 JOISTS ARE UNSTABLE UNTIL BRACED LATERALLY

Lack of proper bracing during construction can result in serious accidents. Under normal conditions if the following guidelines are observed, accidents will be avoided.

1. Install all blocking, hangers, rim boards, and rim joists at TJI® joist end supports.

2. Establish a permanent deck (sheathing), nailed to the first 4 feet of joists at the end of the bay or braced end wall.

3. Safety bracing of 1x4 (minimum) must be nailed to a braced end wall or sheathed area.

4. Sheathing must be properly nailed to each TJI® joist before additional loads can be placed on the system.

5. Ends of cantilevers require safety bracing on both the top and bottom flanges.

6. TJI® joist flanges must remain straight within 1/2" from true alignment.

This guide is intended for the products shown, in dry-use, untreated conditions.

IMPORTANT: Please read carefully!

JOISTS ARE UNSTABLE UNTIL BRACED LATERALLY

 Store and handle joists in vertical orientation.

Protect products from sun and water.

Wrap is slippery when wet or icy.

Use support blocks at 10' on-center to keep products out of mud and water.

La Sécurité Avant Tout
AVERTISSEMENT
Veuillez Lire Attentivement

Les solives sont instables si elles ne sont pas contreventées et en position verticale. Voir le guide d’installation avant la pose des solives TJI®.

Ne pas circuler sur les solives TJI® avant qu’elles ne soient adéquatement contreventées.

Il est dangereux de déposer des matériaux de construction sur les solives TJI® si le sous-plancher n’est pas installé.

La Seguridad Ante Todo
ADVERTENCIA
Por Favor Lea Cuidadosamente

Las viguetas son inestables hasta que se refuerzan lateralmente. Vea la guía de instalaciones antes de instalar las viguetas TJI®.

No permita que los trabajadores caminen sobre las viguetas TJI® antes de ser reforzadas lateralmente.

No ponga materiales de construcción sobre las viguetas TJI® antes de instalar el triplay. Coloque los materiales únicamente sobre vigas o muros.

FrameWorks® Building System

CONTAINS FRAMING DETAILS FOR FLOOR AND ROOF

FEATURING
TJI® 110
TJI® 210
TJI® 230
TJI® 360
TJI® 560 Joists

Framer’s Pocket Guide to the

This guide is intended for the products shown, in dry-use, untreated conditions.
Allowable Holes — TJI® Joists

No field cut holes in hatched zone

Min. distance from Table A

Min. distance from Table B

Do not cut holes larger than 1 1/2" in cantilever

1 1/2" hole may be cut anywhere in web outside hatched zone

DO NOT cut holes in cantilever reinforcement.

DO NOT cut or notch flange.

Does not apply to vented 16" joists
Table A—End Support
Minimum distance from edge of hole to inside face of nearest end support

<table>
<thead>
<tr>
<th>Joist Depth</th>
<th>TJI®</th>
<th>Round Hole Size</th>
<th>Square or Rectangular Hole Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>9½”</td>
<td>110</td>
<td>1'-6&quot; 1'-6&quot; 2'-0&quot; 5'-0&quot;</td>
<td>1'-0&quot; 1'-0&quot; 2'-6&quot; 4'-6&quot;</td>
</tr>
<tr>
<td>11½”</td>
<td>110</td>
<td>1'-0&quot; 1'-0&quot; 1'-0&quot; 2'-6&quot; 5'-0&quot;</td>
<td>1'-0&quot; 1'-0&quot; 1'-0&quot; 4'-6&quot;</td>
</tr>
<tr>
<td>14”</td>
<td>110</td>
<td>1'-0&quot; 1'-0&quot; 1'-0&quot; 1'-0&quot; 2'-6&quot; 5'-0&quot;</td>
<td>1'-0&quot; 1'-0&quot; 1'-0&quot; 3'-0&quot;</td>
</tr>
<tr>
<td>16”</td>
<td>110</td>
<td>1'-0&quot; 1'-0&quot; 1'-0&quot; 1'-0&quot; 1'-0&quot; 2'-6&quot; 5'-0&quot;</td>
<td>1'-0&quot; 1'-0&quot; 1'-0&quot; 1'-0&quot;</td>
</tr>
</tbody>
</table>

Table B—Intermediate or Cantilever Support
Minimum distance from edge of hole to inside face of nearest intermediate or cantilever support

- Leave ⅛" web at top and bottom of hole. **DO NOT cut joist flanges.**
- Table is based on uniform load tables in current design literature.
- For simple-span (5' minimum), uniformly loaded joists not requiring commercial concentrated loads, one maximum size round hole may be located in the center of the joist span **provided no other holes occur in the joist.**
Allowable Holes – TimberStrand® LSL, Parallam® PSL, Microllam® LVL

For uniformly loaded beams only.
- Rectangular holes are not allowed.
- No holes in cantilevers.
- No holes in headers or beams in plank orientation.

Maximum diameter:
- 2 3/16" for 2x4
- 2 3/4" for 2x6 and 2x8

Maximum notch:
- 7/8" for 2x4
- 1 1/4" for 2x6 and 2x8

The notch shown may be cut anywhere except the middle 1/2 of the length of the stud.

TJI® Joist Nailing Requirements at Bearing
**FrameWorks® Floor System**

**Connections to Bearing Plate**
- One 8d (2½") box nail each side. Drive nails at an angle at least 1½” from end.
- 1¾" minimum end bearing for single family applications
- 2¼" minimum end bearing for multi-family applications

**Shear transfer:** Connections equivalent to deck nailing schedule. See page 4.

**FrameWorks® FLOOR SYSTEM COMPONENTS**
- TJ®-Performance Plus® floor panels
- TJI® joists
- Trus Joist rim board

**ADHESIVE RECOMMENDATIONS**
- Adhesives must meet the requirements of ASTM D 3498 (AFG-01), and they must have a minimum dry shear strength of 350 psi. For more information, contact your Trus Joist technical representative.
- Use a ¼" or larger bead of adhesive
- At abutting panel edges use two ¼" beads of adhesive

**Fully nail floor panel within 10 minutes of applying adhesive or sooner if required by adhesive manufacturer.
- Screws may be substituted for nails (above) if they have equivalent lateral load capacity.

**Connections to Bearing Plate**
- Trus Joist rim board

**Squash Blocks to TJI® Joist**
- (Load bearing wall above)
- One 10d (3") box nail into each flange

**Rim to TJI® Joist**
- Trus Joist rim board or TJI® 110 rim joist:
  - One 10d (3") box nail into each flange
  - TJI® 210, 230, and 360 rim joist:
  - One 16d (3½") box nail into each flange

**TJI® 560 rim joist:**
- Toenail with 10d (3") box nails, one each side of TJI® joist flange

**Top View**
- Also see detail B2, page 5
Safety bracing (1x4 minimum) at 6’ on-center and extended to a braced end wall. Fasten at each joist with two 8d (2½”) nails minimum (see WARNING on cover).

See filler and backer block notes, page 5

Blocking panel

Safety bracing (1x4 minimum) at 6’ on-center and extended to a braced end wall. Fasten at each joist with two 8d (2½”) nails minimum (see WARNING on cover).

See filler and backer block notes, page 5

Blocking panel

Installation Tips
- Subfloor adhesive will improve floor performance, but may not be required.
- When joists are doubled at non-load bearing parallel partitions, space joists apart the width of the wall for plumbing or HVAC.
- Additional joist at plumbing drop (see detail above).
- Squash blocks and blocking panels carry stacked vertical loads (details B1 and B2). Packing out the web of a TJI® joist (with web stiffeners) is not a substitute for squash blocks or blocking panels.

WARNING
Joists are unstable until laterally braced. See warning on cover.
### DETAIL SCHEDULE

<table>
<thead>
<tr>
<th>End bearings (see page 4)</th>
<th>Cantilever over brick ledge (see page 5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>E5 3⁄4&quot; reinforcement on one side</td>
</tr>
<tr>
<td>A2</td>
<td>E6 3⁄4&quot; reinforcement both sides</td>
</tr>
<tr>
<td>A3</td>
<td>E7 3⁄4&quot; reinforcement on one side, with 2x_ blocking</td>
</tr>
<tr>
<td></td>
<td>E8 3⁄4&quot; reinforcement on both sides, with 2x_ blocking</td>
</tr>
</tbody>
</table>

**Intermediate bearings** (see page 5)

<table>
<thead>
<tr>
<th>B1</th>
<th>Hanger details (more connector information on page 8)</th>
</tr>
</thead>
<tbody>
<tr>
<td>with blocking panels</td>
<td>E5 3⁄4&quot; reinforcement on one side</td>
</tr>
<tr>
<td>with TJI® rim joist</td>
<td>E6 3⁄4&quot; reinforcement both sides</td>
</tr>
<tr>
<td>with rim board</td>
<td>E7 3⁄4&quot; reinforcement on one side, with 2x_ blocking</td>
</tr>
<tr>
<td></td>
<td>E8 3⁄4&quot; reinforcement on both sides, with 2x_ blocking</td>
</tr>
</tbody>
</table>

**Cantilever details** (see page 5)

<table>
<thead>
<tr>
<th>E1</th>
<th>Cantilever over brick ledge</th>
</tr>
</thead>
<tbody>
<tr>
<td>no reinforcement</td>
<td>E5 3⁄4&quot; reinforcement on one side</td>
</tr>
<tr>
<td>E1W</td>
<td>E6 3⁄4&quot; reinforcement both sides</td>
</tr>
<tr>
<td>with reinforcement</td>
<td>E7 3⁄4&quot; reinforcement on one side, with 2x_ blocking</td>
</tr>
<tr>
<td></td>
<td>E8 3⁄4&quot; reinforcement on both sides, with 2x_ blocking</td>
</tr>
</tbody>
</table>

**Cantilever over brick ledge** (see page 5)

<table>
<thead>
<tr>
<th>E1W</th>
<th>Cantilever over brick ledge</th>
</tr>
</thead>
<tbody>
<tr>
<td>with reinforcement</td>
<td>E5 3⁄4&quot; reinforcement on one side</td>
</tr>
<tr>
<td>E2 3⁄4&quot; reinforcement on one side</td>
<td>E6 3⁄4&quot; reinforcement both sides</td>
</tr>
<tr>
<td>E3 3⁄4&quot; reinforcement both sides</td>
<td>E7 3⁄4&quot; reinforcement on one side, with 2x_ blocking</td>
</tr>
<tr>
<td></td>
<td>E8 3⁄4&quot; reinforcement on both sides, with 2x_ blocking</td>
</tr>
</tbody>
</table>

**Intermediate bearings** (see page 5)

<table>
<thead>
<tr>
<th>B1</th>
<th>Hanger details (more connector information on page 8)</th>
</tr>
</thead>
<tbody>
<tr>
<td>with blocking panels</td>
<td>E5 3⁄4&quot; reinforcement on one side</td>
</tr>
<tr>
<td>with squash blocks to support load bearing wall above</td>
<td>E6 3⁄4&quot; reinforcement both sides</td>
</tr>
<tr>
<td>B2</td>
<td>E7 3⁄4&quot; reinforcement on one side, with 2x_ blocking</td>
</tr>
<tr>
<td>with squash blocks to support load bearing wall above</td>
<td>E8 3⁄4&quot; reinforcement on both sides, with 2x_ blocking</td>
</tr>
<tr>
<td>B3</td>
<td></td>
</tr>
<tr>
<td>without blocking panels or squash blocks (no wall above)</td>
<td></td>
</tr>
</tbody>
</table>

**Cantilever details** (see page 5)

<table>
<thead>
<tr>
<th>E1W</th>
<th>Cantilever over brick ledge</th>
</tr>
</thead>
<tbody>
<tr>
<td>with reinforcement</td>
<td>E5 3⁄4&quot; reinforcement on one side</td>
</tr>
<tr>
<td>E2 3⁄4&quot; reinforcement on one side</td>
<td>E6 3⁄4&quot; reinforcement both sides</td>
</tr>
<tr>
<td>E3 3⁄4&quot; reinforcement both sides</td>
<td>E7 3⁄4&quot; reinforcement on one side, with 2x_ blocking</td>
</tr>
<tr>
<td>E4 3⁄4&quot; reinforcement</td>
<td>E8 3⁄4&quot; reinforcement on both sides, with 2x_ blocking</td>
</tr>
<tr>
<td>joist reinforcement</td>
<td></td>
</tr>
</tbody>
</table>

**Web stiffeners** (see page 6)

<table>
<thead>
<tr>
<th>F1</th>
<th>Web stiffeners (see page 6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>deck cantilever</td>
<td></td>
</tr>
</tbody>
</table>

**Permanent cantilever bracing**

<table>
<thead>
<tr>
<th>P</th>
<th>Web stiffeners (see page 6)</th>
</tr>
</thead>
</table>

*Load bearing wall must stack over wall below. Blocking panels may be required at shear walls above or below.*

---

### TJ-Xpert® Framing Plans

**At A1, joists require entire support width.** At A2, A3 and A3.1–A3.4, “X” is rim board or rim joist thickness. Required joist bearing length = (full support width minus X). Bearing requirements as shown on the TJ-Xpert® framing plan are job-specific and supersede minimum bearing requirements listed.

**Web stiffeners required on each side of joist at intermediate bearings.** Refer to your TJ-Xpert® framing plan.

---

### Fastening of Floor Panels

#### Guidelines for Closest On-Center Spacing per Row

<table>
<thead>
<tr>
<th>Nail Size</th>
<th>TJI® 110 and 210</th>
<th>TJI® 230, 360, and 560</th>
<th>Trus Joist rim board</th>
<th>TimberStrand® LSL 1 ¼&quot; or wider</th>
<th>Microllam® LVL</th>
<th>Parallam® PSL</th>
</tr>
</thead>
<tbody>
<tr>
<td>8d (2½&quot;) common</td>
<td>3½&quot;</td>
<td>2&quot;</td>
<td>6&quot;</td>
<td>4&quot;</td>
<td>3&quot;</td>
<td>3&quot;</td>
</tr>
<tr>
<td>10d (3&quot;) common</td>
<td>4½&quot;</td>
<td>3&quot;</td>
<td>6&quot;</td>
<td>4&quot;</td>
<td>4&quot;</td>
<td>4&quot;</td>
</tr>
<tr>
<td>16d (3½&quot;) common</td>
<td>N.A.</td>
<td>4&quot;</td>
<td>16&quot;</td>
<td>6&quot;</td>
<td>6&quot;(1)</td>
<td>8&quot;</td>
</tr>
</tbody>
</table>

(1) Can be reduced to 4" on-center with maximum nail penetration of 1¾” into the narrow edge.

- Recommended nailing is 12" on-center in field and 6" on-center along sheathing edge. Nailing requirements on engineered drawings supersede recommendations.
- Nailing rows must be offset at least ½" and staggered.
- 14 ga. staples may be substituted for 8d (2½") nails if minimum penetration of 1" into the TJI® joist or rim board is achieved.

**Farthest On-Center Spacing Per Row**

Maximum spacing of nails is:
- 18" on-center for 1¾" joist widths.
- 24" on-center for joist widths greater than 1¾".
Rim Board Details and Installation

**Rim Board Details and Installation**

- **Plate nail**
- **Deck nail**
- **Toe nail**
- **2x4 or 2x6 stud wall at 16" on-center**
- **Trus Joist rim board**
- **TJI® joist spanning in either direction**

Sheathing may be attached as shown in A3.4.

*According to ICBO Evaluation Services, Inc., it is necessary to trim the panel edges when using 1⅛" or thinner rim board.*

### Specifications

<table>
<thead>
<tr>
<th>Specifications</th>
<th>A3</th>
<th>A3.1(1)</th>
<th>A3.2(1)</th>
<th>A3.3(1)</th>
<th>A3.4(1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rim Board Thickness</td>
<td>1&quot; or 1¼&quot;</td>
<td>1&quot;</td>
<td>1¼&quot;</td>
<td>1¼&quot;</td>
<td>1¼&quot;</td>
</tr>
<tr>
<td>Plate Nail—16d (3½&quot;) box</td>
<td>16&quot; o.c.</td>
<td>16&quot; o.c.</td>
<td>12&quot; o.c.</td>
<td>8&quot; o.c.</td>
<td>12&quot; o.c.</td>
</tr>
<tr>
<td>Deck Nail—8d (2½&quot;) common</td>
<td>6&quot; o.c.</td>
<td>6&quot; o.c.</td>
<td>6&quot; o.c.</td>
<td>6&quot; o.c.</td>
<td>6&quot; o.c.</td>
</tr>
<tr>
<td>Toe Nail—10d (3&quot;) box</td>
<td>6&quot; o.c.</td>
<td>6&quot; o.c.</td>
<td>6&quot; o.c.</td>
<td>4&quot; o.c.</td>
<td>6&quot; o.c.</td>
</tr>
<tr>
<td>Sill Plate Anchor Bolt</td>
<td>1½&quot; dia. at 6' o.c.</td>
<td>1½&quot; dia. at 6' o.c.</td>
<td>½&quot; dia. at 6' o.c.</td>
<td>½&quot; dia. at 6' o.c.</td>
<td>½&quot; dia. at 4' o.c.</td>
</tr>
</tbody>
</table>

### Wall Framing

**Exterior Face**

- **Sheathing**: Per code
- **Boundary Nailing**: Per code
- **Intermediate Nailing**: Per code
- **Max. Wall Opening Height**: 5'-4"(4)
- **% of Wall with Full Height Sheathing**: 70%

**Interior Face**

- **Sheathing**: Per code
- **Boundary Nailing**: Per code
- **Intermediate Nailing**: Per code

**Hold-Downs (if required)**

- **Per code**: 16" o.c. within 10' of corners(5)
- **16" o.c. within 6' of corners(5)**
- **16" o.c. within 4' of corners(5)**
- **N.A.**

---

(1) All sheathing shall be properly blocked and nailed.
(2) Detail A3.3 shall be a segmented wall, constructed per the 1995 SBC Wood Frame Construction Manual.
(3) Sheathing shall be continuous over all plate-to-plate and plate-to-rim board interfaces and may butt together at mid-depth of rim board as shown in A3.4. At foundation, fasten the bottom edge of the sheathing to the sill plate.
(4) One 6'-8" standard door opening is allowed.
(5) If required, hold-downs shall be Simpson Strong-Tie™ CS20 straps attached with four 8d common nails at each end or equivalent. As an alternative to hold-down straps, wall sheathing may be attached as shown in A3.4 (refer to footnote 3).
**Floor Details**

**Blocking panel**

**TJI® rim joist**

**Must have 1 3/4" minimum joist bearing at ends**

**Exterior Deck Attachment**

**Structural exterior sheathing**

**Trus Joist rim board**

**Flashing**

**Treated 2x ledger**

**Maintain 2" distance (minimum) from edge of ledger to fastener**

**Use 2x4 minimum squash blocks to transfer load around TJI® joist**

**Corrosion-resistant fasteners required for wet-service applications**
Intermediate Bearing — No Load Bearing Wall Above

Blocking panels may be required with shear walls above or below—see detail B1

Cantilever Details

Two 2½" screws for 2x_ strapping connections
Apply subfloor adhesive to all contact surfaces

Required only when specified on the layout

Filler and Backer Blocks

HANGER BACKER BLOCK
Install tight to top flange (tight to bottom flange with face mount hangers).
- Single-Family Applications: Attach with ten 10d (3") box nails, clinched when possible.
- Multi-Family Applications: Attach with fifteen 10d (3") box nails, clinched when possible.
- If necessary, increase filler and backer block height for face mount hangers and maintain 1⁄8" gap at top of joist; see detail W on page 6.
- Filler and backer block dimensions should accommodate required nailing without splitting.

HANGER BACKER BLOCK SIZES
- TJ® 110 joists: W, minimum length 12".
- TJ® 210 joists: W, minimum length 12".
- TJ® 330 and 360 joists: 1½ net, minimum length 12".
- TJ® 560 joists: 2x, minimum length 12".

DOUBLE TJ® JOIST FILLER BLOCK
- Single-Family Applications: Attach with fifteen 10d (3") box nails, clinched when possible.
- Multi-Family Applications: Attach with fifteen 10d (3") box nails, clinched when possible.

DOUBLE TJ® JOIST FILLER SIZES
- TJ® 110 joists: 2x, minimum length 24".
- TJ® 210 joists: 2x, ½ sheathing, minimum length 24".
- TJ® 330 and 360 joists: 2x, ½ sheathing, minimum length 24".
- TJ® 560 joists: Two 2x, minimum length 24".
Web Stiffeners – Floor and Roof Applications

**WEB STIFFENER REQUIREMENTS**

- Required at all birdsmouth cuts.

- Required at all sloped hangers. For TJI® 560 joists, web stiffeners are required at all hanger locations.

- Required if the sides of the hanger do not extend to laterally support at least 3/8" of the TJI® joist top flange.

**WEB STIFFENER SIZES**

- TJI® 110 joists: 5/8" x 2 5/16" minimum
- TJI® 210 joists: 3/4" x 2 5/16" minimum
- TJI® 230 and 360 joists: 7/8" x 2 5/16" minimum
- TJI® 560 joists: 2x4

---

Typical Roof and Wall Framing

**BEARINGS** (see page 7)

- R1 on bevel plate
- R3 with variable slope seat connector
- R5 with birdsmouth cut
- R7 intermediate bearing
- R14 ridge detail

**OUTRIGGER DETAILS** (see page 7)

- R8 2x4 outrigger and filler with birdsmouth cut
- R9 2x4 outrigger without filler
- R10 2x4 outrigger and filler

**OTHER DETAILS**

- O 2x_ overhang at end wall
- SB shear blocking (see page 8)
- W web stiffeners
- H5 slope adjusted hanger
- H6 header on slope

---

Joists must be laterally supported at cantilever and end bearing by blocking panels, hangers, or direct attachment to a rim board or rim joist.
Safety bracing (1x4 minimum) at 6’ on-center and extended to a braced end wall. Fasten at each joist with two 8d (2½”) nails minimum (see WARNING on cover).

Safety bracing. Lack of proper bracing can result in serious accidents.

TimberStrand® LSL blocking:
- 1 row at 10’–18’ height
- 2 rows at 18’–22’ height

Studs must be doubled when notched in middle third of length. Refer to hole charts for allowable holes and notches.

Let-in bracing

Notch around TJI® joist top flange

Double joist may be required

Install cripples tight to king stud at each end of header

See fill and backer block notes, page 5

Blocking panels or shear blocking optional for joist stability at intermediate supports

Notch around TJI® joist top flange

See filler and backer block notes, page 5

WARNING
Joists are unstable until laterally braced. See warning on cover.

Ceiling Joists

Ceiling joist must be braced at 18” on-center

Lateral bracing required at end bearings

Do not bevel cut joist beyond inside face of wall

See allowable holes, page 1

WARNING
Joists are unstable until laterally braced. See warning on cover.
Roof Details

**Shear blocking**—TJI® joist or TimberStrand® LSL rim board

Beveled bearing plate required when slope exceeds ¼” per foot

1/3 adjacent span maximum

**Intermediate Bearing**

Blocking panels or shear blocking may be specified for joist stability at intermediate supports

Twist strap and backer block required at R7S with slopes greater than 3” per foot. See nailing requirements, page 8.

Web stiffeners required each side at R7W

Beveled bearing plate required when slope exceeds ¼” per foot

2 rows 8d (2⅛”) box nails at 8” on-center

2x4 one side. Use 2x4 both sides if joist spacing is greater than 24” on-center

2'-0” maximum

Variable slope seat connector

R1

R3

R7

R7

R7

R10
Birdsmouth Cut — R5, R8, and R9  

Allowed at low end of joist only

- Beveled web stiffeners on both sides. Cut to match roof slope.
- 2x4 block for soffit support
- Birdsmouth cut must not overhang inside face of plate
- 2'-0" maximum

TJI® joist flange must bear fully on plate

- 2x4 one side. Use 2x4 both sides if joist spacing is greater than 24" on-center
- Beveled 2x4 block with beveled web stiffener on opposite side of web
- 2 rows 8d (2½") box nails at 8" on-center

R5

- 2x4 one side. Use 2x6 if joist spacing is greater than 24" on-center.
- Beveled 2x4 block with beveled web stiffener on opposite side of web
- 10d (3") box nails at 8" on-center

R8

- LSTA18 (Simpson or USP) strap with twelve 10d x 1½" nails

R9

- Double beveled bearing plate when slope exceeds ¼" per foot
- Strap nails: Leave 2¾" minimum end distance, typical

R14
Framing Connectors

APPROVED HANGERS
- The following three manufacturers are approved to supply hangers for Trus Joist products:
  – Simpson Strong-Tie™ 1-800-999-5099
  – USP Structural Connectors™ 1-800-328-5934 (MN) or 1-800-227-0470 (CA)
  – Simpson Strong-Tie™, Canada 1-877-642-2121
- Hanger design loads differ by support type and may exceed the capacity of the support and/or supported member. Contact your Trus Joist representative or refer to Trus Joist software.

NAILING REQUIREMENTS
- Fill all round holes with the proper nails. Hanger nails are usually a heavier gauge because of the higher loads they need to carry.
- Unless specified otherwise, full capacity of straps or connectors can only be achieved if the following nail penetration is provided:

<table>
<thead>
<tr>
<th>FACE MOUNT</th>
<th>TOP FLANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>10d x 1½&quot;</td>
<td>1½&quot; min</td>
</tr>
<tr>
<td>10d (3&quot;) common</td>
<td>1¾&quot; min</td>
</tr>
<tr>
<td>16d (3½&quot;) common</td>
<td>2&quot; min</td>
</tr>
</tbody>
</table>

- Top flange hangers should be fastened to TJİ® joist headers with 10d x 1½" nails. Fasten face mount hangers to 3½" or wider TJİ® joist headers with 10d (3") common or 16d (3½") common nails.

CONNECTOR INSTALLATION & SQUEAK PREVENTION TIPS
- Nails must be completely set.
- Leave ⅛" clearance between the member and the support member or hanger.
- Joist to beam connections require hangers; do not toenail.
- Seat the supported member tight to the bottom of the hanger. On Simpson Strong-Tie™ ITT, IUT and VPA connectors, bend the bottom flange tabs over and nail to TJİ® joist bottom flange.
- Reduce squeaks by adding subfloor adhesive to the hanger seat.
Shear Blocking and Ventilation Holes  

**Roof Only**

**Trus Joist rim board for shear blocking (between joists). Field trim to match joist depth at outer edge of wall or locate on wall to match joist depth.**

**Filler block:** Attach with ten 10d (3") box nails, clinched. Use ten 16d (3½") box nails from each side with TJI® 560 joists.

**Backer block:** Install tight to bottom flange (tight to top flange with top flange hangers). Attach with ten 10d (3") box nails, clinched when possible.

**Strap nails:** Leave 2⅜" minimum end distance, typical

**Maximum allowable V-cut**

---

**TJI® Joist Nailing Requirements at Bearing**

**TJI® Joist to Bearing Plate**

**END BEARING**  
(1¾" minimum bearing required)

- 8d (2½") box nail, one each side, 1½" minimum from end

**INTERMEDIATE BEARING**  
(3½" minimum bearing required)

- Slopes 3/12 or less:  
  One 8d (2½") box nail each side (see Detail R7)

- Slopes greater than 3/12:  
  Two 8d (2½") box nails each side, plus a twist strap and backer block (see Detail R7S).

**Blocking to Bearing Plate**

- **Trus Joist rim board:** Toenail with 10d (3") box nails at 6" on-center or 16d (3½") box nails at 12" on-center

- **TJI® joist blocking:** 10d (3") box nails at 6" on-center

- **Shear transfer nailing:** Use connections equivalent to sheathing nail schedule

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When slope exceeds ⅛" per foot, a beveled bearing plate, variable slope seat connector, or birdsmouth cut (at low end of joist only) is required.
**Beam and Column Details**

**DETAIL SCHEDULE**

**Beam and header details**
- L1 bearing at wood wall
- L2 bearing for door or window header
- L3 beam to beam connection
- L4 bearing at concrete wall
- L5 bearing at wood or steel column
- L6 connection of multiple pieces

**Column details**
- P1 beam on column cap
- P2 column base
- P3 elevated column base

---

**Bearing length is extremely critical and must be considered for each application.** See table below for minimum end and intermediate bearing lengths, and your Trus Joist TJ-Xpert® framing plan, if applicable.

**CONNECTION OF MULTIPLE PIECES OF TOP-LOADED BEAMS**

**1 3/4" Width Pieces**
- Minimum of 3 rows 10d (3" x 0.128") nails at 12" on-center
- Minimum of 4 rows 10d (3" x 0.128") nails at 12" on-center for 14" and deeper beams
- If using 12d-16d nails, the number of nailing rows may be reduced by one.

**3 1/2" Width Pieces**
- Minimum of 2 rows 1/2" bolts at 24" on-center staggered

---

(1) Load must be applied evenly across entire beam width. Otherwise, use connections for side-loaded beams.

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This guide is intended for the products shown, in dry-use, untreated conditions.
**Beam and Header Bearings**

### Minimum Bearing Length for Beams and Headers

<table>
<thead>
<tr>
<th>Beam Depth</th>
<th>Bearing</th>
<th>Span of Header or Beam</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>4'</td>
</tr>
<tr>
<td>5½&quot;</td>
<td>End / Int.</td>
<td>2¼&quot; / 4½&quot;</td>
</tr>
<tr>
<td>7¼&quot;</td>
<td>End / Int.</td>
<td>3½&quot; / 6¼&quot;</td>
</tr>
<tr>
<td>8½&quot;</td>
<td>End / Int.</td>
<td>3½&quot; / 8½&quot;</td>
</tr>
<tr>
<td>9¼&quot;, 9½&quot;</td>
<td>End / Int.</td>
<td>4¼&quot; / 8&quot;</td>
</tr>
<tr>
<td>11¼&quot;, 11¾&quot;</td>
<td>End / Int.</td>
<td>4&quot; / 9¼&quot;</td>
</tr>
<tr>
<td>14&quot;</td>
<td>End / Int.</td>
<td>4¼&quot; / 10³⁄₄&quot;</td>
</tr>
<tr>
<td>16&quot;</td>
<td>End / Int.</td>
<td>4½&quot; / 10½&quot;</td>
</tr>
<tr>
<td>18&quot;</td>
<td>End / Int.</td>
<td>4¼&quot; / 10½&quot;</td>
</tr>
<tr>
<td>20&quot;</td>
<td>End / Int.</td>
<td>4¼&quot; / 10¾&quot;</td>
</tr>
</tbody>
</table>

- Bearing across the full width of the beam is required.
- 1½" minimum bearing length at ends, 3½" at intermediate supports.
- Bearing lengths are based on bearing stress for Timberstrand® LSL, Parallam® PSL, or Microllam® LVL. Lengths may need to be increased if support member’s allowable bearing stress is less (e.g., flat wood plate).
- Table assumes maximum allowable uniform load. For other conditions contact your Trus Joist technical representative.
- Beams and headers require lateral support at bearing points and along the top (or compression edge) at 24" on-center or closer.
- 1¾" x 16" and deeper beams and headers are to be used in multiple-member units only.

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**Seat cuts must be within wall.**

**BEAM ATTACHMENT AT BEARING**

- Drive nails at an angle to minimize splitting of plate.
- One 10d (3") box nail each side of member at bearing, 1½" minimum from end.

![Trus Joist rim board diagram]
HOMEBUYER’S GUARANTEE

We guarantee that the Trus Joist products used in your home have been manufactured to precise tolerances and are free from defects in materials and workmanship. In the unlikely event that your Silent Floor® joist develops squeaks or any other problem caused by such defects, and provided that your floor joists have been properly installed, we will promptly remedy that problem at no cost to you. In addition, if you call us with a problem that you believe may be caused by our products, our representative will contact you within one business day to evaluate the problem and help solve it. Guaranteed.
This guarantee is effective for the life of your home.

1-800-628-3997

The TJ-Xpert® program is Design Software developed by Trus Joist. The TJ-Xpert® Warranty is applicable when this guide is accompanied by a complete TJ-Xpert® framing plan.

TJ-Xpert® WARRANTY

The Trus Joist (TJ) products called out on the TJ-Xpert® framing plan have been sized for the loads and dimensions entered by the computer operator into the TJ-Xpert® computer program. The TJ-Xpert® program sized the TJ products in the framing plan in accordance with TJ design criteria. Purchaser acknowledges receipt of the Builder’s Guide and warrants that the TJ products will be installed in accordance with the Guide and the framing plan. All loads and dimensions used by the TJ-Xpert® program to design the framing plan have been specified by the Purchaser and verified by the Purchaser for completeness, accuracy and compliance with applicable code requirements.

The loads, dimensions and resulting framing plan have not been checked by a TJ engineer.

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For conditions not shown in this guide or other assistance, contact your Trus Joist representative or call 1-800-628-3997

CODE EVALUATIONS

TJI® Joists
- FHA/HUD 689 Rev. 8
- CCMC 13132-R
- ICC ESR-1153

TimberStrand® LSL
- FHA/HUD 1265b
- CCMC 12627-R
- ICC-ES Legacy Report ER-4979

Parallam® PSL
- FHA/HUD MR 1303a
- CCMC 11161-R
- ICC-ES Legacy Report ER-4979

Microllam® LVL
- FHA/HUD 925i
- CCMC 08675-R
- ICC-ES Legacy Report ER-4979

e-Rim®
- FHA/HUD 1265b
- ICC-ES Legacy Report ER-4979

TJ-Strand®
- FHA/HUD 1265b
- ICC-ES Legacy Report ER-4979

FOR MORE INFORMATION, CONTACT YOUR DEALER