

# 1½" 1.5E Engineered Framing Lumber (EFL) Rafters

## Rafter Spans (Non-Snow) 125%

| Load (psf)         | Depth   | Slope of 4/12 or less |         |           |         | Slope of over 4/12 through 8/12 |         |           |         | Slope of over 8/12 through 12/12 |         |           |         |
|--------------------|---------|-----------------------|---------|-----------|---------|---------------------------------|---------|-----------|---------|----------------------------------|---------|-----------|---------|
|                    |         | 12"o.c.               | 16"o.c. | 19.2"o.c. | 24"o.c. | 12"o.c.                         | 16"o.c. | 19.2"o.c. | 24"o.c. | 12"o.c.                          | 16"o.c. | 19.2"o.c. | 24"o.c. |
| 20 Live<br>10 Dead | 7 1/4"  | 18'-07"               | 16'-11" | 15'-11"   | 14'-09" | 17'-06"                         | 15'-11" | 14'-11"   | 13'-10" | 16'-11"                          | 15'-04" | 14'-05"   | 13'-05" |
|                    | 9 1/2"  | 24'-05"               | 22'-02" | 20'-10"   | 19'-04" | 23'-00"                         | 20'-11" | 19'-08"   | 18'-03" | 22'-03"                          | 20'-02" | 19'-00"   | 17'-07" |
|                    | 11 7/8" | 30'-07"               | 27'-09" | 26'-01"   | 24'-03" | 28'-09"                         | 26'-02" | 24'-07"   | 22'-10" | 27'-10"                          | 25'-03" | 23'-09"   | 22'-01" |
|                    | 14"     | 36'-01"               | 32'-09" | 30'-10"   | 28'-07" | 34'-00"                         | 30'-10" | 29'-00"   | 26'-11" | 32'-10"                          | 29'-10" | 28'-01"   | 26'-00" |
| 20 Live<br>20 Dead | 7 1/4"  | 16'-10"               | 15'-03" | 14'-04"   | 13'-04" | 15'-09"                         | 14'-03" | 13'-05"   | 12'-05" | 14'-10"                          | 13'-06" | 12'-08"   | 11'-09" |
|                    | 9 1/2"  | 22'-01"               | 20'-01" | 18'-11"   | 17'-06" | 20'-08"                         | 18'-09" | 17'-08"   | 16'-04" | 19'-06"                          | 17'-09" | 16'-08"   | 15'-06" |
|                    | 11 7/8" | 27'-08"               | 25'-02" | 23'-08"   | 21'-11" | 25'-11"                         | 23'-06" | 22'-01"   | 20'-06" | 24'-05"                          | 22'-02" | 20'-11"   | 19'-05" |
|                    | 14"     | 32'-08"               | 29'-08" | 27'-11"   | 25'-11" | 30'-06"                         | 27'-09" | 26'-01"   | 24'-02" | 28'-10"                          | 26'-02" | 24'-08"   | 22'-10" |

## Rafter Spans (Snow) 115%

| Load (psf)         | Depth   | Slope of 4/12 or less |                |                |                | Slope of over 4/12 through 8/12 |                |                |                | Slope of over 8/12 through 12/12 |                |                |                |
|--------------------|---------|-----------------------|----------------|----------------|----------------|---------------------------------|----------------|----------------|----------------|----------------------------------|----------------|----------------|----------------|
|                    |         | 12"o.c.               | 16"o.c.        | 19.2"o.c.      | 24"o.c.        | 12"o.c.                         | 16"o.c.        | 19.2"o.c.      | 24"o.c.        | 12"o.c.                          | 16"o.c.        | 19.2"o.c.      | 24"o.c.        |
| 30 Live<br>10 Dead | 7 1/4"  | 16'-11"               | 15'-04"        | 14'-05"        | 13'-05"        | 16'-00"                         | 14'-06"        | 13'-08"        | 12'-08"        | 14'-11"                          | 13'-06"        | 12'-08"        | 11'-09"        |
|                    | 9 1/2"  | 22'-03"               | 20'-02"        | 19'-00"        | 17'-07"        | 21'-00"                         | 19'-01"        | 17'-11"        | 16'-08"        | 19'-07"                          | 17'-09"        | 16'-08"        | 15'-06"        |
|                    | 11 7/8" | 27'-10"               | 25'-03"        | 23'-09"        | 22'-00"        | 26'-03"                         | 23'-10"        | 22'-05"        | 20'-10"        | 24'-06"                          | 22'-03"        | 20'-11"        | 19'-05"        |
|                    | 14"     | 32'-10"               | 29'-09"        | 28'-00"        | 26'-00"        | 31'-00"                         | 28'-02"        | 26'-06"        | 24'-07"        | 28'-11"                          | 26'-03"        | 24'-08"        | 22'-11"        |
| 30 Live<br>20 Dead | 7 1/4"  | 15'-08"               | 14'-02"        | 13'-04"        | 12'-05"        | 14'-08"                         | 13'-04"        | 12'-06"        | 11'-07"        | 13'-07"                          | 12'-04"        | 11'-07"        | 10'-09"        |
|                    | 9 1/2"  | 20'-07"               | 18'-08"        | 17'-07"        | 16'-03"        | 19'-04"                         | 17'-06"        | 16'-06"        | 15'-03"        | 17'-10"                          | 16'-02"        | 15'-02"        | 14'-01"        |
|                    | 11 7/8" | 25'-09"               | 23'-04"        | 22'-00"        | 20'-05"        | 24'-02"                         | 21'-11"        | 20'-08"        | 19'-02"        | 22'-04"                          | 20'-03"        | 19'-01"        | 17'-08"        |
|                    | 14"     | 30'-04"               | 27'-07"        | 25'-11"        | <b>24'-00"</b> | 28'-06"                         | 25'-11"        | 24'-04"        | <b>22'-06"</b> | 26'-04"                          | 23'-11"        | 22'-06"        | <b>20'-09"</b> |
| 40 Live<br>10 Dead | 7 1/4"  | 15'-05"               | 14'-00"        | 13'-02"        | 12'-02"        | 14'-09"                         | 13'-05"        | 12'-07"        | 11'-08"        | 13'-11"                          | 12'-07"        | 11'-10"        | 11'-00"        |
|                    | 9 1/2"  | 20'-03"               | 18'-05"        | 17'-04"        | 16'-00"        | 19'-05"                         | 17'-07"        | 16'-07"        | 15'-04"        | 18'-03"                          | 16'-07"        | 15'-07"        | 14'-05"        |
|                    | 11 7/8" | 25'-04"               | 23'-00"        | 21'-08"        | 20'-01"        | 24'-03"                         | 22'-00"        | 20'-09"        | 19'-03"        | 22'-10"                          | 20'-09"        | 19'-06"        | 18'-01"        |
|                    | 14"     | 29'-11"               | 27'-02"        | 25'-07"        | <b>23'-08"</b> | 28'-08"                         | 26'-00"        | 24'-06"        | <b>22'-07"</b> | 27'-00"                          | 24'-06"        | 23'-01"        | <b>21'-04"</b> |
| 40 Live<br>20 Dead | 7 1/4"  | 14'-09"               | 13'-04"        | 12'-07"        | 11'-08"        | 13'-10"                         | 12'-07"        | 11'-10"        | 11'-00"        | 12'-10"                          | 11'-08"        | 11'-00"        | 10'-02"        |
|                    | 9 1/2"  | 19'-04"               | 17'-07"        | 16'-06"        | 15'-04"        | 18'-03"                         | 16'-07"        | 15'-07"        | 14'-05"        | 16'-11"                          | 15'-04"        | 14'-05"        | 13'-04"        |
|                    | 11 7/8" | 24'-03"               | 22'-00"        | 20'-08"        | <b>19'-01"</b> | 22'-10"                         | 20'-09"        | 19'-06"        | <b>18'-00"</b> | 21'-02"                          | 19'-02"        | 18'-01"        | <b>16'-08"</b> |
|                    | 14"     | 28'-07"               | 26'-00"        | <b>24'-04"</b> | <b>22'-07"</b> | 26'-11"                         | 24'-05"        | <b>22'-11"</b> | <b>21'-03"</b> | 25'-00"                          | 22'-08"        | <b>21'-03"</b> | <b>19'-08"</b> |
| 50 Live<br>10 Dead | 7 1/4"  | 14'-04"               | 13'-00"        | 12'-02"        | 11'-04"        | 13'-08"                         | 12'-05"        | 11'-08"        | 10'-10"        | 12'-11"                          | 11'-09"        | 11'-01"        | 10'-03"        |
|                    | 9 1/2"  | 18'-09"               | 17'-01"        | 16'-00"        | 14'-11"        | 18'-00"                         | 16'-04"        | 15'-04"        | 14'-03"        | 17'-00"                          | 15'-05"        | 14'-06"        | 13'-06"        |
|                    | 11 7/8" | 23'-06"               | 21'-04"        | 20'-01"        | <b>18'-07"</b> | 22'-06"                         | 20'-05"        | 19'-03"        | 17'-10"        | 21'-04"                          | 19'-04"        | 18'-02"        | 16'-11"        |
|                    | 14"     | 27'-09"               | 25'-03"        | <b>23'-08"</b> | <b>21'-11"</b> | 26'-07"                         | 24'-02"        | <b>22'-07"</b> | <b>21'-00"</b> | 25'-02"                          | 22'-10"        | 21'-06"        | <b>19'-10"</b> |
| 50 Live<br>20 Dead | 7 1/4"  | 14'-00"               | 12'-08"        | 11'-11"        | 11'-01"        | 13'-02"                         | 12'-00"        | 11'-03"        | 10'-05"        | 12'-03"                          | 11'-02"        | 10'-06"        | 9'-08"         |
|                    | 9 1/2"  | 18'-05"               | 16'-08"        | 15'-08"        | 14'-07"        | 17'-04"                         | 15'-09"        | 14'-10"        | 13'-09"        | 16'-01"                          | 14'-08"        | 13'-09"        | 12'-09"        |
|                    | 11 7/8" | 23'-00"               | 20'-11"        | <b>19'-07"</b> | <b>18'-02"</b> | 21'-09"                         | 19'-09"        | 18'-07"        | <b>17'-02"</b> | 20'-02"                          | 18'-04"        | 17'-03"        | <b>15'-11"</b> |
|                    | 14"     | 27'-02"               | <b>24'-07"</b> | <b>23'-02"</b> | <b>21'-06"</b> | 25'-08"                         | <b>23'-03"</b> | <b>21'-10"</b> | <b>20'-03"</b> | 23'-10"                          | <b>21'-07"</b> | <b>20'-03"</b> | <b>18'-10"</b> |

- Spans are simple spans, clear distances between supports, measured horizontally.
- Stated dead load is applied along the sloped length of the roof joist.
- Per code, a live load reduction has been applied to 20 psf non-snow live loads for slopes of 8/12 through 12/12.
- Maximum deflection is limited to L/240 live load and L/180 total load.
- Minimum end bearing length is 1 3/4", except for spans shown in bold italics, which require not less than 2.5" of bearing. Assumes SPF bearing plate (FcL = 425 psi).
- A minimum slope of 0.25/12 and provisions to prevent ponding are required.
- The top edge of the rafter shall be held in line for its entire length, as by adequate sheathing, to prevent lateral displacement.
- For 11 7/8" and 14" rafters, provide lateral support at points of bearing to prevent rotation. When rafters are attached to ceiling joists at points of bearing, the lateral support is not required.
- 14" rafters shall also be supported laterally at intervals not exceeding 8 feet by solid blocking, diagonal bridging, or a continuous 1x3 nailed across the bottom of the rafters.
- Do not allow workers or loads on rafters until properly installed and braced. Attach temporary bracing (1x4 minimum) not more than 8' on-center and extend to braced wall during installation. Fasten to each joist with two 8d box (0.113 x 2 1/2") nails. See "Bracing Requirements" in the BlueLinx Residential Floor and Roof Systems Specifier's Guide for additional information.
- EFL rafters may be used with ridge beams or with ridge boards.
- If used with ridge boards, the tabulated rafter spans assume that ceiling joists are located at the bottom of the attic space or that some other method of resisting the outward push of the rafters on the bearing walls, such as rafter ties, is provided at that location.

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