### Bonus Room Floor Joist Selection Guide

<table>
<thead>
<tr>
<th>L (Building Width)</th>
<th>X (Kneewall Location)</th>
<th>BSI Joists (Depth–Series)</th>
<th>Minimum Size Meeting Requirements</th>
<th>BSI S Series Joists (Depth–Series)</th>
<th>Minimum Size Meeting Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>12&quot; o.c.</td>
<td>16&quot; o.c.</td>
<td>19.2&quot; o.c.</td>
<td>24&quot; o.c.</td>
</tr>
<tr>
<td>20'</td>
<td>4'</td>
<td>11½&quot; – 400</td>
<td>14&quot; – 400</td>
<td>16&quot; – 400</td>
<td>14&quot; – 700</td>
</tr>
<tr>
<td></td>
<td>5'</td>
<td>11½&quot; – 400</td>
<td>14&quot; – 400</td>
<td>16&quot; – 400</td>
<td>14&quot; – 700</td>
</tr>
<tr>
<td></td>
<td>6'</td>
<td>11½&quot; – 400</td>
<td>14&quot; – 400</td>
<td>16&quot; – 400</td>
<td>14&quot; – 700</td>
</tr>
<tr>
<td></td>
<td></td>
<td>17&quot; – 400</td>
<td>19.2&quot; – 400</td>
<td>14&quot; – 700</td>
<td>14&quot; – 80S</td>
</tr>
<tr>
<td>22'</td>
<td>4'</td>
<td>14&quot; – 400</td>
<td>16&quot; – 400</td>
<td>14&quot; – 700</td>
<td>14&quot; – 80S</td>
</tr>
<tr>
<td></td>
<td>5'</td>
<td>14&quot; – 400</td>
<td>16&quot; – 400</td>
<td>14&quot; – 700</td>
<td>14&quot; – 80S</td>
</tr>
<tr>
<td></td>
<td>6'</td>
<td>14&quot; – 400</td>
<td>16&quot; – 400</td>
<td>14&quot; – 700</td>
<td>14&quot; – 80S</td>
</tr>
<tr>
<td>24'</td>
<td>4'</td>
<td>14&quot; – 400</td>
<td>14&quot; – 700</td>
<td>14&quot; – 900</td>
<td>16&quot; – 40S</td>
</tr>
<tr>
<td></td>
<td>5'</td>
<td>14&quot; – 400</td>
<td>16&quot; – 700</td>
<td>16&quot; – 900</td>
<td>16&quot; – 80S</td>
</tr>
<tr>
<td></td>
<td>6'</td>
<td>16&quot; – 400</td>
<td>16&quot; – 700</td>
<td>16&quot; – 900</td>
<td>16&quot; – 80S</td>
</tr>
<tr>
<td></td>
<td>7'</td>
<td>16&quot; – 400</td>
<td>16&quot; – 900</td>
<td>16&quot; – 900</td>
<td>16&quot; – 80S</td>
</tr>
<tr>
<td>26'</td>
<td>5'</td>
<td>16&quot; – 400</td>
<td>16&quot; – 700</td>
<td>16&quot; – 900</td>
<td>16&quot; – 80S</td>
</tr>
<tr>
<td></td>
<td>6'</td>
<td>16&quot; – 700</td>
<td>16&quot; – 900</td>
<td>DBL 16&quot; – 700</td>
<td>16&quot; – 80S</td>
</tr>
<tr>
<td></td>
<td>7'</td>
<td>16&quot; – 700</td>
<td>16&quot; – 900</td>
<td>DBL 16&quot; – 700</td>
<td>16&quot; – 80S</td>
</tr>
<tr>
<td>28'</td>
<td>5'</td>
<td>16&quot; – 700</td>
<td>16&quot; – 900</td>
<td>DBL 16&quot; – 700</td>
<td>16&quot; – 80S</td>
</tr>
<tr>
<td></td>
<td>6'</td>
<td>16&quot; – 700</td>
<td>16&quot; – 900</td>
<td>DBL 16&quot; – 700</td>
<td>16&quot; – 80S</td>
</tr>
<tr>
<td></td>
<td>7'</td>
<td>16&quot; – 700</td>
<td>16&quot; – 900</td>
<td>DBL 16&quot; – 700</td>
<td>16&quot; – 80S</td>
</tr>
</tbody>
</table>

### Design Conditions:
1. Glued and nailed floor sheathing.
2. Deflection limits: L/240 total load, L/480 live load, unless noted otherwise.
3. Roof loads of 30 PSF live load at 115% (snow load).
4. Roof dead load of 12 PSF (asphalt shingles).
5. Roof rafter slope between 8/12 and 12/12.
6. Knee wall height of 40 PLF.
7. Attic storage load of 20 PSF live load (outside the kneewalls).
8. Floor live load of 40 PSF (between the kneewalls).
9. Floor dead load of 20 PSF. Attic dead load of 20 psf to accommodate increased R-value insulation options.
10. Straight gable roof framing. No hip framing is permitted.
11. For other conditions, including holes, use software.

### NOTES
1. Double joist (2-ply) is denoted by “DBL.” Both joists must be glued and nailed as required for floor sheathing. No filler blocking required when top-loaded only.
2. A 2½" minimum bearing length must be provided by support wall or hanger seat.
3. A 3" minimum bearing length must be provided by support wall or hanger seat.
4. To be used in this application, the joist requires bearing stiffeners at both ends per BSI Joist Bearing Stiffeners on page 18.
5. Knee walls:
   - BSI Joist blocking or Broadspan® (APA) Rim Board required at bearing for lateral support.
   - Check local code for blocking required at rafters.
   - Straps for uplift and/or thrust may be required.

---

**Diagram:**

- 2x roof and wall framing
- BONUS ROOM
- Knee walls
- 20 LL/20 DL psf
- 40 LL/20 DL psf
- 20 LL/20 DL psf

**Design Conditions:**

- Do: Extend floor sheathing to outside face of wall
- Do: BSI Joist blocking or Broadspan® (APA) Rim Board required at bearing for lateral support
- Do: Check local code for blocking required at rafters.
- Do: Straps for uplift and/or thrust may be required.
- Do Not: Do not bevel cut joist beyond inside face of wall

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Fire-Rated Assemblies

Building codes for apartments and multi-family homes commonly require floor, ceiling or even roof framing assemblies that have a fire-resistant rating in accordance with standard ASTM fire tests. Wood I-joists along with conventional lumber and other framing materials provide the structural support, and the fire rated assemblies provide the fire-resistant rating. For these fire-rated assemblies, BSI joists are acceptable for use as noted in the table below. Several widely used "generic" assemblies are provided in "Design for Code Acceptance 3" (DCA 3), an American Wood Council (AWC) publication. Most of these details have also been adopted by the International Building Code (IBC) as contained in Table 720.1(3) of the 2006 IBC. Several of the details and similar assemblies are provided in the Gypsum Association’s Fire Resistance Design Manual (GA-600-2006).

Additional “generic” assemblies appear in various APA publications and in the APA ICC-ES code report ESR-1405. Instead of being specific to a single manufacturer, “generic” assemblies are generally dependent on the product dimensions for wood I-joists, and the product grades for gypsum board. All BSI series in this guide can be used in the following common assembly (WIJ-1.6 from DCA 3), used for illustration. WIJ-1.4 has been omitted due to its relative difficulty for installation.

Noise-Rated Assemblies

Building codes may also require that framing assemblies meet certain noise ratings. The assembly is typically rated for both noise transmission types—airborne (sound transmission class or STC number) and impact (impact insulation class or IIC number). The higher the number, the better the noise control. For reference, an STC rating of 25 would allow normal speech to be heard quite clearly, while an STC of 50 would limit loud speech to an inaudible range.

All BSI joist series in this guide can be used in the noise rated assembly shown here. Many more noise rated assemblies are in the AWC, APA, and Gypsum Association references listed in the section above. Further general information on noise rated assemblies is given in APA Form No. W460 (www.apawood.org/publications).

For additional resources, please see the following:

AWC: DCA 3 (www.awc.org/Publications/)
APA: The Engineered Wood Association (www.apawood.org/publications)
ICC ES Report ESR-1405
Form No. W395 for I-joists
Form No. D350 for Rim Board
GA: Gypsum Association (www.gypsum.org)
IBC: International Building Code (www.iccsafe.org)

Noise-Rated Assemblies Table

<table>
<thead>
<tr>
<th>Test Sponsor and Number</th>
<th>Finish Floor</th>
<th>Deck</th>
<th>Gypsum Wallboard Ceiling</th>
<th>Insulation</th>
<th>STC Rating</th>
<th>IIC Rating</th>
<th>Weight (lbs./sq. ft.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>G&amp;H USDA 11 ST</td>
<td>Vinyl or Tile</td>
<td>1½&quot; of 100-pcf cellular concrete over ¾&quot; APA Rated Sheathing subfloor on I-joists at 24&quot; o.c.</td>
<td>¾&quot; glass fiber</td>
<td>58</td>
<td>50</td>
<td>3&quot; gypsum wallboard</td>
<td>21.0</td>
</tr>
<tr>
<td>G&amp;H USDA 11x ST</td>
<td>Carpet &amp; Pad</td>
<td>None</td>
<td>¼&quot; APA Rated Sheathing</td>
<td>None</td>
<td>57</td>
<td>None</td>
<td>20.7</td>
</tr>
</tbody>
</table>

1. USDA Forest Service Wood Construction Research (Seattle, WA); acoustical tests by Geiger & Hamme, Inc. (Ann Arbor, MI)

Resilient steel channels spaced 24° o.c.

BSI joists spaced 24° o.c.

Construction adhesive at supports and T&G edges

1/2" T&G APA wood structural panels

Resilient steel channels spaced 16° o.c.

¼" APA Rated Sheathing

3" glass fiber

¼" gypsum wallboard

1/16" lightweight concrete
### Broadspan® Rim Boards

A rim board is the member that fills the space between the sill plate and bottom plate of a wall or, in second floor construction, between the top plate and bottom plate of two wall sections. The rim board must match the depth of the framing members between floors or between the floor and foundation to function properly. In addition to supporting the wall loads, the rim board ties the floor joists together. It is an integral component in an engineered wood system because it transfers both lateral and vertical bearing forces.

While lumber has been the traditional product used for rim boards, it is not compatible with wood I-joists used in floor construction. With the increasing use of wood I-joists, a demand for compatible engineered wood rim boards has resulted.

Engineered wood rim boards can be manufactured using plywood, oriented strand board (OSB), glued laminated timber (glulam), or laminated veneer lumber (LVL). These rim boards have less shrinkage than lumber and meet or exceed American Plywood Association (APA) Rim Board specifications.

### Capacities for Rim Board Applications

<table>
<thead>
<tr>
<th>Grade</th>
<th>Meets or Exceeds</th>
<th>p (in.)</th>
<th>H- (lbs/ft)</th>
<th>V- (lbs/ft)</th>
<th>Z- (lbs)</th>
<th>P- (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Broadspan Rim Board</td>
<td>APA Rim Board</td>
<td>1</td>
<td>180</td>
<td>3300</td>
<td>2680</td>
<td>3300</td>
</tr>
<tr>
<td>Broadspan Rim Board Plus</td>
<td>APA Rim Board Plus</td>
<td>1½</td>
<td>200</td>
<td>4850</td>
<td>2300</td>
<td>3500</td>
</tr>
</tbody>
</table>

### Standard Sizes

Referenced dimensions are nominal and are used for design purposes.

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Standard Sizesa</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thickness (inches)</td>
<td>1, 1½</td>
</tr>
<tr>
<td>Depth (inches)</td>
<td>9/16, 9/8, 11/16, 11/8, 14, 16</td>
</tr>
<tr>
<td>Length (feet)</td>
<td>12</td>
</tr>
</tbody>
</table>

### Allowable Edgewise Bending Properties

<table>
<thead>
<tr>
<th>Fbb (psi)</th>
<th>E (psi)</th>
<th>Fv (psi)</th>
<th>Fv² (psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>680</td>
<td>500,000</td>
<td>270</td>
<td>550</td>
</tr>
</tbody>
</table>

### Application Notes

1. Rim board spacing opening – allowed to a maximum span of 4 feet. See Allowable Uniform Load for Broadspan Rim Board Headers on page 32.
2. Rim board used as fire blocking panels – The minimum thickness of 1” for rim board exceeds the minimum requirement of 9/16” published in the model building codes as long as the joints are backed by another rim board or a 9/16” structural-use panel. See APA Form No. D350, APA Rim Board in Fire Rated Assemblies.
3. Rim board used in applications where a high lateral load transfer capacity is required – When the applied lateral loads exceed the published horizontal load capacities of rim board, add a commercially available specialty connector made by connector manufacturers between the rim board and framing or sole plate. This type of connector is installed using face nailing into the rim board and has a typical lateral load capacity of 400 to 500 lbs per connector.
4. Rim Board subjected to a combination of uniform and concentrated vertical loads – First, the applied concentrated load shall not exceed the concentrated load capacity (P) of the rim board, based on a minimum 4 1/2” bearing length over the floor sheathing attached to the top of the rim board. Second, the applied concentrated load shall be calculated as an equivalent uniform load based on the applied loading length increased by a 45° load distribution through decking and plate on both sides of the concentrated load, as applicable. The equivalent uniform load shall be added to the applied uniform load to determine the total applied uniform load, which shall not exceed the bearing (vertical) load capacity (V) of the rim board. If the total applied uniform load exceeds the bearing load capacity (V), use appropriate squash blocks, double rim boards, or a higher grade of rim board to carry the concentrated vertical load.

Example: A mechanical device distributes a weight of 3000 lbs for a distance of 12” along the top of a 1” x 16” Broadspan Rim Board through 9/16” floor sheathing. In addition to the mechanical device the rim board carries a uniform load of 2000 lbs/ft. Check:

(a) Concentrated vertical load, P = 3000 lbs < 3500 lbs => OK
(b) Equivalent uniform bearing load, V= 3000/[(12 + 2 * 9/16)/12] = 2680 lbs/ft. Total equivalent uniform bearing load = 2680 + 2000 = 4680 lbs/ft => NO GOOD – So use 1⅛” Broadspan Rim Board Plus (4850 lbs/ft cap.), or double the 1” rim board or add squash blocks under the concentrated load area.
Rim Board Connection Requirements

1. Floor sheathing to rim board (see Figure 1) – Use 8d nails (box or common) at 6” o.c. CAUTION: The horizontal load capacity is not necessarily increased with a decreased nail spacing. Under no circumstances should the nail spacing be less than 3”. The 16d (box or common) nails used to connect the bottom plate of a wall to the rim board through the sheathing do not reduce the horizontal load capacity of the rim board provided that the 8d nail spacing (sheathing-rim board) is 6” o.c. and the 16d nail spacing (bottom plate-sheathing-rim board) is in accordance with the prescriptive requirements of the applicable code.

2. Rim board to I-joist (see Figure 1) – Use two 8d nails (box or common), one each into the top and bottom flanges. This is typical for rim board having a thickness up to 1 1/8”. A larger nail size may be required for a given I-joist or for thicker rim board products.

3. Rim board to sill plate (see Figure 2) – Toe-nail using 8d (box or common) at 6” o.c.

4. Attachment of 2x lumber ledgers to rim board (see Figure 3) – Fasteners must be compatible with the code criteria for the type of preservative treatment. Use 1/2” diameter through-bolts with washers and nuts, 1/2” diameter lag screws with tip extending a minimum of 1/2” beyond rim board, or structural screws. For each bolt and/or lag screw, use a design value of 300 lbs into 1” thick rim and 350 lbs into 1 1/8” thick rim. CAUTION: The lag screw should be inserted in a lead hole by turning with a wrench, not by driving with a hammer. Over-torquing can significantly reduce the lateral resistance of the lag screw and should therefore be avoided. See the 2005 National Design Specification for Wood Construction (NDS) published by the American Forest & Paper Association for the appropriate size of clearance and lead holes.

5. Lateral resistance of nails applied to the faces of rim board – Calculate the lateral nail resistance based on the procedures given in the 2005 NDS and the following guidelines:

If the rim board is:
(a) Broadspan Rim Board - use an equivalent specific gravity, SG = 0.50.
(b) APA Rim Board with fastener information unavailable - use an equivalent specific gravity, SG = 0.42.

Figure 1
ATTACHMENT DETAILS WHERE RIM BOARDS ABUT

1. 8d nails at 6” o.c. (typical)

2. 8d toe-nails at 6” o.c. (typical)

3. Rim Board Joint Between Floor Joists or When Used as Starter Joist

Figure 2
TOE-NAIL CONNECTION AT RIM BOARD

1. 30°
2. 1/3

Figure 3
2X LEDGER TO RIM BOARD ATTACHMENT DETAIL

1. Weather barrier
2. Exterior sheathing
3. Continuous flashing extending at least 3” past joist hanger
4. Remove siding at ledger prior to installation
5. Lag screws must extend 1/2” beyond inside face of rim
6. Rim board
7. Floor sheathing
8. Deck fasteners: 1/2”-diameter lag screws or thru-bolts with washers and nuts, or structural screws
9. 2x ledger board (preservative-treated) must be greater than or equal to the depth of the deck joist
10. Metal flashing: under weather barrier at top (above deck), over weather barrier at bottom (below deck). Extend flashing below 2x ledger over any siding below.

Fill holes and seal flashing with high quality caulk.
Rim Board Connection Requirements (continued)

Figure 4
FASTENER SPACING FOR DECK LEDGER

Deck ledger fasteners staggered in 2 rows

Spacing (see table)

2" typical

4\%-6\% typical (bolts, lag screws & structural screws) – clearance for deck joist hanger installation into the ledger

Deck ledger end joint

Treated 2x ledger

Allowable Deck Ledger Fastener Spacing
(Based on APA Rated Rim Boards and %max* maximum sheathing thickness)\(a,c\)

<table>
<thead>
<tr>
<th>Fastener</th>
<th>Bearing length</th>
<th>Deck ledger fasteners staggered in 2 rows</th>
</tr>
</thead>
<tbody>
<tr>
<td>Through Bolts and Lag Screws</td>
<td>1%-6% or thicker</td>
<td>28 21 16 14 12 10 9</td>
</tr>
<tr>
<td>Structural Screws</td>
<td>1&quot;</td>
<td>24 18 14 12 10 9 8</td>
</tr>
</tbody>
</table>

NOTES

1. Values shown are the maximum uniform (total) loads, in pounds per lineal foot (plf), that can be applied to the header in addition to its own weight. The table meets a deflection criteria of L/360 live load and L/240 total load. 1-ply loads as shown can be doubled for 2-ply capacity.
2. Table is based on uniform loads for only single spans under dry-use conditions (moisture content less than 16\%). The span is the clear span (inside-face to inside-face of bearing) for the rough opening. A minimum end bearing length of 6 inches is used for design span.
3. When a 1-ply is shown, the rim board joint cannot occur over the opening or within 12" of the opening. If a second ply is indicated, the second ply must have at least 6" end bearing length beyond the opening.
4. Bearing lengths are based on 550 psi bearing stress. Bearing stresses cannot be increased for duration of load. Bearing length may need to be increased if support member's allowable bearing stress is less.
5. Lateral support is required along the span at intervals not exceeding 24" o.c. for both parallel and perpendicular framing conditions.

Allowable Uniform Load for Broadspan Rim Board Headers (PLF)

### 1" Broadspan Rim Board

<table>
<thead>
<tr>
<th>Clear Span</th>
<th>1-Ply (1&quot; width)</th>
<th>2-Ply (2&quot; width) can only be used as 2-ply minimum</th>
</tr>
</thead>
<tbody>
<tr>
<td>9%</td>
<td>11%</td>
<td>14%</td>
</tr>
<tr>
<td>1'-8&quot;</td>
<td>1068</td>
<td>1015</td>
</tr>
<tr>
<td>2'-0&quot;</td>
<td>1088</td>
<td>1003</td>
</tr>
<tr>
<td>2'-6&quot;</td>
<td>1093</td>
<td>1093</td>
</tr>
<tr>
<td>3'-0&quot;</td>
<td>1088</td>
<td>1003</td>
</tr>
<tr>
<td>3'-6&quot;</td>
<td>1093</td>
<td>1093</td>
</tr>
<tr>
<td>4'-0&quot;</td>
<td>1068</td>
<td>1015</td>
</tr>
</tbody>
</table>

### 1\%-6\% Broadspan Rim Board Plus

<table>
<thead>
<tr>
<th>Clear Span</th>
<th>1-Ply (1%-6% width)</th>
<th>2-Ply (2%-6% width) can only be used as 2-ply minimum</th>
</tr>
</thead>
<tbody>
<tr>
<td>9%</td>
<td>11%</td>
<td>14%</td>
</tr>
<tr>
<td>1'-8&quot;</td>
<td>1112</td>
<td>1127</td>
</tr>
<tr>
<td>2'-0&quot;</td>
<td>1127</td>
<td>1177</td>
</tr>
<tr>
<td>2'-6&quot;</td>
<td>1131</td>
<td>1187</td>
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<tr>
<td>3'-0&quot;</td>
<td>1131</td>
<td>1187</td>
</tr>
<tr>
<td>3'-6&quot;</td>
<td>1131</td>
<td>1187</td>
</tr>
<tr>
<td>4'-0&quot;</td>
<td>1112</td>
<td>1127</td>
</tr>
</tbody>
</table>

NOTES

1. Values shown are the maximum uniform (total) loads, in pounds per lineal foot (plf), that can be applied to the header in addition to its own weight. The table meets a deflection criteria of L/360 live load and L/240 total load. 1-ply loads as shown can be doubled for 2-ply capacity.
2. Table is based on uniform loads for only single spans under dry-use conditions (moisture content less than 16%). The span is the clear span (inside-face to inside-face of bearing) for the rough opening. A minimum end bearing length of 6 inches is used for design span.
3. Values shown are the maximum uniform (total) loads, in pounds per lineal foot (plf), that can be applied to the header in addition to its own weight. The table meets a deflection criteria of L/360 live load and L/240 total load. 1-ply loads as shown can be doubled for 2-ply capacity.
4. Table is based on uniform loads for only single spans under dry-use conditions (moisture content less than 16%). The span is the clear span (inside-face to inside-face of bearing) for the rough opening. A minimum end bearing length of 6 inches is used for design span.
5. When a 1-ply is shown, the rim board joint cannot occur over the opening or within 12" of the opening. If a second ply is indicated, the second ply must have at least 6" end bearing length beyond the opening.
6. Headers deeper than 11\%-6\% must only be used in multiple-ply members. Match header depth to I-joint depth. A 2-ply header can be used to increase capacity and to avoid hanger capacity reductions.
7. For 2-ply, fasten with minimum 10d (0.125\" x 3\") nails as indicated in table:
8. Use only face-mont hangers with nails clinched. Consult hanger manufacturer for required nailing. Decrease allowable hanger capacities for 1-ply headers as follows:
9. For loading conditions beyond the provisions of this table, use properly sized I-joint or LVL. For APA Rated Rim Board, see APA Form No. W345.
Framing Connectors

GENERAL NOTES

1. Capacity is for the stated duration of load—100% floor loading—115% roof snow loading. Connector capacity depends on the model selected, quantity and size of nails used, and the size and type of fasterer support. Stated capacity is based on manufacturer's required nailing and modifications for header type. Simpson-Strong-Tie (SST) web filler has been assumed for all I-joist series and depths. Higher capacities may be available based on different header materials; please refer to appropriate reference/design guide from the connector manufacturer for expanded design information. Some connector/header/fasterer combinations may not meet maximum joint reaction capacities and a qualified designer should be consulted. Clinch all nails across grain when possible. Variable pitch connector values are based on SPF wood plates.

2. Values for LVL and I-joist headers are tabulated. To achieve design capacity shown, use the respective nails shown and footnoted. In general, LVL header nails will either be 10d or 16d.

3. Nailing key. "H" column indicates number and size of nails to connect hanger to supporting header. "J" column indicates number and size of nails to attach the hanger to the joist. "P" indicates nails to connect to plate. Fill all nail holes as required by hanger manufacturer. Nails 10d x 1 1/2" are 0.148 x 1 1/2" long. 10d nails are 0.148 x 3 3/4" long and 16d are 0.162 x 3 3/4" long.

4. Connector model numbers shown are for Simpson Strong-Tie Company, Inc. 1-800-999-508R and USP Structural Connectors® 1-800-328-5934. Some locations carry similar products produced by other manufacturers. Contact your local building material retailer for conversion information and details. Other connector designs are available for specialized applications.

NOTES

1. Top mount hanger capacities shown are based on the same series and depth of BSI Joists carried. Refer to Details 1h and 4c. All capacities for hangers supported by I-joist headers have been adjusted based on hanger manufacturer requirements.

2. Bearing stiffeners required for BSI Joist carried (cells shaded ). Refer to Detail 1h and Web Stiffeners section (see page 18).

3. 10d x 1 1/2" nails are required where number of nails is shown without size of nail. 16d nails must be used to achieve the stated capacity for LVL header.

4. 10d x 1 1/2" nails may be replaced by LVL header. 16d nails must be used to achieve the stated capacity for LVL header.

5. B7.12 hangers can be used with LVL headers. See Simpson literature.
### Framing Connectors (continued)

**NOTES**

1. Skewed hanger capacities shown are based on support by LVL or I-joist headers with (SPF) fill and backer blocks as required for proper installation. Refer to Details 1h and 2a. Nails into I-joist header and resulting capacity are indicated for 10d. Use 10d x 1 1/4" nails to replace any nail into I-joist header flanges. 16d nails into only the web section of the I-joist header will increase hanger capacity. Contact hanger manufacturer.

2. Bearing stiffeners required for BSI Joist carried (cells shaded). Refer to Web stiffeners section (see page 18). Stiffeners must be mitered when the end of the joist is mitered.

3. 10d x 1 1/2" nails are required where only a number of nails is shown.

4. 16d nails must be used to achieve the stated capacity for LVL header.

5. Miter cut required on end of joist to achieve design loads.

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#### Field Skewed & Skewed

<table>
<thead>
<tr>
<th>Joist Series</th>
<th>Joist Width</th>
<th>Simpson Hanger</th>
<th>Cpcy Lbs -115%</th>
<th>Nailing®</th>
<th>USP Hanger</th>
<th>Cpcy Lbs -115%</th>
<th>Nailing®</th>
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<td>LSSL240</td>
<td>1140</td>
<td>9-10d</td>
<td>7</td>
<td>LS3703</td>
<td>1150</td>
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<tr>
<td>BSI 400, 700</td>
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<td>LSSL240</td>
<td>1140</td>
<td>9-10d</td>
<td>7</td>
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<td>LSSL240</td>
<td>1690</td>
<td>14-16d</td>
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<tr>
<td>BSI 900, 805</td>
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<td>LSSL414</td>
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<td>16-16d</td>
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**NOTES**

1. Hanger capacities shown are based on support by LVL or I-joist headers with (SPF) fill and backer blocks as required for proper installation. Use 10d x 1 1/2" nails to replace any nail into I-joist header flanges. 16d nails into only the web section of the I-joist header will increase hanger capacity. Contact hanger manufacturer.

2. Bearing stiffeners required for BSI Joist carried (cells shaded) Refer to Web Stiffeners section (see page 18). Stiffeners must be mitered when the end of the joist is mitered.

3. Beveled bearing stiffeners are required for BSI Joist carried (cells shaded). Refer to Web Stiffeners section (see page 18). Maximum slope is 12/12. A tie strap is required for all BSI Joists with slopes of 3/12 and greater. Refer to Detail 2a.

4. 10d x 1 1/2" nails are required where only a number of nails is shown.

5. 16d nails must be used to achieve the stated capacity for LVL header.

6. 16d nails must be used to achieve the stated capacity for LVL header.

7. To achieve the minimum nailing configuration, straps must extend over the top of the header at least: 2 7/16" - Simpson, 2 7/8" - USP.
Framing Connectors (continued)

For additional information, contact Simpson Strong-Tie at 800-999-5099 or USP Structural Connectors® at 800-328-5934.
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