NORDIC
ENGINEERED WOOD

Bringing Nature's Resources Home.

ROOF DETAILS

FRAMING AND CONSTRUCTION GUIDE

NORDIC JOIST™ • NORDIC LAM™ • RIM-BOARD

FORM NO.0205/JUNE 2003

UPPER END, BEARING ON WALL

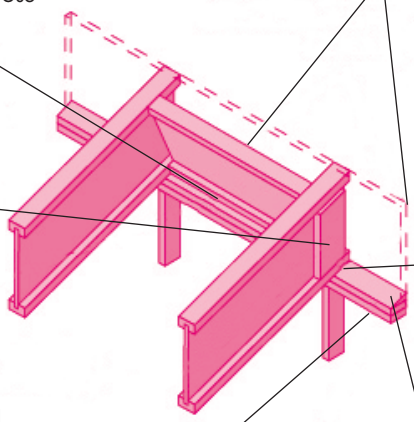
1a

8d nails at 6" o.c. - minimum 3-8d nails per blocking panel. When used for lateral shear transfer, match nail type and sheathing edge nailing ("boundary nailing" for engineered diaphragm applications). Use minimum 8d nails.

Blocking panel, x-bridging, or 23/32" APA Rated Sheathing 48/24 as continuous closure (validate use of x-bridging with local building code).

Bearing stiffener required when end reaction exceeds 1550 lbs.

Minimum attachment: For slope ≤ 1/4:12, one 10d box nail, face nail at each side of bearing. For slope > 1/4:12 design joist attachment to beveled plate to transfer lateral thrust.



Beveled plate for slopes greater than 1/4:12. Code-recognized connectors may be substituted. For slopes greater than 4:12 connectors are required to resist lateral thrust.

Attach beveled plate to framing with 1-16d at 16" o.c.

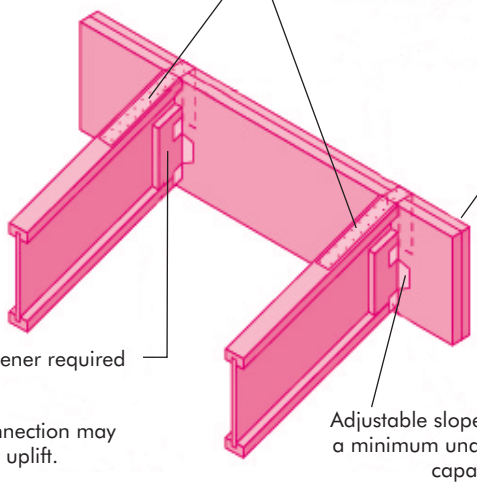
Note: Additional connection may be required for wind uplift.

PEAK CONNECTION

1b

For roof slopes between 1/4:12 and 12:12, provide a strap nailed for thrust caused by beveled bearing blocks (min. 3" nail spacing), wrapped around ridge beam

Ridge beam (Glulam)



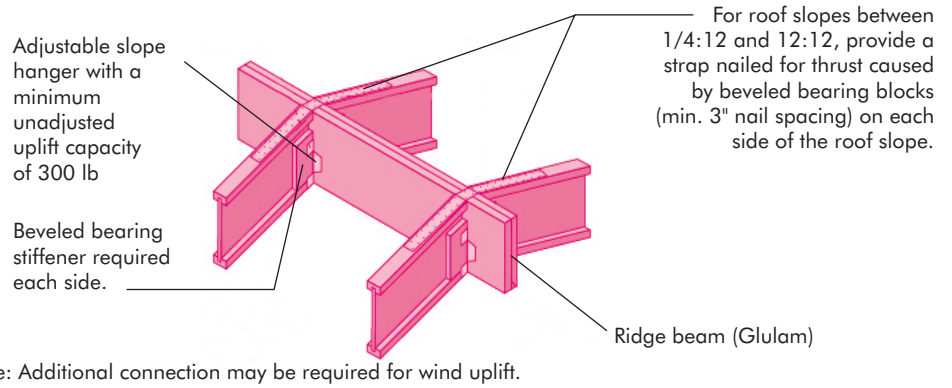
Beveled bearing stiffener required each side

Note: Additional connection may be required for wind uplift.

Adjustable slope hanger with a minimum unadjusted uplift capacity of 300 lb.

I-JOIST TO RIDGE BEAM CONNECTION

1c

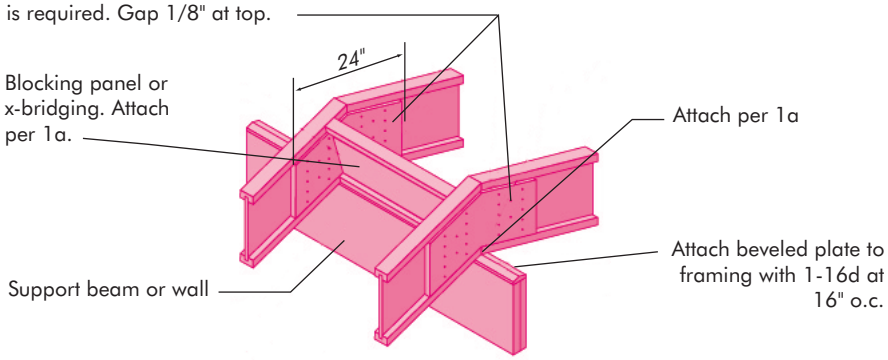


Note: Additional connection may be required for wind uplift.

I-JOIST CONNECTION WITH WOOD STRUCTURAL PANEL GUSSETS

1d

23/32" x 2'-0" wood structural panel (front and back sides) with 12-8d nails into each joist with nails clinched. When roof live load exceeds 40 psf, horizontal orientation of gusset strong axis is required. Gap 1/8" at top.

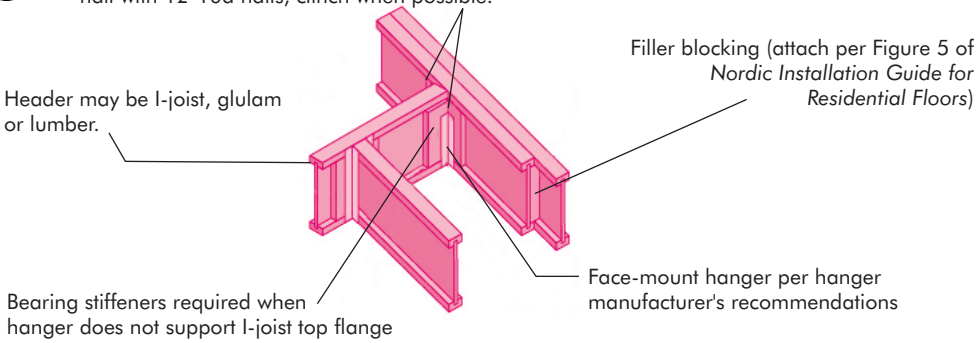


Note: Additional connection may be required for wind uplift.

ROOF OPENING, FACE MOUNTED HANGERS

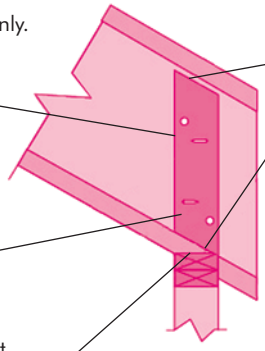
1e

Backer block on both sides of web (or backer block and filler block, if multiple I-joists), nail with 12-10d nails, clinch when possible.



BIRDSMOUTH CUT & BEVEL CUT BEARING STIFFENER

1f Permitted on low end of I-joist only.



1/8" gap at top

Bearing stiffeners required each side of I-joist. Bevel cut bearing stiffener to match roof slope.

One 10d box nail, face nail at each side of bearing (face nail where flange is 7/8" to 1" thick)

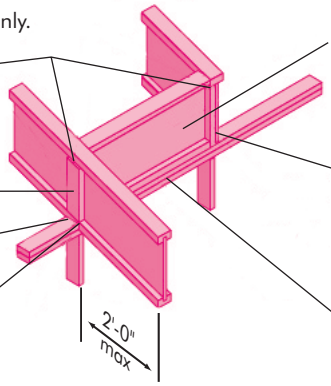
4-8d nails (two each side) clinched when possible.

Birdsmouth cut shall bear fully and not overhang the inside face of plate.

Note: Additional connection may be required for wind uplift.

BIRDSMOUTH CUT WITH OVERHANG

1g Permitted on low end of I-joist only.



Blocking panel or x-bridging (validate use of x-bridging with local building code).

1/8" gap at top

Bearing stiffener required each side (attach per 1f)

Bearing stiffener (shown on blocking panel side only)

Attach I-joist to top plate per 1f

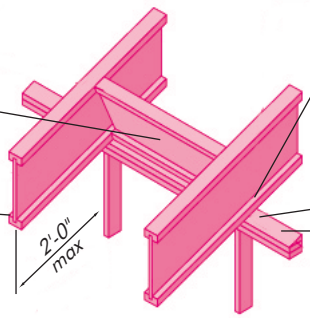
Birdsmouth cut at bearing

Attach blocking per 1a

Notes:
- Additional connection may be required for wind uplift.
- 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.

BLOCKING PANEL AT BEVELED PLATE

1h



Attach I-joist to beveled plate per 1a

Blocking panel, attach per 1a

Overhang

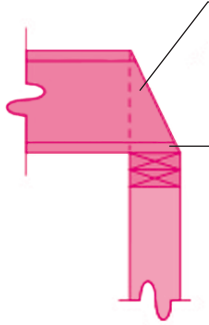
Attach I-joist per 1a

Beveled plate

Note: Additional connection may be required for wind uplift.

I-JOIST WITH BEVEL-CUT END

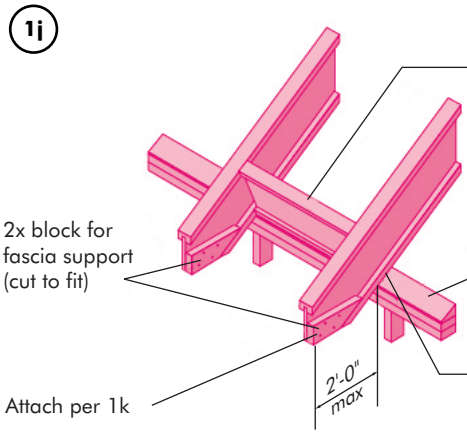
1i



Notes:
- Blocking or x-bridging required at bearing for lateral support, not shown for clarity.
- Additional connection may be required for wind uplift.

I-JOIST OVERHANG FOR FASCIA SUPPORT WITH BEVELED PLATE

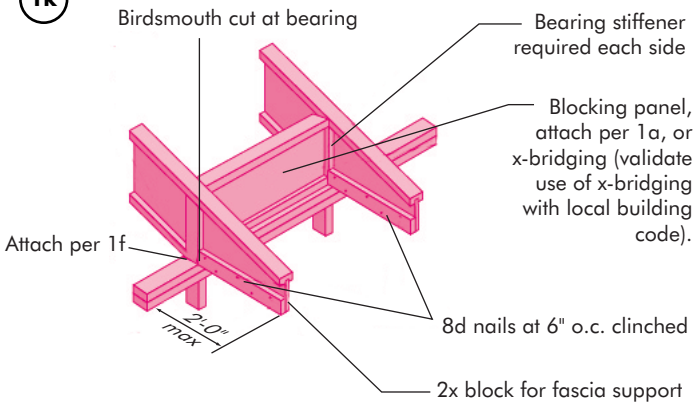
1j



Note: Additional connection may be required for wind uplift.

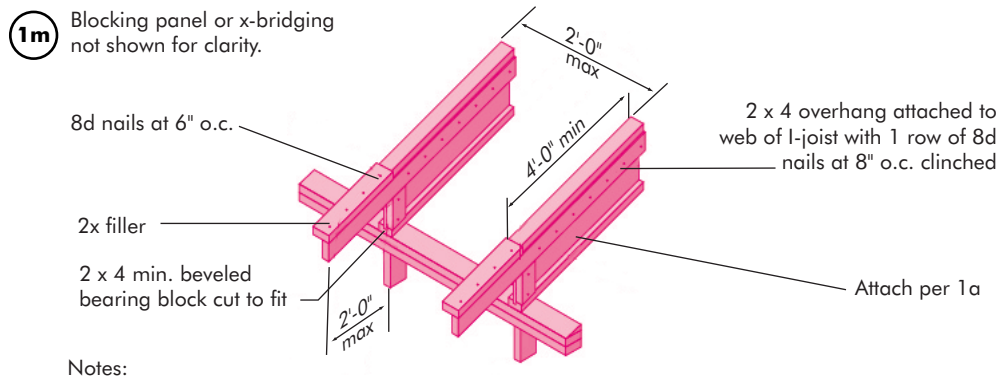
I-JOIST OVERHANG FOR FASCIA SUPPORT WITH BIRDSMOUTH CUT

1k



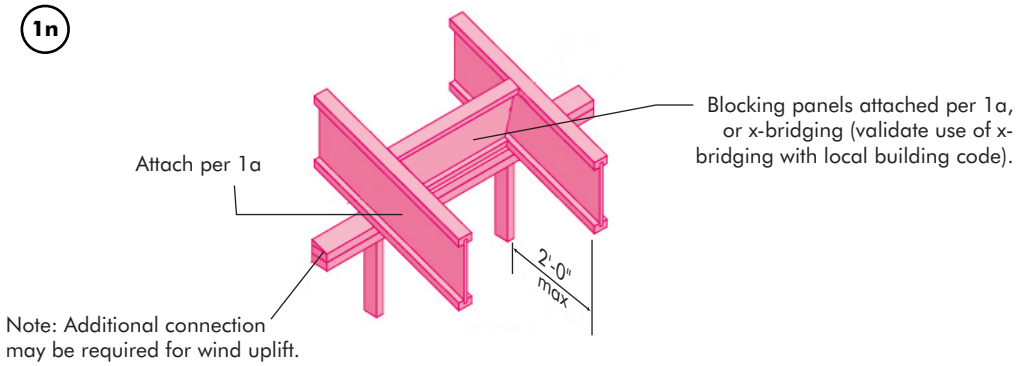
Note: Additional connection may be required for wind uplift.

LUMBER OVERHANG WITH BEVELED PLATE

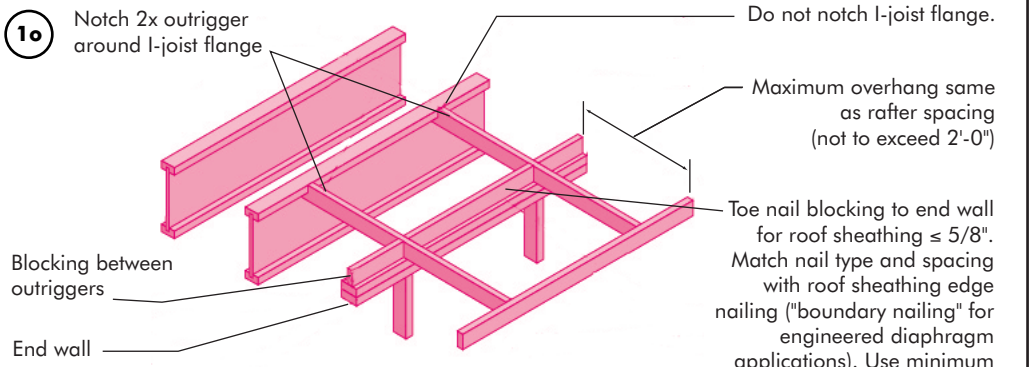


Notes:
- Additional connection may be required for wind uplift.
- Lumber overhang shall be 2 x 4 Spruce-Pine-Fir #2 or better, or stronger species.

I-JOIST OVERHANG WITH BEVELED PLATE



OUTRIGGER

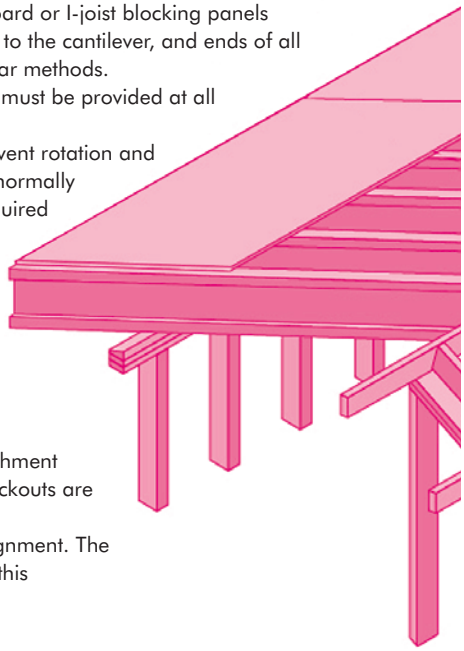


Note: Additional connection may be required for wind uplift.

FIGURE 1 - TYPICAL NORDIC I-JOIST ROOF FRAMING AND CONSTRUCTION DETAILS

Typical I-joist roof framing construction details and installation notes

1. Installation of Nordic I-joists must be as shown in Figure 1.
2. Except for cutting to length, or for providing birdsmouth bearings as detailed in Figures 1a to 1o, I-joist top or bottom 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 / web stiffeners are required at the birdsmouth cut on both sides of the web.
4. When beveled bearing plates are used at I-joist supports, I-joist attachment to the bevel plate must be designed to transfer lateral thrust.
5. Concentrated loads should only be applied to the top surface of the top flange. At no time should concentrated loads be suspended from the bottom flange, with the exception of light loads (lighting fixtures, ceiling fans, etc.).
6. I-joists must be protected from the weather prior to installation.
7. I-joists must not be used in places where they will be permanently exposed to weather (overhangs are exceptionally vulnerable) or in areas where they will reach a moisture content greater than 16%, such as in swimming pool or hot-tub enclosures. They must not be installed where they will remain in direct contact with concrete or masonry.
8. End-bearing length must be at least 1-3/4 in. For continuous framing and roof framing with cantilevers, the intermediate support and end bearing adjacent to the cantilever both must be at least 3-1/2 in. For multiple-span joists, intermediate bearing length must be at least 3-1/2 in.
9. 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 others similar methods.
10. Rim board, I-joist blocking panels, or other means of providing lateral support must be provided at all I-joist bearing points.
11. 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.
12. Nails installed perpendicular to the wide face of the flange must be spaced in accordance with the applicable building code requirements or approved building plans but should not be closer than 3 in. o.c. per row using 8d common nails.
13. Details in Figure 1 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. If I-joists are oriented so that the knockouts are adjacent to the top flange, they may be removed to aid ventilation.
14. The top and bottom flanges of the I-joist must be kept within 1/2 in. of true alignment. The use of I-joist blocking panels or engineered wood rim board greatly simplifies this requirement.
15. All roof details are valid up to a 12:12 slope unless otherwise noted.
16. *Refer to Nordic Installation Guide for Residential Floors for more details.*
17. *Roof spans shall be in accordance with Nordic Design/Construction guide, or designed based on the use of the design properties.*
18. *Web holes shall be verified, please contact your local representative.*



Typical i-joist roof framing temporary bracing notes

1. All engineered wood rim boards, blocking, connections, and temporary bracing must be installed before workers are allowed on the structure.
2. For temporary bracing, use lines of 1 x 4s nailed to each I-joist with two 8d nails. The lines should be parallel, about 8 ft apart, and should have ends overlapped.
3. To prevent rollover of the entire roof system, brace each end and every 25 ft of roof with blocking at ends or diagonal bracing. *Please note that in a roof system framed with parallel-chord rafters such as I-joists, the panel roof sheathing alone does not provide bracing for the roof framing! The blocking or bridging at the bearing points must be provided.*
4. The continuous 1 x 4 bracing must be attached to the braced bays.

All nails shown in the details 1a through 1o are assumed to be common nails unless otherwise noted. 10d box nails may be substituted for 8d common shown in details. Individual components not shown to scale for clarity. 12:12 maximum roof slope.