

About Floor Performance

Homeowner's expectations and opinions vary greatly due to the subjective nature of rating a new floor. Communication with the ultimate end user to determine their expectation is critical. **Vibration** is usually the cause of most complaints. Installing lateral bridging may help; however, squeaks may occur if not installed properly. Spacing the joists closer together does little to affect the perception of the floor's performance. The most common methods used to increase the performance and reduce vibration of wood floor systems is to

increase the joist depth, limit joist deflections, glue and screw a thicker, tongue-and-groove subfloor, install the joists vertically plumb with level-bearing supports, and install a direct-attached ceiling to the bottom flanges of the joists.

The floor span tables listed below offer three very different performance options, based on performance requirements of the homeowner.

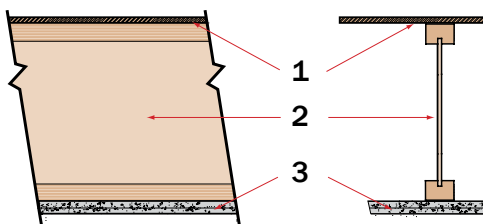
Joist Depth	ALLJOIST® Series	★★★THREE STAR ★★★				★★★★FOUR STAR★★★★				CAUTION	★MINIMUM STIFFNESS ALLOWED BY CODE★				CAUTION		
		<p>Live Load deflection limited to L/480: The common industry and design community standard for residential floor joists, 33% stiffer than L/360 code minimum. However, floor performance may still be an issue in certain applications, especially with 9½" and 11⅞" deep joists without a direct-attached ceiling.</p> <p>Live Load deflection limited to L/960+: A floor that is 100% stiffer than the three star floor. A premium floor that 100% stiffer than the 3 star floor for the discriminating homeowner.</p> <p>Live Load deflection limited to L/360: Floors that meet the minimum building code L/360 criteria are structurally sound to carry the specified loads; however, there is a much higher risk of floor performance issues. This table should only be used for applications where floor performance is not a concern.</p>															
		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.	12" o.c.	16" o.c.	19.2" o.c.	24" o.c.
9½"	140	17'-9"	16'-3"	15'-4"	13'-10"	13'-10"	12'-8"	11'-11"	11'-1"	19'-7"	17'-0"	15'-6"	13'-10"	19'-7"	17'-0"	15'-6"	13'-10"
	20	19'-0"	17'-5"	16'-5"	15'-3"	14'-10"	13'-6"	12'-9"	11'-10"	21'-1"	19'-3"	18'-2"	16'-4"	21'-1"	19'-3"	18'-2"	16'-4"
	25	20'-8"	18'-10"	17'-9"	16'-7"	16'-1"	14'-8"	13'-9"	12'-9"	22'-10"	20'-10"	19'-8"	18'-1"	22'-10"	20'-10"	19'-8"	18'-1"
11⅞"	140	21'-2"	19'-4"	17'-8"	15'-9"	16'-6"	15'-1"	14'-2"	13'-2"	22'-5"	19'-4"	17'-8"	15'-9"	22'-5"	19'-4"	17'-8"	15'-9"
	20	22'-8"	20'-8"	19'-6"	18'-2"	17'-8"	16'-1"	15'-2"	14'-1"	25'-1"	22'-10"	20'-10"	18'-7"	25'-1"	22'-10"	20'-10"	18'-7"
	25	24'-7"	22'-5"	21'-2"	18'-3"	19'-2"	17'-5"	16'-5"	15'-3"	27'-2"	24'-10"	22'-10"	18'-3"	27'-2"	24'-10"	22'-10"	18'-3"
14"	20	25'-8"	23'-6"	22'-2"	19'-1"	20'-1"	18'-4"	17'-3"	16'-0"	28'-5"	25'-1"	22'-10"	19'-1"	28'-5"	25'-1"	22'-10"	19'-1"
	25	27'-10"	25'-5"	22'-11"	18'-4"	21'-9"	19'-9"	18'-7"	17'-3"	30'-10"	27'-7"	22'-11"	18'-4"	30'-10"	27'-7"	22'-11"	18'-4"
16"	20	28'-6"	26'-0"	24'-1"	19'-3"	22'-3"	20'-3"	19'-1"	17'-9"	31'-2"	27'-0"	24'-1"	19'-3"	31'-2"	27'-0"	24'-1"	19'-3"
	25	30'-10"	27'-10"	23'-2"	18'-6"	24'-1"	21'-11"	20'-8"	18'-6"	34'-1"	27'-10"	23'-2"	18'-6"	34'-1"	27'-10"	23'-2"	18'-6"
18"	25	34'-5"	31'-5"	29'-8"	27'-7"	27'-0"	24'-7"	23'-2"	21'-6"	38'-1"	34'-9"	32'-4"	28'-11"	38'-1"	34'-9"	32'-4"	28'-11"
20"	25	37'-4"	34'-0"	32'-1"	29'-11"	29'-3"	26'-7"	25'-1"	23'-3"	41'-3"	37'-6"	34'-2"	30'-7"	41'-3"	37'-6"	34'-2"	30'-7"
22"	25	40'-1"	36'-7"	34'-6"	32'-0"	31'-5"	28'-7"	26'-11"	25'-0"	44'-3"	39'-3"	35'-10"	32'-0"	44'-3"	39'-3"	35'-10"	32'-0"
24"	25	42'-10"	39'-0"	36'-10"	33'-5"	33'-7"	30'-7"	28'-9"	26'-9"	47'-3"	40'-11"	37'-4"	33'-5"	47'-3"	40'-11"	37'-4"	33'-5"

- Table values based on residential floor loads of 40 psf live load and 10 psf dead load (12 psf dead load for AJS® 25 joists).
- Table values assume that 23/32" min. plywood/OSB rated sheathing is glued and nailed to joists.
- Table values represent the most restrictive of simple or multiple span applications.
- Table values are the maximum allowable clear distance between supports. Analyze multiple span joists with BC CALC® sizing 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" inches and less (18" joists and deeper require web stiffeners at all bearing locations).
- Floor tile will increase dead load and may require specific deflection limits, contact Boise EWP Engineering for further information.
- 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® sizing software.

Shaded values do not satisfy the requirements of the North Carolina State Building Code. Refer to the THREE STAR table when spans exceed 20 feet.

One-Hour Floor/Ceiling Assembly



FIRE ASSEMBLY COMPONENTS

1. Min. 3/4" tongue-and-groove plywood or 23/32" APA Rated Sheathing (Exposure 1 or exterior glue)
2. AJS® Joists at 24" o.c. or less.
3. Two layers 1/2" Type C or two layers 5/8" Type X gypsum board
4. When constructed with resilient channels, STC = 50.

Contact your local Boise Cascade representative for specific assembly information and other fire-resistive options.