

1½" Engineered Framing Lumber (EFL) Joists

- Comprised of LVL, EFL is strong, straight, dimensionally stable, and stocked in lengths up to 36'
- Can be used in floor assemblies that would otherwise require a protective membrane or sprinkler system per the 2012 IRC (R501.3) and 2015/2018/2021/2024 IRC (R302.13)
- Limited lifetime warranty

Allowable Edgewise Design Stresses ^{a,b}

E_{sf}	(Shear-Free Modulus of Elasticity) ^c	1.6×10^6	psi
E_{app}	(Apparent Modulus of Elasticity) ^c	1.5×10^6	psi
F_b	(Flexural Stress)	2250	psi ^{d,e}
F_v	(Horizontal Shear)	285	psi
$F_{c\perp}$	(Compression Perpendicular to Grain) ^c	750	psi

a. APA Product Report PR-L283.

b. Limited to conditions in which the moisture content of solid sawn lumber is less than 16%.

c. No increase allowed for duration of load.

d. A factor of 1.04 may be applied for repetitive members as defined in the NDS.

e. For depth (d) of 12". For other depths, multiply F_b by $(12/d)0.18$.

Residential Floor Joist Spans - 40 psf Live Load (L/480), 10 psf Dead Load

Joist Size	Maximum Hole Diameter	Spacing (Simple or Multiple Span)		
		12" o.c.	16" o.c.	19.2" o.c.
1½" x 7¼"	2⅜"	13'-03"	12'-03"	11'-08"
1½" x 9½"	3⅛"	17'-01"	15'-09"	14'-11"
1½" x 11⅞"	3⅞"	21'-02"	19'-05"	18'-02"
1½" x 14" ^a	4⅝"	24'-09"	22'-09"	21'-07"

a. 14" joists may not be used for multiple spans or with cantilevers.

- Spans are maximum clear distances between supports, representing worst case of simple and multiple spans, with uniform loads.
- Live load deflection is limited to L/480, providing joists that are one-third stiffer than required by code. Experience has shown that floors designed to the code minimum live load deflection (L/360) may not meet the occupant's expectations for floor performance.
- Spans are based on glued-nailed APA Rated Sheathing or Sturd-I-Floor panels of minimum thickness $2\frac{3}{32}$ " ($\frac{4}{8}$ /₂₄ or 24 oc). Use an adhesive that has been qualified as a Class 1/8 in., Type P/O subfloor adhesive in accordance with ASTM D3498, applied per adhesive manufacturer's instructions.
- Minimum bearing length: 1½" (end), 3½" (intermediate). Assumes SPF bearing plate ($F_{c\perp} = 425$ psi).
- Provide lateral restraint at supports.
- Multiple-span joists require full-depth solid blocking or diagonal X-bridging at mid-spans unless a ceiling (minimum ½" GWB) is directly attached. Fasten joists to intermediate supports with three 10d box (0.128" x 3") nails.
- 14" joists shall be supported laterally at intervals not exceeding 8 feet by full-depth solid blocking, diagonal X-bridging, or a continuous 1x3 nailed across the bottom of the joists perpendicular to the joists.
- For multiple-span joists, end spans must be at least 40% of adjacent span to limit uplift.
- Do not allow workers or loads on joists 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 2½") nails or 10d box (0.128" x 3") nails if bracing is 2x4. See "Bracing Requirements" in the BlueLinX Residential Floor and Roof Systems Specifier's Guide for additional information.
- Tabulated spans for multiple-span conditions cover a wide range of span combinations. Longer spans may be possible by analyzing a specific span condition using isDesign® software.
- For the tabulated loads and spans, up to 2 round holes not exceeding the diameters listed (drilled with a bit or neatly cut with a hole saw or router and template) can be placed in each span, subject to limitations shown below. Larger holes and/or locations outside the Allowable Hole Zone may be possible by analyzing a specific span condition using isDesign® software.

