Sprinkler System Installation Guide

For RedBuilt™ Open-Web Trusses and Red-I™ Joists

• Multiple Details for Supporting Sprinkler Pipe
• Options to Add Carrying Capacity

For Use with RedBuilt™ Products Only
Welcome to RedBuilt

RedBuilt is an exciting business offering building solutions for a broad range of commercial and custom residential applications. In addition to pioneering unique manufacturing technologies, RedBuilt provides world-class service and technical support for architects, specifiers and builders.

RedBuilt gives you access to reliable, innovative products, including RedBuilt™ open-web trusses, Red-I™ joists, and RedLam™ LVL beams and headers. And we keep things simple: You'll work with just one service-oriented supplier to get all these products—plus the support you need to build smarter.

RedBuilt: A family of brand-name building products... a source for innovative ideas and solutions... a supplier that’s simpler to do business with.

SPRINKLER SYSTEM INSTALLATION GUIDELINES

Guide Assumptions

- The details in this guide are intended for use with RedBuilt™ products only.
- The connections shown in the details will support the sprinkler pipes indicated or the loads shown, provided that the required loads have been included in the original design of the RedBuilt™ open-web truss or Red-I™ joist system.
- The hangers and installation methods shown in this guide are in accordance with the following design specifications:
  - NFPA 13 requires that hangers shall be designed to support five times the weight of the water-filled pipe plus 250 lbs at each point of piping support. Standard ferrous hardware referred to in NFPA 13/13R, such as U-hooks, eye rods, and steel trapezes, or accepted proprietary hardware, are the responsibility of others.
  - NFPA 13 requires that sprinkler piping shall be substantially supported from the building structure, which must support the weight of the water-filled pipe plus a minimum 250 lb temporary load applied at the point of hanging. Fasteners, such as lag screws and machine bolts, and structural wood hanger blocks are designed to support the weight of the water-filled pipe plus a temporary 250 lb load using values from the 2012 National Design Specification® For Wood Construction (NDS®).
- Assumed loads for water-filled steel pipes at 15' on-center spacing are as follows:

<table>
<thead>
<tr>
<th>Pipe Diameter</th>
<th>2&quot;</th>
<th>2½&quot;</th>
<th>3&quot;</th>
<th>3½&quot;</th>
<th>4&quot;</th>
<th>5&quot;</th>
<th>6&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Load (lbs)</td>
<td>77</td>
<td>118</td>
<td>162</td>
<td>202</td>
<td>246</td>
<td>352</td>
<td>475</td>
</tr>
</tbody>
</table>

- Assumed loads for water-filled CPVC pipes are as follows:

<table>
<thead>
<tr>
<th>Pipe Diameter</th>
<th>1&quot;</th>
<th>2&quot;</th>
<th>3&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Load (lbs)</td>
<td>4</td>
<td>18</td>
<td>48</td>
</tr>
<tr>
<td>Support O.C. Spacing</td>
<td>6'</td>
<td>8'</td>
<td>10'</td>
</tr>
</tbody>
</table>

- Earthquake bracing details (EQ1–EQ6 on pages 6 and 10) require that the system designer specify the frequency of the bracing.
- All wood hanger blocks are to be minimum No. 2 grade spruce-pine-fir or equivalent, unless otherwise noted.
- For options beyond the scope of this publication, contact your RedBuilt representative.

ABOUT THIS GUIDE

This guide offers technical information and details for installing sprinkler systems in RedBuilt™ open-web trusses and Red-I™ joists. The information in this guide is intended for use with RedBuilt™ products ONLY.
CUTTING OR DRILLING OVERSIZED HOLES IN THE WEB OR FLANGES OF REDBUILT™ OPEN-WEB TRUSSES AND RED-I™ JOISTS CAN WEaken THE STRUCTURAL INTEGRITY OF THE MEMBER TO THE POINT WHERE IT WILL NEED TO BE REPAIRED OR REPLACED, SOMETIMES AT GREAT EXPENSE. PROPER INSTALLATION OF THE ALLOWED FASTENERS IS EQUALLY IMPORTANT TO THE STRUCTURAL INTEGRITY OF THE OPEN-WEB TRUSS AND RED-I™ JOIST.

**Allowable Holes and Fasteners**

The tables at right show the largest fastener and lead hole sizes allowed in RedBuilt™ open-web trusses and Red-I™ joists. All holes and attachments made to the underside of a chord or flange shall be centered. See detail 1 on page 4 and detail 28 on page 9.

**Self-Tapping Screws**
Pre-drilled holes shall be used for screw systems with self-tapping or thread-cutting properties.

**Drive Screws**
Drive screws are not allowed in RedBuilt™ open-web trusses or Red-I™ joists.

**Lag screws**
Lag screws shall be installed in prebored lead holes with a wrench. Do not drive lag screws with a hammer.

Follow tables on this page for proper choice and installation of fasteners. Follow tables on page 11 when cutting holes through Red-I™ joist webs.

**Lead Hole Sizes**

<table>
<thead>
<tr>
<th>Fastener Type</th>
<th>Fastener Size</th>
<th>Approximate Lead Hole Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nails</td>
<td>0.162&quot; diameter and larger</td>
<td>75% of nail diameter</td>
</tr>
<tr>
<td>Wood Screws</td>
<td>Larger than #8</td>
<td>70% of root diameter (1/6&quot; for #18)</td>
</tr>
<tr>
<td>Machine Bolts</td>
<td>All</td>
<td>Bolt diameter + 1/32&quot; to 1/16&quot;</td>
</tr>
<tr>
<td>Lag Screws</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1/8&quot; diameter</td>
<td>1/16&quot;(1)</td>
</tr>
<tr>
<td></td>
<td>1/6&quot; diameter</td>
<td>1/8&quot;(1)</td>
</tr>
<tr>
<td></td>
<td>1/4&quot; diameter</td>
<td>1/4&quot;(1)</td>
</tr>
<tr>
<td></td>
<td>5/32&quot; diameter</td>
<td>5/32&quot;(1)</td>
</tr>
</tbody>
</table>

(1) Lead hole size applies to the threaded part of the lag screw. For the unthreaded length of the screw, the lead hole is equal to the shank diameter.

**Largest Hole and Fastener**

<table>
<thead>
<tr>
<th>RedBuilt™ Product</th>
<th>Hole Size</th>
<th>Fastener Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Side Top or Bottom</td>
<td>Side Top or Bottom</td>
<td></td>
</tr>
<tr>
<td>Red-L™, Red-W™ truss</td>
<td>Not allowed</td>
<td>3/16&quot;(1)</td>
</tr>
<tr>
<td>Red-S™ truss</td>
<td>Not allowed</td>
<td>3/32&quot;</td>
</tr>
<tr>
<td>Red-M™, Red-H™, truss</td>
<td>1/16&quot;(1)</td>
<td>16d (0.162&quot; x 3½&quot;) nail, 1/4&quot; lag(2), 1/8&quot; bolt(2), #18 screw(2)</td>
</tr>
<tr>
<td>Red-I™ Joist Flange</td>
<td>Not allowed</td>
<td>3/32&quot;</td>
</tr>
<tr>
<td>Red-I™ Joist Web</td>
<td>See table on page 11</td>
<td>See table on page 11</td>
</tr>
</tbody>
</table>

(1) May be increased to 1/8" if the location is a minimum of 6" away from a truss pin or any knot larger than 1/4" diameter.
(2) Requires pre bored lead hole—see Lead Hole Sizes table.
(3) May be limited by applicable hole size.
(4) 3/16" lag allowed when joist flange width is greater than 1¾".

• Only one hole may be drilled in any cross section of any chord or flange.

**Open-Web Truss Descriptions**

**Red-L™ and Red-W™ Trusses**
Top and Bottom Chords:
- Red-L™ trusses: 1½" x 3½" MSR lumber
- Red-W™ trusses: 1½" x 4¾" MSR lumber

**Red-S™ Trusses**
Top and Bottom Chords:
- Double 1½" x 2.3" RedLam™ LVL

**Red-M™ and Red-H™ Trusses**
Top and Bottom Chords:
- Red-M™ trusses: Double 1½" x 3½" MSR lumber
- Red-H™ trusses: Double 1½" x 5¼" MSR lumber

Preservative-treated open-web trusses are not available.
1 Ceiling Flange

- For Red-L™ and Red-W™ trusses, screws must line up along the center of the chord, ± 1⁄4" tolerance.
- For all double chord trusses, one screw must be positioned in the center of each chord, ± 3⁄8" tolerance.
- Flange may be attached to the top or bottom chord.
- If installing through a gypsum board ceiling, increase the fastener length by the gypsum board thickness.

- Two-screw ceiling flange with two #18 x 1½" wood screws into 5⁄8" lead holes
- Red-L™ or Red-W™ truss

Maximum pipe size: 2"

2 U-Bolt with Steel Plate

- ¼" steel plate
- 3⁄8" threaded U-bolt
- Section A-A
- Pipe may also be placed on top side of bottom chord

Pipe size at maximum hanger spacing: 2"

3 Strap or Inverted U-Bolt

- U-bolts (where practical) or plumber’s strap; bend strap to underside of chord and fasten to chord with one 8d (0.131" x 2½") nail each end of strap

Pipe size at maximum hanger spacing: 3" (may be increased with special truss design)

4 Pipe Trapeze with Hanger Rod

- Pipe trapeze per NFPA 13 (3" maximum). Secure snugly with U-bolts (where practical) or plumber’s strap; bend strap to underside of chord and fasten to chord with one 8d (0.131" x 2½") nail each end of strap.
- Lateral restraint if required

Pipe size at maximum hanger spacing: 4" (may be increased to 6" with special truss design)
5 **Trapeze on Sleepers**

Angle iron, pipe trapeze or other approved crosspiece per NFPA 13

Pipe size at maximum hanger spacing: 6"

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6 **Beam Clamp**

(For Red-L™ trusses only)

Beam clamp. Certification of compliance to NFPA 13 to be provided by clamp manufacturer upon request.

Pipe size at maximum hanger spacing: 2" (may be increased to 4" with special truss design)

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7 **Strap or Inverted U-Hook on Sleepers**

Pipe strap or inverted U-hook per NFPA 13 with ¼" diameter lag screws or other standard fasteners

Pipe size at maximum hanger spacing is 3". With special truss design, may be increased to 4" with 2x4 sleeper and 6" with 2x6 sleeper.

---

8 **U-Hook on Sleepers**

U-hook per NFPA 13

Pipe size at maximum hanger spacing is 3". With special truss design, may be increased to 6".

---

9 **Trapeze with Hanger Rod—Bottom Chord**

Angle iron, pipe trapeze or other approved crosspiece per NFPA 13

Hanger rod or support per NFPA 13, center between trusses

Pipe size at maximum hanger spacing: 2½" (may be increased to 6" with special truss design)

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10 **Trapeze with Hanger Rod—Top Chord**

Angle iron, pipe trapeze or other approved crosspiece per NFPA 13

On outside chords, ¾" x 3" lag screws into ¼" lead hole for 6" maximum pipe

Pipe size at maximum hanger spacing: 2½" (may be increased to 6" with special truss design)
**OPEN-WEB TRUSS SPRINKLER DETAILS**

**EQ1** For Loads Perpendicular To Open-Web Trusses Only

- Loads are based on the controlling connection to the truss.
- Loads include a 1.60 duration factor adjustment.

### Angle to Vertical (θ)

<table>
<thead>
<tr>
<th>θ</th>
<th>30°</th>
<th>45°</th>
<th>60°</th>
</tr>
</thead>
<tbody>
<tr>
<td>30°</td>
<td>675</td>
<td>1,170</td>
<td>2,030</td>
</tr>
</tbody>
</table>

**Allowable Horizontal Seismic Loads (lbs)**

- Loads are based on the controlling connection to the truss.
- The capacity of the brace fastener to the wood block may limit the capacity of the detail (see NFPA 13).
- Loads include a 1.60 duration factor adjustment.

---

**General Notes**

- May be attached to top or bottom chord.
- Minimum coach rod penetration is 3".
- Rods shall be centered in the chords; ± ¼" tolerance on double chord trusses.
- If installing through a gypsum board ceiling, increase the fastener length by the gypsum board thickness.

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**OPEN-WEB TRUSS SEISMIC DETAILS**

**Section A-A**

- Light gauge strap (similar to Simpson Strong-Tie™ LSTA24 strap). Install with three 8d (0.131" x 2½") or 10d (0.148" x 3") nails at the ends of the straps.
- 4x10 or 4x12 minimum hanger block. Support as shown with two ½" diameter machine bolts at each end.

### Allowable Horizontal Seismic Loads (lbs)

<table>
<thead>
<tr>
<th>Angle to Vertical (θ)</th>
<th>30°</th>
<th>45°</th>
<th>60°</th>
</tr>
</thead>
<tbody>
<tr>
<td>30°</td>
<td>305</td>
<td>390</td>
<td>430</td>
</tr>
</tbody>
</table>

---

**REd-m™**

- 1½" minimum
- ½" diameter machine bolt centered between trusses
- Swivel sway brace fitting
- Vertical 2x4 block notched at the bottom to clear webs

**Section A-A**

- Light gauge strap
- Flat block
- Vertical 2x4 block

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**REd-H™ TRUSSES, continued**

**11 Coach Screw into Chord**

- ⅜" coach rod per NFPA 13 into ⅝" lead hole
- May be attached to top or bottom chord.
- Minimum coach rod penetration is 3".
- Rods shall be centered in the chords; ± ¼" tolerance on double chord trusses.
- If installing through a gypsum board ceiling, increase the fastener length by the gypsum board thickness.

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**Maximum pipe size: 2" (may be increased to 2½" with special truss design)**
**RED-I™ JOIST DESCRIPTIONS**

12 **Surface-Mount Hanger with Double Fastener**

- Filler block, minimum 2x6 x 6" long, tight to top flange
- Four #10 x 1½" sheet metal screws

<table>
<thead>
<tr>
<th>Maximum Pipe Diameter</th>
<th>2&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filler Block Material</td>
<td>DF or SPF</td>
</tr>
</tbody>
</table>

Install per NFPA 13 and manufacturer's instructions.

13 **Surface-Mount Hanger with Single Fastener**

- Filler block, minimum 2x4 x 6" long
- Four #10 x 1½" sheet metal screws

<table>
<thead>
<tr>
<th>Maximum Pipe Diameter</th>
<th>2&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filler Block Material</td>
<td>DF or SPF</td>
</tr>
</tbody>
</table>

Install per NFPA 13 and manufacturer's instructions.

14 **Offset Hanger**

- Filler block, minimum 2x6 x 6" long
- Four #10 x 1½" sheet metal screws

<table>
<thead>
<tr>
<th>Maximum Pipe Diameter</th>
<th>2&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filler Block Material</td>
<td>DF or SPF</td>
</tr>
</tbody>
</table>

Install per NFPA 13 and manufacturer's instructions.

15 **Double Offset Hanger**

- Filler block, minimum 2x4 x 6" long
- Four #10 x 1½" sheet metal screws

<table>
<thead>
<tr>
<th>Maximum Pipe Diameter</th>
<th>1&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filler Block Material</td>
<td>DF or SPF</td>
</tr>
</tbody>
</table>

Install per NFPA 13 and manufacturer's instructions.

16 **Face-Mount Hanger**

- Minimum 2x6 hanger block, maximum 48" long. Bearing on flange is acceptable but not required.
- Four #10 x 2" sheet metal screws from each end or five 10d (0.148" x 3") nails from each end. Maintain ¼" minimum edge distance and stagger.

<table>
<thead>
<tr>
<th>Maximum Pipe Diameter</th>
<th>2&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filler Block Material</td>
<td>DF or SPF</td>
</tr>
</tbody>
</table>

Install per NFPA 13 and manufacturer's instructions.

17 **Hanger at Web Hole**

- Attachment hardware per NFPA 13
- Neatly cut hole in joist web per Allowable Holes information on page 11

<table>
<thead>
<tr>
<th>Maximum pipe diameter</th>
<th>2&quot;</th>
</tr>
</thead>
</table>

Install per NFPA 13 and manufacturer's instructions.

---

For load capacities, bearing details, and other information, contact your RedBuilt representative.

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**REd-I™ JOIST SPRINKLER DETAILS (CPVC PIPE)**

- 1½" x 1¾" RedLam™ LVL flanges with ½" OSB web
- 3⅛" width
- 9½", 117⅛", 14"–16" length

<table>
<thead>
<tr>
<th>Red-I45™</th>
<th>Red-I65™</th>
<th>Red-I90™</th>
<th>Red-I90H™</th>
</tr>
</thead>
<tbody>
<tr>
<td>1½&quot; x 1¾&quot;</td>
<td>1½&quot; (min.) x 2½&quot;</td>
<td>1½&quot; (min.) x 3½&quot;</td>
<td>2½&quot; x 3½&quot;</td>
</tr>
<tr>
<td>RedLam™ LVL flanges with</td>
<td>RedLam™ LVL flanges with</td>
<td>RedLam™ LVL flanges with</td>
<td>RedLam™ LVL flanges with</td>
</tr>
<tr>
<td>½&quot; OSB web</td>
<td>½&quot; OSB web</td>
<td>½&quot; OSB web</td>
<td>½&quot; OSB web</td>
</tr>
</tbody>
</table>

- For load capacities, bearing details, and other information, contact your RedBuilt representative.
18 Beam Clamp

Check flange and clamp dimensions for compatibility

Beam clamp. Certification of compliance to NFPA 13 to be provided by clamp manufacturer upon request.

3¼ diameter eye rod or L-rod

Maximum pipe size: 4”

20 Rod with Side Bolt

2x8 x 18” long minimum, resting on bottom flange

Machine bolt with washers; cinch tight

Hanger rod or support per NFPA 13

Minimum clearance

Section A-A

21 Rod with Side Bracket

Two ½” diameter machine bolts with washers; cinch tight

2x6 x 18” long block: Install on one side for 4” diameter maximum; both sides for 6” diameter maximum

Section A-A

22 U-Hook with Hanger Block

Two 16d (0.162” x 3½”) nails per end

2½” minimum (3” at mains)

4x, minimum hanger block

½” x 2¼” or ½” x 3” lag screw (two places)

U-hook per NFPA 13, center between joists

Maximum pipe size: 3½” with ¾” x 2¾” lag screw; 4” with ½” x 3” lag screw

23 U-Hook with Filler Block

2x6 x 18” long, resting on bottom flange

Two ½” diameter machine bolts with washers; cinch tight

U-hook per NFPA 13

Pipe size at maximum hanger spacing: 4”

24 Pipe Through Joist

Hole cut neatly in the web of Red-I™ joist according to hole tables on page 11

2x6 x 18” long, resting on bottom flange (see Section A-A inset)

Two ½” diameter machine bolts with washers; cinch tight

Inverted U-hook per NFPA 13; may be placed as shown or flat against web on the opposite side

Pipe size at maximum hanger spacing: 4” with block on one side; 6” with blocks on both sides.
25 Rod with Hanger and Filler Block

- 2x6 x 18’ long minimum, resting on bottom flange
- 4x, minimum hanger block as required. See Table A.
- Hanger rod or support per NFPA 13, center between joists
- Fastener as required. See Table A. Locate fastener approximately 1” from the top of the block.

Table A

<table>
<thead>
<tr>
<th>Distance Between Red-I™ Joists</th>
<th>Wood Hanger Block Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>32” or less</td>
<td>4x4</td>
</tr>
<tr>
<td>48’</td>
<td>4x6</td>
</tr>
<tr>
<td>96’</td>
<td>4x6</td>
</tr>
</tbody>
</table>

(1) For sprinkler main lines, wood hanger block size is 4x6 for 32’ or less spacing.

26 Pipe on Support Member

- 2x6 x 18’ long minimum, resting on bottom flange
- Two ¾” diameter machine bolts per joist with 1” washers; cinch tight
- Hanger rod or support per NFPA 13, center between joists
- Two 16d (0.162” x 3½”) nails per end

Table B

<table>
<thead>
<tr>
<th>Pipe Size</th>
<th>Fastener</th>
</tr>
</thead>
<tbody>
<tr>
<td>3”</td>
<td>½” x 3” lag</td>
</tr>
<tr>
<td>5”</td>
<td>½” machine bolt</td>
</tr>
<tr>
<td>6” (1)</td>
<td>¾” machine bolt</td>
</tr>
</tbody>
</table>

(1) Requires minimum No. 2 grade Douglas fir or southern pine hanger block.

Table B

<table>
<thead>
<tr>
<th>Distance Between Red-I™ Joists</th>
<th>Wood Hanger Block Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>32” or less</td>
<td>4x4</td>
</tr>
<tr>
<td>48’</td>
<td>4x6</td>
</tr>
<tr>
<td>96’</td>
<td>4x8</td>
</tr>
</tbody>
</table>

Pipe size at maximum hanger spacing: 6”

27 Ceiling Flange

- Screw penetration into web is allowed
- ½” maximum for flange widths ≥ 2”;
  ¼” maximum for flange widths < 2”
- Ceiling flange with two 5⁄16” x 1½” lag screws or #18 x 1½” screws
- Hanger rod or support per NFPA 13

Maximum pipe size: 2”

28 Rod with Steel Angle Trapeze

- ⅜” x 2” long lag screw (⅛” lead hole required)
- Steel angle trapeze per NFPA 13
- Hanger rod or support per NFPA 13, center between joists
- Pipe size at maximum hanger spacing is 4”. Center pipe support between joists.

29 Coach Screw Into Flange

- Screw penetration into web is allowed
- Minimum 2x6 x 18” long filler block
- Fasten block with two 10d (0.148” x 3”) nails, clinched
- ⅛” coach rod into ⅜” lead hole with 3” minimum penetration per NFPA 13

Maximum pipe size: 2”
For Loads Parallel or Perpendicular to Joists

**EQ3  Swivel Sway Brace (Parallel Loads Only)**

- Braces and fitting per NFPA 13. Attach to 2x_ block with ½" diameter bolt.

**Allowable Horizontal Seismic Loads (lbs)**

<table>
<thead>
<tr>
<th>Blocking Condition</th>
<th>Angle to Vertical (θ)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>30°</td>
</tr>
<tr>
<td>2x_ on one side</td>
<td>440</td>
</tr>
<tr>
<td>2x_ on both sides</td>
<td>730</td>
</tr>
</tbody>
</table>

- Loads are based on the controlling connection to the joist.
- Loads include a 1.60 duration factor adjustment.
- Loads may be increased when using Douglas fir blocking.
- Bolt threads must not start before passing through joist web.

**EQ4  Swivel Sway Brace with Filler Blocks**

- 2x6 x 12" filler block each side of Red-I™ web under top flange

**Allowable Horizontal Seismic Loads (lbs)**

<table>
<thead>
<tr>
<th>Angle to Vertical (θ)</th>
</tr>
</thead>
<tbody>
<tr>
<td>30°</td>
</tr>
<tr>
<td>555</td>
</tr>
</tbody>
</table>

- Loads are based on the controlling connection to the joist.
- Loads include a 1.60 duration factor adjustment.

**EQ5  Nailed Blocking Panel**

- Nail through joist webs to end of 4x_ with eight 10d (0.148" x 3") nails each side. Stagger if necessary to avoid splitting.
- 4x10 or 4x12 with notches cut to fit around joist flanges. Gap between 4x_ and joist flange to be ¼" maximum.

**Allowable Horizontal Seismic Loads (lbs)**

<table>
<thead>
<tr>
<th>Angle to Vertical (θ)</th>
</tr>
</thead>
<tbody>
<tr>
<td>30°</td>
</tr>
<tr>
<td>340(1)</td>
</tr>
</tbody>
</table>

(1) 400 if connection is centered on the 4x_.  
(2) 600 if connection is centered on the 4x_.

- Loads are based on the controlling connection to the joist.
- Loads may be increased when using Douglas fir blocking.
- Bolt threads must not start before passing through joist web.
- The capacity of the brace fastener to the wood block may limit the capacity of the detail (see NFPA 13).
- Loads include a 1.60 duration factor adjustment.

**EQ6  Blocking Panel in Hangers**

- Glue surfaces with elastomeric floor adhesive that meets ASTM D3498 (AFG-01) requirements. Follow manufacturer’s recommendations. Glued surfaces must be clean and dust free.
- For pipes that pass through joists, see the hole tables on page 11

**General Notes**

- For loads parallel to the joists, make attachment to the hanger block in the upper half of the block.
- Glue surfaces with elastomeric floor adhesive that meets ASTM D3498 (AFG-01) requirements. Follow manufacturer’s recommendations. Glued surfaces must be clean and dust free.
- Make attachment per NFPA 13 near the center of the 4x block. Fastener must be at least 7 diameters from the end of the block and 4 diameters from all other edges.
### RED-I JOIST ALLOWABLE HOLES

**General Notes**
- Tables are based on maximum allowable uniform loads. Bold italic cells indicate 2000 lb concentrated load spread over two joists has not been considered. Use RedSpec™ software or contact your RedBuilt technical representative if concentrated load check is required.
- Holes may be located vertically anywhere in the web. Leave $\frac{3}{4}$" of web (minimum) at top and bottom of hole. **DO NOT cut joist flanges.**
- **Do not cut holes in cantilever without consulting your RedBuilt representative.**
- Knockouts are located in web at approximately 12" on-center; they do not affect hole placement.
- **Interpolation between holes sizes shown in the tables is allowed.**

**WARNING:** Drilling, sawing, sanding or machining wood products generates wood dust, a substance known to the State of California to cause cancer.

**For other hole sizes, hole locations, or loads, use RedSpec™ software or contact your RedBuilt technical representative.**

### How to Use Tables A and B
1. Determine the hole shape and size. For rectangular holes, use the largest dimension. Sizes shown in the tables are hole sizes, not duct sizes.
2. Determine the Red-I™ joist series and depth.
3. Determine the type of support on each side of the hole. If the Red-I™ joist is continuous over a support, use both tables.
4. Find the table cell at the intersection of the Red-I™ joist and the hole.
5. The measurement shown is the minimum distance from the edge of the hole to the inside face of the support.
6. Maintain the minimum required distance from both supports.

### Tables A and B

**TABLE A: End Support or Simple Span**

<table>
<thead>
<tr>
<th>Joist Depth</th>
<th>Joist Series</th>
<th>Round Hole Size</th>
<th>Minimum distance from edge of hole to inside face of nearest support</th>
</tr>
</thead>
<tbody>
<tr>
<td>9½&quot;</td>
<td>145 / 145</td>
<td>1'-0&quot; 2'-0&quot; 4'-0&quot; 6'-0&quot; 8'-0&quot; 10'-0&quot; 12'-0&quot; 14'-0&quot; 16'-0&quot; 18'-0&quot; 20'-0&quot;</td>
<td>1'-0&quot; 2'-0&quot; 4'-0&quot; 6'-0&quot; 8'-0&quot; 10'-0&quot; 12'-0&quot; 14'-0&quot; 16'-0&quot; 18'-0&quot; 20'-0&quot;</td>
</tr>
<tr>
<td>I58 / I58H</td>
<td>1'-0&quot; 2'-0&quot; 4'-0&quot; 6'-0&quot; 8'-0&quot; 10'-0&quot; 12'-0&quot; 14'-0&quot; 16'-0&quot; 18'-0&quot; 20'-0&quot;</td>
<td>1'-0&quot; 2'-0&quot; 4'-0&quot; 6'-0&quot; 8'-0&quot; 10'-0&quot; 12'-0&quot; 14'-0&quot; 16'-0&quot; 18'-0&quot; 20'-0&quot;</td>
<td></td>
</tr>
<tr>
<td>190 / 190H</td>
<td>1'-0&quot; 2'-0&quot; 4'-0&quot; 6'-0&quot; 8'-0&quot; 10'-0&quot; 12'-0&quot; 14'-0&quot; 16'-0&quot; 18'-0&quot; 20'-0&quot;</td>
<td>1'-0&quot; 2'-0&quot; 4'-0&quot; 6'-0&quot; 8'-0&quot; 10'-0&quot; 12'-0&quot; 14'-0&quot; 16'-0&quot; 18'-0&quot; 20'-0&quot;</td>
<td></td>
</tr>
<tr>
<td>I90HS</td>
<td>2'-0&quot; 4'-0&quot; 6'-0&quot; 8'-0&quot; 10'-0&quot; 12'-0&quot; 14'-0&quot; 16'-0&quot; 18'-0&quot; 20'-0&quot;</td>
<td>2'-0&quot; 4'-0&quot; 6'-0&quot; 8'-0&quot; 10'-0&quot; 12'-0&quot; 14'-0&quot; 16'-0&quot; 18'-0&quot; 20'-0&quot;</td>
<td></td>
</tr>
</tbody>
</table>

### TABLE B: Intermediate or Cantilever Support

<table>
<thead>
<tr>
<th>Joist Depth</th>
<th>Joist Series</th>
<th>Round Hole Size</th>
<th>Minimum distance from edge of hole to inside face of nearest intermediate or cantilever support</th>
</tr>
</thead>
<tbody>
<tr>
<td>9½&quot;</td>
<td>145 / 145</td>
<td>1'-0&quot; 2'-0&quot; 4'-0&quot; 6'-0&quot; 8'-0&quot; 10'-0&quot; 12'-0&quot; 14'-0&quot; 16'-0&quot; 18'-0&quot; 20'-0&quot;</td>
<td>1'-0&quot; 2'-0&quot; 4'-0&quot; 6'-0&quot; 8'-0&quot; 10'-0&quot; 12'-0&quot; 14'-0&quot; 16'-0&quot; 18'-0&quot; 20'-0&quot;</td>
</tr>
<tr>
<td>I58 / I58H</td>
<td>1'-0&quot; 2'-0&quot; 4'-0&quot; 6'-0&quot; 8'-0&quot; 10'-0&quot; 12'-0&quot; 14'-0&quot; 16'-0&quot; 18'-0&quot; 20'-0&quot;</td>
<td>1'-0&quot; 2'-0&quot; 4'-0&quot; 6'-0&quot; 8'-0&quot; 10'-0&quot; 12'-0&quot; 14'-0&quot; 16'-0&quot; 18'-0&quot; 20'-0&quot;</td>
<td></td>
</tr>
<tr>
<td>190 / 190H</td>
<td>1'-0&quot; 2'-0&quot; 4'-0&quot; 6'-0&quot; 8'-0&quot; 10'-0&quot; 12'-0&quot; 14'-0&quot; 16'-0&quot; 18'-0&quot; 20'-0&quot;</td>
<td>1'-0&quot; 2'-0&quot; 4'-0&quot; 6'-0&quot; 8'-0&quot; 10'-0&quot; 12'-0&quot; 14'-0&quot; 16'-0&quot; 18'-0&quot; 20'-0&quot;</td>
<td></td>
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<tr>
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<td>2'-0&quot; 4'-0&quot; 6'-0&quot; 8'-0&quot; 10'-0&quot; 12'-0&quot; 14'-0&quot; 16'-0&quot; 18'-0&quot; 20'-0&quot;</td>
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<td></td>
</tr>
</tbody>
</table>

**Rules for Table A:**
- Grouped holes are permitted if group perimeter meets the requirements for round or square holes.
- Minimum distance from edge of hole to inside face of nearest support.
- Minimum distance from edge of hole to inside face of nearest intermediate or cantilever support.

**Rules for Table B:**
- Grouped holes are permitted if group perimeter meets the requirements for round or square holes.
- Minimum distance from edge of hole to inside face of nearest intermediate or cantilever support.

**Minimum Distance from Edge of Hole to Inside Face of Nearest Support**
- Do not cut holes in cantilever without consulting your RedBuilt representative.
- **Do not cut holes larger than 1½” in cantilever.**

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1. Determine the hole shape and size. For rectangular holes, use the largest dimension. Sizes shown in the tables are hole sizes, not duct sizes.
2. Determine the Red-I™ joist series and depth.
3. Determine the type of support on each side of the hole. If the Red-I™ joist is continuous over a support, use both tables.
4. Find the table cell at the intersection of the Red-I™ joist and the hole.
5. The measurement shown is the minimum distance from the edge of the hole to the inside face of the support.
6. Maintain the minimum required distance from both supports.
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