

# ROOF SPANS 125% NON-SNOW

## ALLOWABLE SPANS FOR PRI OR SSI JOISTS – 20 PSF LIVE LOAD – 10 PSF DEAD LOAD

Joist Series	Joist Depth	Simple Span								
		Slopes to 4 in 12			Slopes to 8 in 12			Slopes to 12 in 12		
		16" o.c.	19.2" o.c.	24" o.c.	16" o.c.	19.2" o.c.	24" o.c.	16" o.c.	19.2" o.c.	24" o.c.
PRI 20	9½"	21'- 2" <sup>(1)</sup>	19'- 10" <sup>(1)</sup>	18'- 5" <sup>(1)</sup>	19'- 11" <sup>(2)</sup>	18'- 9" <sup>(2)</sup>	17'- 4" <sup>(2)</sup>	18'- 6" <sup>(2)</sup>	17'- 5" <sup>(2)</sup>	16'- 1" <sup>(2)</sup>
	11⅞"	25'- 6" <sup>(1)</sup>	24'- 0" <sup>(1)</sup>	22'- 2" <sup>(2)</sup>	24'- 1" <sup>(2)</sup>	22'- 7" <sup>(2)</sup>	20'- 11" <sup>(2)</sup>	22'- 4" <sup>(2)</sup>	21'- 0" <sup>(2)</sup>	19'- 5" <sup>(3)</sup>
SSI 36X	14"	29'- 1" <sup>(1)</sup>	27'- 4" <sup>(2)</sup>	25'- 1" <sup>(2)</sup>	27'- 5" <sup>(2)</sup>	25'- 9" <sup>(2)</sup>	23'- 10" <sup>(3)</sup>	25'- 5" <sup>(3)</sup>	23'- 11" <sup>(3)</sup>	22'- 2" <sup>(3)</sup>
	9½"	23'- 3" <sup>(1)</sup>	21'- 10" <sup>(1)</sup>	20'- 3" <sup>(1)</sup>	21'- 11" <sup>(2)</sup>	20'- 7" <sup>(2)</sup>	19'- 1" <sup>(2)</sup>	20'- 4" <sup>(2)</sup>	19'- 1" <sup>(2)</sup>	17'- 9" <sup>(3)</sup>
PRI 40	11⅞"	27'- 10" <sup>(1)</sup>	26'- 2" <sup>(1)</sup>	23'- 11" <sup>(2)</sup>	26'- 3" <sup>(2)</sup>	24'- 8" <sup>(2)</sup>	22'- 10" <sup>(2)</sup>	24'- 5" <sup>(2)</sup>	22'- 11" <sup>(3)</sup>	21'- 3" <sup>(3)</sup>
	14"	31'- 8" <sup>(1)</sup>	29'- 4" <sup>(2)</sup>	26'- 3" <sup>(2)</sup>	29'- 10" <sup>(2)</sup>	28'- 1" <sup>(2)</sup>	25'- 8" <sup>(3)</sup>	27'- 8" <sup>(3)</sup>	26'- 0" <sup>(3)</sup>	24'- 1" <sup>(3)</sup>
	16"	34'- 8" <sup>(2)</sup>	31'- 8" <sup>(2)</sup>	28'- 3" <sup>(2)</sup>	33'- 2" <sup>(2)</sup>	30'- 11" <sup>(3)</sup>	27'- 7" <sup>(3)</sup>	30'- 9" <sup>(3)</sup>	28'- 11" <sup>(3)</sup>	26'- 9" <sup>(3)</sup>
PRI 60	9½"	24'- 8" <sup>(1)</sup>	23'- 2" <sup>(1)</sup>	21'- 6" <sup>(2)</sup>	23'- 3" <sup>(2)</sup>	21'- 10" <sup>(2)</sup>	20'- 3" <sup>(2)</sup>	21'- 7" <sup>(2)</sup>	20'- 4" <sup>(2)</sup>	18'- 10" <sup>(3)</sup>
	11⅞"	29'- 7" <sup>(1)</sup>	27'- 10" <sup>(2)</sup>	25'- 9" <sup>(2)</sup>	27'- 11" <sup>(2)</sup>	26'- 3" <sup>(2)</sup>	24'- 3" <sup>(3)</sup>	25'- 11" <sup>(3)</sup>	24'- 4" <sup>(3)</sup>	22'- 7" <sup>(3)</sup>
	14"	33'- 9" <sup>(2)</sup>	31'- 8" <sup>(2)</sup>	29'- 4" <sup>(2)</sup>	31'- 10" <sup>(2)</sup>	29'- 11" <sup>(3)</sup>	27'- 8" <sup>(3)</sup>	29'- 6" <sup>(3)</sup>	27'- 9" <sup>(3)</sup>	25'- 8" <sup>(3)</sup>
	16"	37'- 6" <sup>(2)</sup>	35'- 2" <sup>(2)</sup>	32'- 7" <sup>(2)</sup>	35'- 4" <sup>(3)</sup>	33'- 3" <sup>(3)</sup>	30'- 9" <sup>(3)</sup>	32'- 10" <sup>(3)</sup>	30'- 10" <sup>(3)</sup>	28'- 7" <sup>(3)</sup>
PRI 80	11⅞"	32'- 11" <sup>(2)</sup>	30'- 11" <sup>(2)</sup>	28'- 8" <sup>(2)</sup>	31'- 1" <sup>(2)</sup>	29'- 2" <sup>(3)</sup>	27'- 0" <sup>(3)</sup>	28'- 10" <sup>(3)</sup>	27'- 1" <sup>(3)</sup>	25'- 1" <sup>(3)</sup>
	14"	37'- 6" <sup>(2)</sup>	35'- 2" <sup>(2)</sup>	32'- 7" <sup>(2)</sup>	35'- 4" <sup>(3)</sup>	33'- 2" <sup>(3)</sup>	30'- 9" <sup>(3)</sup>	32'- 10" <sup>(3)</sup>	30'- 10" <sup>(3)</sup>	28'- 7" <sup>(3)</sup>
	16"	41'- 7" <sup>(2)</sup>	39'- 0" <sup>(2)</sup>	36'- 2" <sup>(2)</sup>	39'- 3" <sup>(3)</sup>	36'- 10" <sup>(3)</sup>	34'- 1" <sup>(3)</sup>	36'- 5" <sup>(3)</sup>	34'- 2" <sup>(3)</sup>	31'- 8" <sup>(3)</sup>

### Notes:

- Table values apply to uniformly loaded roof joists that are sloped at least ¼" in 12".
- Span is measured on the horizontal from face to face of supports.
- Table values do not account for stiffness added by glued or nailed sheathing.
- Provide at least 1¾" of bearing length at end supports and 3½" at intermediate supports.
- The numbers in parentheses refer to the minimum connection required at each support.
  - Beveled plate and two nails (205 lbs. lateral capacity @ 125%), or joist hanger
  - Beveled plate and four nails (410 lbs. lateral capacity @ 125%), or (3)
  - Cussets at high support (1620 lbs. lateral capacity @ 125%), birdsmouth cut at low support, or (4)
  - Strap (1640 lbs. lateral capacity @ 125%) or pair of twist straps (950 lbs. lateral capacity each @ 125%) at high support, birdsmouth cut at low support
- Provide lateral restraint at supports (e.g. blocking panels, rim board) and along the compression flange of each joist (e.g. roof sheathing, gypsum board ceiling).
- Consult a professional engineer to analyze conditions outside the scope of this table (e.g. different bearing conditions, concentrated loads, multiple span joists).

## ALLOWABLE SPANS FOR PRI OR SSI JOISTS – 20 PSF LIVE LOAD – 15 PSF DEAD LOAD

Joist Series	Joist Depth	Simple Span								
		Slopes to 4 in 12			Slopes to 8 in 12			Slopes to 12 in 12		
		16" o.c.	19.2" o.c.	24" o.c.	16" o.c.	19.2" o.c.	24" o.c.	16" o.c.	19.2" o.c.	24" o.c.
PRI 20	9½"	20'- 0" <sup>(1)</sup>	18'- 10" <sup>(1)</sup>	17'- 5" <sup>(1)</sup>	18'- 10" <sup>(2)</sup>	17'- 8" <sup>(2)</sup>	16'- 4" <sup>(2)</sup>	17'- 4" <sup>(2)</sup>	16'- 4" <sup>(2)</sup>	15'- 1" <sup>(3)</sup>
	11⅞"	24'- 2" <sup>(1)</sup>	22'- 8" <sup>(2)</sup>	21'- 0" <sup>(2)</sup>	22'- 8" <sup>(2)</sup>	21'- 4" <sup>(2)</sup>	19'- 9" <sup>(3)</sup>	20'- 11" <sup>(3)</sup>	19'- 8" <sup>(3)</sup>	18'- 3" <sup>(3)</sup>
SSI 36X	14"	27'- 6" <sup>(2)</sup>	25'- 10" <sup>(2)</sup>	23'- 1" <sup>(2)</sup>	25'- 10" <sup>(2)</sup>	24'- 3" <sup>(3)</sup>	22'- 5" <sup>(3)</sup>	23'- 10" <sup>(3)</sup>	22'- 5" <sup>(3)</sup>	20'- 9" <sup>(3)</sup>
	9½"	22'- 0" <sup>(1)</sup>	20'- 8" <sup>(1)</sup>	19'- 2" <sup>(2)</sup>	20'- 8" <sup>(2)</sup>	19'- 5" <sup>(2)</sup>	18'- 0" <sup>(2)</sup>	19'- 1" <sup>(2)</sup>	17'- 11" <sup>(3)</sup>	16'- 7" <sup>(3)</sup>
PRI 40	11⅞"	26'- 5" <sup>(1)</sup>	24'- 8" <sup>(2)</sup>	22'- 1" <sup>(2)</sup>	24'- 9" <sup>(2)</sup>	23'- 3" <sup>(2)</sup>	21'- 5" <sup>(3)</sup>	22'- 10" <sup>(3)</sup>	21'- 6" <sup>(3)</sup>	19'- 11" <sup>(3)</sup>
	14"	29'- 9" <sup>(2)</sup>	27'- 1" <sup>(2)</sup>	24'- 3" <sup>(2)</sup>	28'- 2" <sup>(2)</sup>	26'- 4" <sup>(3)</sup>	23'- 6" <sup>(3)</sup>	26'- 0" <sup>(3)</sup>	24'- 5" <sup>(3)</sup>	22'- 7" <sup>(3)</sup>
	16"	32'- 0" <sup>(2)</sup>	29'- 2" <sup>(2)</sup>	26'- 1" <sup>(2)</sup>	31'- 1" <sup>(3)</sup>	28'- 4" <sup>(3)</sup>	25'- 4" <sup>(3)</sup>	28'- 10" <sup>(3)</sup>	27'- 1" <sup>(3)</sup>	24'- 4" <sup>(3)</sup>
PRI 60	9½"	23'- 4" <sup>(1)</sup>	21'- 11" <sup>(1)</sup>	20'- 4" <sup>(2)</sup>	21'- 11" <sup>(2)</sup>	20'- 7" <sup>(2)</sup>	19'- 1" <sup>(2)</sup>	20'- 3" <sup>(2)</sup>	19'- 0" <sup>(3)</sup>	17'- 7" <sup>(3)</sup>
	11⅞"	28'- 0" <sup>(2)</sup>	26'- 4" <sup>(2)</sup>	24'- 4" <sup>(2)</sup>	26'- 4" <sup>(2)</sup>	24'- 9" <sup>(3)</sup>	22'- 11" <sup>(3)</sup>	24'- 4" <sup>(3)</sup>	22'- 10" <sup>(3)</sup>	21'- 2" <sup>(3)</sup>
	14"	31'- 11" <sup>(2)</sup>	30'- 0" <sup>(2)</sup>	27'- 9" <sup>(2)</sup>	30'- 0" <sup>(3)</sup>	28'- 2" <sup>(3)</sup>	26'- 1" <sup>(3)</sup>	27'- 8" <sup>(3)</sup>	26'- 0" <sup>(3)</sup>	24'- 1" <sup>(3)</sup>
	16"	35'- 6" <sup>(2)</sup>	33'- 4" <sup>(2)</sup>	30'- 8" <sup>(2)</sup>	33'- 4" <sup>(3)</sup>	31'- 4" <sup>(3)</sup>	29'- 0" <sup>(3)</sup>	30'- 9" <sup>(3)</sup>	28'- 11" <sup>(3)</sup>	26'- 9" <sup>(3)</sup>
PRI 80	11⅞"	31'- 2" <sup>(2)</sup>	29'- 3" <sup>(2)</sup>	27'- 1" <sup>(2)</sup>	29'- 4" <sup>(3)</sup>	27'- 6" <sup>(3)</sup>	25'- 6" <sup>(3)</sup>	27'- 1" <sup>(3)</sup>	25'- 5" <sup>(3)</sup>	23'- 6" <sup>(3)</sup>
	14"	35'- 6" <sup>(2)</sup>	33'- 4" <sup>(2)</sup>	30'- 10" <sup>(2)</sup>	33'- 4" <sup>(3)</sup>	31'- 4" <sup>(3)</sup>	29'- 0" <sup>(3)</sup>	30'- 9" <sup>(3)</sup>	28'- 11" <sup>(3)</sup>	26'- 9" <sup>(3)</sup>
	16"	39'- 4" <sup>(2)</sup>	36'- 11" <sup>(2)</sup>	34'- 2" <sup>(2)</sup>	37'- 0" <sup>(3)</sup>	34'- 9" <sup>(3)</sup>	32'- 2" <sup>(3)</sup>	34'- 2" <sup>(3)</sup>	32'- 1" <sup>(3)</sup>	29'- 8" <sup>(3)</sup>

### See notes above

## ALLOWABLE SPANS FOR PRI OR SSI JOISTS – 20 PSF LIVE LOAD – 20 PSF DEAD LOAD

Joist Series	Joist Depth	Simple Span								
		Slopes to 4 in 12			Slopes to 8 in 12			Slopes to 12 in 12		
		16" o.c.	19.2" o.c.	24" o.c.	16" o.c.	19.2" o.c.	24" o.c.	16" o.c.	19.2" o.c.	24" o.c.
PRI 20	9½"	19'- 1" <sup>(1)</sup>	17'- 11" <sup>(1)</sup>	16'- 7" <sup>(2)</sup>	17'- 10" <sup>(2)</sup>	16'- 9" <sup>(2)</sup>	15'- 6" <sup>(2)</sup>	16'- 5" <sup>(2)</sup>	15'- 5" <sup>(3)</sup>	14'- 3" <sup>(3)</sup>
	11⅞"	23'- 0" <sup>(1)</sup>	21'- 8" <sup>(2)</sup>	19'- 9" <sup>(2)</sup>	21'- 7" <sup>(2)</sup>	20'- 3" <sup>(2)</sup>	18'- 9" <sup>(3)</sup>	19'- 10" <sup>(3)</sup>	18'- 7" <sup>(3)</sup>	17'- 3" <sup>(3)</sup>
SSI 36X	14"	26'- 3" <sup>(2)</sup>	24'- 2" <sup>(2)</sup>	21'- 7" <sup>(2)</sup>	24'- 7" <sup>(2)</sup>	23'- 1" <sup>(3)</sup>	20'- 10" <sup>(3)</sup>	22'- 7" <sup>(3)</sup>	21'- 3" <sup>(3)</sup>	19'- 8" <sup>(3)</sup>
	9½"	21'- 0" <sup>(1)</sup>	19'- 9" <sup>(2)</sup>	18'- 1" <sup>(2)</sup>	19'- 8" <sup>(2)</sup>	18'- 6" <sup>(2)</sup>	17'- 1" <sup>(3)</sup>	18'- 1" <sup>(3)</sup>	17'- 0" <sup>(3)</sup>	15'- 9" <sup>(3)</sup>
PRI 40	11⅞"	25'- 2" <sup>(2)</sup>	23'- 0" <sup>(2)</sup>	20'- 7" <sup>(2)</sup>	23'- 7" <sup>(2)</sup>	22'- 1" <sup>(3)</sup>	19'- 10" <sup>(3)</sup>	21'- 8" <sup>(3)</sup>	20'- 4" <sup>(3)</sup>	18'- 10" <sup>(3)</sup>
	14"	27'- 9" <sup>(2)</sup>	25'- 4" <sup>(2)</sup>	22'- 7" <sup>(2)</sup>	26'- 9" <sup>(3)</sup>	24'- 5" <sup>(3)</sup>	21'- 10" <sup>(3)</sup>	24'- 7" <sup>(3)</sup>	23'- 1" <sup>(3)</sup>	20'- 10" <sup>(3)</sup>
	16"	29'- 10" <sup>(2)</sup>	27'- 3" <sup>(2)</sup>	24'- 4" <sup>(2)</sup>	28'- 10" <sup>(3)</sup>	26'- 4" <sup>(3)</sup>	23'- 6" <sup>(3)</sup>	27'- 4" <sup>(3)</sup>	25'- 2" <sup>(3)</sup>	22'- 5" <sup>(3)</sup>
PRI 60	9½"	22'- 3" <sup>(1)</sup>	20'- 11" <sup>(2)</sup>	19'- 4" <sup>(2)</sup>	20'- 10" <sup>(2)</sup>	19'- 7" <sup>(2)</sup>	18'- 2" <sup>(3)</sup>	19'- 2" <sup>(3)</sup>	18'- 0" <sup>(3)</sup>	16'- 8" <sup>(3)</sup>
	11⅞"	26'- 9" <sup>(2)</sup>	25'- 1" <sup>(2)</sup>	23'- 3" <sup>(2)</sup>	25'- 0" <sup>(3)</sup>	23'- 6" <sup>(3)</sup>	21'- 9" <sup>(3)</sup>	23'- 0" <sup>(3)</sup>	21'- 7" <sup>(3)</sup>	20'- 0" <sup>(3)</sup>
	14"	30'- 6" <sup>(2)</sup>	28'- 7" <sup>(2)</sup>	26'- 6" <sup>(2)</sup>	28'- 6" <sup>(3)</sup>	26'- 9" <sup>(3)</sup>	24'- 10" <sup>(3)</sup>	26'- 3" <sup>(3)</sup>	24'- 8" <sup>(3)</sup>	22'- 10" <sup>(3)</sup>
	16"	33'- 10" <sup>(2)</sup>	31'- 9" <sup>(2)</sup>	28'- 8" <sup>(2)</sup>	31'- 8" <sup>(3)</sup>	29'- 9" <sup>(3)</sup>	27'- 7" <sup>(3)</sup>	29'- 2" <sup>(3)</sup>	27'- 5" <sup>(3)</sup>	25'- 4" <sup>(3)</sup>
PRI 80	11⅞"	29'- 9" <sup>(2)</sup>	27'- 11" <sup>(2)</sup>	25'- 10" <sup>(2)</sup>	27'- 10" <sup>(3)</sup>	26'- 2" <sup>(3)</sup>	24'- 2" <sup>(3)</sup>	25'- 7" <sup>(3)</sup>	24'- 1" <sup>(3)</sup>	22'- 3" <sup>(3)</sup>
	14"	33'- 10" <sup>(2)</sup>	31'- 9" <sup>(2)</sup>	29'- 5" <sup>(2)</sup>	31'- 8" <sup>(3)</sup>	29'- 9" <sup>(3)</sup>	27'- 7" <sup>(3)</sup>	29'- 2" <sup>(3)</sup>	27'- 5" <sup>(3)</sup>	25'- 4" <sup>(3)</sup>
	16"	37'- 6" <sup>(2)</sup>	35'- 3" <sup>(2)</sup>	32'- 7" <sup>(3)</sup>	35'- 2" <sup>(3)</sup>	33'- 0" <sup>(3)</sup>	30'- 7" <sup>(3)</sup>	32'- 4" <sup>(3)</sup>	30'- 4" <sup>(3)</sup>	28'- 2" <sup>(3)</sup>

### See notes above