2x4	2x6	2x8	2x4	2x6	2x8	2x4	2x6	2x8
		Maximum Allowable Stud Length (ft.-in.) ¹											
12	Southern Pine #3	15 - 7	†	†	14 - 11	†	†	13 - 11 13 - 4	†	†	13 - 0 12 - 1	‡ 18 - 4	†
16	Southern Pine #3	14 - 1 13 - 7	†	†	13 - 6 12 - 10	‡ 19 - 6	†	12 - 7 11 - 5	‡ 17 - 5	†	11 - 9 10 - 4	18 - 1 15 - 8	†
24	Southern Pine #2	12 - 9	†	†	12 - 3	19 - 9	†	11 - 5	18 - 4	†	10 - 8	17 - 2 16 - 7	†
	Southern Pine #3	12 - 2 11 - 0	19 - 2 16 - 8	†	11 - 9 10 - 4	18 - 0 15 - 8	†	10 - 11 9 - 3	16 - 1 14 - 0	20 - 0 18 - 1	10 - 2 8 - 4	14 - 6 12 - 7	18 - 0 16 - 4

181 Table 3.20A Replace Southern Pine maximum stud lengths as follows:

Three Second Gust Wind Speed (mph)		120			130			140			150		
Stud Spacing (in.)	Species/ Grade	2x4	2x6	2x8	2x4	2x6	2x8	2x4	2x6	2x8	2x4	2x6	2x8
		Maximum Allowable Stud Length (ft.-in.) ¹											
12	Southern Pine #2	12 - 10	†	†	12 - 1	19 - 5	†	11 - 6	18 - 6	†	11 - 0	17 - 7 17 - 3	†
	Southern Pine #3	12 - 3 11 - 0	19 - 2 16 - 8	†	11 - 7 10 - 1	17 - 7 15 - 4	‡ 19 - 10	11 - 0 9 - 4	16 - 3 14 - 2	‡ 18 - 4	10 - 6 8 - 8	15 - 1 13 - 1	18 - 9 17 - 0
16	Southern Pine #2	11 - 7	18 - 7	†	11 - 0	17 - 7 17 - 3	†	10 - 5	16 - 8 15 - 11	†	9 - 11	15 - 11 14 - 9	‡ 19 - 6
	Southern Pine #3	11 - 1 9 - 5	16 - 5 14 - 3	‡ 18 - 6	10 - 5 8 - 8	15 - 1 13 - 1	18 - 9 17 - 0	9 - 11 8 - 0	13 - 11 12 - 1	17 - 4 15 - 8	9 - 3 -	12 - 11 11 - 3	16 - 1 14 - 7
24	Southern Pine #1	10 - 3	16 - 6	†	9 - 9	15 - 7	†	9 - 3	14 - 10	19 - 9 19 - 0	8 - 9	14 - 1 13 - 10	18 - 10 17 - 8
	Southern Pine #2	10 - 1	16 - 2 15 - 1	‡ 19 - 11	9 - 6 9 - 5	15 - 3 13 - 10	‡ 18 - 3	9 - 0 8 - 9	14 - 6 12 - 10	18 - 7 16 - 10	8 - 7 8 - 1	13 - 8 11 - 11	17 - 3 15 - 8
	Southern Pine #3	9 - 5 -	13 - 3 11 - 6	16 - 5 14 - 11	8 - 8 -	12 - 2 10 - 7	15 - 1 13 - 8	8 - 0 -	11 - 3 9 - 9	13 - 11 12 - 8	-	10 - 5 9 - 1	12 - 11 11 - 9

182 Table 3.20B Replace Southern Pine maximum stud lengths as follows:

Three Second Gust Wind Speed (mph)		85			90			100			110		
Stud Spacing (in.)	Species/ Grade	2x4	2x6	2x8	2x4	2x6	2x8	2x4	2x6	2x8	2x4	2x6	2x8
		Maximum Allowable Stud Length (ft.-in.) ¹											
12	Southern Pine #3	15 - 7	†	†	14 - 11	†	†	13 - 11	†	†	13 - 0	‡ 20 - 0	†
16	Southern Pine #3	14 - 1	†	†	13 - 6	†	†	12 - 7	‡ 18 - 11	†	11 - 9	18 - 10 17 - 1	†
24	Southern Pine #3	12 - 2	19 - 7 18 - 2	†	11 - 9	18 - 10 17 - 1	†	10 - 11 10 - 7	17 - 6 15 - 3	‡ 19 - 0	10 - 2 9 - 7	15 - 10 13 - 9	18 - 10 17 - 1

Page **Revision**

183 Table 3.20B Replace Southern Pine maximum stud lengths as follows:

Three Second Gust Wind Speed (mph)		120			130			140			150		
Stud Spacing (in.)	Species/Grade	2x4	2x6	2x8	2x4	2x6	2x8	2x4	2x6	2x8	2x4	2x6	2x8
		Maximum Allowable Stud Length (ft.-in.) ¹											
12	Southern Pine #3	12 - 3	19-7 18-2	†	11 - 7	18-7 16-8	†	11-0 10-9	17-7 15-5	‡	10-6 10-0	16-6 14-4	19-7 17-9
16	Southern Pine #3	11-1 10-10	17-9 15-7	‡	10-5 10-0	16-5 14-3	19-7 17-9	9-11 9-2	15-2 13-2	18-1 16-5	9-6 8-7	14-1 12-3	16-10 15-3
24	Southern Pine #1	10 - 3	16 - 6	†	9 - 9	15 - 7	†	9 - 3	14 - 10	19 - 9	8 - 9	14 - 1	18-10 18-6
	Southern Pine #2	10 - 1	16 - 2	†	9 - 6	15-3 15-1	‡	9 - 0	14-6 14-0	19-4 17-8	8 - 7	13-10 13-0	18-1 16-5
	Southern Pine #3	9-7 8-9	14-5 12-6	17-2 15-7	9-1 8-0	13-3 11-6	15-9 14-4	8-7 -	12-3 10-7	14-7 13-2	8-3 -	11-4 9-10	13-6 12-3

192 Table 3.23A Replace maximum header/girder spans for glued laminated beams as follows:

Three Second Gust Wind Speed (mph)	85	90	100	110	120	130	140	150
Maximum Header/Girder Spans for Glued Laminated Beams ^{1,2,3,5,6}								
Size	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)
3x5.500	12-9	12-0	10-10	9-10	9-0	8-4	7-9	7-2
3x6.875	14-3	13-5	12-1	11-0	10-1	9-4	8-8	8-1
3x8.250	15-7	14-8	13-3	12-0	11-0	10-2	9-5	8-10
3x9.625	‡	15-11	14-4	13-0	11-11	11-0	10-3	9-6
3x11.000	‡	‡	15-3	13-11	12-9	11-9	10-11	10-2
3x12.375	‡	‡	‡	14-9	13-6	12-6	11-7	10-10
3x13.750	‡	‡	‡	15-6	14-3	13-2	12-2	11-5
3x15.125	‡	‡	‡	‡	14-11	13-9	12-10	11-11
3x16.5000	‡	‡	‡	‡	15-7	14-5	13-4	12-6
3x17.875	‡	‡	‡	‡	‡	15-0	13-11	13-0
3x19.250	‡	‡	‡	‡	‡	15-7	14-5	13-6
3x20.625	‡	‡	‡	‡	‡	‡	14-11	13-11
3x22.000	‡	‡	‡	‡	‡	‡	15-5	14-5
3x23.375	‡	‡	‡	‡	‡	‡	15-11	14-10
3x24.750	‡	‡	‡	‡	‡	‡	‡	15-3
5x5.5000	‡	‡	‡	15-11	14-7	13-6	12-6	11-8
5x6.875	‡	‡	‡	‡	‡	15-1	14-0	13-1
5x8.250	‡	‡	‡	‡	‡	‡	15-4	14-4
5x9.625	‡	‡	‡	‡	‡	‡	‡	15-6

Page Revision

211 Table 3.29A Replace ridge beam span as follows:

Size	Roof Dead Load = 10 psf			Roof Dead Load = 20 psf		
	Building Width (ft.)			Building Width (ft.)		
	12	24	36	12	24	36
	Maximum Ridge Beam Spans (ft.-in.) for Glued Laminated Beams ²					
5x20.625	5-9 <u>44-10</u>	4-6 <u>35-7</u>	4-0 <u>31-1</u>	5-2 <u>40-9</u>	4-4 <u>32-4</u>	3-7 <u>28-3</u>

212 Table 3.29B Replace ridge beam span as follows:

Size	Roof Dead Load = 10 psf			Roof Dead Load = 20 psf		
	Building Width (ft.)			Building Width (ft.)		
	12	24	36	12	24	36
	Maximum Ridge Beam Spans (ft.-in.) for Glued Laminated Beams ²					
5x20.625	5-6 <u>43-5</u>	4-5 <u>34-5</u>	3-10 <u>30-1</u>	5-1 <u>39-9</u>	4-0 <u>31-7</u>	3-6 <u>27-7</u>

213 Table 3.29C Replace ridge beam span as follows:

Size	Roof Dead Load = 10 psf			Roof Dead Load = 20 psf		
	Building Width (ft.)			Building Width (ft.)		
	12	24	36	12	24	36
	Maximum Ridge Beam Spans (ft.-in.) for Glued Laminated Beams ²					
5x20.625	4-9 <u>37-6</u>	3-9 <u>29-9</u>	3-4 <u>26-0</u>	4-7 <u>35-11</u>	3-8 <u>28-6</u>	3-1 <u>24-1</u>

214 Table 3.29D Replace ridge beam span as follows:

Size	Roof Dead Load = 10 psf			Roof Dead Load = 20 psf		
	Building Width (ft.)			Building Width (ft.)		
	12	24	36	12	24	36
	Maximum Ridge Beam Spans (ft.-in.) for Glued Laminated Beams ²					
5x20.625	4-3 <u>33-6</u>	3-5 <u>26-7</u>	2-11 <u>22-8</u>	4-3 <u>33-3</u>	3-4 <u>26-1</u>	2-7 <u>20-1</u>

216-217 Table A-3.2 Replace required lateral wall bottom plate to foundation required capacities as follows:

Three Second Gust Wind Speed (mph)			85	90	100	110	120	130	140	150
Wall Bottom Plate to Foundation (Slab-on-Grade)	Number of Stories	Roof Span (ft.)	Required Capacity of Connection (plf) ^{1,2}							
			L	L	L	L	L	L	L	L
	2	20-36	79 <u>110</u>	89 <u>123</u>	109 <u>152</u>	132 <u>184</u>	157 <u>219</u>	185 <u>257</u>	214 <u>298</u>	246 <u>342</u>
			79 <u>110</u>	89 <u>123</u>	109 <u>152</u>	132 <u>184</u>	157 <u>219</u>	185 <u>257</u>	214 <u>298</u>	246 <u>342</u>
	3	28-36	79 <u>110</u>	89 <u>123</u>	109 <u>152</u>	132 <u>184</u>	157 <u>219</u>	185 <u>257</u>	214 <u>298</u>	246 <u>342</u>
			79 <u>110</u>	89 <u>123</u>	109 <u>152</u>	132 <u>184</u>	157 <u>219</u>	185 <u>257</u>	214 <u>298</u>	246 <u>342</u>

Page Revision

222-223 Table A-3.4 Replace required lateral connection requirements for 19.2" o.c. spacing as follows:

Three Second Gust Wind Speed (mph)		85	90	100	110	120	130	140	150
Rafter/Truss Spacing (in.)	Roof Span (ft.)	Required Capacity of Connection (lbs.)							
		L	L	L	L	L	L	L	L
19.2	12-36	146	164	202	245	291	342	397	455
		<u>175</u>	<u>197</u>	<u>243</u>	<u>294</u>	<u>350</u>	<u>411</u>	<u>476</u>	<u>547</u>

235 Table A-3.12A Replace minimum panel thickness for 24" o.c. rafter/truss spacing as follows:

Three Second Gust Wind Speed (mph)		85	90	100	110	120	130	140	150
Rafter/Truss Spacing (in.)		Minimum Panel Thickness (in.)							
		24		3/8	3/8	3/8	7/16	15/32	15/32
<u>19/32</u>	<u>19/32</u>			<u>19/32</u>					

244 Table A-3.20A Replace Southern Pine maximum stud lengths as follows:

Three Second Gust Wind Speed (mph)		85			90			100			110		
Stud Spacing (in.)	Species/Grade	2x4	2x6	2x8	2x4	2x6	2x8	2x4	2x6	2x8	2x4	2x6	2x8
		Maximum Allowable Stud Length (ft.-in.) ¹											
12	Southern Pine #3	13-10 <u>13-4</u>	†	†	13-4 <u>12-6</u>	‡ <u>19-0</u>	†	12-5 <u>11-2</u>	19-7 <u>17-0</u>	†	11-7 <u>10-1</u>	17-8 <u>15-4</u>	‡ <u>19-11</u>
	Southern Pine #2	13 - 2	†	†	12 - 7	†	†	11 - 9	18 - 10	†	11 - 0	17-7 <u>17-4</u>	†
16	Southern Pine #3	12-6 <u>11-5</u>	20-0 <u>17-4</u>	†	12-1 <u>10-9</u>	18-9 <u>16-4</u>	†	11-2 <u>9-7</u>	16-9 <u>14-7</u>	‡ <u>18-11</u>	10-6 <u>8-8</u>	15-2 <u>13-2</u>	18-10 <u>17-1</u>
	Southern Pine #2	11 - 5	18 - 4	†	11 - 0	17-7 <u>17-3</u>	†	10 - 2	16-4 <u>15-5</u>	†	9-6 <u>9-5</u>	15-3 <u>13-11</u>	‡ <u>18-4</u>
24	Southern Pine #3	10-11 <u>9-2</u>	16-1 <u>14-0</u>	20-0 <u>18-1</u>	10-6 <u>8-8</u>	15-1 <u>13-1</u>	18-9 <u>17-0</u>	9-7 :	13-6 <u>11-9</u>	16-9 <u>15-2</u>	8-8 :	12-2 <u>10-7</u>	15-1 <u>13-9</u>
	Southern Pine #2	11 - 5	18 - 4	†	11 - 0	17-7 <u>17-3</u>	†	10 - 2	16-4 <u>15-5</u>	†	9-6 <u>9-5</u>	15-3 <u>13-11</u>	‡ <u>18-4</u>

Page **Revision**

245 Table A-3.20A Replace Southern Pine maximum stud lengths as follows:

Three Second Gust Wind Speed (mph)		120			130			140			150		
Stud Spacing (in.)	Species/ Grade	2x4	2x6	2x8	2x4	2x6	2x8	2x4	2x6	2x8	2x4	2x6	2x8
		Maximum Allowable Stud Length (ft.-in.) ¹											
12	Southern Pine #2	11 - 5	18 - 4	†	10 - 10	17-4 <u>16-10</u>	†	10 - 3	16-5 <u>15-7</u>	†	9 - 9	15-8 <u>14-6</u>	‡
	Southern Pine #3	10-11 <u>9-3</u>	16-1 <u>14-0</u>	20-0 <u>18-1</u>	10-4 <u>8-6</u>	14-9 <u>12-10</u>	18-4 <u>16-8</u>	9-8 <u>7-10</u>	13-8 <u>11-10</u>	16-11 <u>15-4</u>	9-0 -	12-8 <u>11-0</u>	15-9 <u>14-3</u>
16	Southern Pine #1	10 - 7	16 - 11	†	10 - 0	16 - 0	†	9 - 6	15 - 2	‡ <u>19-10</u>	9 - 0	14-6 <u>14-5</u>	19-4 <u>18-5</u>
	Southern Pine #2	10 - 4	16-7 <u>15-9</u>	†	9 - 9	15-8 <u>14-6</u>	‡ <u>19-0</u>	9-3 <u>9-1</u>	14-11 <u>13-4</u>	19-5 <u>17-7</u>	8-10 <u>8-5</u>	14-2 <u>12-5</u>	18-0 <u>16-4</u>
	Southern Pine #3	9-10 <u>7-11</u>	13-9 <u>12-0</u>	17-1 <u>15-6</u>	9-0 -	12-8 <u>11-0</u>	15-9 <u>14-3</u>	8-4 -	11-8 <u>10-2</u>	14-6 <u>13-2</u>	-	10-10 <u>9-5</u>	13-6 <u>12-3</u>
24	Southern Pine #1	9 - 2	14 - 8	19-8 <u>18-10</u>	8 - 8	13-11 <u>13-6</u>	18-7 <u>17-3</u>	8-3 <u>8-2</u>	13-2 <u>12-6</u>	17-7 <u>15-11</u>	7-10 -	12-7 <u>11-7</u>	16-4 <u>14-10</u>
	Southern Pine #2	9-0 <u>8-7</u>	14-5 <u>12-8</u>	18-5 <u>16-8</u>	8-6 <u>7-11</u>	13-5 <u>11-8</u>	16-4 <u>15-4</u>	8-1 -	12-4 <u>10-9</u>	15-7 <u>14-2</u>	-	11-6 <u>10-0</u>	14-6 <u>13-2</u>
	Southern Pine #3	7-11 -	11-1 <u>9-8</u>	13-9 <u>12-6</u>	-	10-2 <u>8-10</u>	12-8 <u>11-6</u>	-	9-5 <u>8-2</u>	11-8 <u>10-7</u>	-	8-9 -	10-10 <u>9-10</u>

246 Table A-3.20B Replace Southern Pine maximum stud lengths as follows:

Three Second Gust Wind Speed (mph)		85			90			100			110		
Stud Spacing (in.)	Species/ Grade	2x4	2x6	2x8	2x4	2x6	2x8	2x4	2x6	2x8	2x4	2x6	2x8
		Maximum Allowable Stud Length (ft.-in.) ¹											
12	Southern Pine #3	13 - 10	†	†	13 - 4	†	†	12 - 5	19-10 <u>18-6</u>	†	11 - 7	18-7 <u>16-9</u>	†
16	Southern Pine #3	12 - 6	‡ <u>18-11</u>	†	12 - 1	19-4 <u>17-9</u>	†	11-2 <u>11-1</u>	18-0 <u>15-11</u>	‡ <u>19-9</u>	10 - 0	16-6 <u>14-4</u>	19-8 <u>17-10</u>
24	Southern Pine #2	11 - 5	18 - 4	†	11 - 0	17 - 7	†	10 - 2	16 - 4	†	9 - 6	15-3 <u>15-2</u>	‡ <u>19-2</u>
	Southern Pine #3	10-11 <u>10-7</u>	17-6 <u>15-2</u>	‡ <u>18-11</u>	10-6 <u>10-0</u>	16-6 <u>14-4</u>	19-7 <u>17-9</u>	9-9 <u>8-11</u>	14-8 <u>12-9</u>	17-6 <u>15-11</u>	9-1 <u>8-1</u>	13-3 <u>11-6</u>	15-10 <u>14-4</u>

247 Table A-3.20B Replace Southern Pine maximum stud lengths as follows:

Three Second Gust Wind Speed (mph)		120			130			141			150		
Stud Spacing (in.)	Species/Grade	2x4	2x6	2x8	2x4	2x6	2x8	2x4	2x6	2x8	2x4	2x6	2x8
		Maximum Allowable Stud Length (ft.-in.) ¹											
12	Southern Pine #2	11 - 5	18 - 4	†	10 - 10	17 - 4	†	10 - 3	16 - 5	†	9 - 9	15 - 8	† 19 - 11
	Southern Pine #3	10 - 11 10 - 7	17 - 6 15 - 3	† 19 - 0	10 - 4 9 - 9	16 - 1 14 - 0	19 - 2 17 - 5	9 - 9 9 - 0	14 - 10 12 - 11	17 - 9 16 - 1	9 - 4 8 - 4	13 - 10 12 - 0	16 - 5 14 - 11
16	Southern Pine #1	10 - 7	16 - 11	†	10 - 0	16 - 0	†	9 - 6	15 - 2	†	9 - 0	14 - 6	19 - 4 19 - 3
	Southern Pine #2	10 - 4	16 - 7	†	9 - 9	15 - 8	19 - 11	9 - 3	14 - 11 14 - 7	19 - 11 18 - 5	8 - 10	14 - 2 13 - 6	18 - 10 17 - 1
	Southern Pine #3	9 - 10 9 - 1	15 - 0 13 - 1	17 - 11 16 - 3	9 - 4 8 - 4	13 - 10 12 - 0	16 - 5 14 - 11	8 - 10 -	12 - 9 11 - 1	15 - 2 13 - 9	8 - 5 -	11 - 10 10 - 3	14 - 1 12 - 9
24	Southern Pine #1	9 - 2	14 - 8	19 - 8	8 - 8	13 - 11	18 - 7 18 - 1	8 - 3	13 - 2	17 - 8 16 - 8	7 - 10	12 - 7	16 - 10 15 - 6
	Southern Pine #2	9 - 0	14 - 5 13 - 10	19 - 3 17 - 5	8 - 6	13 - 7 12 - 8	17 - 8 16 - 0	8 - 1	12 - 11 11 - 9	16 - 4 14 - 9	-	12 - 4 10 - 11	15 - 2 13 - 9
	Southern Pine #3	8 - 7 -	12 - 1 10 - 6	14 - 5 13 - 1	8 - 1 -	11 - 1 9 - 8	13 - 3 12 - 0	-	10 - 3 8 - 11	12 - 3 11 - 1	-	9 - 6 8 - 3	11 - 4 10 - 3

249 Table A-3.23A Replace maximum header/girder spans for glued laminated beams as follows:

Three Second Gust Wind Speed (mph)	85	90	100	110	120	130	140	150
Maximum Header/Girder Spans for Glued Laminated Beams ^{1,2,3,5,6}								
Size	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)
3x5.500	10 - 9	10 - 2	9 - 2	8 - 4	7 - 8	7 - 1	6 - 7	6 - 1
3x6.875	12 - 1	11 - 5	10 - 3	9 - 4	8 - 7	7 - 11	7 - 4	6 - 10
3x8.250	13 - 2	12 - 6	11 - 3	10 - 2	9 - 4	8 - 8	8 - 0	7 - 6
3x9.625	14 - 3	13 - 6	12 - 2	11 - 0	10 - 1	9 - 4	8 - 8	8 - 1
3x11.000	15 - 3	14 - 5	13 - 0	11 - 9	10 - 10	10 - 0	9 - 3	8 - 8
3x12.375	□	15 - 3	13 - 9	12 - 6	11 - 6	10 - 7	9 - 10	9 - 2
3x13.750	□	□	14 - 6	13 - 2	12 - 1	11 - 2	10 - 4	9 - 8
3x15.125	□	□	15 - 2	13 - 10	12 - 8	11 - 8	10 - 10	10 - 2
3x16.5000	□	□	15 - 11	14 - 5	13 - 3	12 - 3	11 - 4	10 - 7
3x17.875	□	□	□	15 - 0	13 - 9	12 - 9	11 - 10	11 - 0
3x19.250	□	□	□	15 - 7	14 - 4	13 - 2	12 - 3	11 - 5
3x20.625	□	□	□	□	14 - 10	13 - 8	12 - 8	11 - 10
3x22.000	□	□	□	□	15 - 3	14 - 1	13 - 1	12 - 3
3x23.375	□	□	□	□	15 - 9	14 - 6	13 - 6	12 - 7
3x24.750	□	□	□	□	□	15 - 0	13 - 11	13 - 0
5x5.5000	□	□	14 - 11	13 - 6	12 - 5	11 - 5	10 - 8	9 - 11
5x6.875	□	□	□	15 - 1	13 - 10	12 - 10	11 - 11	11 - 1
5x8.250	□	□	□	□	15 - 2	14 - 0	13 - 0	12 - 2
5x9.625	□	□	□	□	□	15 - 2	14 - 1	13 - 1

Page Revision

273 Supplement Table 3A Replace allowable total uniform loads as follows:

Sheathing Type	Span Rating or Grade	Minimum Thickness (in.)	Sheathing Long Dimension Orientation							
			⊥ to Supports				to Supports			
			Maximum Stud Spacing (in.)	Actual Stud Spacing			Maximum Stud Spacing (in.)	Actual Stud Spacing		
				12	16	24		12	16	24
Allowable Total Uniform Loads (psf)			Allowable Total Uniform Loads (psf)			Allowable Total Uniform Loads (psf)				
Hardboard Siding (Direct to Studs)	Shiplap Edge Panel Siding	7/16	24	226	127	57	24	390 <u>226</u>	220 <u>127</u>	78 <u>57</u>
	Square Edge Panel Siding	7/16	24	226	127	57	24	390 <u>226</u>	220 <u>127</u>	78 <u>57</u>
Lumber Board Sheathing ³	#4 Common or Utility	5/8	24	130	60	0 <u>30</u>	-	-	-	-



AMERICAN FOREST & PAPER ASSOCIATION

American Wood Council
Engineered and Traditional Wood Products

April 2003

**2003 ERRATA/ADDENDUM
to
ANSI/AF&PA WFCM-2001**

**WOOD FRAME CONSTRUCTION MANUAL
FOR ONE- AND TWO-FAMILY DWELLINGS**

Page(s) Revision(s)

177 Replace Southern Pine Grade #2 and #3 Maximum Floor Joist Spans in Table 3.18A with:

		Dead Load = 10 psf				Dead Load = 20 psf			
		2x6	2x8	2x10	2x12	2x6	2x8	2x10	2x12
Maximum Floor Joist Spans									
Joist Spacing	Species and Grade	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)
12 in.	Southern Pine #2	11 - 10	15 - 7	19 - 10	24 - 2	11 - 10	15 - 7	19 - 6 18 - 7	21 - 9
	Southern Pine #3	11 - 3 10 - 5	14 - 7 13 - 3	16 - 5 15 - 8	18 - 8	10 - 8 9 - 4	13 - 0 11 - 11	14 - 9 14 - 0	16 - 8
16 in.	Southern Pine #2	10 - 9	14 - 2	18 - 0	21 - 1	10 - 9 10 - 5	14 - 2 13 - 6	16 - 10 16 - 1	18 - 10
	Southern Pine #3	10 - 3 9 - 0	12 - 7 11 - 6	14 - 3 13 - 7	16 - 2	9 - 3 8 - 1	11 - 3 10 - 3	12 - 9 12 - 2	14 - 6
19.2 in.	Southern Pine #2	10 - 1	13 - 4	17 - 0 16 - 5	19 - 3	10 - 1 9 - 6	13 - 4 12 - 4	15 - 5 14 - 8	17 - 2
	Southern Pine #3	9 - 5 8 - 3	11 - 6 10 - 6	13 - 0 12 - 5	14 - 9	8 - 5 7 - 4	10 - 3 9 - 5	11 - 8 11 - 1	13 - 2
24 in.	Southern Pine #2	9 - 4	12 - 4	15 - 5 14 - 8	17 - 2	9 - 4 8 - 6	12 - 1 11 - 0	13 - 9 13 - 1	15 - 5
	Southern Pine #3	8 - 5 7 - 4	10 - 3 9 - 5	11 - 8 11 - 1	13 - 2	7 - 6 6 - 7	9 - 2 8 - 5	10 - 5 9 - 11	11 - 10

178 Replace Southern Pine Grade #2 and #3 Maximum Floor Joist Spans in Table 3.18B with:

		Dead Load = 10 psf				Dead Load = 20 psf			
		2x6	2x8	2x10	2x12	2x6	2x8	2x10	2x12
Maximum Floor Joist Spans									
Joist Spacing	Species and Grade	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)	(ft.-in.)
12 in.	Southern Pine #2	10 - 9	14 - 2	18 - 0	21 - 9	10 - 9	14 - 2	17 - 9 16 - 11	19 - 10
	Southern Pine #3	10 - 3 9 - 4	13 - 0 11 - 11	14 - 9 14 - 0	16 - 8	9 - 8 8 - 6	11 - 11 10 - 10	13 - 5 12 - 10	15 - 3
16 in.	Southern Pine #2	9 - 9	12 - 10	16 - 5 16 - 1	18 - 10	9 - 9 9 - 6	12 - 10 12 - 4	15 - 5 14 - 8	17 - 2
	Southern Pine #3	9 - 3 8 - 1	11 - 3 10 - 3	12 - 9 12 - 2	14 - 6	8 - 5 7 - 4	10 - 3 9 - 5	11 - 8 11 - 1	13 - 2
19.2 in.	Southern Pine #2	9 - 2	12 - 1	15 - 5 14 - 8	17 - 2	9 - 2 8 - 8	12 - 1 11 - 3	14 - 1 13 - 5	15 - 8
	Southern Pine #3	8 - 5 7 - 4	10 - 3 9 - 5	11 - 8 11 - 1	13 - 2	7 - 8 6 - 9	9 - 5 8 - 7	10 - 7 10 - 1	12 - 1
24 in.	Southern Pine #2	8 - 6	11 - 3 11 - 0	13 - 9 13 - 1	15 - 5	8 - 6 7 - 9	11 - 0 10 - 0	12 - 7 12 - 0	14 - 0
	Southern Pine #3	7 - 6 6 - 7	9 - 2 8 - 5	10 - 5 9 - 11	11 - 10	6 - 10 6 - 0	8 - 5 7 - 8	9 - 6 9 - 1	10 - 9

Alternatively, cut and paste the following onto pages 177-178 of the 2001 WFCM to replace Tables 3.18A and 3.18B. If you would like to receive a self-adhesive version of the following pages that can be permanently inserted in your document, please contact AWC with your mailing address.



AMERICAN FOREST & PAPER ASSOCIATION

American Wood Council
Engineered and Traditional Wood Products

October 2002

2002 ERRATA/ADDENDUM

to

ANSI/AF&PA WFCM-2001

***WOOD FRAME CONSTRUCTION MANUAL
 FOR ONE- AND TWO-FAMILY DWELLINGS***

Page(s) Revision(s)

- 146 In footnotes 3, 4, and 5 replace the phrase “percent full-height sheathing” with “required shear capacity”.
- 147 In Seismic Category C for ½" anchor bolts at the sill plate to foundation of a 1 story structure, the maximum anchor bolt spacing should be 72, not 668.
- 154 Footnote 4 should be added as follows: Per general construction requirements a minimum of 2 nails shall be used for the stud to plate connection.
- 161 Under the column titled "sheathing location" modify as follows:
Delete “4”” and replace with “Perimeter”.
- 168 Replace Table 3.16B with:

Three Second Gust Wind Speed (mph)		85		90		100		110	
Foundation Supporting	Building Endwall Width (ft.)	Allowable Building Sidewall Length (ft.)							
		Min	max	min	max	min	max	min	max
1-3 Stories	12	10	48 36	10	48 36	10	45 36	10	38 36
	16	10	64 48	10	64 48	10	61 48	10	50 48
	20	10	80 60	10	80 60	10	76 60	10	63 60
	24	10	80 72	10	80 72	10	80 72	10	75 72
	28	10	80	10	80	10	80	10	80
	32	10 11	80	10 11	80	10 11	80	10 11	80
	36	10 12	80	10 12	80	10 12	80	10 12	80
	40	10 13	80	10 13	80	10 13	80	12 13	80
	50	13 17	80	13 17	80	13 17	80	14 17	80
	60	15 20	80	15 20	80	15 20	80	17 20	80
	70	18 23	80	18 23	80	18 23	80	20 23	80
	80	20 27	80	20 27	80	20 27	80	27	80

- 172 In footnote 6 add the word "of" between the words "length" and "sheathing"
- 173 Remove the reference to footnote 1 from Table 3.17D as follows:

No Sheathing or Non-Rated Sheathing		Wind	Seismic	Wind	Seismic	Wind	Seismic
1/2" Gypsum Wallboard (Unblocked)	5d cooler nails - 7" edge spacing	100	100 ^{1,2}	2:1	2:1	4.36	7.20

Page(s) Revision(s)

- 176 Footnote 1 should be modified as follows:
The word "multiplied" should be deleted and replaced with the word "divided".
- 178 In the title to Table 3.18B delete the word "sleeping" and add the word "living" from the information in parentheses.
- 185 Footnote 2 of both tables should read as follows:
Tabulated splice lengths assume a building located in Exposure B or C.
- 196 Under the column titled "Header Supporting" modify the wording as follows:
~~Two~~One Floors Only
- 198 The first row of Table 3.25A should be modified as follows:
Dead Load = ~~510~~ psf
- 208 The first row of Footnote 3 should be modified as follows:
- | | |
|--------------------------|---|
| 20 psf Live, 10 psf Dead | 20 psf Live, 10 <u>20</u> psf Dead |
|--------------------------|---|
- 228 Footnote 4 should be added as follows:
Per general construction requirements a minimum of 2 nails shall be used for the stud to plate connection.

2002 ERRATA/ADDENDUM
to
AF&PA WFCM COMMENTARY-2001

WOOD FRAME CONSTRUCTION MANUAL
FOR ONE- AND TWO-FAMILY DWELLINGS COMMENTARY

Page(s) Revision(s)

- 43 The equation for "p" at the top of the right hand column should be modified as follows:
$$p = [51.4] / [(\cos(\del{6/12} \u2066))(\cos(\del{6/12} \u2066)) / (16/12)]$$

An Overview of the 2001 ANSI/AF&PA Wood Frame Construction Manual for One- and Two-Family Dwellings

Scott Lockyear, P.E.

Introduction

Over the last 20 years, building construction regulators and insurance underwriters have increasingly questioned whether existing prescriptive code provisions for conventional wood-frame construction are technically justified. Such concerns with conventional construction are largely the result of damage to wood-frame structures by hurricanes and earthquakes in the 1980s and 1990s.

While most structural damage from high-wind and seismic events has been attributed to lack of code compliance, the wood industry nonetheless has sought to develop prescriptive design provisions based on engineering principles for high-wind and seismic regions. The culmination of this effort to date is the 2001 *Wood Frame Construction Manual for One- and Two-Family Dwellings (WFCM)* published by the American Forest & Paper Association (AF&PA 2001).

Wood Frame Construction Manual

The *WFCM* was initially published in 1996, after almost 10 years of development by AF&PA. Shortly after publication, the *Wood Frame Construction Manual for One- and Two-Family Dwellings, 1995 High Wind Edition* was approved as a reference standard in the 1997 *Standard Build-*

ing Code (SBC) as an acceptable method for design and construction of one- and two-family residences. In recognition of its beneficial provisions, the 1995 *WFCM* was subsequently approved for use in the 1999 *National Building Code*, 2000 *International Building Code*® (*IBC*®) and 2000 *International Residential Code*® (*IRC*®).

Building on widespread acceptance of the 1995 *WFCM*, AF&PA developed the 2001 edition to cover design of wood-frame buildings for the entire United States. The 2001 *WFCM* has since been adopted into the 2003 *IBC* and 2003 *IRC*.

The 2001 *WFCM* addresses wood-frame design in all regions of the country, including areas subject to extreme wind, snow, and seismic events. The wind, snow, and seismic loads are based on the 2000 *IBC*, while design resistances for members and connections are based on the 1997 *ANSI/AF&PA National Design Specification for Wood Construction*.

The 2001 *WFCM* consists of a set of two books: the *WFCM* and a Commentary (**Fig. 1**). The *WFCM* has three chapters and a supplement. Chapter 1 presents general information that applies to the entire document, including scoping limi-



Figure 1.—Wood Frame Construction Manual and Commentary.

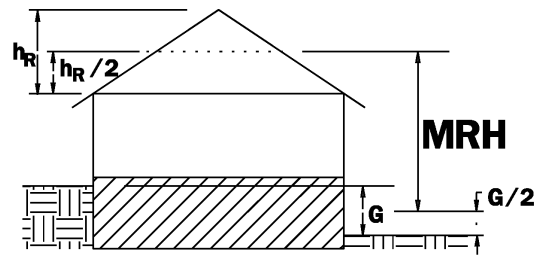
tations, definitions, and referenced standards. Chapter 2 provides engineered load and capacity tables and construction details for I-joists and trusses. Chapter 3 presents prescriptive methods of design and construction derived from the load tables in Chapter 2, thereby enabling the user to mix the prescriptive methods with the engineered solutions. The supplement section provides design resistances for structural members, nail connection capacities, allowable spans for floor and roof sheathing, and shear capacities for horizontal diaphragms and shear walls, which are used to generate the prescriptive solutions in Chapter 3.

The *WFCM Commentary* provides background information and example calculations for various sections and tables of the manual. Background information is intended to give the reader an in-depth understanding of the engineering principles under which the manual’s provisions were developed. Examples of calculation procedures used to produce tables in the *WFCM* are provided to illustrate the scope of conditions covered by each table.

WFCM Prescriptive Construction Provisions

Chapter 3 of the 2001 *WFCM* provides prescriptive solutions for dwellings up to three stories, 33-feet high, with roof slopes from 0 to 45 degrees. For roof slopes 6 in 12 or greater, the attic space is considered to be an additional story (Fig. 2).

Prescriptive solutions are provided for resistance of gravity loads from occupancy, construction, and snow, in addition to uplift, lateral, and shear forces from wind and seismic loads (Fig. 3). Design loads for snow are based on ground snow loads ranging from 0 to 70 pounds per square foot. Loads due to wind are based on 3-second-gust wind speeds of 85 to 150 miles per hour, Exposures B and C. Seismic design uses the *IBC* simplified design procedure and may be used for Seismic Design Categories A–D.



DETERMINING NUMBER OF STORIES ABOVE THE FOUNDATION	
ONE STORY	
TWO STORY	
THREE STORY	
ONE STORY	
TWO STORY	
THREE STORY	

Figure 2.—Determining the number of stories above the foundation.

Attention to forces created by these loads allows the building designer to adequately size framing members and fasteners. Attention to fastening is especially critical if a continuous load path is to be maintained to transfer all forces from the roof, wall, and floor to the foundation system.

Tabulated design resistances for structural members are given for the major species of Douglas Fir-Larch, Hem-Fir, Southern Pine, and Spruce-Pine-Fir. Connection capacities are given for common and box nails. In addition, connection load tables from the engineered design provisions of Chapter 2 are reproduced in the prescriptive provisions to facilitate use of proprietary connectors.

Many of the tables in Chapter 3 include condensed information covering more than one design condition. In order to make the tables and other provisions of the standard readily understandable, typical construction details are

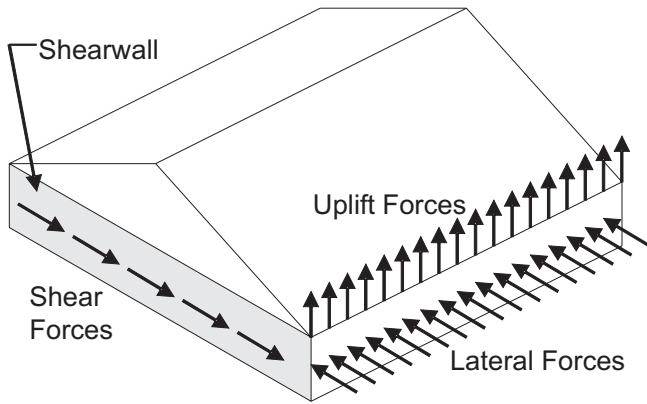


Figure 3.—Uplift, lateral, and shear loads.

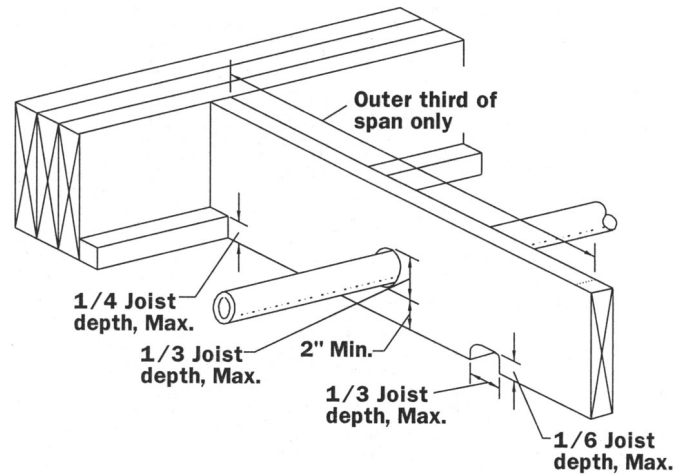


Figure 4.—Joist and rafter notching and boring limits.

presented throughout the *WFCM* to clarify issues and illustrate acceptable methods of construction. These details were derived from building code provisions and industry standards of good practice. For example, **Figures 4 and 5** (taken from the *WFCM*) illustrate notching and boring limitations for joists, rafters, and studs. These limitations are the same as those in the model building codes.

The *WFCM* does not include design guidelines for foundations. Instead, the manual relies on design of the foundation system by a competent individual in accordance with building code requirements. The *WFCM* does, however, provide specifications for fastening wood-frame structures to foundations addressing the prescriptive use of 1/2-inch and 5/8-inch anchor bolts (**Fig. 6**).

The provisions of the *WFCM* are not intended to prevent the use of other materials or methods of construction. When a product or procedure can be shown to provide equivalent or greater resistance, the product or procedure can be accepted by the authorized jurisdiction as conforming to the document.

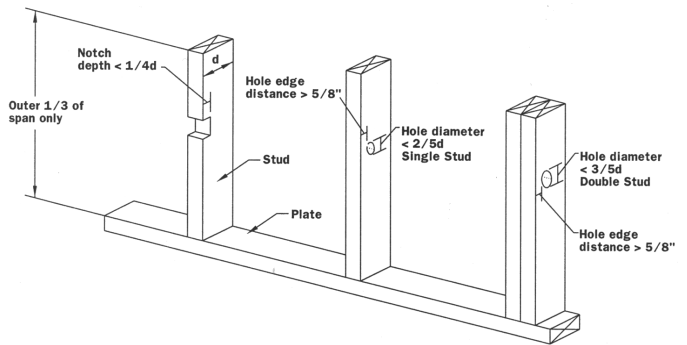


Figure 5.—Stud notching and boring limits.

State-of-the-Art Design Procedures

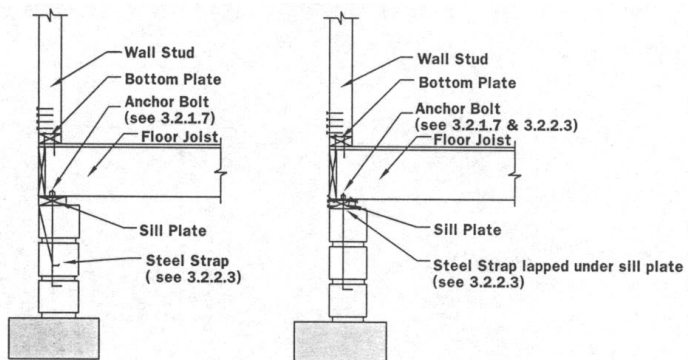
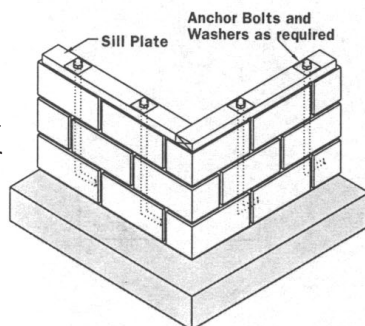
In developing the *WFCM*, an effort has been made to incorporate state-of-the-art design procedures as they become available in order to more accurately account for the actual performance of a wood-frame structure. Some of the design procedures of particular significance include the repetitive

member factor for wall studs based on partial composite action and load sharing, perforated shear wall design method, 1.4 increase for shear wall and diaphragm capacities, and summing shear capacities of dissimilar materials.

Repetitive Member Factors for Wall Studs

Wall studs in an assembly sheathed on both sides are generally stronger and stiffer than those in similar, un-sheathed wall assemblies. The enhanced performance, or “system effect,” is commonly quantified by considering the effects of partial composite action and load sharing.

Figure 6.—Sill plate anchorage to masonry or foundation.



New repetitive-member factors for wood stud wall assemblies were added to the 1997 *SBC*. These factors were based on a study of wood stud walls that found that partial composite action and load sharing, which occur in a common 2x4 wall assembly with wood structural panel and gypsum wallboard sheathing, produce wall strengths 1.56 times greater than would be predicted by traditional single-member design (Polensek 1976). Based on subsequent modeling, repetitive-member factors were developed for use in the design of wall studs sheathed with a wood structural panel exterior sheathing and interior gypsum wallboard. These values are provided in **Table 1**.

Perforated Shear Wall Design Method

The perforated shear wall method was developed to account for the reduced shear capacity of a shear wall when full overturning restraint is not provided at each full-height segment. Based on research performed in Japan (Sugiyama 1981) and other summarized research (Douglas et al. 1994), the method allows for design of shear wall segments without intermediate overturning restraint next to openings (Fig. 7). Both the segmented method, which assumes hold-downs for each full height segment, and the perforated shear wall method have been incorporated in the *WFCM*.

Increased Shear Wall and Diaphragm Capacities for Wind Loads

Historically, the minimum safety factor on wood structural panel shear walls and diaphragms resisting wind loads has been 2.8. This safety factor is often in excess of what is typically required for other components in wood-frame construction. A 40-percent increase is now allowed for shear wall and diaphragm capacity when resisting wind loads. This change was incorporated into the 1997 *SBC*, 2000 *IBC*, and wood industry standards and literature.

In addition to increasing wood structural panel resistance to wind, the contribution of interior sheathing was taken into account in the design. Historically, the contribution of interior gypsum wallboard has been ignored. Provisions in the *SBC*, 2000 *IBC*, and industry standards and literature now recognize that summing of materials is allowed for wind loads. Both the increase in shear-wall and diaphragm capacity and the summing of dissimilar materials are included in the 2001 *WFCM*.

Wood Building Design Workshop

As a way of encouraging proper design and construction of wood-frame buildings, the AF&PA American Wood Council (AWC) has developed an in-depth workshop on using the *WFCM*. The workshop includes classroom instruction and awards continuing education units. Participants are provided with a copy of the *WFCM* and a design workbook which includes a comprehensive design example (Fig. 8). The workbook also includes a design template for use after

Table 1.—Repetitive member factor for wall studs resisting wind.

Stud Size	Repetitive Member Factor
2x4	1.50
2x6	1.35
2x8	1.25
2x10	1.20
2x12	1.15

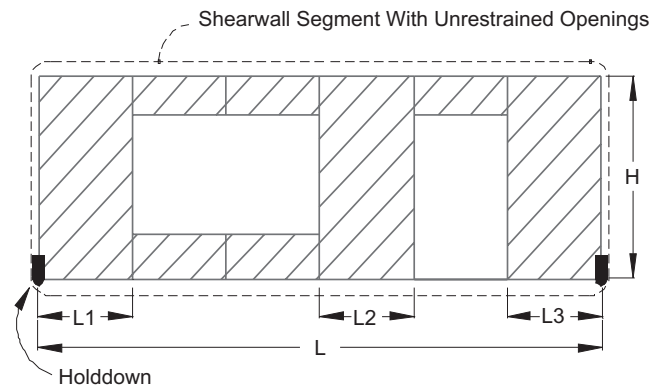


Figure 7.—Typical perforated shearwall with unrestrained openings.



Figure 8.—*WFCM* workbook design house.

the workshop when designing other buildings using the *WFCM*.

Workshop participants are familiarized with the *WFCM* through analysis of a typical two-story house designed from roof to foundation for Seismic Design Category D_1 ; a ground snow load of 30 pounds per square foot; and an Exposure B, 3-second-gust 120 mph wind speed. The focus of the course is practical design using permitted tables from the *WFCM*. Learning how to efficiently use the *WFCM* is valuable as it offers a method of design that requires a minimum amount of time commitment by the designer.

Although designers of wood-frame dwellings are the primary audience for the course, building contractors and code officials will also benefit from familiarizing them-

selves with the tables, specifications, illustrations, and general design concepts.

For those who cannot attend the *WFCM* workshop, AF&PA offers a web-based course and electronic workbook through its website at www.awc.org.

Conclusion

Over the past two decades, new prescriptive design methods for wood-frame construction have been developed based on engineering mechanics and adopted by the model codes. Engineered prescriptive solutions are often used in high natural-hazard regions where the limits of conventional construction in the building codes may be exceeded. AF&PA's *WFCM* provides both engineered and prescriptive solutions for wood-frame structures subject to high wind, seismic, and snow loads.

For more information on the *WFCM*, AWC's wood building design course or other educational materials, visit AWC's website at www.awc.org.

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