Engineered Wood Products

CONSTRUCTION DETAILS

NORDIC JOIST
Nordic Structures is the leading innovator in engineered wood products. Its resource comes from responsibly managed lands within the regional boreal forest. Vertical integration, from forest to structure, bolstered by Nordic’s experienced design and development team, ensures consistent quality and unparalleled level of service.
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TYPICAL FLOOR FRAMING AND CONSTRUCTION DETAILS

WEB STIFFENERS AND CANTILEVERS

OPENINGS AND RIM BOARDS

SPRINKLER PIPE INSTALLATION

TYPICAL ROOF FRAMING AND CONSTRUCTION DETAILS
1.0 General

1.1 This document supersedes all previous versions. For the latest version, consult nordic.ca or contact Nordic Structures.

1.2 While this guide emphasizes residential construction, much of the basic design information can be used for other construction applications. Review by a design professional is required for applications beyond the scope of this document.

1.3 Refer to the Nordic Joist Technical Guide (NS-GT3) for the maximum spans, or to the floor or roof layout provided by your distributor.

1.4 For more information, consult nordic.ca or contact Nordic Structures.

2.0 Fire Resistance

2.1 Numerous fire-rated assemblies incorporate I-joists and wood structural panels. These floor-ceiling and roof-ceiling assemblies, recognized as fire-rated constructions by building codes, are illustrated in the APA Product Report PR-S274, Fire-Rated Assemblies.

2.2 A rim board can also serve as a fire barrier when it is installed in a continuous assembly on top of a wall, parallel or perpendicular to the joists. Fire-resistant rim board assemblies are shown in the APA Data File: APA Rim Board in Fire-Rated Assemblies, Form D350.

2.3 In some designs, sprinkler systems are used with I-joists. There are a variety of sprinkler attachments that incorporate fasteners permitted by the National Fire Protection Association (NFPA), design load assumptions published by the NFPA, and published design fastener capacities. These sprinkler attachments are illustrated in details 9.
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NORDIC I-JOISTS

Nordic I-joists are composed of sawn lumber flanges connected by a structural oriented strand board and bonded together with exterior-grade adhesives.

Check availability of products with your local distributor.
Notes:
2. For APA Rim Board Plus specifications, see ANSI/APA PRR 410, Standard for Performance-rated Engineered Wood Rim Boards.
**Nailed to Only One Flange Edge (Top View)**

- Closest nail spacing

**Nailed to Both Flange Edges (Top View)**

- Closest nail spacing
- 1/2 offset spacing

### Recommended Closest Nail Spacing for Fastening Sheathing to I-joist Flanges to Minimize Splitting

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<td>0.128” or smaller in diameter, and 3-1/4” or shorter in length</td>
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<tr>
<td>Greater than 0.128” up to 0.148” in diameter, and 3-1/4” or shorter in length</td>
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\(^{(a)}\) If more than one row is required, offset rows a minimum of 1/2 inch and stagger.

\(^{(b)}\) Closest nail spacing measured from one flange edge. Nails on opposite flange edge must be offset one-half the minimum spacing.
TYPICAL FLOOR FRAMING AND CONSTRUCTION DETAILS
Floor Systems

1. Installation of Nordic I-joists shall be as shown in details 1.
2. Except for cutting to length, I-joist flanges should never be cut, drilled or notched.
3. Install I-joists so that top and bottom flanges are within 1/2 inch of true vertical alignment.
4. Concentrated loads should only be applied to the top surface of the top flange. Concentrated loads should not be suspended from the bottom flange with the exception of light loads, such as ceiling fans or light fixtures.
5. I-joists must be protected from the weather prior to installation.
6. I-joists must not be used in applications where they will be permanently exposed to weather, or will reach a moisture content of 15 percent or greater, such as in swimming pool or hot tub areas. They must not be installed where they will remain in direct contact with concrete or masonry.
7. End bearing length must be at least 1-3/4 inch. For multiple-span joists, intermediate bearing length must be at least 3-1/2 inches.
8. Ends of floor joists shall be restrained to prevent rollover. Use rim board or I-joist blocking panels.
9. I-joists installed beneath bearing walls perpendicular to the joists shall have full-depth blocking panels, rim board, or squash blocks (cripple blocks) to transfer gravity loads from above the floor system to the wall or foundation below.
10. For I-joists installed directly beneath bearing walls parallel to the joists or used as rim board or blocking panels, the maximum vertical load using a single I-joist is 3,300 plf, and 6,600 plf if double I-joists are used.
11. Continuous lateral support of the I-joist’s compression flange is required to prevent rotation and buckling. In simple span uses, lateral support of the top flange is normally supplied by the floor sheathing. In multiple-span or cantilever applications, bracing of the I-joist’s bottom flange is also required at interior supports of multiple-span joists, and at the end support next to the cantilever extension. The ends of all cantilever extensions must be laterally braced as shown in details 3, 4, or 5.
12. Nails installed in flange face or edge shall be spaced in accordance with the applicable building code requirements or approved building plans, but should not be closer than those specified on page viii.
13. Details 1 on the following pages show only I-joist-specific fastener requirements. For other fastener requirements, see the applicable building code.
14. For proper temporary bracing of wood I-joists and placement of temporary construction loads, see APA Technical Note: Temporary Construction Loads over 1-Joist Roofs and Floors, Form J735.
Holes may be cut in web for plumbing, wiring and duct work. See details and tables 6. Note: Never cut or notch flanges.

Nordic Lam or Structural Composite Lumber (SCL)

Use hangers recognized in current CCMC evaluation reports

Note:
1. Some framing requirements such as erection bracing and blocking panels have been omitted for clarity.
Attach I-joist to top plate per detail 1b

Nordic I-joist blocking panel

2-1/2" nails at 6" o.c. to top plate (when used for lateral shear transfer, nail to bearing plate with same nailing as required for floor sheathing)

<table>
<thead>
<tr>
<th>Blocking panel and/or rim joist</th>
<th>Maximum factored uniform vertical load (plf)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nordic I-joists</td>
<td>3,300</td>
</tr>
</tbody>
</table>

(a) The uniform vertical load transfer resistance is limited to a depth of 16 inches or less and is based on standard term load duration. It shall not be used in the design of a bending member, such as joist, header, or rafter. For concentrated vertical load transfer resistance, see detail 1d.
Attach rim board to top plate using 2-1/2" toe-nails at 6" o.c.

One 2-1/2" face nail at each side at bearing

One 2-1/2" nail at top and bottom flange

Rim board

**Note:**
1. To avoid splitting flange, start nails at least 1-1/2 inch from end of joist. Nails may be driven at an angle to avoid splitting of bearing plate.

---

**Blocking panel and/or rim joist**

<table>
<thead>
<tr>
<th>Maximum uniform vertical load transfer (pft) (^{(a)})</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-1/8&quot; APA Rim Board Plus</td>
</tr>
<tr>
<td>8,090</td>
</tr>
</tbody>
</table>

\(^{(a)}\) The uniform vertical load transfer resistance is limited to a depth of 16 inches or less and is based on standard term load duration. It shall not be used in the design of a bending member, such as joist, header, or rafter. For concentrated vertical load transfer resistance, see detail 1d.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
Note:
1. To avoid splitting flange, start nails at least 1-1/2 inch from end of I-joist. Nails may be driven at an angle to avoid splitting of bearing plate.

Maximum uniform vertical load transfer (plf) \(^{(a)}\)

<table>
<thead>
<tr>
<th>Blocking panel and/or rim joist</th>
<th>Maximum uniform vertical load transfer (plf) (^{(a)})</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-1/8&quot; APA Rim Board Plus</td>
<td>8,090</td>
</tr>
<tr>
<td>Nordic I-joists</td>
<td>3,300</td>
</tr>
</tbody>
</table>

\(^{(a)}\) The uniform vertical load transfer resistance is limited to a depth of 16 inches or less and is based on standard term load duration. It shall not be used in the design of a bending member, such as joist, header, or rafter. For concentrated vertical load transfer resistance, see detail 1d.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
Attach I-joist per detail 1b

Attach rim joist to floor joist with one nail at top and bottom. Nail must provide 1” minimum penetration into floor joist. Toe-nails may be used.

Minimum 1-3/4” bearing required

Attach rim joist to top plate per detail 1a

Nordic rim joist per detail 1a

<table>
<thead>
<tr>
<th>Blocking panel and/or rim joist</th>
<th>Maximum uniform vertical load transfer (plf) (a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nordic I-joists</td>
<td>3,300</td>
</tr>
</tbody>
</table>

(a) The uniform vertical load transfer resistance is limited to a depth of 16 inches or less and is based on standard term load duration. It shall not be used in the design of a bending member, such as joist, header, or rafter. For concentrated vertical load transfer resistance, see detail 1d.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
Squash block, 1/16" longer than the I-joist depth

Attach squash block to top and bottom flange with one 2-1/2" nail at each location

Maximum vertical load transfer (lbf)

<table>
<thead>
<tr>
<th>Pair of squash blocks</th>
<th>Maximum vertical load transfer (lbf)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3-1/2&quot; wide</td>
</tr>
<tr>
<td>2x lumber</td>
<td>5,800</td>
</tr>
<tr>
<td>1-1/8&quot; APA Rim Board Plus</td>
<td>4,500</td>
</tr>
</tbody>
</table>

(a) The squash blocks are assumed to be in full bearing on the plate below.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
Transfer load from above to bearing below. Install squash blocks per detail 1d. Match bearing area of blocks below to post above. Stagger nails to avoid splitting.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
The uniform vertical load transfer resistance is limited to a depth of 16 inches or less and is based on standard term load duration. It shall not be used in the design of a bending member, such as joist, header, or rafter. For concentrated vertical load transfer resistance, see detail 1d.

Note:
1. Rim board may be used in lieu of I-joists. Backer is not required when rim board is used.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
Attach I-joists to top plate using 2-1/2" nails at 6" o.c.

Provide backer for siding attachment unless nailable sheathing is used

Blocking panels may be required per detail 1s-1

Wall sheathing, as required

<table>
<thead>
<tr>
<th>Blocking panel and/or rim joist</th>
<th>Maximum uniform vertical load transfer (plf) (^{(a)})</th>
</tr>
</thead>
<tbody>
<tr>
<td>Double Nordic I-joists</td>
<td>6,600</td>
</tr>
</tbody>
</table>

\(^{(a)}\) The uniform vertical load transfer resistance is limited to a depth of 16 inches or less and is based on standard term load duration. It shall not be used in the design of a bending member, such as joist, header, or rafter. For concentrated vertical load transfer resistance, see detail 1d.

Note:
1. Rim board may be used in lieu of I-joists. Backer is not required when rim board is used.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
Blocking panels may be required per detail 1s-1

Rim board

One 2-1/2" nail at 12" o.c. at top and bottom flange

Attach rim board to top plate using 2-1/2" toe-nails at 6" o.c.

Nordic I-joist

2-1/2" nails at 6" o.c. to top plate (when used for lateral shear transfer, nail to bearing plate with same nailing as required for decking)

<table>
<thead>
<tr>
<th>Blocking panel and/or rim joist</th>
<th>Maximum uniform vertical load transfer (plf) (a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-1/8&quot; APA Rim Board Plus</td>
<td>8,090</td>
</tr>
<tr>
<td>Nordic I-joists</td>
<td>3,300</td>
</tr>
<tr>
<td>Both products</td>
<td>11,390</td>
</tr>
</tbody>
</table>

(a) The uniform vertical load transfer resistance is limited to a depth of 16 inches or less and is based on standard term load duration. It shall not be used in the design of a bending member, such as joist, header, or rafter. For concentrated vertical load transfer resistance, see detail 1d.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
Blocking panels may be required per detail 1s-1

Rim board, braced with blocking panel at 24” o.c. minimum

Attach rim board to top plate using 2-1/2” toe-nails at 6” o.c.

<table>
<thead>
<tr>
<th>Blocking panel and/or rim joist</th>
<th>Maximum uniform vertical load transfer (plf) (a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-1/8” APA Rim Board Plus</td>
<td>8,090</td>
</tr>
</tbody>
</table>

(a) The uniform vertical load transfer resistance is limited to a depth of 16 inches or less and is based on standard term load duration. It shall not be used in the design of a bending member, such as joist, header, or rafter. For concentrated vertical load transfer resistance, see detail 1d.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.

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**NORDIC STRUCTURES**

**nordic.ca**

**TITLE**

Starter Joist - Rim Board

**DRAWING**

1f-4

**CATEGORY**

Typical Floor Framing and Construction Details

**SCALE**

- 

**DATE**

2020-10-01

**PAGE**

1.11
Maximum uniform vertical load transfer (plf) (a)

<table>
<thead>
<tr>
<th>Blocking panel and/or rim joist</th>
<th>Maximum uniform vertical load transfer (plf) (a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 x 1-1/8&quot; APA Rim Board Plus</td>
<td>16,180</td>
</tr>
</tbody>
</table>

(a) The uniform vertical load transfer resistance is limited to a depth of 16 inches or less and is based on standard term load duration. It shall not be used in the design of a bending member, such as joist, header, or rafter. For concentrated vertical load transfer resistance, see detail 1d.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
Blocking panels may be required per detail 1s-1

2x4 pony wall by others. Attach pony wall to top plate using 3-1/4" nails at 6" o.c.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
Blocking panel required over all interior supports under load-bearing walls or when floor joists are not continuous over support. The NBC requires blocking at load-bearing and non-load-bearing walls constructed with required braced wall panels (shearwalls).

Notes:
1. An occasional blocking panel (one per line of blocking) may be left out for the passage of plumbing or ventilation ducts. For other applications, contact Nordic Structures.
2. For other options, see details 1g-1 to 1g-5.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
Notes:
1. This detail only applies to continuous I-joists without load-bearing wall above.
2. The NBC requires blocking per detail 1g at load-bearing and non-load-bearing walls constructed with required braced wall panels (shearwalls).

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
Load-bearing wall above shall align vertically with the wall below. Other conditions, such as offset bearing walls, are not covered by this detail.

**Note:**

1. An occasional blocking panel (one per line of blocking) may be left out for the passage of plumbing or ventilation ducts. For other applications, contact Nordic Structures.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
**Note:**

1. An occasional blocking panel (one per line of blocking) may be left out for the passage of plumbing or ventilation ducts. For other applications, contact Nordic Structures.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
Notes:
1. An occasional blocking panel (one per line of blocking) may be left out for the passage of plumbing or ventilation ducts. For other applications, contact Nordic Structures.
2. Joist spacing may vary from one side to the other. If the space between the joists is less than 3 inches, the blocking panel may be omitted.
Load-bearing wall above shall align vertically with the wall below. Other conditions, such as offset bearing walls, are not covered by this detail.

Squash block per detail 1d

Joist attachment per detail 1b

Note:
1. The NBC requires blocking per detail 1g at load-bearing and non-load-bearing walls constructed with required braced wall panels (shearwalls).

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
Use backer block if hanger load exceeds 360 lbf. Before installing a backer block to a double I-joist, drive three additional 3" nails through the webs and filler block where the backer block will fit. Clinch. Install backer block tight to top flange. Use twelve 3" nails, clinched when possible. Maximum resistance for hanger for this detail = 1,620 lbf.

Notes:
1. Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.
2. For hanger resistance, see manufacturer's recommendations.
3. Verify double I-joist resistance to support concentrated loads.
4. Backer blocks must be long enough to permit required nailing without splitting.

<table>
<thead>
<tr>
<th>Flange width (in.)</th>
<th>Material thickness required (in.) (a)</th>
<th>Minimum depth (in.) (b)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-1/2</td>
<td>1</td>
<td>5-1/2</td>
</tr>
<tr>
<td>3-1/2</td>
<td>1-1/2</td>
<td>7-1/4</td>
</tr>
</tbody>
</table>

(a) Minimum grade for backer block material shall be S-P-F No. 2 or better for solid sawn lumber and wood structural panels conforming to CAN/CSA-O325 Standard.
(b) For face-mount hangers use net joist depth minus 3-1/4 inches for joists with 1-1/2-inch-thick flanges.
Notes:
1. Support back of I-joist web during nailing to prevent damage to web/flange connection.
2. Leave a 1/8-inch- to 1/4-inch-gap between top of filler block and bottom of top I-joist flange.
3. Nail joists together according to the pattern shown in the table above, and clinch nails when possible.
4. Filler blocks and backer blocks must be Grade S-P-F No. 3/Stud or better for sawn lumber and conforming to CAN/CSA-O325 for structural panels.
5. For face-mount hangers, use joist depth minus 3-1/4 inches.
6. Unless hanger sides laterally support the top flange, bearing stiffeners shall be used. For hanger resistance, see manufacturer's recommendations.
7. Verify double I-joist resistance to support concentrated load.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
Notes:
1. Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.
2. For nailing schedules for multiple Nordic Lam or SCL beams, see the manufacturer's recommendations.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
Note:
1. For nailing schedules for multiple beams, see the manufacturer's recommendations.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
Top-mount hanger installed per manufacturer's recommendations

Note:
1. Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
Face-mount hanger installed per manufacturer's recommendations

Wood support attached to steel beam

2x plate flush with inside face of wall or beam.
1/8" overhang allowed past inside face of wall or beam.

Note:
1. Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.
Note:
1. End of floor joists shall be restrained using blocking panels installed at a maximum of 6 inches from end of I-joists. Attach with one 2-1/2-inch toe-nail on each side of top and bottom flanges.
Do not bevel-cut I-joist beyond 1/4" of steel beam. Minimum 1-3/4" bearing. The joists shall be securely fastened to steel beam.

Continuous 1x4 strapping attached with two 2" nails to each joist, and fastened at each end to a sill or header.

Note:
1. End of floor joists shall be restrained using blocking panels installed at a maximum of 6 inches from end of I-joists. Attach with one 2-1/2-inch toe-nail on each side of top and bottom flanges.
Multiple I-joist header with full depth filler block shown. Nordic Lam or SCL headers may also be used. Verify header resistance to support concentrated loads.

Backer block per detail 1h

Filler block per detail 1p

Install hanger per manufacturer’s recommendations

Note:
1. See detail 1h for maximum support resistance.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
Note:
1. Blocking required at bearing for lateral support, not shown for clarity.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
Do not bevel-cut I-joist beyond inside face of wall

Do not grout solid; provide clearance between grout and joist.

Minimum 1-3/4” bearing required

**Note:**
1. End of floor joists shall be restrained using blocking panels installed at a maximum of 6 inches from end of I-joists. Attach with one 2-1/2-inch toe-nail on each side of top and bottom flanges.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.

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**Typical Floor Framing and Construction Details**

**Title:** Bevel-cut I-joist for a Fire Wall

**Category:** NS-DC3

**Drawing:** 1n-1

**Scale:** -

**Date:** 2020-10-01

**Page:** 1.30
Notes:
1. Blocking required at bearing for lateral support, not shown for clarity.
2. This detail applies to roofs with a slope of 6:12 or greater. For a roof slope less than 6:12, contact your local distributor.
3. This detail is intended to reinforce the I-joist end and not to transfer thrust loads at the rafter heel. The applicability of this detail is based on the joist reaction at the support.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
Notes:
1. Support back of I-joist web during nailing to prevent damage to web/flange connection.
2. Leave a 1/8-inch to 1/4-inch gap between top of filler block and bottom of top I-joist flange.
3. Filler block is required between joists for full length of span.
4. For flange width of 2-1/2 inches, nail joists together with two rows of 3-inch nails at 12 inches o.c. (clinched when possible) on each side of the double I-joist (total of four nails per foot). For flange width of 3-1/2 inches, use two rows of 3-inch nails at 6 inches o.c. on each side of the double I-joist (total of eight nails per foot).
5. The maximum factored load that may be applied to one side of the double I-joist using this detail is 860 lbf/ft.

Note:
1. The height of the filler block may be different from that specified in the table, as long as it allows nailing and respects the required gap.

<table>
<thead>
<tr>
<th>Flange width (in.)</th>
<th>Net depth (in.)</th>
<th>Filler block size (in.)</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-1/2</td>
<td>9-1/2</td>
<td>2-1/8 to 2-1/4 x 6</td>
<td>2x6 + 5/8&quot; or 3/4&quot; sheathing</td>
</tr>
<tr>
<td></td>
<td>11-7/8</td>
<td>2-1/8 to 2-1/4 x 8</td>
<td>2x8 + 5/8&quot; or 3/4&quot; sheathing</td>
</tr>
<tr>
<td></td>
<td>14</td>
<td>2-1/8 to 2-1/4 x 10</td>
<td>2x10 + 5/8&quot; or 3/4&quot; sheathing</td>
</tr>
<tr>
<td></td>
<td>16</td>
<td>2-1/8 to 2-1/4 x 12</td>
<td>2x12 + 5/8&quot; or 3/4&quot; sheathing</td>
</tr>
<tr>
<td>3-1/2</td>
<td>9-1/2</td>
<td>3 x 6</td>
<td>2 x 2x6</td>
</tr>
<tr>
<td></td>
<td>11-7/8</td>
<td>3 x 8</td>
<td>2 x 2x8</td>
</tr>
<tr>
<td></td>
<td>14</td>
<td>3 x 10</td>
<td>2 x 2x10</td>
</tr>
<tr>
<td></td>
<td>16</td>
<td>3 x 12</td>
<td>2 x 2x12</td>
</tr>
</tbody>
</table>

Filler Block Requirements for Double I-joist Construction

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All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
Notes:
1. This detail only applies to double I-joists uniformly loaded on top and equally on both joists, and when the top flanges of both I-joists are continuously laterally supported by connection to the sheathing. For other conditions, such as side-loaded I-joists, refer to detail 1p.
2. Attach floor sheathing to each joist. No filler block is required.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
Notes:
1. This detail may be used to reduce floor vibration.
2. Blocking panels may be of any I-joist series. Nails attaching lumber piece to I-joist web should be driven from the web side and clinched on the lumber side.
3. One occasional blocking panel may be left out for the passage of plumbing or ventilation ducts. Otherwise, a hole of not more than 2/3 of the lesser dimension of the blocking depth or length may be drilled in the blocking panel.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
Continuous 1x4 strapping under blocking panels, attach with two 2” nails to each blocking panel and each I-joist, and fasten at each end to the rim joist or sill plate.

Notes:
1. This detail may be used to reduce floor vibration.
2. Blocking panels may be of any I-joist series. Nails attaching lumber piece to I-joist web should be driven from the web side and clinched on the lumber side.
3. One occasional blocking panel may be left out for the passage of ventilation ducts. Otherwise, a hole of not more than 2/3 of the lesser dimension of the blocking’s depth or length may be drilled in the blocking panel.
4. For better performance, glue strapping to blocking panels and I-joists with construction adhesive.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
Notes:
1. This detail may be used to reduce floor vibration.
2. Blocking panels may be of any I-joist series. Nails attaching lumber piece to I-joist web should be driven from the web side and clinched on the lumber side.
3. One occasional blocking panel may be left out for the passage of ventilation ducts. Otherwise, a hole of not more than 2/3 of the lesser dimension of the blocking’s depth or length may be drilled in the blocking panel.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
Continuous 1x4 strapping under blocking panels, attach with two 2" nails to each blocking panel and each I-joist, and fasten at each end to the rim joist or sill plate.

Two 2-1/2" nails from blocking panel web to lumber piece

Two 2-1/2" nails from joist web to lumber piece

Blocking panel installed at mid-span (the middle of the two rows centred at mid-span)

Continuous 1x4 strapping under blocking panels, attach with two 2" nails to each blocking panel and each I-joist, and fasten at each end to the rim joist or sill plate.

Notes:
1. This detail may be used to reduce floor vibration. Blocking panels must be installed at joist mid-span.
2. Blocking panels may be of any I-joist series. Nails attaching lumber piece to I-joist web should be driven from the web side and clinched on the lumber side.
3. For better performance, glue strappings to blocking panels and I-joists with construction adhesive.
4. A gypsum ceiling directly attached to I-joists can replace strappings.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
Notes:

1. In some local codes, blocking panels are prescriptively required in the first joist space (or first and second joist spaces) next to the starter joist. Where required, see local code requirements for spacing of the blocking panels. As a minimum, it is recommended to use blocking panels spaced at 4 feet on centre.

2. Details shown are for minimum blocking attachment. Transfer of lateral loads may require additional fasteners. In such cases, nail size, spacing and specific design detailing shall be provided by the building designer.

3. Where blocking panels are required between adjacent joists, the blocking panels can be staggered by approximately 3 inches, and end-nailed as shown.

4. Nails attaching lumber piece to I-joist web should be driven from the web side and clinched on the lumber side.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
Notes:
1. Non-load-bearing partitions may be parallel or perpendicular to joists and positioned anywhere on the structural panel floor. Check the validity of this detail with the applicable building code.
2. The effect of the additional load on joist spans must be checked. Unless joists are already over-designed, additional joists may be required.
3. The sheathing panel shall be oriented so that its strength axis runs perpendicular to the joists.
4. For best performance, glue the bottom plate to wood structural panel with construction adhesive.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
Notes:
1. Non-load-bearing partitions may be parallel or perpendicular to joists and positioned anywhere on the structural panel floor.
2. The effect of the additional load on joist spans must be checked. Unless joists are already over-designed, additional joists may be required.
3. The sheathing panel shall be oriented so that its strength axis runs perpendicular to the joists.
4. For best performance, glue the bottom plate to wood structural panel with construction adhesive.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
WEB STIFFENERS AND CANTILEVERS
Four 2-1/2" nails, 3" nails required for I-joists with 3-1/2" flange width.

**Stiffener Size Requirements**

<table>
<thead>
<tr>
<th>Flange width (in.)</th>
<th>Web stiffener size each side of web (in.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-1/2</td>
<td>1 x 2-5/16 Minimum width</td>
</tr>
<tr>
<td>3-1/2</td>
<td>1-1/2 x 2-5/16 Minimum width</td>
</tr>
</tbody>
</table>

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
Cantilever extension supporting uniform floor loads only

Attach I-joists to plate at all supports per detail 1b

Nordic I-joist or rim board

Rim board or wood structural panel

3-1/2" minimum bearing required

L/4, 4'-0" maximum where L is joist span

L/4, 4'-0" maximum where L is joist span

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.

---

**I-joist Cantilever Detail for Interior Balconies**

**Cantilever Details for Balconies**

**NS-DC3**

**SCALE**

**DATE**

2020-10-01

**PAGE**

2.2
Notes:
1. The balcony shall be detailed in accordance with the applicable building code requirements. Consult with project’s design professional of record.
2. Impervious moisture barrier systems, if required, shall be detailed, installed, and inspected in accordance with the applicable building code requirements.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
Notes:
1. Cantilevered joists must be properly sized to support all design loads. Refer to table 4.1 of the Nordic Joist Technical Guide (NS-GT3).
2. Blocking is required along the cantilever support.
3. Refer to detail 6c for holes in lateral-restraint-only blocking panels.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.

NS-DC3
DETAILS
NORDIC JOIST
4a
2020-10-01
2.4
Cantilever - No Sheathing Reinforcement
Cantilever Details for Vertical Building Offset
nordic.ca
Notes:
1. Wood structural panel with a minimum thickness of 23/32 inch (for OSB, panel mark 48/24) required on one side of joist. Depth shall match the full height of the joist. Nail with 2-1/2-inch nails at 6 inches o.c., top and bottom flange. Install with face grain horizontal. Attach I-joist to plate at all supports per detail 1b.
2. Cantilevered joists must be properly sized to support all design loads. Refer to table 4.1 of the Nordic Joist Technical Guide (NS-GT3).
3. Blocking is required along the cantilever support.
4. Refer to detail 6c for holes in lateral-restraint-only blocking panels.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
Notes:
1. Wood structural panel with a minimum thickness of 23/32 inch (for OSB, panel mark 48/24) required on both sides of joist. Depth shall match the full height of the joist. Nail with 2-1/2-inch nails at 6 inches o.c., top and bottom flange, offset on opposite side. Install with face grain horizontal. Attach I-joist to plate at all supports per detail 1b.
2. Cantilevered joists must be properly sized to support all design loads. Refer to table 4.1 of the Nordic Joist Technical Guide (NS-GT3).
3. Blocking is required along the cantilever support.
4. Refer to detail 6c for holes in lateral-restraint-only blocking panels.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
Double joist assembly per detail 1p

Nordic I-joist blocking panel or rim board blocking, attach per detail 1g

Rim board or wood structural panel closure (23/32" minimum thickness), attach per detail 1b

Attach I-joists to top plate at all supports per detail 1b, 3-1/2" minimum bearing required

Block I-joists together with filler blocks for the full length of the reinforcement

**Notes:**
1. Cantilevered joists must be properly sized to support all design loads. Refer to table 4.1 of the Nordic Joist Technical Guide (NS-GT3).
2. Blocking is required along the cantilever support.
3. Refer to detail 6c for holes in lateral-restraint-only blocking panels.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
Notes:
1. The above detail is applicable only to single family residential construction, and when the cantilever is loaded by uniform floor loads only (i.e. wall is not load-bearing).
2. Cantilevered joists must be properly sized to support design loads. Refer to table 4.1 of the Nordic Joist Technical Guide (NS-GT3).
3. Blocking over bearing wall must be provided at all areas of wall bracing (at end of walls and at least every 25'-0" of wall length).
4. This detail is adequate for l-joist lateral stability. Additional lateral resistance may be required in high wind and/or seismic load areas. In such cases, specific design detailing shall be provided by the building designer.
5. During erection, provide temporary blocking over bearing wall in order to prevent rollover of floor joists.

Caution
Cantilevers formed this way must be carefully detailed to prevent moisture intrusion into the structure and potential decay of untreated l-joist extensions.
Notes:
1. Cantilevered joists must be properly sized to support all design loads. Refer to table 5.1 of the Nordic Joist Technical Guide (NS-GT3).
2. Blocking is required along the cantilever support.
3. Refer to detail 6c for holes in lateral-restraint-only blocking panels.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
Notes:
1. Wood structural panel with a minimum thickness of 23/32 inch (for OSB, panel mark 48/24) required on one side of joist. Depth shall match the full height of the joist. Nail with 2-1/2-inch nails at 6 inches o.c., top and bottom flange. Install with face grain horizontal. Attach I-joist to plate at all supports per detail 1b.
2. Cantilevered joists must be properly sized to support all design loads. Refer to table 5.1 of the Nordic Joist Technical Guide (NS-GT3).
3. Blocking is required along the cantilever support.
4. Refer to detail 6c for holes in lateral-restraint-only blocking panels.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
Notes:
1. Wood structural panel with a minimum thickness of 23/32 inch (for OSB, panel mark 48/24) required on both sides of joist. Depth shall match the full height of the joist. Nail with 2-1/2-inch nails at 6 inches o.c., top and bottom flange, offset on opposite side. Install with face grain horizontal. Attach I-joist to plate at all supports per detail 1b.
2. Cantilevered joists must be properly sized to support all design loads. Refer to table 5.1 of the Nordic Joist Technical Guide (NS-GT3).
3. Blocking is required along the cantilever support.
4. Refer to detail 6c for holes in lateral-restraint-only blocking panels.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
Notes:
1. Cantilevered joists must be properly sized to support all design loads. Refer to table 5.1 of the Nordic Joist Technical Guide (NS-GT3).
2. Blocking is required along the cantilever support.
3. Refer to detail 6c for holes in lateral-restraint-only blocking panels.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
Joist attached to supporting wall:
- two 2-1/2" face nails - I-joist framing (fastening not shown for clarity)

3-1/2" nails at 6" o.c. at braced wall panels or 3-1/2" nails at 16" o.c. for other wall panels

2x8 blocking between each joist. Fasten to top plate with 3" nails at 8" o.c. Stagger nails. Install as joists are set.

Rim board fastening to joists: one 2-1/2" face nail top and bottom flanges each floor joist. Install as joists are set.

Rim board fastening to blocking: 3" face nails at 6" o.c. Install as joists are set.

Notes:
1. Additional lateral resistance may be required in high wind and/or seismic load areas. In such cases, specific design detailing shall be provided by the building designer.
2. Cantilevered joists must be properly sized and spaced, and may require reinforcements to support vertical wall loads. Note that this detail can only be used when no I-joist reinforcement is required.
Notes:
1. Verify girder joist resistance if the back span exceeds the joist spacing. Limit the differential deflection between adjacent I-joists.
2. Cantilevered joists must be properly sized to support all design loads.
3. Blocking is required along the cantilever support.
4. Maximum resistance for pair of 2x6 blocks for this detail is 650 lbf (total of four nails). For higher resistances, use hangers in lieu of solid sawn blocks.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
Notes:
1. Verify girder joist resistance if the back span exceeds the joist spacing. Limit the differential deflection between adjacent I-joists.
2. Cantilevered joists must be properly sized to support all design loads.
3. Blocking is required along the cantilever support.
4. Maximum resistance for pair of 2x4 blocks for this detail is 650 lbf (total of four nails). For higher resistances, use hangers in lieu of solid sawn blocks.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
Girder joist, or Nordic Lam or SCL beam; for double joist, use filler block per detail 1p

Backer block per detail 1h

Hanger

Rim board or wood structural panel closure (23/32" minimum thickness), attach per detail 1b

Attach l-joist to plate per detail 1b, 3-1/2" minimum bearing required

5-1/2" maximum

Back span

Notes:
1. Verify girder joist resistance if the back span exceeds the joist spacing. Limit the differential deflection between adjacent l-joists.
2. Cantilevered joists must be properly sized to support all design loads.
3. Blocking is required along the cantilever support.
4. For hanger resistance, see manufacturer's recommendations.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
Notes:
1. This detail is limited to a 5-1/2-inch brick cantilever on two adjacent sides of the building. Use in conjunction with the short cantilever details for vertical building offset.
2. Verify girder joist resistance if the back span exceeds the joist spacing. Limit the differential deflection between adjacent I-joists.
3. Cantilevered joists must be properly sized to support all design loads.
4. Blocking is required along the cantilever support.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
OPENINGS AND RIM BOARDS
Web Hole Specifications

One of the benefits of using I-joists in residential floor construction is that holes may be cut in the joist webs to accommodate electrical wiring, plumbing lines and other mechanical systems, therefore minimizing the depth of the floor system.

Rules for Cutting Holes in I-joists

1. The distance between the inside edge of the support and the centreline of any hole shall be in compliance with the requirements of Table 6.1.
2. I-joist top and bottom flanges must never be cut, notched or otherwise modified.
3. Whenever possible, field-cut holes should be centred on the middle of the web.
4. The maximum size hole that can be cut into an I-joist web shall equal the clear distance between the flanges of the I-joist minus 1/4 inch. A minimum of 1/8 inch should always be maintained between the top or bottom of the hole and the adjacent I-joist flange.
5. The sides of square holes or longest sides of rectangular holes should not exceed 3/4 of the diameter of the maximum round hole permitted at that location.
6. Where more than one hole is necessary, the distance between adjacent hole edges shall exceed twice the diameter of the largest round hole or twice the size of the largest square hole - or twice the length of the longest side of the longest rectangular hole - and each hole must be sized and located in compliance with the requirements of Table 6.1.
7. Holes measuring 1-1/2 inch or smaller shall be permitted anywhere in a cantilevered section of a joist. Holes of greater size may be permitted subject to verification.
8. A 1-1/2 inch hole or smaller can be placed anywhere in the web provided that it meets the requirements of rule number 6 above. For more than three holes per span, space holes at minimum 15 inches on centre.
9. All holes shall be cut in accordance with the restrictions listed above and as illustrated in detail 6a.
10. Limit three maximum-size holes per span.
11. A group of round holes at approximately the same location shall be permitted if it meets the requirements for a single round hole circumscribed around them.

Notes:
1. Never drill, cut or notch the flange, or over-cut the web.
2. Holes in web should be cut with a sharp saw.
3. For rectangular holes, avoid over-cutting the corners, as this can cause unnecessary stress concentrations. Slightly rounding the corners is recommended. Starting the rectangular hole by drilling a 1-inch-diameter hole in each of the four corners and then making the cuts between the holes is another good method to minimize damage to the I-joist.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.

<table>
<thead>
<tr>
<th>TITLE</th>
<th>DRAWING</th>
</tr>
</thead>
<tbody>
<tr>
<td>I-joist Typical Holes</td>
<td>6a</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>SCALE</th>
<th>DATE</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Openings for Horizontal Elements</td>
<td>-</td>
<td>2020-10-01</td>
<td>3.1</td>
</tr>
</tbody>
</table>
### Table 6.1 – Location of Web Holes

#### Design Criteria

<table>
<thead>
<tr>
<th>Span:</th>
<th>Simple or multiple</th>
</tr>
</thead>
<tbody>
<tr>
<td>Joist spacing:</td>
<td>Up to 24 inches</td>
</tr>
<tr>
<td>Loads:</td>
<td>Live load = 40 psf and dead load = 15 psf</td>
</tr>
<tr>
<td>Deflection limits:</td>
<td>L/480 under live load and L/240 under total load</td>
</tr>
</tbody>
</table>

#### Minimum distance from inside face of any support to centre of hole (ft-in.)

<table>
<thead>
<tr>
<th>Joist depth</th>
<th>Joist series</th>
<th>Round hole diameter (in.)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>9-1/2&quot;</td>
<td>NI-20</td>
<td>0'-7&quot;</td>
</tr>
<tr>
<td></td>
<td>NI-40x</td>
<td>0'-7&quot;</td>
</tr>
<tr>
<td></td>
<td>NI-60</td>
<td>1'-3&quot;</td>
</tr>
<tr>
<td></td>
<td>NI-80</td>
<td>2'-3&quot;</td>
</tr>
<tr>
<td>11-7/8&quot;</td>
<td>NI-20</td>
<td>0'-7&quot;</td>
</tr>
<tr>
<td></td>
<td>NI-40x</td>
<td>0'-7&quot;</td>
</tr>
<tr>
<td></td>
<td>NI-60</td>
<td>0'-7&quot;</td>
</tr>
<tr>
<td></td>
<td>NI-80</td>
<td>1'-6&quot;</td>
</tr>
<tr>
<td></td>
<td>NI-90</td>
<td>0'-7&quot;</td>
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<tr>
<td>14&quot;</td>
<td>NI-40x</td>
<td>0'-7&quot;</td>
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<td></td>
<td>NI-60</td>
<td>0'-7&quot;</td>
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<tr>
<td></td>
<td>NI-80</td>
<td>0'-10&quot;</td>
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<tr>
<td></td>
<td>NI-90</td>
<td>0'-7&quot;</td>
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<tr>
<td>16&quot;</td>
<td>NI-60</td>
<td>0'-7&quot;</td>
</tr>
<tr>
<td></td>
<td>NI-80</td>
<td>0'-7&quot;</td>
</tr>
<tr>
<td></td>
<td>NI-90</td>
<td>0'-7&quot;</td>
</tr>
</tbody>
</table>

#### Notes:

1. Tabulated values are applicable to residential floor construction meeting the above design criteria.
2. If the actual measured span is less than the reference span, L_{ref}, the minimum distance from inside face of any support to centre of hole may be reduced as follows:

\[
D_{\text{reduced}} = (L_{\text{actual}} / L_{\text{ref}}) \times D
\]

Where:
- \(D_{\text{reduced}}\) = Reduced distance from inside face of any support to centre of hole (ft). The reduced distance shall not be less than 6 inches from the face of the support to edge of the hole.
- \(L_{\text{actual}}\) = Actual measured span distance between the inside face of supports (ft).
- \(L_{\text{ref}}\) = Reference span given in this table (ft).
- \(D\) = Minimum distance from the inside face of any support to centre of hole from this table (ft).
Duct Chase Opening Specifications

One of the benefits of using I-joists in residential floor construction is that openings may be cut in the joist webs to accommodate a duct chase (supply duct for heating, ventilation or air-conditioning), therefore minimizing the depth of the floor system.

Rules for Cutting Duct Chase Openings in I-joists

1. The distance between the inside edge of the support and the centreline of a duct chase opening shall be in compliance with the requirements of Table 6.2.
2. I-joist top and bottom flanges must never be cut, notched or otherwise modified.
3. The maximum depth of a duct chase opening that can be cut into an I-joist web shall equal the clear distance between the flanges of the I-joist minus 1/4 inch. A minimum of 1/8 inch should always be maintained between the top or bottom of the opening and the adjacent I-joist flange.
4. All openings shall be cut in accordance with the restrictions listed above and as illustrated in detail 6b.
5. Limit one maximum-size duct chase opening per span.

Notes:
1. Never drill, cut or notch the flange, or over-cut the web.
2. Holes in web should be cut with a sharp saw.
3. Avoid over-cutting the corners, as this can cause unnecessary stress concentrations. Slightly rounding the corners is recommended. Starting the rectangular hole by drilling a 1-inch-diameter hole in each of the four corners and then making the cuts between the holes is another good method to minimize damage to the I-joist.

<table>
<thead>
<tr>
<th>I-joist depth (in.)</th>
<th>Maximum depth of the opening (in.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>9-1/2</td>
<td>6-1/4</td>
</tr>
<tr>
<td>11-7/8</td>
<td>8-5/8</td>
</tr>
<tr>
<td>14</td>
<td>10-3/4</td>
</tr>
<tr>
<td>16</td>
<td>12-3/4</td>
</tr>
</tbody>
</table>
### Table 6.2 – Location of Duct Chase Openings

**Design Criteria**

<table>
<thead>
<tr>
<th>Span:</th>
<th>Simple</th>
</tr>
</thead>
<tbody>
<tr>
<td>Joist spacing:</td>
<td>Up to 24 inches</td>
</tr>
<tr>
<td>Loads:</td>
<td>Live load = 40 psf and dead load = 15 psf</td>
</tr>
<tr>
<td>Deflection limits:</td>
<td>L/480 under live load and L/240 under total load</td>
</tr>
</tbody>
</table>

Minimum distance from inside face of any support to centre of opening (ft-in.): 8 10 12 14 16 18 20 22 24

<table>
<thead>
<tr>
<th>Joist depth</th>
<th>Joist series</th>
<th>Duct chase length (in.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>9-1/2&quot;</td>
<td>Ni-20 4'-1&quot;</td>
<td>4'-5&quot; 4'-10&quot; - - - - - - -</td>
</tr>
<tr>
<td></td>
<td>Ni-40x 5'-3&quot;</td>
<td>5'-8&quot; 6'-0&quot; 6'-5&quot; 6'-10&quot; 7'-3&quot; 7'-8&quot; - - -</td>
</tr>
<tr>
<td></td>
<td>Ni-60 5'-4&quot;</td>
<td>5'-9&quot; 6'-2&quot; 6'-7&quot; 7'-1&quot; 7'-5&quot; 8'-0&quot; - - -</td>
</tr>
<tr>
<td></td>
<td>Ni-80 5'-3&quot;</td>
<td>5'-8&quot; 6'-0&quot; 6'-5&quot; 6'-10&quot; 7'-3&quot; 7'-8&quot; 8'-2&quot; 8'-6&quot;</td>
</tr>
<tr>
<td>11-7/8&quot;</td>
<td>Ni-20 5'-9&quot;</td>
<td>6'-2&quot; 6'-6&quot; - - - - - - -</td>
</tr>
<tr>
<td></td>
<td>Ni-40x 6'-8&quot;</td>
<td>7'-2&quot; 7'-6&quot; 8'-1&quot; 8'-6&quot; 9'-1&quot; 9'-6&quot; - - -</td>
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<tr>
<td></td>
<td>Ni-60 7'-3&quot;</td>
<td>7'-8&quot; 8'-0&quot; 8'-6&quot; 9'-0&quot; 9'-3&quot; 9'-9&quot; - - -</td>
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<tr>
<td></td>
<td>Ni-80 7'-2&quot;</td>
<td>7'-7&quot; 8'-0&quot; 8'-5&quot; 8'-10&quot; 9'-3&quot; 9'-8&quot; 10'-2&quot; 10'-8&quot;</td>
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<td>Ni-90 7'-6&quot;</td>
<td>7'-11&quot; 8'-4&quot; 8'-9&quot; 9'-2&quot; 9'-7&quot; 10'-1&quot; 10'-7&quot; 10'-11&quot;</td>
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<tr>
<td>14&quot;</td>
<td>Ni-40x 8'-1&quot;</td>
<td>8'-7&quot; 9'-0&quot; 9'-6&quot; 10'-1&quot; 10'-7&quot; 11'-2&quot; - - -</td>
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<td></td>
<td>Ni-60 8'-9&quot;</td>
<td>9'-3&quot; 9'-8&quot; 10'-11&quot; 10'-6&quot; 11'-1&quot; 11'-6&quot; - - -</td>
</tr>
<tr>
<td></td>
<td>Ni-80 9'-0&quot;</td>
<td>9'-3&quot; 9'-9&quot; 10'-1&quot; 10'-7&quot; 11'-1&quot; 11'-6&quot; 12'-1&quot; 12'-6&quot;</td>
</tr>
<tr>
<td></td>
<td>Ni-90 9'-2&quot;</td>
<td>9'-8&quot; 10'-0&quot; 10'-6&quot; 10'-11&quot; 11'-5&quot; 11'-9&quot; 12'-4&quot; 12'-11&quot;</td>
</tr>
<tr>
<td>16&quot;</td>
<td>Ni-60 10'-3&quot;</td>
<td>10'-8&quot; 11'-2&quot; 11'-6&quot; 12'-1&quot; 12'-6&quot; 13'-2&quot; - - -</td>
</tr>
<tr>
<td></td>
<td>Ni-80 10'-4&quot;</td>
<td>10'-9&quot; 11'-3&quot; 11'-9&quot; 12'-1&quot; 12'-7&quot; 13'-1&quot; 13'-8&quot; 14'-4&quot;</td>
</tr>
<tr>
<td></td>
<td>Ni-90 10'-9&quot;</td>
<td>11'-2&quot; 11'-8&quot; 12'-0&quot; 12'-6&quot; 13'-0&quot; 13'-6&quot; 14'-2&quot; 14'-10&quot;</td>
</tr>
</tbody>
</table>

**Note:**
1. Tabulated values are applicable to residential floor construction meeting the above design criteria.
Holes in Lateral-restraint-only Blocking Panels

This detail concerns the placement of holes in the web of I-joists or rim board used as blocking for lateral restraint of floor and roof joists. Blocking for lateral restraint are those members used between floor joists, ceiling joists or rafters to prevent them from rolling over. As a rule of thumb, any blocking that is not supporting a load-bearing wall (vertical or lateral load) or part of an engineered diaphragm perimeter load path can be considered a lateral-restraint-only blocking panel.

Maximum Allowable Hole Size

1. The maximum allowable hole size for a lateral-restraint-only blocking panel is 2/3 of the lesser dimension of the blocking's depth or length. Assuming the blocking panel is longer than its height (or depth), the table aside applies. For other applications, contact Nordic Structures.

2. Holes cut into the blocking panels are subject to the following limitations:
   - The top and bottom flanges of an I-joist blocking panel must never be cut, notched or otherwise modified.
   - Field-cut holes must be centred in the blocking horizontally.
   - While round holes are preferred, rectangle holes may be used provided the corners are not over cut. Slightly rounding corners or pre-drilling corners with a 1-inch-diameter bit is recommended.
   - All holes must be cut in a workman-like manner in accordance with the limitations listed above.

<table>
<thead>
<tr>
<th>I-joist or rim board blocking depth (in.)</th>
<th>Maximum allowable hole diameter (in.) (a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>9-1/2</td>
<td>6-1/4</td>
</tr>
<tr>
<td>11-7/8</td>
<td>7-3/4</td>
</tr>
<tr>
<td>14</td>
<td>9-1/4</td>
</tr>
<tr>
<td>16</td>
<td>10-1/2</td>
</tr>
</tbody>
</table>

(a) Maximum allowable hole diameter in blocking panel, where the blocking panel is longer than its height.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
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**Title:** Stairwells Perpendicular to I-joist Span

**Category:** Openings for Vertical Elements

**Drawing:** 7a-2

**Date:** 2020-10-01

**Page:** 3.7
Notes:
1. The above detail represents a basement window framing. Verify rim board resistance to support loads. If needed, use multiple pieces or a Nordic Lam or SCL beam.
2. Verify double I-joist resistance to support concentrated loads.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
Notes:
1. The above detail represents a basement window framing. Verify rim board resistance to support loads. If needed, use multiple pieces or a Nordic Lam or SCL beam.
2. Verify double I-joist resistance to support concentrated loads.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
Notes:
1. To prevent interference with plumbing, a joist may be shifted up to 3 inches if the edge of the floor panel is supported and the span rating is not exceeded.
2. In all other cases, an additional joist is required.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
Notes:
1. Blocking required at bearing for lateral support, not shown for clarity.
2. The maximum dimensions for a notch on the side of the top flange are 4-inch length by 1/2-inch depth for flange width of 2-1/2 inches, and 4-inch length by 1-inch depth for flange width of 3-1/2 inches.
3. This detail applies to simple-span joists and multiple-span joists where the notch is located at the end half-span.
4. For other applications, contact Nordic Structures.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
Notes:
1. Floor sheathing to rim board - Use 2-1/2-inch common nails at 6 inches o.c. Caution: The horizontal load resistance is not necessarily increased with a decreased nail spacing. Under no circumstances should the nail spacing be less than 3 inches. The 3-1/2-inch common nails used to connect the bottom plate of a wall to the rim board through the sheathing do not reduce the horizontal load resistance of the rim board provided that the 2-1/2-inch nail spacing (sheathing-rim board) is 6 inches o.c. and the 3-1/2-inch nail spacing (bottom plate-sheathing-rim board) is in accordance with the prescriptive requirements of the applicable code. APA recommends a minimum 3/8-inch panel edge distance be maintained when nailing. Calculations show that the tongue does not need to be removed for floor sheathing 7/8-inch thick or less when used in conjunction with rim boards of 1-1/8 inch. Some local code jurisdictions, however, may require removal of the tongue at the edge of floor framing when nailing it to rim board.
2. Rim board to I-joist - Use two 2-1/2-inch common nails, one each into the top and bottom flange.
Note:
1. Rim board to sill plate - Toe-nail using 2-1/2-inch common nails at 6 inches o.c.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
Notes:
1. Attachment of 2x lumber ledgers to rim board - Use 1/2-inch-diameter lag screws (minimum nominal length of 4 inches) or 1/2-inch-diameter through-bolts with washers and nuts. In both cases, use a design value of 585 lbf per fastener. 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 CSA O86, Design in wood, for the appropriate size of clearance and lead holes.
2. Decks shall be positively anchored to the primary structure. The lateral connection required may be permitted to be in accordance with detail 8e-1 or 8e-2, as appropriate.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
Notes:

1. Attachment of 2x lumber ledgers to rim board - Use 1/2-inch-diameter lag screws (minimum nominal length of 4 inches) or 1/2-inch-diameter through-bolts with washers and nuts. In both cases, use a design value of 585 lbf per fastener. 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 CSA O86, Design in wood, for the appropriate size of clearance and lead holes.

2. Decks shall be positively anchored to the primary structure. The lateral connection required may be permitted to be in accordance with detail 8e-1 or 8e-2, as appropriate.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.

Fastener Spacing for Deck Ledger and Rim Boards using 1/2-inch-diameter Lag Screws or Thru-bolts with 15/32-inch Maximum Sheathing *(a)*

Deck live load of 40 psf, deck dead load of 10 psf

<table>
<thead>
<tr>
<th>Joist span (L)</th>
<th>Rim boards</th>
</tr>
</thead>
<tbody>
<tr>
<td>10' &lt; L ≤ 12'</td>
<td>14''</td>
</tr>
<tr>
<td>12' &lt; L ≤ 14'</td>
<td>12''</td>
</tr>
<tr>
<td>14' &lt; L ≤ 16'</td>
<td>10''</td>
</tr>
<tr>
<td>16' &lt; L ≤ 18'</td>
<td>9''</td>
</tr>
</tbody>
</table>

*(a)* See detail 8c for attachment details. Ledger shall be S-P-F or other wood species with a specific gravity of 0.42 or greater.

*(b)* Lag screws and thru-bolts shall be staggered in accordance with the detail on the left.
Notes:
1. Decks shall be positively anchored to the primary structure, as per the applicable code requirements. This detail is based on U.S. code requirements; check the validity. For more details, refer to the AWC Prescriptive Residential Wood Deck Construction Guide.
2. Hold-down tension devices shall be provided in not less than two locations within two feet of the edge of the deck. Specific design detailing shall be provided by the building designer.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
Attach sheathing to blocking with 3" nails at 4" o.c. staggered

6'-0" minimum extent of blocking

1/2" diameter lag screws or thru-bolts with washers per details 8c and 8d

Threaded rod; may be sloped up to 1:12 away from the house

Minimum 1-1/2" thick blocking. Blocks must fill bay and fit snugly.

Notes:
1. Decks shall be positively anchored to the primary structure, as per the applicable code requirements. This detail is based on U.S. code requirements; check the validity. For more details, refer to the AWC Prescriptive Residential Wood Deck Construction Guide.
2. Hold-down tension devices shall be provided in not less than two locations within two feet of the edge of the deck. Specific design detailing shall be provided by the building designer.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
Rim Board Hole Specifications

The maximum allowable hole size for a rim board shall be 2/3 of the rim board depth, as shown in the table aside. The length of the rim board segment containing a hole shall be at least eight times the hole size.

Application Notes

1. Do not cut holes in rim board installed over openings, such as doors or windows, where the rim board is not fully supported, except that holes of 1-1/2 inch or less in size are permitted provided they are positioned at the mid-depth and in the middle one-third of the span (see note 5 for minimum hole spacing).

2. Field-cut holes should be vertically centred in the rim board and at least one hole diameter or 6 inches, whichever is less, clear distance away from the end of the wall line. Holes should never be placed such that they interfere with the attachment of the rim board to the ends of the floor joist, or any other code-required nailing.

3. While round holes are preferred, rectangle holes may be used providing the corners are not over-cut. Slightly rounding corners by pre-drilling with a 1-inch-diameter bit is recommended.

4. When concentrated loads are present on the rim board (loads not supported by any other vertical-load-carrying members such as squash blocks), holes should not be placed in the rim board within a distance equal to the depth of the rim board from the area of loading.

5. For multiple holes, the clear spacing between holes shall be at least two times the diameter of the larger hole, or twice the length of the longest side of the longest rectangular hole. This minimum hole spacing does not apply to holes of 1-1/2 inch or less in diameter, which can be placed anywhere in the rim board (see note 1 for holes over opening) except that the clear distance to the adjacent hole shall be 3 inches minimum.

6. All holes shall be cut in accordance with the limitations listed above. See the information for cutting holes under details 6a and 6b.

---

**Rim Board Hole Sizes and Minimum Lengths**

<table>
<thead>
<tr>
<th>Rim board depth (in.)</th>
<th>Maximum allowable hole size (in.) (b)</th>
<th>Minimum length of rim board segment for the maximum allowable hole size (in.) (c)</th>
</tr>
</thead>
<tbody>
<tr>
<td>9-1/2</td>
<td>6-1/4</td>
<td>50</td>
</tr>
<tr>
<td>11-7/8</td>
<td>7-3/4</td>
<td>62</td>
</tr>
<tr>
<td>14</td>
<td>9-1/4</td>
<td>74</td>
</tr>
<tr>
<td>16</td>
<td>10-1/2</td>
<td>84</td>
</tr>
</tbody>
</table>

(a) These hole provisions do not apply to rim board installed over openings, such as doors or windows.

(b) The diameter of a round hole or the longer dimension of a rectangular hole.

(c) The length of rim board segment per wall line. For multiple holes, the minimum length of rim board segment shall be eight times the sum of all hole sizes.

---

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
Note:
1. Do not cut holes in rim board over opening except for holes of 1-1/2" or less in size (see application note 1).

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
Install per NFPA 13 and manufacturer’s instructions. Steel sprinkler system pipe 4” maximum diameter or 500 lb maximum point load.

Ceiling flange, minimum 2 screws

1/2” maximum, fastener centreline from web face

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
Install per NFPA 13 and manufacturer's instructions.
Steel sprinkler system pipe 4" maximum diameter or 500 lb maximum point load.

Joist clamp hanger per manufacturer's specifications (dimension and resistance)

Eye rod

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
S-P-F No. 2 or better backer block bearing on flange required when supporting steel pipe. 2x4, minimum 6" long, horizontal or vertical.

Install per NFPA 13 and manufacturer’s instructions.
- Steel sprinkler system pipe 4” maximum diameter or 500 lb maximum point load.

Two sheet metal screws #10 x 1-1/2”
Option: Two clinched 0.113" x 2-1/2" nails

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
Option 1
Install per NFPA 13. CPVC sprinkler system
pipe 2-1/2" maximum diameter = 290 lb
maximum point load (145 lb per joist)

Option 2
Install per NFPA 13. Steel sprinkler system
pipe 4" maximum diameter = 500 lb
maximum point load (250 lb per joist)

Install 48" maximum length NFPA 13
angle iron

Centring hanger location
not required

S-P-F No. 2 or better backer block. 2x4, minimum 12" long, horizontal. Attach with two #14 x 2" sheet metal screws.

3/4" maximum, centreline from web face
One 1/4" x 3" lag screw
Option: One #14 x 3" sheet metal screw

3/4" maximum, centreline from web face
One #14 x 3" sheet metal screw

S-P-F No. 2 or better backer block. 2x4, minimum 12" long, horizontal.
Two #14 x 3" sheet metal screws

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
Install per NFPA 13 and manufacturer’s instructions. CPVC sprinkler system pipe 3” maximum diameter or 310 lb maximum point load.

Four sheet metal screws #10 x 1-1/2"
Option: Four clinched 0.113” x 2-1/2” nails

S-P-F No. 2 or better backer block bearing on flange (optional). 2x4, minimum 6” long, horizontal or vertical.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
Sprinkler Pipe Installation for I-joists

CPVC Hanger - Surface Mount

Install per NFPA 13 and manufacturer’s instructions. CPVC sprinkler system pipe 3" maximum diameter or 310 lb maximum point load.

Four sheet metal screws #10 x 1-1/2"
Option: Four clinched 0.113" x 2-1/2" nails

S-P-F No. 2 or better backer block bearing on flange (optional). 2x4, minimum 6" long, horizontal or vertical.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.

Four sheet metal screws #10 x 1-1/2"
Option: Four clinched 0.113" x 2-1/2" nails

S-P-F No. 2 or better backer block bearing on flange (optional). 2x4, minimum 6" long, horizontal or vertical.
1. Installation of Nordic I-joists shall be as shown in details 10.
2. Except for cutting to length, or for providing birdsmouth bearings, I-joist flanges should never be cut, drilled, or notched.
3. I-joists are permitted to be birdsmouth cut at the lower end of the joist only. The birdsmouth cut must have full bearing and not overhang the inside face of the plate. Bearing stiffeners are required at the birdsmouth cut on both sides of the web.
4. When beveled bearing plates are used at I-joists supports, I-joist attachment to the bevel plate must be designed to transfer lateral thrust.
5. End bearing length must be at least 1-3/4 inch. For continuous framing and roof framing with cantilevers, the intermediate support and end bearing adjacent to the cantilever must be at least 3-1/2 inches.
6. Ends of roof joists must be restrained at the bearing to prevent rollover. Rim board or I-joist blocking panels are preferred. Cantilever-end blocking must be placed at the support adjacent to the cantilever, and ends of all cantilever extensions must be laterally braced by a fascia board or other similar methods.
7. Continuous lateral support of the I-joist’s compression flange is required to prevent rotation and buckling. In simple span roof applications, lateral support of the top flange is normally supplied by the roof sheathing. Bracing of the I-joist’s bottom flange is also required at interior supports of multiple-span joists and at the end support next to an overhang. Lateral support of the entire bottom flange may be required in cases of load reversal such as those caused by high wind.
8. Details 10 show only I-joist specific fastener requirements. For other fastener requirements, such as wind uplift requirements or other member attachment details, see the applicable building code.
9. All roof details are valid up to a 12:12 slope unless otherwise noted.
10. Provide adequate ventilation at each joist bay as per detail 10v. Verify roof ventilation and insulation requirements with applicable building code.
11. Refer to typical floor framing installation notes for additional information.
Temporary construction bracing

Blocking panels not shown for clarity

Rated sheathing

Nail according to applicable building code

Nail according to applicable building code

See details
2-1/2" nails at 6" o.c. - minimum three 2-1/2" nails per blocking panel. When used for lateral shear transfer, match nail type and sheathing edge nailing ("boundary nailing" for engineered diaphragm applications).

Bearing stiffener required when end reaction exceeds 2,450 lbf

Beveled plate for slopes greater than 1/4:12. Attach to framing with one 3-1/2" nail at 16" o.c. Code-recognized connectors may be substituted. For slopes greater than 4:12, connectors are required to resist lateral thrust.

Minimum attachment: For slope ≤ 1/4:12, one 3" box nail, face nail at each side of bearing. For slope > 1/4:12 design joist attachment to beveled plate to transfer lateral thrust.

Note:
1. Additional connection may be required for wind uplift.
For roof slopes between 1/4:12 and 12:12, provide a tie strap nailed at a minimum of 3" spacing or in accordance with the manufacturer's recommendations.

Ridge beam (Nordic Lam or SCL)

Adjustable slope hanger with a minimum factored uplift resistance of 450 lbf

Beveled bearing stiffener required each side

Note:
1. Additional connection may be required for wind uplift.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
For roof slopes between 1/4:12 and 12:12, provide a tie strap nailed at a minimum of 3" spacing on each side of roof slope or in accordance with the manufacturer's recommendations.

Ridge beam (Nordic Lam or SCL)

Adjustable slope hanger with a minimum factored uplift resistance of 450 lbf

Beveled bearing stiffener required each side

Note:
1. Additional connection may be required for wind uplift.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
Note:
1. Additional connection may be required for wind uplift.

23/32" x 2'-0" wood structural panel (front and back sides) with twelve 2-1/2" nails into each joist. When design roof snow load exceeds 40 psf, horizontal orientation of gusset strong axis is required. Gap 1/8" at top.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
Tie strap nailed at a minimum of 3” spacing or in accordance with the manufacturer’s recommendations

Blocking panel attached per detail 10a

Strap nails: Leave 2-3/8” minimum end distance

Attach I-joist per detail 10a

Double-beveled bearing plate. Attach to framing with one 3-1/2” nail at 16" o.c.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
Bearing stiffeners required when hanger does not support I-joist top flange.

Backer block per detail 1h. If top-mount hanger is fully supported by top flange, backer block only required on hanger side. If face nailing is required, then backer block on both sides (and filler block if multiple I-joists) is required. Use twelve 3" nails.

Top-mount hanger per manufacturer's recommendations

Filler block per detail 1p

Note:
1. Application limited to 4:12 roof slope or less.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
Header may be I-joist, Nordic Lam or SCL

Backer block on both sides of web (or backer block and filler block, if multiple I-joists), nail with twelve 3" nails, clinch when possible

Face-mount hanger per manufacturer's recommendations

Filler block per detail 1p

Bearing stiffeners required when hanger does not support I-joist top flange

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
Notes:
1. Additional connection may be required for wind uplift.
2. Permitted on low end of I-joist only.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
Notes:
1. Additional connector is required for wind uplift.
2. Outside corner of blocking panel may be trimmed if it interferes with roof sheathing. In such cases, position blocking panel on top plate to minimize trimming and still allow required nailing into top plate.
3. Permitted on low end of I-joist only.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.

**Drawing Title:** I-joist Overhang for Fascia Support with Birdsmouth Cut

**Drawing Category:** Typical Roof Framing and Construction Details

**Drawing Scale:** 10k

**Drawing Date:** 2020-10-01

**Drawing Page:** 5.11
Note:
1. Additional connection may be required for wind uplift.
All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.

Notes:
1. Additional connection may be required for wind uplift.
2. Blocking panel required at bearing for lateral support.
Notch 2x outrigger around I-joist flange.
Nail through web into outrigger.

Do not notch I-joist flange

Maximum overhang
same as rafter spacing
(not to exceed 2'-0")

Blocking between outriggers

End wall

Toe nail blocking to end wall for roof sheathing ≤ 5/8".
Match nail type and spacing with roof sheathing edge
nailing ("boundary nailing" for engineered diaphragm
applications). Use minimum 2-1/2" nails.

Note:
1. Additional connection may be required for wind uplift.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
Note:
1. Additional connection may be required for wind uplift.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
Lumber Overhang with Beveled Plate

Notes:
1. Additional connection may be required for wind uplift.
2. Lumber overhang shall be 2x4 S-P-F No. 2 or better.
3. Blocking panels not shown for clarity.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
2x block for fascia support

Birdsmouth cut at bearing

Attach I-joist per detail 10h

Bearing stiffener required each side

Blocking panel attached per detail 10a. See detail 10v for vent holes.

2-1/2" nails at 6" o.c. clinched

2'-0" maximum

Note:
1. Additional connection may be required for wind uplift.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
Note:
1. Additional connection may be required for wind uplift.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
Notes:
1. Allowed at low end of I-joist only.
2. Corrosion-resistant wire cloth screening, hardware cloth, perforated vinyl or similar material shall cover the ventilation holes per code.
Notes:
1. Corrosion-resistant wire cloth screening, hardware cloth, perforated vinyl or similar material shall cover the ventilation holes per code.
2. The maximum allowable round hole diameter for a lateral restraint-only blocking panel shall be 2/3 of the lesser dimension of blocking panel depth or length.
3. Whenever possible, field-cut holes should be centred in the blocking panel both vertically and horizontally.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.
Typical Roof Framing and Construction Details

Note:
1. A minimum of 1/8 inch should always be maintained between the top of the hole and the I-joist flange.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.