

**TABLE 31 RAFTERS – 20 PSF LIVE LOAD, 10 PSF DEAD LOAD, 180 DEFLECTION,  $C_D = 1.15$**

LIGHT ROOFING; NO FINISHED CEILING; SNOW LOAD

| Size<br>inches | Spacing<br>inches<br>on center | Grade           |       |       |       |                            |              |              |                                |       |       |
|----------------|--------------------------------|-----------------|-------|-------|-------|----------------------------|--------------|--------------|--------------------------------|-------|-------|
|                |                                | Visually Graded |       |       |       | Machine Stress Rated (MSR) |              |              | Machine Evaluated Lumber (MEL) |       |       |
|                |                                | SS              | No.1  | No.2  | No.3  | 2400f - 2.0E               | 2250f - 1.9E | 1950f - 1.7E | M23                            | M14   | M29   |
| <b>2 x 4</b>   | <b>12.0</b>                    | 11-3            | 11-1  | 10-10 | 8-9   | 11-8                       | 11-6         | 11-1         | 11-3                           | 11-1  | 11-1  |
|                | <b>16.0</b>                    | 10-3            | 10-0  | 9-10  | 7-7   | 10-7                       | 10-5         | 10-0         | 10-3                           | 10-0  | 10-0  |
|                | <b>19.2</b>                    | 9-8             | 9-5   | 9-2   | 6-11  | 10-0                       | 9-10         | 9-5          | 9-8                            | 9-5   | 9-4   |
|                | <b>24.0</b>                    | 8-11            | 8-9   | 8-3   | 6-2   | 9-3                        | 9-1          | 8-9          | 8-11                           | 8-9   | 8-4   |
| <b>2 x 6</b>   | <b>12.0</b>                    | 17-8            | 17-4  | 16-8  | 12-11 | 18-4                       | 18-0         | 17-4         | 17-8                           | 17-4  | 17-4  |
|                | <b>16.0</b>                    | 16-1            | 15-9  | 14-5  | 11-2  | 16-8                       | 16-4         | 15-9         | 16-1                           | 15-9  | 15-9  |
|                | <b>19.2</b>                    | 15-2            | 14-10 | 13-2  | 10-2  | 15-8                       | 15-5         | 14-10        | 15-2                           | 14-10 | 14-8  |
|                | <b>24.0</b>                    | 14-1            | 13-6  | 11-9  | 9-2   | 14-7                       | 14-4         | 13-9         | 14-1                           | 13-9  | 13-1  |
| <b>2 x 8</b>   | <b>12.0</b>                    | 23-4            | 22-11 | 21-6  | 16-5  | 24-2                       | 23-9         | 22-11        | 23-4                           | 22-11 | 22-11 |
|                | <b>16.0</b>                    | 21-2            | 20-10 | 18-8  | 14-3  | 21-11                      | 21-7         | 20-10        | 21-2                           | 20-10 | 20-10 |
|                | <b>19.2</b>                    | 19-11           | 19-0  | 17-0  | 13-0  | 20-8                       | 20-4         | 19-7         | 19-11                          | 19-7  | 19-4  |
|                | <b>24.0</b>                    | 18-6            | 17-0  | 15-3  | 11-8  | 19-2                       | 18-10        | 18-2         | 18-6                           | 18-2  | 17-4  |
| <b>2 x 10</b>  | <b>12.0</b>                    | 26-0*           | 26-0* | 25-8  | 19-5  | 26-0*                      | 26-0*        | 26-0*        | 26-0*                          | 26-0* | 26-0* |
|                | <b>16.0</b>                    | 26-0*           | 24-9  | 22-3  | 16-10 | 26-0*                      | 26-0*        | 26-0*        | 26-0*                          | 26-0* | 26-0* |
|                | <b>19.2</b>                    | 25-5            | 22-7  | 20-4  | 15-4  | 26-0*                      | 25-11        | 25-0         | 25-5                           | 25-0  | 24-8  |
|                | <b>24.0</b>                    | 23-8            | 20-3  | 18-2  | 13-9  | 24-6                       | 24-1         | 23-2         | 23-8                           | 23-2  | 22-1  |

These spans are intended for use in enclosed structures or where the moisture content in use does not exceed 19 percent for an extended period of time unless the table is labeled Wet-Service. Applied loads are given in psf (pounds per square foot). Deflection is limited to the span in inches divided by 360, 240, or 180 and is based on live load only. The load duration factor,  $C_D$ , is 1.0 unless shown as 1.15 or 1.25. An asterisk (\*) indicates the listed span has been limited to 26'0" based on availability; check sources of supply for lumber longer than 20'. Highlighted sizes/grades are NOT commonly produced.

The Southern Pine Council does not grade or test lumber, and accordingly, does not assign design values to Southern Pine lumber. The design values contained herein are based on the 2002 SPIB Standard Grading Rules for Southern Pine Lumber, published by the Southern Pine Inspection Bureau, and modified as required by the 2001 National Design Specification® (NDS®) for Wood Construction published by the American Forest & Paper Association (AF&PA).

The primary purpose of this publication is to provide a convenient reference for joist and rafter spans for specific grades of Southern Pine lumber. The maximum spans provided herein were determined on the same basis as those in Span Tables for Joists and Rafters, published by AF&PA. Accordingly, the Southern Pine Council, its principals and/or members, do not warrant in any way that the design values on which the span tables for Southern Pine lumber contained herein are based are correct, and specifically disclaim any liability for injury or damage resulting from the use of such span tables.

The conditions under which lumber is used in construction may vary widely, as does the quality of the lumber and workmanship. Neither the Southern Pine Council, nor its principals and/or members, have any knowledge of the construction methods, quality of materials and workmanship used on any construction project; and accordingly, cannot and do not, warrant the performance of the lumber used in completed structures.