1. Basis of the product report:
   - 2015 National Building Code of Canada (NBC): Clause 1.2.1.1 of Division A, Clauses 3.1.7, 4.1, 4.3.1.1, 9.10.3.1, 9.11, and 9.23.4.2 of Division B, Table 9.10.3.1-A, and Appendix D
   - ASTM D5055-13e1, D5055-13, D5055-09, and D5055-05 recognized by the 2018 IBC and IRC, 2015 IBC and IRC, 2012 IBC and IRC, and 2009 IBC and IRC respectively
   - ICC-ES/APA Joint Evaluation Reports ESR-1040, ESR-1144, and ESR-1336
   - CCMC Evaluation Reports 12472-R, 12787-R, and 13300-R
   - APA Product Reports PR-L310 and PR-L323
   - ASTM E119 and CAN/ULC S101 full-scale fire test reports, and engineering analyses

2. Product description:
The BCI® and AJs® I-joists covered by this report, as described in Tables 1 and 2, are made with laminated veneer lumber (LVL) or lumber flanges and OSB webs in accordance with the in-plant manufacturing standard approved by APA. The VERSA-LAM® rimboards covered by this report are made with LVL in accordance with the in-plant manufacturing standard approved by APA.

3. Design properties:

4. Product installation:
BCI and AJs I-joists, and VERSA-LAM rimboards covered by this report shall be installed in accordance with the recommendations provided by the manufacturer (www.bc.com/manufacturing). The Rim Board protection provided by the gypsum board contained in this report shall be permitted to be continuous or discontinuous. When the Rim Board protection is discontinuous due to the interruption of the floor framing, the floor framing must abut to the continuous Rim Board, and the required gypsum protection must abut to the floor framing with gaps of no greater than 1/16 inch. When used with I-joist framing, the gypsum protection must be notched to fit at all corners of the I-joist or the space between the I-joist web and the gypsum protection must be filled with a web filler with a gap of no greater than 1/16 inch between the gypsum protection and the web filler and between the web filler and the I-joist web and flanges.
5. Fire-rated assemblies: BCI and AJS Series I-joist, and VERSA-LAM rimboard assemblies have been shown through testing and engineering analysis to achieve the fire resistance ratings described in this report. Fire-rated assemblies with BCI and AJS I-joists, and VERSA-LAM rimboards shall be constructed in accordance with the prescriptive requirements provided in this report or recommended by the manufacturer (see link above).

6. Fire-protection of floors: BCI and AJS I-joists as described in Table 3, when installed and protected as specified in this report, meet the requirements of 2015 and 2018 IRC Section R302.13 and 2012 IRC Section R501.3, or are alternatives to the 2-by-10 dimensional lumber prescribed in Exception 4 to 2015 and 2018 IRC Section R302.13 and 2012 IRC Section R501.3 with demonstrated equivalent fire performance.

7. Limitations:
   a) BCI and AJS I-joists covered by this report shall be designed in accordance with the code using the design properties specified in ICC-ES/APA ESR-1144 and ESR-1336, and APA PR-L310 and PR-L323 in the U.S., and CCMC 12787-R and 13300-R, and APA PR-L310C in Canada. VERSA-LAM rimboards covered by this report shall be designed in accordance with the code using the design properties specified in ICC-ES/APA ESR-1040 in the U.S. and CCMC 12472-R in Canada.
   b) BCI and AJS I-joists, and VERSA-LAM rimboards covered by this report are limited to dry service conditions where the average equilibrium moisture content of sawn lumber is less than 16 percent in the U.S. and the average equilibrium moisture content of solid-sawn lumber over a year is 15 percent or less and does not exceed 19 percent in Canada.
   c) BCI and AJS I-joists, and VERSA-LAM rimboards covered by this report are produced at the Boise Cascade Wood Products L.L.C. facilities in White City, Oregon, Lena, Louisiana, St. Jacques, New Brunswick, or Roxboro, North Carolina under a quality assurance program audited by APA.
   d) This report is subject to re-examination in one year.

8. Identification:
   BCI and AJS prefabricated wood I-joists, and VERSA-LAM rimboards described in this report are identified by a label bearing the manufacturer's name (Boise Cascade Wood Products L.L.C.) and/or trademark, the APA assigned plant number (1109 for White City, Oregon, 1105 for Lena, Louisiana, 1108 for St. Jacques, New Brunswick, and 1027 for Roxboro, North Carolina), the product series, the APA logo, and a means of identifying the date of manufacture.

<table>
<thead>
<tr>
<th>Joist Series</th>
<th>Flanges</th>
<th>Web</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Material</td>
<td>Width (in.)</td>
</tr>
<tr>
<td>BCI 40/400/4000</td>
<td>LVL</td>
<td>9-1/2 – 14</td>
</tr>
<tr>
<td>BCI 40S/400S/4000S</td>
<td></td>
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</tr>
<tr>
<td>BCI 45/450/4500</td>
<td>LVL</td>
<td>9-1/2 – 16</td>
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<tr>
<td>BCI 45S/450S/4500S</td>
<td></td>
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</tr>
<tr>
<td>BCI 50/500/5000</td>
<td>LVL</td>
<td>9-1/2 – 16</td>
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<td>BCI 50S/500S/5000S</td>
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</table>
Table 1. Description of BCI Series I-Joists\(^{(a)}\) (Continued)

<table>
<thead>
<tr>
<th>Joist Series</th>
<th>Joist Depths (in.)</th>
<th>Material</th>
<th>Width (in.)</th>
<th>Flanges</th>
<th>Depth (in.)</th>
<th>Web</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>XX0 Series</td>
<td>XX0 Series</td>
<td>XX Series</td>
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<tr>
<td>BCI 60/600/6000 BCI 60S/600S/6000S</td>
<td>9-1/2 – 20</td>
<td>LVL</td>
<td>2-5/16</td>
<td>1-1/8</td>
<td>1-5/16</td>
<td>1-1/2</td>
</tr>
<tr>
<td>BCI 90/900/9000 BCI 90S/900S/9000S</td>
<td>9-1/2 – 20</td>
<td>LVL</td>
<td>3-1/2</td>
<td>1-1/8</td>
<td>1-5/16</td>
<td>1-1/2</td>
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<tr>
<td>BCI 90e</td>
<td>9-1/2 – 24</td>
<td>LVL</td>
<td>3-1/2</td>
<td>-</td>
<td>-</td>
<td>1-1/2</td>
</tr>
</tbody>
</table>

For SI: 1 inch = 25.4 mm.

\(^{(a)}\) Referenced dimensions are nominal. Tolerances are as specified in the plant quality manual.

Table 2. Description of AJS Series I-Joists\(^{(a)}\)

<table>
<thead>
<tr>
<th>Joist Series</th>
<th>Joist Depths (in.)</th>
<th>Material</th>
<th>Flanges</th>
<th>Dimension</th>
<th>Web</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Depth (in.)</td>
<td>Width (in.)</td>
</tr>
<tr>
<td>AJS-5</td>
<td>9-1/2 – 11-7/8</td>
<td>Proprietary SPF</td>
<td>1-1/2</td>
<td>2-1/2</td>
<td>OSB</td>
</tr>
<tr>
<td>AJS-10</td>
<td>9-1/2 – 16</td>
<td>Proprietary Spruce</td>
<td>1-1/2</td>
<td>2-1/2</td>
<td>OSB</td>
</tr>
<tr>
<td>AJS-20</td>
<td>9-1/2 – 16</td>
<td>MSR Lumber</td>
<td>1-1/2</td>
<td>2-1/2</td>
<td>OSB</td>
</tr>
<tr>
<td>AJS-20v</td>
<td>9-1/4 – 16</td>
<td>MSR Lumber</td>
<td>1-1/2</td>
<td>2-1/2</td>
<td>OSB</td>
</tr>
<tr>
<td>AJS-110</td>
<td>9-1/4 – 16</td>
<td>Proprietary SPF</td>
<td>1-1/2</td>
<td>2-1/2</td>
<td>OSB</td>
</tr>
<tr>
<td>AJS-140</td>
<td>9-1/2 – 16</td>
<td>Proprietary SPF</td>
<td>1-1/2</td>
<td>2-1/2</td>
<td>OSB</td>
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<tr>
<td>AJS-150</td>
<td>9-1/2 – 16</td>
<td>MSR Lumber</td>
<td>1-1/2</td>
<td>2-1/2</td>
<td>OSB</td>
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<tr>
<td>AJS-150v</td>
<td>9-1/4 – 16</td>
<td>MSR Lumber</td>
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<td>2-1/2</td>
<td>OSB</td>
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<tr>
<td>AJS-160</td>
<td>9-1/2 – 16</td>
<td>MSR Lumber</td>
<td>1-1/2</td>
<td>2-1/2</td>
<td>OSB</td>
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<tr>
<td>AJS-170</td>
<td>9-1/2 – 16</td>
<td>MSR Lumber</td>
<td>1-1/2</td>
<td>2-1/2</td>
<td>OSB</td>
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<tr>
<td>AJS-180</td>
<td>9-1/2 – 16</td>
<td>MSR Lumber</td>
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<td>2-1/2</td>
<td>OSB</td>
</tr>
<tr>
<td>AJS-190</td>
<td>9-1/4 – 16</td>
<td>MSR Lumber</td>
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<td>2-1/2</td>
<td>OSB</td>
</tr>
<tr>
<td></td>
<td>18 – 20</td>
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<td></td>
<td></td>
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<tr>
<td>AJS-200</td>
<td>9-1/2 – 16</td>
<td>MSR Lumber</td>
<td>1-1/2</td>
<td>2-1/2</td>
<td>OSB</td>
</tr>
<tr>
<td>AJS-24</td>
<td>9-1/4 – 16</td>
<td>MSR Lumber</td>
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<td>3-1/2</td>
<td>OSB</td>
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<tr>
<td>AJS-25</td>
<td>9-1/2 – 16</td>
<td>MSR Lumber</td>
<td>1-1/2</td>
<td>3-1/2</td>
<td>OSB</td>
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<tr>
<td></td>
<td>18 – 24</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AJS-25v</td>
<td>9-1/4 – 16</td>
<td>MSR Lumber</td>
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<td>3-1/2</td>
<td>OSB</td>
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<tr>
<td>AJS-30</td>
<td>18 – 24</td>
<td>MSR Lumber</td>
<td>1-1/2</td>
<td>3-1/2</td>
<td>OSB</td>
</tr>
</tbody>
</table>

For SI: 1 inch = 25.4 mm.

\(^{(a)}\) Referenced dimensions are nominal. Tolerances are as specified in the plant quality manual.
Table 3. Applicable BCI and AJS Series I-joists that complies with Section 6 of this Report

<table>
<thead>
<tr>
<th>Applicable Assemblies</th>
<th>Applicable Joist Series</th>
</tr>
</thead>
<tbody>
<tr>
<td>FP-01</td>
<td>All BCI Joists; All AJS Joists</td>
</tr>
<tr>
<td>FP-02</td>
<td>BCI 50, 60, 60S, 65, 90 and 90e; All AJS Joists</td>
</tr>
<tr>
<td>FP-03</td>
<td>All BCI Joists except for BCI 40/400/4000 Joists; All AJS Joists</td>
</tr>
<tr>
<td>FP-04</td>
<td>All BCI Joists except for BCI 40/400/4000 Joists; All AJS Joists</td>
</tr>
<tr>
<td>FP-06</td>
<td>All BCI Joists except for BCI 40/400/4000 and 45/450/4500 Joists; All AJS Joists</td>
</tr>
<tr>
<td>FP-07</td>
<td>All BCI Joists except for BCI 40/400/4000 and 45/450/4500 Joists; All AJS Joists</td>
</tr>
<tr>
<td>FP-08</td>
<td>BCI 60, 60S, 65, 90 and 90e Joists; All AJS Joists</td>
</tr>
<tr>
<td>FP-09</td>
<td>All BCI Joists except for BCI 40/400/4000 and 45/450/4500 Joists; All AJS Joists</td>
</tr>
<tr>
<td>FP-10</td>
<td>BCI 60, 60S, 65, 90, and 90e Joists; All AJS Joists</td>
</tr>
</tbody>
</table>
Boise Cascade Assembly FR1
45-Minute Fire Resistance Rated Floor and Roof Assembly
The following fire resistance design is listed in accordance with ASTM E119 and CAN/ULC S101

A. BASIC ASSEMBLIES
1) Floor Topping (Optional): Varies (reference sound ratings if applicable).
2) Floor Sheathing: Min. 23/32-inch (18-mm) T&G Wood Structural Panels. Min. 19/32-inch (15-mm) Wood Structural Panels are permitted when joists are spaced 20 inches (508 mm) or less and light weight concrete or proprietary topping is used. A construction adhesive must be applied to the top of the joists prior to placing sheathing. The sheets shall be installed with their long edge perpendicular to the joists with end joints centered over the top flange of joists and staggered one joist spacing with adjacent sheets. Floor sheathing must be installed per code requirements.
3) Insulation (Optional): Min. 3-1/2-inch (89-mm) Glass Fiber Insulation or 2-inch (51-mm) Rock Wool Insulation, 2.5 pcf nominal (reference sound ratings if applicable).
4) Structural Members: Min. 9-1/2-inch (241-mm) Deep I-Joists. Max. 24 inches (610 mm) on center spacing. Min. BCI flange dimensions of 1-1/8 inches (29 mm) thick by 2 inches (51 mm) wide. Min. AJS flange dimensions of 1-1/2 inches (38 mm) thick by 2-1/2 inches (64 mm) wide.
5) Resilient Channels: Min. 0.019-inch (0.5-mm) Galvanized Resilient Channels. Attached perpendicular to the bottom flange of the I-joist with 1-1/8-inch (29-mm) Type W drywall screws. Channels are spaced a max. of 16 inches (406 mm) on center. Additional channels required at gypsum wallboard end joints such that each board rests on its own channel. These additional channels shall extend to the next joist on each side of the board edges.
6) Ceiling: One layer of 5/8-inch (16-mm) Type C Gypsum Wallboard. Installed with long dimension perpendicular to resilient channels and fastened with min. 1-1/8-inch (29-mm) Type S drywall screws at 7 inches (178 mm) on center. The end joints of the wallboard must be staggered the equivalent of two joist spacings with those of adjacent sheets. Screws shall be min. 1-1/2 inches (38 mm) from board edge and 3/4 inch (19 mm) from board ends.
a) Finish: The face layer joints must be covered with tape and coated with joint compound. Screw heads must also be covered with joint compound.

B. SIMILAR ASSEMBLIES
1) BCI Joists: 2015 NBC Table 9.10.3.1.-B. Assemblies F8, F10, F14, and F20.
2) AJS Joists: 2015 NBC Table 9.10.3.1.-B. Assemblies F8, F10, F14, and F20.
Boise Cascade Assembly FR2
One-Hour Fire Resistance Rated Floor and Roof Assembly

The following fire resistance design is listed in accordance with ASTM E119 and CAN/ULC S101

A. BASIC ASSEMBLIES
1) Floor Topping (Optional): Varies (reference sound ratings if applicable).
2) Floor Sheathing: Min. 23/32-inch (18-mm) T&G Wood Structural Panels. A construction adhesive must be applied to the top of the joists prior to placing sheathing. The sheets shall be installed with their long edge perpendicular to the joists with end joints centered over the top flange of joists and staggered one joist spacing with adjacent sheets. Floor sheathing must be installed per code requirements.
3) Insulation (Optional): Max. 9-1/2-inch (241-mm) Glass Fiber Insulation (reference sound ratings if applicable).
4) Structural Members: Min. 9-1/2 inches (241 mm) Deep I-Joists. Max. 24 inches (610 mm) on center spacing. Min. BCI flange dimensions of 1-1/8 inches (29 mm) thick by 1-1/2 inches (38 mm) wide. Min. AJS flange dimensions of 1-1/2 inches (38 mm) thick by 2-1/2 inches (64 mm) wide.
5) Resilient Channels (Optional): Min. 0.019-inch (0.5-mm) Galvanized Resilient Channels. Attached perpendicular to the bottom flange of the I-joist with 1-1/4-inch (32-mm) Type S drywall screws. Channels are spaced a max. of 16 inches (406 mm) or 24 inches (610 mm) on center when I-joists are spaced a max. of 16 inches (406 mm) on center.
6) Ceiling: Two layers of 5/8-inch (16-mm) Type X Gypsum Wallboard.
   a) Base Layer: Install with long dimension perpendicular to joist length. Attach to the bottom flange of the joists using 1-1/4-inch (32-mm) Type W drywall screws at 24 inches (610 mm) on center. The end joints of the wallboard must be centered on the bottom flange of the joist and must be staggered the equivalent of two joist spacings with those of adjacent sheets.
   b) Face Layer: Install with long dimension perpendicular to joist length. Attach to the bottom flange of the joists through the first layer using 1-7/8-inch (48-mm) Type W drywall screws spaced at 12 inches (305 mm) on center. The longitudinal joints of this layer must be offset 24 inches (610 mm) from those of the base layer. The end joints must be centered on the bottom flange of the joists and offset a min. of one joist spacing from those of the base layer. Additionally, face layer end joints are attached to the base layer with 1-1/2-inch (38-mm) Type G drywall screws at 12 inches (305 mm) on center placed 2 inches (51 mm) either side of the joint.
   c) With Resilient Channels: Attached as described above except use 1-3/8-inch (35-mm) and 1-3/4-inch (44-mm) Type S screws for the base and face layer, respectively. The end joints of the wallboard must be centered on a resilient channel and must be staggered the equivalent of two joist spacings with those of adjacent sheets.
   d) Finish: The face layer joints must be covered with tape and coated with joint compound. Screw heads must also be covered with joint compound.

B. SOUND RATING (with Resilient Channels)

<table>
<thead>
<tr>
<th>Components</th>
<th>STC</th>
<th>IIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Assembly with Carpet and Padding</td>
<td>54</td>
<td>68</td>
</tr>
<tr>
<td>Base Assembly with 3-1/2-inch (89-mm) Insulation</td>
<td>55</td>
<td>46</td>
</tr>
<tr>
<td>Base Assembly with additional layer of 5/8-inch (16-mm) Sheathing and 9-1/2-inch (241-mm) Insulation</td>
<td>61</td>
<td>50</td>
</tr>
<tr>
<td>Base Assembly with Tarkett “Acoustifloor” vinyl and 3-1/2-inch (89-mm) Insulation</td>
<td>59</td>
<td>50</td>
</tr>
<tr>
<td>Base Assembly with cushioned vinyl, 3/4-inch (19-mm) Gypsum Concrete and 3-1/2-inch (89-mm) Insulation</td>
<td>67</td>
<td>51</td>
</tr>
</tbody>
</table>

C. SIMILAR ASSEMBLIES
1) BCI Joists: 2009 IBC Table 720.1(3) Item 21.1.1, 2012/2015/2018 IBC Table 721.1(3) Item 21-1.1, 2015 NBC Table 9.10.3.1.-B Assemblies F4, F9, F11, F13, F15, F17, and F21, and ICC-ES ESR 1336 Figure 2.
A. BASIC ASSEMBLIES
1) Floor Topping: Min. 1-1/2-inch (38-mm) Gypsum Concrete.
2) Floor Sheathing: Min. 19/32-inch (15-mm) T&G Wood Structural Panel. A construction adhesive must be applied to the top of the joists prior to placing sheathing. The sheets shall be installed with their long edge perpendicular to the joists with end joints centered over the top flange of joists and staggered one joist spacing with adjacent sheets.
3) Insulation (Optional): Max. 9-1/2-inch (241-mm) Glass Fiber Insulation (reference sound ratings if applicable).
4) Structural Members: Min. 9-1/2 inches (241 mm) Deep I-Joists. Max. 16 inches (406 mm) on center spacing. Min. BCI flange dimensions of 1-1/8 inches (29 mm) thick by 1-1/2 inches (38 mm) wide. Min. AJS flange dimensions of 1-1/2 inches (38 mm) thick by 2-1/2 inches (64 mm) wide.
5) Resilient Channels (Optional): Min. 0.019-inch (0.5-mm) Galvanized Resilient Channels. Attached perpendicular to the bottom flange of the I-joist with 1-1/4-inch (32-mm) Type S drywall screws. Channels are spaced a max. of 16 inches (406 mm) or 24 inches (610 mm) on center when I-joists are spaced a max. of 16 inches on center.
6) Ceiling: Two layers of 5/8-inch (16-mm) Type X Gypsum Wallboard.
   a) Base Layer: Install with long dimension perpendicular to joist length. Attach to the bottom flange of the joists using 1-1/4-inch (32-mm) Type W drywall screws at 24 inches (610 mm) on center. The end joints of the wallboard must be centered on the bottom flange of the joist and must be staggered the equivalent of two joist spacings with those of adjacent sheets.
   b) Face Layer: Install with long dimension perpendicular to joist length. Attach to the bottom flange of the joists through the first layer using 1-7/8-inch (48-mm) Type W drywall screws spaced at 12 inches (305 mm) on center. The longitudinal joints of this layer must be offset 24 inches (610 mm) from those of the base layer. The end joints must be centered on the bottom flange of the joists and offset a min. of one joist spacing from those of the base layer. Additionally, face layer end joints are attached to the base layer with 1-1/2-inch (38-mm) Type G drywall screws at 12 inches (305 mm) on center placed 2 inches (51 mm) either side of the joint.
   c) With Resilient Channels: Attached as described above except use 1-3/8-inch (35-mm) and 1-3/4-inch (44-mm) Type S screws for the base and face layer, respectively. The end joints of the wallboard must be centered on a resilient channel and must be staggered the equivalent of two joist spacings with those of adjacent sheets.
   d) Finish: The face layer joints must be covered with tape and coated with joint compound. Screw heads must also be covered with joint compound.

B. SOUND RATING (with Resilient Channels)

<table>
<thead>
<tr>
<th>Components</th>
<th>STC</th>
<th>IIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Assembly with Carpet and Padding</td>
<td>54</td>
<td>68</td>
</tr>
<tr>
<td>Base Assembly with 3-1/2-inch (89-mm) Insulation</td>
<td>55</td>
<td>46</td>
</tr>
<tr>
<td>Base Assembly with additional layer of 5/8-inch (16-mm) Sheathing and 9-1/2-inch (241-mm) Insulation</td>
<td>61</td>
<td>50</td>
</tr>
<tr>
<td>Base Assembly with Tarkett &quot;Acoustiflor&quot; vinyl and 3-1/2-inch (89-mm) Insulation</td>
<td>59</td>
<td>50</td>
</tr>
<tr>
<td>Base Assembly with cushioned vinyl, 3/4-inch (19-mm) Gypsum Concrete and 3-1/2-inch (89-mm) Insulation</td>
<td>67</td>
<td>51</td>
</tr>
</tbody>
</table>
**Boise Cascade Assembly FR3**  
*One-Hour Fire Resistance Rated Floor and Roof Assembly*  
The following fire resistance design is listed in accordance with ASTM E119 and CAN/ULC S101

![Diagram showing floor sheathing, joists, and wallboard layers.](Diagram)

### A. BASIC ASSEMBLIES
1. Floor Topping (Optional): Varies (reference sound ratings if applicable).
2. Floor Sheathing: Min. 23/32-inch (18-mm) T&G Wood Structural Panel. A construction adhesive must be applied to the top of the joists prior to placing sheathing. The sheets shall be installed with their long edge perpendicular to the joists with end joints centered over the top flange of joists and staggered one joist spacing with adjacent sheets. Floor sheathing must be installed per code requirements.
3. Insulation (Optional): Max. 9-1/2-inch (241-mm) Glass Fiber Insulation (reference sound ratings if applicable).
4. Structural Members: Min. 9-1/2 inches (241 mm) Deep I-Joists. Max. 24 inches (610 mm) on center spacing. Min. BCI flange dimensions of 1-1/8 inches (29 mm) thick by 1-1/2 inches (38 mm) wide. Min. AJS flange dimensions of 1-1/2 inches (38 mm) thick by 2-1/2 inches (64 mm) wide.
5. Resilient Channels (Optional): Min. 0.019-inch (0.5-mm) Galvanized Resilient Channels. Attached perpendicular to the bottom flange of the I-joist with 1-1/4-inch (32-mm) Type S drywall screws. Channels are spaced a max. of 16 inches (406 mm) or 24 inches (610 mm) on center when I-joists are spaced a max. of 16 inches on center.
6. Ceiling: Two layers of 1/2-inch (13-mm) Type G Gypsum Wallboard.
   a. Base Layer: Install with long dimension perpendicular to joist length. Attach to the bottom flange of the joists using 1-1/4-inch (32-mm) Type W drywall screws at 12 inches (305 mm) on center. The end joints of the wallboard must be centered on the bottom flange of the joist and must be staggered the equivalent of two joist spacings with those of adjacent sheets.
   b. Face Layer: Install with long dimension perpendicular to joist length. Attach to the bottom flange of the joists through the first layer using 1-5/8-inch (41-mm) Type W drywall screws spaced at 12 inches (305 mm) on center on intermediate joists and 6 inches (152 mm) on center at end joints. The longitudinal joints of this layer must be offset 24 inches (610 mm) from those of the base layer. The end joints must be centered on the bottom flange of the joists and offset a min. of one joist spacing from those of the base layer. Additionally, face layer end joints are attached to the base layer with 1-1/2-inch (38-mm) Type G drywall screws at 8 inches (203 mm) on center placed 6 inches (152 mm) either side of the joint.
   c. With Resilient Channels: Attached as described above except use 1-1/4-inch (32-mm) and 1-5/8-inch (41-mm) Type S screws for the base and face layer, respectively. The end joints of the wallboard must be centered on a resilient channel and must be staggered the equivalent of two joist spacings with those of adjacent sheets.
   d. Finish: The face layer joints must be covered with tape and coated with joint compound. Screw heads must also be covered with joint compound.

### B. SOUND RATING (with Resilient Channels)

<table>
<thead>
<tr>
<th>Components</th>
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<tbody>
<tr>
<td>Base Assembly with Carpet and Padding</td>
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<tr>
<td>Base Assembly with 3-1/2-inch (89-mm) Insulation</td>
<td>55</td>
<td>46</td>
</tr>
<tr>
<td>Base Assembly with additional layer of 5/8-inch (16-mm) Sheathing and 9-1/2-inch (241-mm) Insulation</td>
<td>61</td>
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<tr>
<td>Base Assembly with Tarkett “Acoustiflor” vinyl and 3-1/2-inch (89-mm) Insulation</td>
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<tr>
<td>Base Assembly with cushioned vinyl, 3/4-inch (19-mm) Gypsum Concrete and 3-1/2-inch (89-mm) Insulation</td>
<td>67</td>
<td>51</td>
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### C. SIMILAR ASSEMBLIES
1. BCI Joists: 2009 IBC Table 720.1(3) Items 26-1.1 and 28.1.1/27.1.1, 2012/2015/2018 IBC Table 721.1(3) Items 26-1.1 and 28.1.1/27.1.1, 2015 NBC Table 9.10.3.1.-B Assemblies F4, F9, F11, F13, F15, F17, and F21, and ICC-ES/APA ESR 1336 Figure 3.
2. AJS Joists: 2009 IBC Table 720.1(3) Items 26-1.1 and 28.1.1/27.1.1, 2012/2015/2018 IBC Table 721.1(3) Items 26-1.1 and 27-1.1, and 2015 NBC Table 9.10.3.1.-B Assemblies F4, F9, F11, F13, F15, F17, and F21.
Boise Cascade Assembly FR4
One-Hour Fire Resistance Rated Floor and Roof Assembly

The following fire resistance design is listed in accordance with ASTM E119 and CAN/ULC S101

A. BASIC ASSEMBLIES

1) Floor Topping: Optional. Varies (reference sound ratings if applicable).

2) Floor Sheathing: Min. 23/32-inch (18-mm) T&G Wood Structural Panel. A construction adhesive must be applied to the top of the joists prior to placing sheathing. The sheets shall be installed with their long edge perpendicular to the joists with end joints centered over the top flange of joists and staggered one joist spacing with adjacent sheets. Floor sheathing must be installed per code requirements.

3) Insulation: Min. 2-inch (51-mm) Mineral Fiber Insulation, Min. 3.5 pcf. Installed adjacent to the bottom flange of the I-joist and supported by 1x4 furring strips. The ends of the batts must be centered over resilient channels.

4) Structural Members: Min. 9-1/2 inches (241 mm) Deep I-Joists. Max. 24 inches (610 mm) on center spacing. Min. flange dimensions of 1-5/16 inches (33 mm) thick by 1-3/4 inches (44mm) wide.

5) Furring Strips: 1x4 (nominal) Wood Furring Strips centered on the bottom flange of the I-joist and attached with 1-1/2-inch (38-mm) Type W screws at 24 inches (610 mm) on center.

6) Resilient Channels: Min. 0.019-inch (0.5-mm) Galvanized Resilient Channels. Attached perpendicular to the bottom flange of the I-joist with 1-7/8-inch (48-mm) Type S drywall screws. Channels are spaced a maximum of 16 inches (406 mm) on center and doubled at each wallboard end joint extending to the next joist beyond each joint.

7) Ceiling: One layer of 5/8-inch (16-mm) Type C Gypsum Wallboard. Installed with long dimension perpendicular to resilient channels and fastened with minimum 1-1/8-inch (29-mm) Type S drywall screws at 7 inches (178 mm) on center. The end joints of the wallboard must be staggered the equivalent of two joist spacings with those of adjacent sheets.

a) Finish: The face layer joints must be covered with tape and coated with joint compound. Screw heads must also be covered with joint compound.

B. SOUND RATING

<table>
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<td>Base Assembly with Carpet and Padding</td>
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<tr>
<td>Base Assembly with cushioned vinyl, 3/4-inch (19-mm) Gypsum Concrete</td>
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<td>Base Assembly with cushioned vinyl, 1-inch (25-mm) Gypsum Concrete, 1/4-inch (6-mm) Acousti-Mat II</td>
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C. SIMILAR ASSEMBLIES

1) BCI Joists: 2009 IBC Table 720.1(3) Item 23-1.1, 2012/2015/2018 IBC Table 721.1(3) Item 23-1.1, and ICC-ES/APA ESR 1336, Figure 4.

2) AJS Joists: 2009 IBC Table 720.1(3) Item 23-1.1 and 2012/2015/2018 IBC Table 721.1(3) Item 23-1.1.
A. BASIC ASSEMBLIES
1) Floor Topping (Optional): Varies (reference sound ratings if applicable).
2) Floor Sheathing: Min. 23/32-inch (18-mm) T&G Wood Structural Panel. A construction adhesive must be applied to the top of the joists prior to placing sheathing. The sheets shall be installed with their long edge perpendicular to the joists with end joints centered over the top flange of joists and staggered one joist spacing with adjacent sheets. Floor sheathing must be installed per code requirements.
3) Insulation: Min. 1-1/2-inch (38-mm) Mineral Fiber Insulation, Min. 2.8 pcf. Installed adjacent to the bottom flange of the I-joint and supported by the furring channels. Ends of bats shall be centered over resilient channels.
4) Structural Members: Min. 9-1/2 inches (241 mm) Deep I-Joists. Max. 24 inch (610 mm) on center spacing. Min. flange dimensions of 1-1/2 inches (38 mm) thick by 3-1/2 inches (89 mm) wide.
5) Furring Channels: Min. 0.026-inch (0.66-mm) Hat Shaped Galvanized Steel Channels attached perpendicular to the bottom flange of the I-joint with 1-5/8-inch (41-mm) Type S drywall screws. Channels are spaced a max. of 16 inches (406 mm) on center and doubled at each wallboard end joint extending to the next joist beyond each joint.
6) Ceiling: One layer of 5/8-inch (16-mm) Type C Gypsum Wallboard. Installed with long dimension perpendicular to resilient channels and fastened with min. 1-1/2-inch (29-mm) Type S drywall screws spaced at 12 inches (305 mm) on center on intermediate joists and 8 inches (203 mm) on center at end joints. The end joints of the wallboard must be staggered the equivalent of two joist spacings with those of adjacent sheets.
   a) Finish: The face layer joints must be covered with tape and coated with joint compound. Screw heads must also be covered with joint compound.

B. SOUND RATING

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<td>Base Assembly with Carpet and Padding, Gypsum Concrete</td>
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C. SIMILAR ASSEMBLIES
1) BCI 90 Joists: 2009 IBC Table 720.1(3) Item 24.1.1, 2012/2015/2018 IBC Table 721.1(3) Item 24-1.1, and DCA 3 WJ-1.1.
2) AJS 25/30 Joists: 2009 IBC Table 720.1(3) Item 24.1.1, 2012/2015/2018 IBC Table 721.1(3) Item 24-1.1, and DCA 3 WJ-1.1.
Boise Cascade Assembly FR6
One-Hour Fire Resistance Rated Floor and Roof Assembly
The following fire resistance design is listed in accordance with ASTM E119 and CAN/ULC S101

A. BASIC ASSEMBLIES
1) Floor Topping (Optional): Varies (reference sound ratings if applicable).
2) Floor Sheathing: Min. 23/32-inch (18-mm) T&G Wood Structural Panel. A construction adhesive must be applied to the top of the joists prior to placing sheathing. The sheets shall be installed with their long edge perpendicular to the joists with end joints centered over the top flange of joists and staggered one joist spacing with adjacent sheets. Floor sheathing must be installed per code requirements.
3) Insulation: Min. 1-1/2-inch (38-mm) Mineral Fiber Insulation, Min. 2.8 pcf. Installed adjacent to the bottom flange of the I-joist and supported by the furring channels. The ends of the batts shall be centered over resilient channels.
4) Structural Members: Min. 9-1/2 inches (241 mm) Deep I-Joists. Max. 24 inches (610 mm) on center spacing. Min. flange dimensions of 1-1/2 inches (38 mm) thick by 3-1/2 inches (89 mm) wide.
5) Resilient Channels: Min. 0.019-inch (0.5-mm) Galvanized Resilient Channels. Attached perpendicular to the bottom flange of the I-joist with 1-5/8-inch (41-mm) Type S drywall screws. Channels are spaced a max. of 16 inches (406 mm) on center and doubled at each wallboard end joint extending to the next joist beyond each joint.
6) Ceiling: One layer of 5/8-inch (16-mm) Type C Gypsum Wallboard. Installed with long dimension perpendicular to resilient channels and fastened with min. 1-1/8-inch (29-mm) Type S drywall screws spaced at 12 inches (305 mm) on center on intermediate joists and 8 inches (203 mm) on center at end joints. The end joints of the wallboard must be staggered the equivalent of two joist spacings with those of adjacent sheets.
   a) Finish: The face layer joints must be covered with tape and coated with joint compound. Screw heads must also be covered with joint compound.

B. SOUND RATING\(^{(a)}\)

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C. SIMILAR ASSEMBLIES
1) BCI 90 Joists: 2009 IBC Table 720.1(3) Item 25-1.1, 2012/2015/2018 IBC Table 721.1(3) Item 25-1.1, 2015 NBC Table 9.10.3.1.-B Assemblies F10, F14, and F20, DCA 3 WIJ-1.2, and ICC-ES/APA ESR 1336 Figure 5.
2) AJS 25/30 Joists: 2009 IBC Table 720.1(3) Item 25-1.1, 2012/2015/2018 IBC Table 721.1(3) Item 25-1.1, 2015 NBC Table 9.10.3.1.-B Assemblies F10, F14, and F20, and DCA 3 WIJ-1.2.
Boise Cascade Assembly FR7
One-Hour Fire Resistance Rated Floor and Roof Assembly
The following fire resistance design is listed in accordance with ASTM E119 and CAN/ULC S101

A. BASIC ASSEMBLIES
1) Floor Topping (Optional): Varies (reference sound ratings if applicable).
2) Floor Sheathing: Min. 23/32-inch (18-mm) T&G Wood Structural Panel. A construction adhesive must be applied to the top of the joists prior to placing sheathing. The sheets shall be installed with their long edge perpendicular to the joists with end joints centered over the top flange of joists and staggered one joist spacing with adjacent sheets. Floor sheathing must be installed per code requirements.
3) Insulation: Min. 2-inch (51-mm) Mineral Fiber Insulation, Min. 3.5 pcf. Installed adjacent to the bottom flange of the I-joist and supported by the furring channels. The ends of the batts shall be centered over resilient channels.
4) Structural Members: Min. 9-1/2 inches (241 mm) Deep I-Joists. Max. 24 inches (610 mm) on center spacing. Min. flange dimensions of 1-5/16 inches (33 mm) thick by 3-1/2 inches (89 mm) wide.
5) Resilient Channels: Min. 0.019-inch (0.5-mm) Galvanized Resilient Channels. Attached perpendicular to the bottom flange of the I-joist with 1-1/4-inch (32-mm) Type W drywall screws. Channels are spaced a max. of 16 inches (406 mm) on center and doubled at each wallboard end joint extending to the next joist beyond each joint.
6) Gypsum Strips: 2 inches (51 mm) wide by 1/2 inch (13 mm) Type C Gypsum Wallboard. Installed perpendicular to the I-joists above each end joint of the 5/8-inch (16-mm) gypsum wallboard. The strips are attached with one 1-1/4-inch (32-mm) Type W drywall screw at each joist.
7) Ceiling: One layer of 5/8-inch (16-mm) Type C Gypsum Wallboard. Installed with long dimension perpendicular to resilient channels and fastened with min. 1-1/8-inch (29-mm) Type S drywall screws spaced at 8 inches (203 mm) on center. The end joints of the wallboard must be staggered the equivalent of two joist spacings with those of adjacent sheets.
   a) Finish: The face layer joints must be covered with tape and coated with joint compound. Screw heads must also be covered with joint compound.

B. SOUND RATING

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<td>Base Assembly with cushioned vinyl, 3/4-inch (19-mm) Gypsum Concrete</td>
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<td>Base Assembly with cushioned vinyl, 1-inch (25-mm) Gypsum Concrete, 1/4-inch (6-mm) Acousti-Mat II</td>
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C. SIMILAR ASSEMBLIES
1) BCI 90 Joists: ICC-ES/APA ESR 1336 Figure 6.
Boise Cascade Assembly FR8
Two-Hour Fire Resistance Rated Floor and Roof Assembly

The following fire resistance design is listed in accordance with ASTM E119 and CAN/ULC S101

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**A. BASIC ASSEMBLIES**

1) Floor Topping (Optional): Varies (reference sound ratings if applicable).
2) Floor Sheathing: Min. 23/32-inch (18-mm) T&G Wood Structural Panel. A construction adhesive must be applied to the top of the joists prior to placing sheathing. The sheets shall be installed with their long edge perpendicular to the joists with end joints centered over the top flange of joists and staggered one joist spacing with adjacent sheets.

 Floor sheathing must be installed per code requirements.
3) Insulation: Max. 3-1/2-inch (89-mm) Unfaced Glass Fiber Insulation. Friction fitted between I-joists and supported by stay wires spaced 12 inches (305 mm) on center along the top of the I-joist bottom flange.
4) Structural Members: Min. 9-1/2 inches (241 mm) Deep I-Joists. Max. 24 inches (610 mm) on center spacing. Min. BCI flange dimensions of 1-1/8 inches (29 mm) thick by 2 inches (51 mm) wide. Min. AJS flange dimensions of 1-1/2 inches (38 mm) thick by 2-1/2 inches (64 mm) wide.
5) Furring Channels: Min. 0.019-inch (0.5-mm) Hat Shaped Galvanized Steel Channels attached perpendicular to the bottom flange of the I-joist with 1-5/8-inch (41-mm) Type S drywall screws penetrating through the wallboard base layer into each I-joist flange. Channels are spaced a max. of 16 inches (406 mm) on center and doubled at each wallboard end joint extending to the next joist beyond each joint.
6) Ceiling: Three layers of 5/8-inch (16-mm) Type C Gypsum Wallboard.
   a) Base Layer: Install with long dimension perpendicular to joist length. Attach to the bottom flange of the joists using 1-5/8-inch (41-mm) Type S drywall screws at 12 inches (305 mm) on center. The end joints of the wallboard must be centered on the bottom flange of the I-joist and must be staggered the equivalent of two joist spacings with those of adjacent sheets.
   b) Middle Layer: Attached to furring channels using 1-inch (25-mm) Type S drywall screws at 12 inches (305 mm) on center with the long dimension perpendicular to furring channels. End joints must be staggered from end joints of adjacent sheets and end joints on the face layer.
   c) Face Layer: Attached to furring channels through the middle layer using 1-5/8-inch (41-mm) Type S drywall screws spaced at 8 inches (203 mm) on center with long dimension perpendicular to furring channel. End joints must be staggered from end joints of adjacent sheets and staggered 32 inches (813 mm) from end joints on the middle layer. Edge joints (long dimension) must be offset 24 inches (610 mm) from those of the middle layer.
   d) Finish: The face layer joints must be covered with tape and coated with joint compound. Screw heads must also be covered with joint compound.

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**B. SOUND RATING**(a)

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<th>Components</th>
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<td>Base Assembly with Carpet and Padding, Gypsum Concrete</td>
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<td>64</td>
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**C. SIMILAR ASSEMBLIES**

1) BCI Joists: 2009 IBC Table 720.1(3) Item 28-1.1, 2012/2015/2018 IBC Table 721.1(3) Item 28-1.1, DCA 3 WIJ-2.1, and ICC-ES/APA ESR 1336 Figure 7.
2) AJS Joists: 2009 IBC Table 720.1(3) Item 28-1.1, 2012/2015/2018 IBC Table 721.1(3) Item 28-1.1, and DCA 3 WIJ-2.1.

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REPRESENTING THE ENGINEERED WOOD INDUSTRY
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Fire Protection of Floors (FP-01) for Compliance with 2012 IRC Section R501.3 and 2015/2018 IRC Section R302.13

Fire Protection: 1/2-inch Gypsum Board Attached to Bottom of Flange

The following fire resistance design is in compliance with 2012 IRC Section R501.3 and 2015/2018 IRC Section R302.13

All BCI Joists; All AJS Joists

1/2-inch Gypsum Board Attached to Bottom of Flange

In accordance with Exception 2 of the 2012 IRC Section R501.3 and 2015/2018 IRC Section R302.13, floor assemblies located directly over a crawl space not intended for storage or fuel-fired appliances do not require membrane protection.

Crawl Space Exception

In accordance with Exception 1 of the 2012 IRC Section R501.3 and 2015/2018 IRC Section R302.13, floor assemblies located directly over a space protected by an automatic sprinkler system do not require membrane protection.

Automatic Sprinkler Exception

(A) Floor sheathing: Materials and installation in accordance with 2012, 2015, and 2018 IRC Section R503.

(B) I-joist: Installation in accordance with Section 4.0 of this report. Max. 24 inches on center spacing. Applicable to all flange sizes. Minimum web thickness of 3/8 inch. Adhesives used shall be as described in the quality manual approved by APA.

(C) 1/2-inch gypsum board: Materials and installation in accordance with 2012, 2015, and 2018 IRC Section R702.3.1 or equivalent. 1x3 (nominal) wood furring strips are permitted to be installed perpendicular to the bottom flange of the I-joists at 16 inches on center provided that the gypsum boards are directly attached to the furring strips using 1-1/4-inch (32-mm) Type W drywall screws at 12 inches (305 mm) on center. Gypsum board not required to be finished with tape and joint compound; or 5/8-inch wood structural panel: Materials and installation in accordance with 2012, 2015, and 2018 IRC Section R503.2 or equivalent. Wood structural panel not required to be finished with wood filler or sanded.

(D) Automatic sprinkler system: System in accordance with Section P2904 of the 2012, 2015, and 2018 IRC, NFPA 13D, or other equivalent sprinkler systems.

Notes:

(a) In accordance with Exception 3 of the 2012 IRC Section R501.3 and 2015/2018 IRC Section R302.13, portions of floor assembly can be unprotected when complying with the following:
1) The aggregate area of the unprotected portions shall not exceed 80 square feet.
2) Fire blocking in accordance with 2012, 2015, and 2018 IRC Section R302.11.1 shall be installed along the perimeter of the unprotected portion to separate the unprotected portion from the remainder of the floor assembly.

(b) Insulation may be required for energy code compliance purposes. Check with the local building official for specific jurisdictional requirements.

(Continued next page)
(FP-01 Continued)

(c) In accordance with 2012, 2015, and 2018 IRC Section P2904, partial residential sprinkler systems are permitted to be installed only when the entire dwelling unit is not required to be equipped with a residential sprinkler system. Check with the local building official for specific jurisdictional requirements.

(d) Penetrations or openings for ducts, vents, electrical outlets, lighting, devices, luminaires, wires, speakers, drainage, piping and similar openings or penetrations shall be permitted.
Fire Protection of Floors (FP-02) for Compliance with 2012 IRC Section R501.3 and 2015/2018 IRC Section R302.13

Fire Protection: 1/2-inch Gypsum Board Attached Directly to Web

The following fire resistance design is an alternative to the 2-by-10 dimensional lumber prescribed in 2012 IRC Section R501.3 and 2015/2018 IRC Section R302.13 Exception 4, with demonstrated equivalent fire performance BCI 50, 60, 60S, 65, 90 and 90e Joists; All AJS Joists

1/2-Inch Gypsum Board Attached to Web\(^{(a,b,d)}\)

Installation Requirements at Web Holes

Crawl Space Exception\(^{(b)}\)

In accordance with Exception 2 of the 2012 IRC Section R501.3 and 2015/2018 IRC Section R302.13, floor assemblies located directly over a crawl space not intended for storage or fuel-fired appliances do not require 1/2-inch gypsum board attached to web.

Automatic Sprinkler Exception\(^{(c)}\)

In accordance with Exception 1 of the 2012 IRC Section R501.3 and 2015/2018 IRC Section R302.13, floor assemblies located directly over a space protected by an automatic sprinkler system do not require 1/2-inch gypsum board attached to web.

(A) Floor sheathing: Materials and installation in accordance with 2012, 2015, and 2018 IRC Section R503.
(B) I-Joist: Installation in accordance with Section 4 of this report. Maximum 24 inches on center spacing. Minimum flange size of 1-1/2 inches thick x 2 inches wide. Minimum web thickness of 3/8 inch. Adhesives used shall be as described in the quality manual approved by APA. At hole location, fasteners shall be installed 1 inch from the edge of the gypsum board.

(Continued next page)
(FP-02 Continued)

(C) 1/2-inch gypsum board: Materials (entire length of I-joint) in accordance with 2012, 2015, and 2018 IRC Section R702.3.1 (not required to be finished with tape and joint compound). Fasteners: Minimum 1-inch screws (Type W or Type S) or nails installed 1 inch from edges and 16 inches on center, top and bottom. Fasteners may be staggered from top to bottom.

(D) Automatic sprinkler system: System in accordance with Section P2904 of the 2012, 2015, and 2018 IRC, NFPA 13D, or other equivalent sprinkler systems.

Notes:
(a) In accordance with Exception 3 of the 2012 IRC Section R501.3 and 2015/2018 IRC Section R302.13, portions of floor assembly can be unprotected when complying with the following:
1) The aggregate area of the unprotected portions shall not exceed 80 square feet.
2) Fire blocking in accordance with 2012, 2015, and 2018 IRC Section R302.11.1 shall be installed along the perimeter of the unprotected portion to separate the unprotected portion from the remainder of the floor assembly.

(b) Insulation may be required for energy code compliance purposes. Check with the local building official for specific jurisdictional requirements.

(c) In accordance with 2012, 2015, and 2018 IRC Section P2904, partial residential sprinkler systems are permitted to be installed only when the entire dwelling unit is not required to be equipped with a residential sprinkler system. Check with the local building official for specific jurisdictional requirements.

(d) Penetrations or openings for ducts, vents, electrical outlets, lighting, devices, luminaires, wires, speakers, drainage, piping and similar openings or penetrations shall be permitted.
Fire Protection of Floors (FP-03) for Compliance with 2012 IRC Section R501.3 and 2015/2018 IRC Section R302.13

Fire Protection: 1/2-inch Gypsum Board Attached Directly to Sides of Flange

The following fire resistance design is an alternative to the 2-by-10 dimensional lumber prescribed in 2012 IRC Section R501.3 and 2015/2018 IRC Section R302.13 Exception 4, with demonstrated equivalent fire performance.

All BCI Joists except for BCI 40, 400, and 4000 Joists; All AJ/S Joists

1/2-inch Gypsum Board Attached to Sides of Flange (A, B, C)

Installation Requirements at Web Holes

Crawl Space Exception (B)

In accordance with Exception 2 of the 2012 IRC Section R501.3 and 2015/2018 IRC Section R302.13, floor assemblies located directly over a crawl space not intended for storage or fuel-fired appliances do not require 1/2-inch gypsum board attached to sides of flange.

Automatic Sprinkler Exception (C)

In accordance with Exception 1 of the 2012 IRC Section R501.3 and 2015/2018 IRC Section R302.13, floor assemblies located directly over a space protected by an automatic sprinkler system do not require 1/2-inch gypsum board attached to sides of flange.

(A) Floor sheathing: Materials and installation in accordance with 2012, 2015, and 2018 IRC Section R503.

(B) I-joist: Installation in accordance with Section 4.0 of this report. Minimum flange size of 1-1/8 inches thick x 1-3/4 inches wide. Minimum web thickness of 3/8 inch. Adhesives used shall be as described in the quality manual approved by APA. At hole location, fasteners shall be installed 1 inch from the edge of the gypsum board. Maximum fastener spacing shall be no more than 8 inches on gypsum board above and below the hole.

(Continued next page)
(FP-03 Continued)

(C) 1/2-inch gypsum board: Materials (entire length of I-joist) in accordance with 2012, 2015, and 2018 IRC Section R702.3.1 (not required to be finished with tape and joint compound). Fasteners: Minimum 1-inch screws (Type W or Type S) or nails installed 1/2 inch from edges and 16 inches on center, top and bottom. Fasteners may be staggered from top to bottom.

(D) Automatic sprinkler system: System in accordance with Section P2904 of the 2012, 2015, and 2018 IRC, NFPA 13D, or other equivalent sprinkler systems.

Notes:

(a) In accordance with Exception 3 of the 2012 IRC Section R501.3 and 2015/2018 IRC Section R302.13, portions of floor assembly can be unprotected when complying with the following:

1) The aggregate area of the unprotected portions shall not exceed 80 square feet.
2) Fire blocking in accordance with 2012, 2015, and 2018 IRC Section R302.11.1 shall be installed along the perimeter of the unprotected portion to separate the unprotected portion from the remainder of the floor assembly.

(b) Insulation may be required for energy code compliance purposes. Check with the local building official for specific jurisdictional requirements.

(c) In accordance with 2012, 2015, and 2018 IRC Section P2904, partial residential sprinkler systems are permitted to be installed only when the entire dwelling unit is not required to be equipped with a residential sprinkler system. Check with the local building official for specific jurisdictional requirements.

(d) Penetrations or openings for ducts, vents, electrical outlets, lighting, devices, luminaires, wires, speakers, drainage, piping and similar openings or penetrations shall be permitted.
Fire Protection of Floors (FP-04) for Compliance with 2012 IRC Section R501.3 and 2015/2018 IRC Section R302.13

Fire Protection: Mineral Wool Insulation

The following fire resistance design is an alternative to the 2-by-10 dimensional lumber prescribed in 2012 IRC Section R501.3 and 2015/2018 IRC Section R302.13 Exception 4, with demonstrated equivalent fire performance.

All BCI Joists except for BCI 40, 400, and 4000 Joists; All AJS Joists

Mineral Wool Insulation

(A) Floor sheathing: Materials and installation in accordance with 2012, 2015, and 2018 IRC Section R503.

(B) I-joist: Installation in accordance with Section 4.0 of this report. Maximum 19.2 inches on center spacing. Minimum flange size of 1-1/8 inches thick x 1-3/4 inches wide. Minimum web thickness of 3/8 inch. Adhesives used shall be as described in the quality manual approved by APA.

(C) Mineral wool insulation: Minimum 2.9 lb/ft³ (nominal) and 2 inches thick mineral wool batt insulation installed as shown with insulation supports, spaced no more than 24 inches apart and no more than 4 inches from ends of batts. Minimum 2.5 lb/ft³ (nominal) and 2 inches thick mineral wool insulation shall be permitted if the I-joists are spaced no more than 16 inches on center. Use min. 15.25 inches and 18.5 inches wide batts when I-joist spacing is 16 inches and 19.2 inches on center, respectively.

(D) Automatic sprinkler system: System in accordance with Section P2904 of the 2012, 2015, and 2018 IRC, NFPA 13D, or other equivalent sprinkler systems.

Notes:

(a) In accordance with Exception 3 of 2012 IRC Section R501.3 and 2015/2018 IRC Section R302.13, portions of floor assembly can be unprotected when complying with the following:
   1) The aggregate area of the unprotected portions shall not exceed 80 square feet.
   2) Fire blocking in accordance with 2012, 2015, and 2018 IRC Section R302.11.1 shall be installed along the perimeter of the unprotected portion to separate the unprotected portion from the remainder of the floor assembly.

(b) Thicker insulation may be required for energy code compliance purposes. Check with the local building official for specific jurisdictional requirements.

(C) In accordance with Exception 2 of the 2012 IRC Section R501.3 and 2015/2018 IRC Section R302.13, floor assemblies located directly over a crawl space not intended for storage or fuel-fired appliances do not require mineral wool insulation for fire protection.

Automatic Sprinkler Exception

(C) Mineral wool insulation: Minimum 2.9 lb/ft³ (nominal) and 2 inches thick mineral wool batt insulation installed as shown with insulation supports, spaced no more than 24 inches apart and no more than 4 inches from ends of batts. Minimum 2.5 lb/ft³ (nominal) and 2 inches thick mineral wool insulation shall be permitted if the I-joists are spaced no more than 16 inches on center. Use min. 15.25 inches and 18.5 inches wide batts when I-joist spacing is 16 inches and 19.2 inches on center, respectively.

(D) Automatic sprinkler system: System in accordance with Section P2904 of the 2012, 2015, and 2018 IRC, NFPA 13D, or other equivalent sprinkler systems.

Notes:

(a) In accordance with Exception 3 of 2012 IRC Section R501.3 and 2015/2018 IRC Section R302.13, portions of floor assembly can be unprotected when complying with the following:
   1) The aggregate area of the unprotected portions shall not exceed 80 square feet.
   2) Fire blocking in accordance with 2012, 2015, and 2018 IRC Section R302.11.1 shall be installed along the perimeter of the unprotected portion to separate the unprotected portion from the remainder of the floor assembly.

(b) Thicker insulation may be required for energy code compliance purposes. Check with the local building official for specific jurisdictional requirements.

(Continued next page)
(FP-04 Continued)

(c) Insulation may be required for energy code compliance purposes. Check with the local building official for specific jurisdictional requirements.

(d) In accordance with 2012, 2015, and 2018 IRC Section P2904, partial residential sprinkler systems are permitted to be installed only when the entire dwelling unit is not required to be equipped with a residential sprinkler system. Check with the local building official for specific jurisdictional requirements.

(e) Penetrations or openings for ducts, vents, electrical outlets, lighting, devices, luminaires, wires, speakers, drainage, piping and similar openings or penetrations shall be permitted.
Fire Protection of Floors (FP-06) for Compliance with 2012 IRC Section R501.3 and 2015/2018 IRC Section R302.13

Fire Protection: 1/2-inch Gypsum Board Installed on Top of the Bottom Flange

The following fire resistance design is an alternative to the 2-by-10 dimensional lumber prescribed in 2012 IRC Section R501.3 and 2015/2018 IRC Section R302.13 Exception 4, with demonstrated equivalent fire performance.

All BCI Joists except for BCI 40, 400, 4000, 45, 450, and 4500 Joists; All AJS Joists

Fire Protection:

1/2-inch Gypsum Board *(a,b)*

Crawl Space Exception *(b)*

In accordance with Exception 2 of the 2012 IRC Section R501.3 and 2015/2018 IRC Section R302.13, floor assemblies located directly over a crawl space not intended for storage or fuel-fired appliances do not require gypsum board for fire protection.

Automatic Sprinkler Exception *(c)*

In accordance with Exception 1 of the 2012 IRC Section R501.3 and 2015/2018 IRC Section R302.13, floor assemblies located directly over a space protected by an automatic sprinkler system do not require gypsum board for fire protection.

### Joist spacing (in.) Required length for gypsum boards (in.)

<table>
<thead>
<tr>
<th>Joist spacing (in.)</th>
<th>Required length for gypsum boards (in.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>11-1/8 ± 1/8</td>
</tr>
<tr>
<td>16</td>
<td>15-1/8 ± 1/8</td>
</tr>
<tr>
<td>19-2</td>
<td>18-1/4 ± 1/8</td>
</tr>
</tbody>
</table>

**Note:**

Gypsum board lengths shown above provide at least 1/4" bearing on the top of the bottom flange in each I-joist as installed.

*Continued on next page*
Notes:
(a) In accordance with Exception 3 of 2012 IRC Section R501.3 and 2015/2018 IRC Section R302.13, portions of floor assembly can be unprotected when complying with the following:
  1) The aggregate area of the unprotected portions shall not exceed 80 square feet.
  2) Fire blocking in accordance with 2012, 2015, and 2018 IRC Section R302.11.1 shall be installed along the perimeter of the unprotected portion to separate the unprotected portion from the remainder of the floor assembly.
(b) Insulation may be required for energy code compliance purposes. Check with the local building official for specific jurisdictional requirements.
(c) In accordance with 2012, 2015, and 2018 IRC Section P2904, partial residential sprinkler systems are permitted to be installed only when the entire dwelling unit is not required to be equipped with a residential sprinkler system. Check with the local building official for specific jurisdictional requirements.
(d) Penetrations or openings for ducts, vents, electrical outlets, lighting, devices, luminaires, wires, speakers, drainage, piping and similar openings or penetrations shall be permitted.
Fire Protection of Floors (FP-07) for Compliance with 2012 IRC Section R501.3 and 2015/2018 IRC Section R302.13

Fire Protection: 5/8-inch Gypsum Board Installed on Top of the Bottom Flange

The following fire resistance design is an alternative to the 2-by-10 dimensional lumber prescribed in 2012 IRC Section R501.3 and 2015/2018 IRC Section R302.13 Exception 4, with demonstrated equivalent fire performance.

All BCI Joists except for BCI 40, 400, 4000, 45, 450, and 4500 Joists; All AJJS Joists

5/8" gypsum board C

Joist spacing (in.) | Required length for gypsum boards (in.)
---|---
12 | 11-1/8 ± 1/8
16 | 15-1/8 ± 1/8
19.2 | 18-1/4 ± 1/8
24 | 23-1/8 ± 1/8

Note:
Gypsum board lengths shown above provide at least 1/4" bearing on the top of the bottom flange in each I-joist as installed.

Crawl Space Exception

In accordance with Exception 2 of the 2012 IRC Section R501.3 and 2015/2018 IRC Section R302.13, floor assemblies located directly over a crawl space not intended for storage or fuel-fired appliances do not require gypsum board for fire protection.

Automatic Sprinkler Exception

In accordance with Exception 1 of the 2012 IRC Section R501.3 and 2015/2018 IRC Section R302.13, floor assemblies located directly over a space protected by an automatic sprinkler system do not require gypsum board for fire protection.

(A) Floor sheathing: Materials and installation in accordance with 2012, 2015, and 2018 IRC Section R503.
(B) I-joist: Installation in accordance with Section 4.0 of this report. Maximum 24 inches on center spacing. Minimum flange size of 1-1/8 inches thick x 2 inches wide. Minimum web thickness of 3/8 inch. Adhesives used shall be as described in the quality manual approved by APA.
(C) 1-layer of 5/8-inch lightweight or normal weight (nominal 1.9 psf minimum) gypsum wall board meeting ASTM C1396 Section 5: Installed on the top of the bottom flange. Mechanical fastener or adhesive attachment to the top of the bottom flange is not required.
(D) Automatic sprinkler system: System in accordance with Section P2904 of the 2012, 2015, and 2018 IRC, NFPA 13D, or other equivalent sprinkler systems.

(Continued next page)
Notes:
(a) In accordance with Exception 3 of 2012 IRC Section R501.3 and 2015/2018 IRC Section R302.13, portions of floor assembly can be unprotected when complying with the following:
1) The aggregate area of the unprotected portions shall not exceed 80 square feet.
2) Fire blocking in accordance with 2012, 2015, and 2018 IRC Section R302.11.1 shall be installed along the perimeter of the unprotected portion to separate the unprotected portion from the remainder of the floor assembly.
(b) Insulation may be required for energy code compliance purposes. Check with the local building official for specific jurisdictional requirements.
(c) In accordance with 2012, 2015, and 2018 IRC Section P2904, partial residential sprinkler systems are permitted to be installed only when the entire dwelling unit is not required to be equipped with a residential sprinkler system. Check with the local building official for specific jurisdictional requirements.
(d) Penetrations or openings for ducts, vents, electrical outlets, lighting, devices, luminaires, wires, speakers, drainage, piping and similar openings or penetrations shall be permitted.
Fire Protection of Floors (FP-08) for Compliance with 2012 IRC Section R501.3 
and 2015/2018 IRC Section R302.13

Fire Protection: Factory-Applied FireBreak HITS® Ceramic Fiber Board and Intumescent Paper

The following fire resistance design is an alternative to the 2-by-10 dimensional lumber prescribed in 2012 IRC Section R501.3 and 2015/2018 IRC Section R302.13 Exception 4, with demonstrated equivalent fire performance

BCI 60, 60S, 65, 90 and 90e Joists; All AJS Joists

Factory-Applied FireBreak HITS® Ceramic Fiber Board and Intumescent Paper (a,b)

Crawl Space Exception(c)

In accordance with Exception 2 of the 2012 IRC Section R501.3 and 2015/2018 IRC Section R302.13, floor assemblies located directly over a crawl space not intended for storage or fuel-fired appliances do not require mineral wool insulation for fire protection.

Automatic Sprinkler Exception(d)

In accordance with Exception 1 of the 2012 IRC Section R501.3 and 2015/2018 IRC Section R302.13, floor assemblies located directly over a space protected by an automatic sprinkler system do not require ceramic fiber board for fire protection.

(A) Floor sheathing: Materials and installation in accordance with 2012, 2015, and 2018 IRC Section R503.

(B) I-joint: Installation in accordance with Section 4.0 of this report. Maximum 24 inches on center spacing. Minimum flange size of 1-1/2 inches thick x 2-5/16 inches wide. Minimum web thickness of 3/8 inch. I-joint adhesives used shall be as described in the quality manual approved by APA.

(C) Factory-applied proprietary FireBreak HITS® Ceramic Fiber Board and Intumescent Paper: The factory-applied proprietary FireBreak HITS® ceramic fiber board and intumescent paper, as documented in the quality manual, covers the web.

(D) Automatic sprinkler system: System in accordance with Section P2904 of the 2012, 2015, and 2018 IRC, NFPA 13D, or other equivalent sprinkler systems.

Notes:

(a) In accordance with Exception 3 of 2012 IRC Section R501.3 and 2015/2018 IRC Section R302.13, portions of floor assembly can be unprotected when complying with the following:

1) The aggregate area of the unprotected portions shall not exceed 80 square feet.

2) Fire blocking in accordance with 2012, 2015, and 2018 IRC Section R302.11.1 shall be installed along the perimeter of the unprotected portion to separate the unprotected portion from the remainder of the floor assembly.

(Continued next page)
(FP-08 Continued)

(b) Insulation may be required for energy code compliance purposes. Check with the local building official for specific jurisdictional requirements.

(c) In accordance with 2012, 2015, and 2018 IRC Section P2904, partial residential sprinkler systems are permitted to be installed only when the entire dwelling unit is not required to be equipped with a residential sprinkler system. Check with the local building official for specific jurisdictional requirements.

(d) Penetrations or openings for ducts, vents, electrical outlets, lighting, devices, luminaires, wires, speakers, drainage, piping and similar openings or penetrations shall be permitted.
Fire Protection of Floors (FP-09) for Compliance with 2012 IRC Section R501.3 and 2015/2018 IRC Section R302.13

Fire Protection: Rockwool SAFE’n’SOUND® Mineral Wool Insulation

The following fire resistance design is an alternative to the 2-by-10 dimensional lumber prescribed in 2012 IRC Section R501.3 and 2015/2018 IRC Section R302.13 Exception 4, with demonstrated equivalent fire performance

All BCI Joists except for BCI 40, 400, 4000, 45, 450, and 4500 Joists; All AJS Joists

Rockwool SAFE’n’SOUND® Mineral Wool Insulation

Floor sheathing

I-joist

Mineral wool insulation

Crawl Space Exception

In accordance with Exception 2 of the 2012 IRC Section R501.3 and 2015/2018 IRC Section R302.13, floor assemblies located directly over a crawl space not intended for storage or fuel-fired appliances do not require mineral wool insulation for fire protection.

Automatic Sprinkler Exception

In accordance with Exception 1 of the 2012 IRC Section R501.3 and 2015/2018 IRC Section R302.13, floor assemblies located directly over a space protected by an automatic sprinkler system do not require mineral wool insulation for fire protection.

Notes:

(a) In accordance with Exception 3 of 2012 IRC Section R501.3 and 2015/2018 IRC Section R302.13, portions of floor assembly can be unprotected when complying with the following:
1) The aggregate area of the unprotected portions shall not exceed 80 square feet.
2) Fire blocking in accordance with 2012, 2015, and 2018 IRC Section R302.11.1 shall be installed along the perimeter of the unprotected portion to separate the unprotected portion from the remainder of the floor assembly.

(b) Thicker insulation may be required for energy code compliance purposes. Check with the local building official for specific jurisdictional requirements.

(Continued next page)
(FP-09 Continued)

(c) Insulation may be required for energy code compliance purposes. Check with the local building official for specific jurisdictional requirements.

(d) In accordance with 2012, 2015, and 2018 IRC Section P2904, partial residential sprinkler systems are permitted to be installed only when the entire dwelling unit is not required to be equipped with a residential sprinkler system. Check with the local building official for specific jurisdictional requirements.

(e) Penetrations or openings for ducts, vents, electrical outlets, lighting, devices, luminaires, wires, speakers, drainage, piping and similar openings or penetrations shall be permitted.
Fire Protection of Floors (FP-10) for Compliance with 2012 IRC Section R501.3 and 2015/2018 IRC Section R302.13

Fire Protection: FMJ - Factory-Applied Thermax™ Sheathing Board

The following fire resistance design is an alternative to the 2-by-10 dimensional lumber prescribed in 2012 IRC Section R501.3 and 2015/2018 IRC Section R302.13 Exception 4, with demonstrated equivalent fire performance:

BCI 60, 60S, 65, 90, and 90e Joists; All AJS Joists

FMJ - Factory-Applied Thermax™ Sheathing Board

(A) Floor sheathing: Materials and installation in accordance with 2012, 2015, and 2018 IRC Section R503.

(B) I-joist: Installation in accordance with Section 4.0 of this report. Maximum 24 inches on center spacing. Minimum flange size of 1 1/2 inches thick x 2 5/16 inches wide. Minimum web thickness of 3/8 inch. I-joist adhesives used shall be as described in the quality manual approved by APA.

(C) FMJ Factory-applied Thermax™ Sheathing Board: One layer of 3/4-inch thick Thermax™ Sheathing board conforming to ICC-ES ESR-1659 is adhered to each side of the I-joist web to tight fit within inside faces of the flanges. Adjacent Thermax™ Sheathing boards shall be tight fit in accordance with the in-plant manufacturing standard.

(D) Automatic sprinkler system: System in accordance with Section P2904 of the 2012, 2015, and 2018 IRC, NFPA 13D, or other equivalent sprinkler systems.

Notes:

(a) In accordance with Exception 3 of 2012 IRC Section R501.3 and 2015/2018 IRC Section R302.13, portions of floor assembly can be unprotected when complying with the following:

1) The aggregate area of the unprotected portions shall not exceed 80 square feet.

2) Fire blocking in accordance with 2012, 2015, and 2018 IRC Section R302.11.1 shall be installed along the perimeter of the unprotected portion to separate the unprotected portion from the remainder of the floor assembly.

(b) Insulation may be required for energy code compliance purposes. Check with the local building official for specific jurisdictional requirements.

(c) In accordance with 2012, 2015, and 2018 IRC Section P2904, partial residential sprinkler systems are permitted to be installed only when the entire dwelling unit is not required to be equipped with a residential sprinkler system. Check with the local building official for specific jurisdictional requirements.

(d) Penetrations or openings for ducts, vents, electrical outlets, lighting, devices, luminaires, wires, speakers, drainage, piping and similar openings or penetrations shall be permitted.
Boise Cascade Assembly RB1

Fire Resistance Rated Rim Board Assembly

The following fire resistance design is listed in accordance with ASTM E119 and CAN/ULC S101

**End Wall Configuration Base Assembly**

<table>
<thead>
<tr>
<th>Rim Board Thickness, in.</th>
<th>Rim Board Protection</th>
<th>Ceiling Membrane Req. for 1-hr</th>
<th>Ceiling Membrane Req. for 2-hr</th>
<th>Stud Size</th>
<th>Stud Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>B</td>
<td>C</td>
<td>C</td>
<td>D</td>
<td>E</td>
</tr>
<tr>
<td>1</td>
<td>Unprotected</td>
<td>1-hour Fire-rated Assembly</td>
<td>2-hour Fire-rated Assembly</td>
<td>2x4</td>
<td>2x4</td>
</tr>
<tr>
<td></td>
<td>(1) 1/2&quot; Type X</td>
<td>5/8&quot; Type X</td>
<td>2-hour Fire-rated Assembly</td>
<td>2x4</td>
<td>2x4</td>
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<tr>
<td></td>
<td>(1) 5/8&quot; Type X</td>
<td>5/8&quot; Regular</td>
<td>90-min Fire-rated Assembly</td>
<td>2x4</td>
<td>2x4</td>
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<tr>
<td></td>
<td>(2) 1/2&quot; Type X</td>
<td>No Ceiling Required</td>
<td>1-hour Fire-rated Assembly</td>
<td>2x6</td>
<td>2x4</td>
</tr>
<tr>
<td></td>
<td>(2) 5/8&quot; Type X</td>
<td>No Ceiling Required</td>
<td>5/8&quot; Type X</td>
<td>2x6</td>
<td>2x4</td>
</tr>
<tr>
<td>1-1/8</td>
<td>Unprotected</td>
<td>1-hour Fire-rated Assembly</td>
<td>2-hour Fire-rated Assembly</td>
<td>2x4</td>
<td>2x4</td>
</tr>
<tr>
<td></td>
<td>(1) 1/2&quot; Type X</td>
<td>5/8&quot; Type X</td>
<td>2-hour Fire-rated Assembly</td>
<td>2x4</td>
<td>2x4</td>
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<td>(1) 5/8&quot; Type X</td>
<td>5/8&quot; Regular</td>
<td>90-min Fire-rated Assembly</td>
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<td>2x4</td>
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<td></td>
<td>(2) 1/2&quot; Type X</td>
<td>No Ceiling Required</td>
<td>1-hour Fire-rated Assembly</td>
<td>2x6</td>
<td>2x4</td>
</tr>
<tr>
<td></td>
<td>(2) 5/8&quot; Type X</td>
<td>No Ceiling Required</td>
<td>5/8&quot; Type X</td>
<td>2x6</td>
<td>2x4</td>
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<tr>
<td>1-1/4</td>
<td>Unprotected</td>
<td>1-hour Fire-rated Assembly</td>
<td>2-hour Fire-rated Assembly</td>
<td>2x4</td>
<td>2x4</td>
</tr>
<tr>
<td></td>
<td>(1) 1/2&quot; Type X</td>
<td>5/8&quot; Type X</td>
<td>2-hour Fire-rated Assembly</td>
<td>2x4</td>
<td>2x4</td>
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<tr>
<td></td>
<td>(1) 5/8&quot; Type X</td>
<td>1/2&quot; Type X</td>
<td>90-min Fire-rated Assembly</td>
<td>2x6</td>
<td>2x4</td>
</tr>
<tr>
<td></td>
<td>(2) 1/2&quot; Type X</td>
<td>No Ceiling Required</td>
<td>1-hour Fire-rated Assembly</td>
<td>2x6</td>
<td>2x4</td>
</tr>
<tr>
<td></td>
<td>(2) 5/8&quot; Type X</td>
<td>No Ceiling Required</td>
<td>5/8&quot; Type X</td>
<td>2x6</td>
<td>2x4</td>
</tr>
<tr>
<td>1-1/2</td>
<td>Unprotected</td>
<td>1-hour Fire-rated Assembly</td>
<td>2-hour Fire-rated Assembly</td>
<td>2x4</td>
<td>2x4</td>
</tr>
<tr>
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<td>(1) 1/2&quot; Type X</td>
<td>5/8&quot; Type X</td>
<td>2-hour Fire-rated Assembly</td>
<td>2x4</td>
<td>2x4</td>
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<tr>
<td></td>
<td>(1) 5/8&quot; Type X</td>
<td>1/2&quot; Type X</td>
<td>90-min Fire-rated Assembly</td>
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<td>2x4</td>
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<tr>
<td></td>
<td>(2) 1/2&quot; Type X</td>
<td>No Ceiling Required</td>
<td>1-hour Fire-rated Assembly</td>
<td>2x6</td>
<td>2x4</td>
</tr>
<tr>
<td></td>
<td>(2) 5/8&quot; Type X</td>
<td>No Ceiling Required</td>
<td>5/8&quot; Type X</td>
<td>2x6</td>
<td>2x4</td>
</tr>
<tr>
<td>1-3/4</td>
<td>Unprotected</td>
<td>1-hour Fire-rated Assembly</td>
<td>2-hour Fire-rated Assembly</td>
<td>2x4</td>
<td>2x4</td>
</tr>
<tr>
<td></td>
<td>(1) 1/2&quot; Type X</td>
<td>5/8&quot; Regular</td>
<td>90-min Fire-rated Assembly</td>
<td>2x6</td>
<td>2x4</td>
</tr>
<tr>
<td></td>
<td>(1) 5/8&quot; Type X</td>
<td>1/2&quot; Type X</td>
<td>90-min Fire-rated Assembly</td>
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<td>2x4</td>
</tr>
<tr>
<td></td>
<td>(2) 1/2&quot; Type X</td>
<td>No Ceiling Required</td>
<td>45-min Fire-rated Assembly</td>
<td>2x6</td>
<td>2x6</td>
</tr>
<tr>
<td></td>
<td>(2) 5/8&quot; Type X</td>
<td>No Ceiling Required</td>
<td>5/8&quot; Type X</td>
<td>2x6</td>
<td>2x6</td>
</tr>
</tbody>
</table>

1) Rim assembly for fire from inside of structure.
2) Gypsum assembly shown on the ceiling is to protect the Rim Board only. It does not necessarily cause the floor assembly to be rated.
3) Attach 1-layer Type X (1/2 or 5/8-inch) gypsum wallboard to Rim Board with 1-1/2-inch Type W drywall screws spaced 12 inches o.c.
4) Attach 2-layer Type X (1/2 or 5/8-inch) gypsum wallboard to Rim Board with 2-inch Type W drywall screws spaced 12 inches o.c.
5) Provide min. 1-3/4-inch bearing for I-joint.
6) Use only fire rated gypsum wallboard. Type C may be substituted for Type X.
7) Rim Board and gypsum wallboard thickness are shown as minimums. Thicker Rim Board and gypsum wallboard may be substituted.
8) When two layers of gypsum wallboard are used, I-joint end nails shall be 16d box (0.135 inch x 3-1/2 inches) nails.
9) Rim board needs to be sized for vertical and lateral load.
Boise Cascade Assembly RB2
Fire Resistance Rated Rim Board Assembly
The following fire resistance design is listed in accordance with ASTM E119 and CAN/ULC S101

Single Wall Configuration Base Assembly

<table>
<thead>
<tr>
<th>Rim Board Thickness, in.</th>
<th>Rim Board Protection</th>
<th>Ceiling Membrane Req. for 1 hr</th>
<th>Ceiling Membrane Req. for 2 hr</th>
<th>Stud Size A</th>
<th>Stud Size B</th>
<th>Stud Size C</th>
<th>Stud Size D</th>
<th>Stud Size E</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Unprotected</td>
<td>45-min Fire-rated Assembly</td>
<td>2-hour Fire-rated Assembly</td>
<td>2x6</td>
<td>2x4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(1) 1/2&quot; Type X</td>
<td>1/2&quot; Type X</td>
<td>90-min Fire-rated Assembly</td>
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<td>(1) 5/8&quot; Type X</td>
<td>1/2&quot; Regular</td>
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</table>

1) Rim assembly for fire from either side of wall.
2) Gypsum wallboard shown on the ceiling is to protect the Rim Board only. It does not necessarily cause the floor assembly to be rated.
3) Attach 1-layer Type X (1/2 or 5/8-inch) gypsum wallboard to Rim Board with 1-1/2-inch Type W drywall screws spaced 12 inches o.c.
4) Attach 2-layer Type X (1/2 or 5/8-inch) gypsum wallboard to Rim Board with 2-inch Type W drywall screws spaced 12 inches o.c.
5) Provide min. 1-3/4-inch bearing for I-joist.
6) Use only fire rated gypsum wallboard. Type C may be substituted for Type X.
7) Rim Board and gypsum wallboard thickness are shown as minimums. Thicker Rim Board and gypsum wallboard may be substituted.
8) Toe nailing from the I-joist flange to the rim is permitted. When 2-layer (or more) gypsum wallboards are used, I- joist end nails shall be 16d box (0.135 inch x 3-1/2 inches) nails.
9) Rim board needs to be sized for vertical and lateral load.
Boise Cascade Assembly RB3

Fire Resistance Rated Rim Board Assembly

The following fire resistance design is listed in accordance with ASTM E119 and CAN/ULC S101

### Double Wall Configuration with Load Transfer Base Assembly

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<thead>
<tr>
<th>Rim Board Thickness, in.</th>
<th>Rim Board Protection</th>
<th>Ceiling Membrane Req., for 1-hr</th>
<th>Ceiling Membrane Req., for 2-hr</th>
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</table>

1) Rim assembly for fire from either side of wall. “With load transfer” assumes load transfers to the adjacent rim board if the fire exposed rim board fails.

2) Gypsum wallboard shown on the ceiling is to protect the Rim Board only. It does not necessarily cause the floor assembly to be rated.

3) Attach 1-layer Type X (1/2 or 5/8-inch) gypsum wallboard to Rim Board with 1-1/2-inch Type W drywall screws spaced 12 inches o.c.

4) Attach 2-layer Type X (1/2 or 5/8-inch) gypsum wallboard to Rim Board with 2-inch Type W drywall screws spaced 12 inches o.c.

5) Provide min. 1-3/4-inch bearing for I-joint.

6) Use only fire rated gypsum wallboard. Type C may be substituted for Type X.

7) Rim Board and gypsum wallboard thickness are shown as minimums. Thicker Rim Board and gypsum wallboard may be substituted.

8) Toe nailing from the I-joint flange to the rim is permitted. When 2-layer (or more) gypsum wallboards are used, I-joint end nails shall be 16d box (0.135 inch x 3-1/2 inches) nails.

9) Rim board needs to be sized for vertical and lateral load.
## Boise Cascade Assembly RB4

### Fire Resistance Rated Rim Board Assembly

The following fire resistance design is listed in accordance with ASTM E119 and CAN/ULC S101.

### Double Wall Configuration with Load Transfer Base Assembly

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<th>Rim Board Thickness, in.</th>
<th>Rim Board Protection</th>
<th>Ceiling Membrane Req. for 1 hr</th>
<th>Ceiling Membrane Req. for 2 hr</th>
<th>Stud Size</th>
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9) Rim board needs to be sized for vertical and lateral load.
Double Wall Configuration with No Load Transfer Base Assembly

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<th>Rim Board Thickness, in.</th>
<th>Rim Board Protection</th>
<th>Ceiling Membrane Req. for 1-hr</th>
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7) Rim Board and gypsum wallboard thickness are shown as minimums. Thicker Rim Board and gypsum wallboard may be substituted.
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9) Rim board needs to be sized for vertical and lateral load.

Boise Cascade Assembly RB5
Fire Resistance Rated Rim Board Assembly
The following fire resistance design is listed in accordance with ASTM E119 and CAN/ULC S101
Boise Cascade Assembly RB6
Fire Resistance Rated Rim Board Assembly

The following fire resistance design is listed in accordance with ASTM E119 and CAN/ULC S101

Double Wall Configuration with No Load Transfer Base Assembly

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<tr>
<th>Rim Board Thickness, in.</th>
<th>Rim Board Protection</th>
<th>Ceiling Membrane Req. for 1-hr</th>
<th>Ceiling Membrane Req. for 2-hr</th>
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9) Rim board needs to be sized for vertical and lateral load.
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