

Roof Span Tables

Maximum clear span in feet and inches, based on horizontal spans.

115% and 125% Load Duration

Condition			BCI® 4500s 1.8 Joist 1 3/4" Flange Width												BCI® 5000 1.8 Joist 2" Flange Width											
			9 1/2"			11 1/8"			14"			16"			9 1/2"			11 1/8"			14"					
			4/12 or Less	4/12 to 8/12	8/12 to 12/12	4/12 or Less	4/12 to 8/12	8/12 to 12/12	4/12 or Less	4/12 to 8/12	8/12 to 12/12	4/12 or Less	4/12 to 8/12	8/12 to 12/12	4/12 or Less	4/12 to 8/12	8/12 to 12/12	4/12 or Less	4/12 to 8/12	8/12 to 12/12	4/12 or Less	4/12 to 8/12	8/12 to 12/12			
O.C. Spacing & Load Duration	Live Load (psf)	Dead Load (psf)																								
12" o.c.	Non-Snow 125%	20	10	23'-10"	22'-6"	20'-10"	28'-5"	26'-9"	24'-10"	22'-3"	30'-5"	28'-3"	25'-9"	33'-8"	31'-2"	24'-40"	23'-5"	21'-9"	29'-7"	27'-11"	25'-11"	33'-8"	31'-9"	29'-5"		
		20	15	122'-7"	21'-3"	19'-7"	25'-11"	25'-3"	23'-4"	30'-7"	28'-9"	26'-6"	33'-6"	31'-10"	29'-4"	23'-8"	22'-1"	20'-5"	28'-9"	26'-4"	24'-4"	31'-10"	28'-11"	27'-7"		
		20	20	21'-7"	20'-2"	18'-7"	25'-8"	24'-0"	22'-1"	29'-2"	27'-4"	25'-1"	31'-4"	30'-3"	27'-10"	22'-5"	21'-0"	19'-4"	26'-9"	25'-0"	23'-0"	30'-5"	28'-5"	26'-2"		
	Snow 115%	25	10	22'-8"	21'-5"	19'-11"	26'-11"	25'-6"	23'-8"	30'-2"	29'-0"	27'-4"	25'-11"	31'-4"	30'-3"	27'-10"	22'-5"	21'-0"	19'-4"	26'-9"	25'-0"	23'-0"	30'-5"	28'-5"	26'-2"	
		25	15	21'-7"	20'-4"	18'-10"	25'-9"	24'-2"	22'-5"	28'-2"	27'-5"	25'-6"	30'-1"	29'-4"	28'-3"	22'-7"	21'-2"	20'-9"	28'-1"	26'-7"	24'-9"	31'-11"	30'-2"	28'-1"		
		30	10	21'-8"	20'-6"	19'-1"	25'-9"	24'-5"	22'-9"	28'-3"	27'-9"	25'-11"	30'-2"	29'-8"	28'-3"	22'-6"	21'-2"	19'-7"	26'-10"	25'-3"	23'-4"	30'-3"	28'-8"	26'-7"		
		30	15	20'-9"	19'-7"	18'-2"	24'-5"	23'-4"	21'-8"	26'-7"	25'-11"	24'-7"	28'-5"	27'-9"	26'-10"	21'-7"	20'-5"	18'-11"	25'-9"	24'-4"	22'-2"	28'-6"	27'-8"	25'-8"		
		40	10	19'-8"	18'-11"	17'-10"	23'-2"	22'-6"	21'-3"	25'-3"	24'-11"	24'-2"	27'-0"	26'-8"	26'-1"	20'-6"	19'-8"	18'-7"	24'-5"	23'-5"	22'-7"	28'-6"	27'-8"	25'-8"		
		40	15	19'-5"	18'-4"	17'-1"	22'-1"	21'-8"	20'-4"	24'-1"	23'-7"	22'-11"	25'-8"	25'-2"	24'-6"	20'-2"	19'-1"	17'-10"	23'-8"	22'-9"	21'-3"	25'-10"	25'-4"	24'-1"		
		50	10	18'-3"	17'-6"	16'-7"	21'-2"	20'-10"	19'-9"	23'-1"	22'-10"	22'-5"	24'-8"	24'-4"	24'-0"	19'-0"	18'-3"	17'-3"	22'-8"	21'-9"	20'-7"	24'-10"	24'-6"	23'-5"		
		50	15	17'-11"	17'-4"	16'-3"	20'-4"	20'-0"	19'-4"	22'-2"	21'-9"	21'-3"	23'-8"	23'-3"	22'-9"	19'-0"	18'-1"	16'-11"	21'-10"	21'-5"	20'-2"	23'-9"	23'-4"	22'-10"		
		16" o.c.	Non-Snow 125%	20	10	21'-7"	20'-5"	18'-11"	25'-9"	24'-3"	22'-6"	29'-3"	27'-7"	25'-7"	31'-5"	30'-7"	28'-4"	22'-6"	21'-3"	19'-8"	26'-10"	25'-4"	23'-6"	30'-6"	29'-9"	26'-8"
20	15			20'-6"	19'-3"	17'-9"	24'-4"	22'-11"	21'-1"	27'-2"	26'-0"	24'-0"	29'-0"	28'-2"	26'-7"	21'-4"	20'-0"	18'-6"	25'-5"	23'-10"	22'-0"	28'-11"	27'-1"	25'-0"		
20	20			19'-6"	18'-3"	16'-10"	23'-3"	21'-9"	20'-0"	25'-4"	24'-0"	22'-4"	27'-1"	25'-2"	24'-11"	20'-4"	19'-0"	17'-6"	24'-3"	22'-8"	20'-10"	27'-2"	25'-10"	23'-6"		
Snow 115%	25		10	20'-6"	19'-5"	18'-1"	24'-0"	23'-1"	21'-6"	26'-1"	25'-7"	24'-5"	27'-11"	27'-4"	26'-7"	21'-4"	20'-2"	18'-10"	25'-6"	24'-1"	22'-5"	28'-1"	27'-4"	25'-6"		
	25		15	19'-7"	18'-5"	17'-1"	22'-4"	21'-9"	20'-4"	24'-4"	23'-9"	22'-11"	26'-0"	25'-4"	24'-5"	20'-5"	19'-2"	17'-9"	24'-0"	23'-10"	21'-2"	26'-2"	25'-6"	24'-1"		
	30		10	19'-7"	18'-7"	17'-4"	22'-5"	22'-0"	20'-7"	24'-5"	24'-0"	23'-5"	26'-1"	25'-8"	25'-0"	20'-5"	19'-4"	18'-1"	24'-1"	23'-1"	21'-6"	26'-3"	25'-9"	24'-5"		
	30		15	18'-7"	17'-9"	16'-6"	21'-1"	20'-7"	19'-7"	23'-0"	22'-5"	21'-9"	24'-7"	24'-0"	23'-3"	19'-7"	18'-6"	17'-2"	22'-8"	22'-0"	20'-5"	24'-8"	24'-1"	23'-3"		
	40		10	17'-8"	17'-1"	16'-2"	20'-1"	19'-9"	19'-3"	21'-10"	21'-7"	21'-1"	23'-4"	23'-0"	22'-7"	18'-7"	17'-10"	16'-10"	21'-7"	21'-3"	20'-1"	23'-6"	23'-2"	22'-8"		
	40		15	16'-10"	16'-6"	15'-6"	19'-1"	18'-8"	18'-2"	20'-10"	20'-5"	19'-10"	22'-3"	21'-10"	21'-3"	18'-1"	17'-4"	16'-1"	20'-6"	20'-1"	19'-3"	22'-4"	21'-11"	21'-4"		
	50		10	16'-2"	15'-10"	15'-0"	18'-4"	18'-1"	17'-9"	19'-11"	19'-9"	19'-5"	21'-4"	21'-1"	20'-9"	17'-2"	16'-6"	15'-8"	19'-8"	19'-5"	18'-8"	21'-5"	21'-2"	20'-10"		
	50		15	15'-6"	15'-3"	14'-8"	17'-7"	17'-3"	16'-10"	19'-2"	18'-10"	18'-5"	20'-5"	20'-1"	19'-8"	16'-8"	16'-4"	15'-4"	18'-10"	18'-6"	18'-1"	20'-7"	20'-2"	19'-9"		
	19.2" o.c.		Non-Snow 125%	20	10	20'-4"	19'-2"	17'-9"	24'-2"	22'-10"	21'-2"	26'-10"	25'-11"	24'-1"	28'-9"	28'-0"	26'-2"	21'-2"	19'-11"	18'-6"	25'-2"	23'-9"	22'-1"	28'-8"	27'-0"	25'-7"
20		15		19'-3"	18'-1"	16'-8"	22'-9"	21'-5"	19'-10"	24'-9"	24'-0"	22'-7"	26'-5"	25'-8"	24'-8"	20'-0"	18'-10"	17'-4"	23'-10"	22'-5"	20'-8"	26'-7"	25'-8"	23'-6"		
20		20		18'-4"	17'-2"	15'-9"	21'-2"	20'-5"	18'-9"	23'-1"	22'-4"	21'-3"	24'-3"	23'-10"	22'-9"	19'-1"	17'-10"	16'-5"	22'-9"	21'-4"	19'-7"	24'-10"	23'-11"	22'-9"		
Snow 115%		25	10	19'-3"	18'-3"	17'-0"	21'-10"	21'-5"	20'-2"	23'-10"	23'-4"	22'-8"	25'-6"	24'-11"	24'-3"	20'-1"	19'-0"	17'-8"	23'-6"	22'-7"	21'-4"	25'-7"	25'-1"	23'-11"		
		25	15	18'-0"	17'-4"	16'-0"	20'-5"	19'-10"	19'-1"	22'-3"	21'-8"	20'-10"	23'-9"	23'-1"	22'-4"	19'-2"	18'-0"	16'-8"	21'-11"	21'-4"	19'-11"	23'-10"	23'-3"	22'-5"		
		30	10	18'-0"	17'-5"	16'-3"	20'-5"	20'-1"	19'-5"	22'-3"	21'-11"	21'-4"	23'-10"	23'-5"	22'-10"	19'-2"	18'-2"	16'-11"	22'-0"	21'-7"	20'-2"	23'-11"	23'-6"	22'-11"		
		30	15	16'-11"	16'-7"	15'-6"	19'-3"	18'-9"	18'-2"	20'-11"	20'-5"	19'-10"	22'-5"	21'-10"	21'-2"	18'-3"	17'-4"	16'-1"	20'-8"	20'-2"	19'-2"	22'-6"	22'-0"	21'-3"		
		40	10	16'-2"	15'-11"	15'-2"	18'-3"	18'-0"	17'-8"	19'-11"	19'-8"	19'-3"	21'-4"	21'-0"	20'-7"	17'-4"	16'-9"	15'-10"	19'-8"	19'-4"	18'-10"	21'-5"	21'-1"	20'-8"		
		40	15	15'-4"	15'-0"	14'-6"	17'-5"	17'-1"	16'-7"	18'-11"	18'-7"	18'-1"	20'-3"	19'-10"	19'-4"	16'-6"	16'-2"	15'-2"	18'-8"	18'-4"	17'-10"	20'-4"	20'-0"	19'-5"		
		50	10	14'-9"	14'-6"	14'-1"	16'-8"	16'-6"	16'-2"	18'-0"	17'-8"	17'-5"	19'-5"	19'-3"	18'-11"	15'-10"	15'-6"	14'-8"	17'-11"	17'-9"	17'-5"	19'-7"	19'-4"	19'-0"		
		50	15	14'-1"	13'-10"	13'-7"	16'-0"	15'-9"	15'-4"	17'-5"	17'-2"	16'-9"	18'-8"	18'-4"	17'-11"	15'-10"	15'-6"	14'-8"	17'-11"	17'-9"	17'-5"	19'-7"	19'-4"	19'-0"		
		24" o.c.	Non-Snow 125%	20	10	18'-10"	17'-9"	16'-6"	22'-0"	21'-1"	19'-7"	24'-0"	23'-5"	22'-4"	25'-7"	25'-0"	24'-3"	19'-7"	18'-6"	17'-2"	23'-4"	22'-0"	20'-5"	25'-9"	25'-0"	23'-3"
20	15			17'-10"	16'-9"	15'-5"	20'-3"	19'-2"	18'-4"	22'-1"	21'-5"	20'-7"	23'-8"	22'-11"	22'-0"	18'-5"	17'-5"	16'-1"	21'-10"	20'-9"	19'-2"	23'-9"	23'-4"	21'-9"		
20	20			16'-8"	15'-11"	14'-7"	18'-11"	18'-3"	17'-5"	20'-8"	19'-11"	19'-0"	22'-1"	21'-3"	20'-4"	17'-8"	16'-7"	15'-3"	20'-4"	19'-8"	18'-2"	22'-2"	21'-5"	20'-5"		
Snow 115%	25		10	17'-3"	16'-10"	15'-9"	19'-6"	19'-2"	18'-7"	21'-3"	20'-10"	20'-3"	22'-9"	22'-3"	21'-8"	18'-6"	17'-7"	16'-4"	21'-0"	20'-7"	19'-6"	22'-10"	22'-5"	21'-9"		
	25		15	16'-1"	15'-7"	14'-10"	18'-2"	17'-9"	17'-1"	19'-10"	19'-4"	18'-8"	21'-3"	20'-8"	19'-11"	17'-3"	16'-8"	15'-5"	19'-7"	19'-1"	18'-4"	21'-4"	20'-9"	20'-0"		
	30		10	16'-1"	15'-10"	15'-1"	18'-3"	17'-11"	17'-6"	19'-11"	19'-7"	19'-1"	21'-3"	20'-11"	20'-5"	17'-4"	16'-10"	15'-8"	19'-7"	19'-3"	18'-9"	21'-5"	21'-0"	20'-6"		
	30		15	15'-2"	14'-9"	14'-4"	17'-2"	16'-9"	16'-3"	18'-9"	18'-3"	17'-8"	20'-0"	19'-6"	18'-11"	16'-3"	15'-11"	14'-11"	18'-5"	18'-0"	17'-5"	20'-1"	19'-8"	19'-0"		
	40		10	14'-5"	14'-2"	13'-11"	16'-4"	16'-1"	15'-9"	17'-10"	17'-7"	17'-2"	19'-0"	18'-9"	18'-5"	15'-6"	15'-3"	14'-7"	17'-7"	17'-4"	16'-11"	19'-2"	18'-10"	18'-6"		
	40		15	13'-8"	13'-5"	13'-1"	15'-6"	15'-3"	14'-10"	16'-11"	16'-7"	16'-2"	18'-1"	17'-9"	17'-3"	14'-9"	14'-5"	14'-0"	16'-8"	16'-4"	15'-11"	18'-2"	17'-10"	17'-4"		
	50		10	13'-2"	13'-0"	12'-9"	14'-11"	14'-9"	14'-6"	16'-3"	16'-1"	15'-9"	17'-4"	17'-2"	16'-10"	14'-2"	13'-11"	13'-7"	16'-0"	15'-10"	15'-7"	17'-5"	17'-2"	16'-7"		
	50		15	12'-7"	12'-4"	12'-1"	14'-3"	14'-0"	13'-9"	15'-7"	15'-4"	14'-11"	16'-6"	16'-0"	15'-3"	13'-6"	13'-4"	13'-0"	15'-4"	14'-11"	14'-3"	16'-2"	15'-8"	14'-11"		

- Table values are limited by shear, moment, total load deflection equal to L/180 and live load deflection equal to L/240. Check the local building code for other deflection limits that may apply.
- Table values represent the most restrictive of simple or multiple span applications. Analyze multiple span joists with the BC Calc® software if the length of any span is less than half the length of an adjacent span.
- Table values assume minimum bearing lengths without web stiffeners for joist depths of 16" and less.
- This table was designed to apply to a broad range of applications. It may be possible to exceed the limitations of this table by analyzing a specific application with the BC Calc® software.
- Slope roof joists at least 1/4" over 12" to minimize ponding.
- Allowable spans and loads shall be adjusted and checked for wind load as required by local building code.