

July 2010 r 5/2016

AJS® 150 Factored Resistances

Limit States Design (CANADA)

| | | | | | | | Factored E Resista | nd Bearing nce (lbs) | Factored Intermediate Bearing Resistance (lbs) | | |
|-------------------------|-------|----------------------------------|---------------------------------|---|--|--------------|--|-------------------------|---|------------|--|
| Δ IS® | Joist | Factored Moment Resistance | Factored Shear Resistance | Joist Stiffness El | Shear Deformation Coefficient, K | | 1½" Min. Bearing Length No Web WITH Web | | 3½" Min. Bearing Length | | |
| Joist | Depth | | | | | Joist Weight | Stiffeners | Stiffeners | Stiffeners | Stiffeners | |
| Series | [in] | [lbs-ft] | [lbs] | [x10 ⁶ lbs-in ²] | [x10 ⁶ lbs] | [lbs/ft] | [lbs] | [lbs] | [lbs] | [lbs] | |
| AJS [®] 150 | 91⁄2 | 4 705 | 1 830 | 194 | 5.2 | 2.2 | 1 500 | 1 955 | 3 705 | 3 865 | |
| | 111⁄8 | 6 095 | 2 350 | 332 | 6.6 | 2.5 | 1 505 | 2 105 | 3 770 | 4 415 | |
| | 14 | 7 335 | 2 825 | 488 | 7.8 | 2.7 | 1 515 | 2 240 | 3 835 | 4 940 | |
| | 16 | 8 505 | 3 255 | 667 | 8.9 | 3.0 | 1 530 | 2 365 | 3 890 | 5 420 | |

NOTES:

- (1) All resistance factors, as per CSA O86 have been applied.
- (2) Minimum end bearing length is $1\frac{1}{2}$ ".
- (3) The AJS[®] Joist deflection under uniform load may be calculated with the equation to the right:

BUILDING CODE EVALUATION REPORTS

- CCMC Report Number 12787-R

$$\Delta = \frac{5wl^4}{384 EI} + \frac{wl^2}{K}$$

- Δ = Deflection [in]
- w =Uniform load [lb/in]
- l = Centerline to centerline [in]
- EI = Stiffness value from table [lb-in²]
- K = Shear deflection factor from table [lb]

AJS[®] 150 Residential Floor Span Tables

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 flange of the joists.*

| Subfloor (Glued & Nailed) | | | | | | | | | | | | | | | |
|---------------------------|---------------|-----------------------|-------------|---------|---------|-----------------------------|---------|---------|-----------------|---------|---------|-----------------------------|---------|---------|--|
| Live Load: 40 psf | | | Simple Span | | | | | | Continuous Span | | | | | | |
| Dead Load: 15 psf | | | Bare Joist | | | Applied 1/2" Gypsum Ceiling | | | Bare Joist | | | Applied 1/2" Gypsum Ceiling | | | |
| Joist Series | Depth [in] | Subfloor Thickness | 12" | 16" | 19.2" | 12" | 16" | 19.2" | 12" | 16" | 19.2" | 12" | 16" | 19.2" | |
| AJS® 150 | 9½ | 5/8" | 15'-9" | 14'-11" | 14'-5" | 16'-2" | 15'-4" | 14'-10" | 17'-1" | 16'-1" | 15'-7" | 17'-7" | 16'-7" | 16'-1" | |
| | 111/8 | 5/8" | 17'-8" | 16'-8" | 16'-2" | 18'-2" | 17'-2" | 16'-7" | 19'-5" | 18'-1" | 17'-6" | 20'-2" | 18'-9" | 18'-0" | |
| | 14 | 5/8" | 19'-6" | 18'-2" | 17'-6" | 20'-3" | 18'-10" | 18'-1" | 21'-7" | 20'-1" | 19'-3" | 22'-5" | 20'-11" | 20'-0" | |
| | 16 | 5/8" | 21'-4" | 19'-9" | 18'-11" | 22'-1" | 20'-6" | 19'-8" | 23'-7" | 21'-10" | 20'-11" | 24'-6" | 22'-9" | 21'-10" | |
| AJS® 150 | 91⁄2 | 3/1" | 16'-9" | 15'-9" | 15'-3" | 17'-2" | 16'-2" | 15'-7" | 18'-1" | 17'-1" | 16'-6" | 18'-8" | 17'-7" | 16'-11" | |
| | 111/8 | 3/" | 18'-11" | 17'-8" | 17'-0" | 19'-6" | 18'-2" | 17'-6" | 20'-11" | 19'-5" | 18'-6" | 21'-7" | 20'-2" | 19'-3" | |
| | 14 | 3/1" | 21'-0" | 19'-6" | 18'-7" | 21'-8" | 20'-2" | 19'-3" | 23'-3" | 21'-7" | 20'-7" | 24'-0" | 22'-5" | 21'-5" | |
| | 16 | 3⁄4" | 22'-11" | 21'-3" | 20'-3" | 23'-8" | 22'-0" | 21'-0" | 25'-4" | 23'-6" | 22'-5" | 26'-2" | 24'-5" | 23'-0" | |

NOTES:

- Tables are based on a uniform 40 psf live load and 15 psf dead load (Standard Term Load Duration).
- · Floor tile will increase dead load and may require specific deflection limits.
- Minimum end bearing length is 1¹/₂".
- Maximum spans are measured in between the supports (clearspan) and are based on uniformly loaded joists.
- Live load deflection is limited to L/360 and Total load deflection to L/240. Deflections are based on the bare joist stiffness.
- Spans shown are in accordance with NBCC2005: Part 9, and standard CAN-CSA 086-01.
- When using continuous spans over an intermediate bearing, the shortest span shall not be less than 50% of the longest adjacent span. For other conditions, please contact your distributor or Boise Cascade EWP, for assistance.
- It may be possible to exceed the limitations of these tables by analyzing a specific application with the Boise's BC CALC[®] software and Boise WoodSizer software.
- The subfloor shall be CSA rated Oriented Strand Board (OSB), Canadian Softwood Plywood (CSP), or Douglas Fir Plywood (DFP).
- Subfloor adhesive shall comply with CGSB standard CAN-CGSB 71.26-M88 "Adhesives for Field-gluing Plywood to Lumber Framing for Floor Systems" or APA Performance Specification AFG-01.

AJS[®] 150 Fire Resistance



3 Insulation

3¹/₂" thick, minimum 2.5 pcf, mineral wool insulation batts.

3

6 Gypsum Wallboard

One layer of 5/8" Type C gypsum wallboard installed perpendicular to channels with end joints staggered 48". Boards to be fastened to channels with minimum 11/8" Type S drywall screws located 12" on center. Gypsum wallboard joints shall be covered with tape and coated with gypsum joint compound.

REFERENCE:

NBCC 2005, table A 9.10.3.1B. Assembly F5g

1 Hour Fire Rating

Floor/Ceiling Assembly STC 55 with Resilient Channels and Insulation STC 48 with Resilient Channels and WITHOUT Insulation



3 Insulation (optional) 3¹/₂" fiberglass batt insulation.

Gypsum Wallboard Two layers of ½" Type C or 5⁄6" Type X gypsum wallboard. Base layer installed perpendicular to joists or channels and fastened with 13⁄4" screws located at 12" on center. Face layer installed parallel to base layer with end and edge joints staggered 16" minimum and fastened with 21⁄4" screws located at 12" on center on intermediate joists, and 8" on center at end joints. Gypsum wallboard joints shall be covered with tape and coated with gypsum joint compound.

REFERENCE:

PFS AJS®, Assembly 1

Subfloor

Minimum %" plywood or OSB sheathing fastened to joists in accordance with Code specifications. Construction adhesive is optional.

2 Structural Members

AJS[®] Joists having a minimum depth of 9¹/₂" and spaced at 24" o.c. maximum.

4 Insulation Supports

Nominal 2x3 strapping located 16" o.c. or equivalent method to retain insulation above joist flanges.

5 Resilient Channels

Minimum 25 gauge $\frac{1}{2}$ " offset RC-1 galvanized steel channels installed perpendicular to joists spaced at 16" o.c. maximum and fastened with $\frac{1}{2}$ " screws at each joist intersection.

For framing details, hole charts and Framing Connectors, please refer to our ALLJOIST[®] Specifier Guide.



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Boise Cascade warrants its BCI® Joist, VERSA-LAM®, and ALLJOIST® products to comply with our specifications, to be free from defects in material and workmanship, and to meet or exceed our performance specifications for the normal and expected life of the structure when correctly stored, installed and used according to our Installation Guide.

Your local retailer

The information provided herein was up-to-date at the time of printing. This document may be superseded by a updated version. Please confirm that this specifier guide is the most current version at www.bc.com/ewp.

CCMC Report Number 12787-R

The information in this document pertains to use in CANADA ONLY, Limit States Design. Refer to the ALLJOIST[®] Specifier Guide for use in the United States.

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