SAFETY AND CONSTRUCTION PRECAUTIONS

I-joists are not stable until completely installed, and will not carry any load until fully braced and sheathed.

Avoid Accidents by following these Important Guidelines:

1. Brace and nail each I-joist as it is installed, using hangers, blocking panels, rim board, and/or cross-bridging at joint ends. When I-joists are applied continuously over interior supports and a load-bearing wall is planned at that location, blocking will be required at the interior support.

2. When the building is completed, the floor sheathing will provide lateral support for the top flanges of the I-joists. Until this sheathing is applied, temporary bracing, often called struts, or temporary sheathing must be applied to prevent I-joist rollover or buckling.

- Temporary bracing or struts must be tied in minimum, at all joint feet long spaced no more than 6 feet on center, and must be secured with a minimum of two 8d nails fastened to the top surface of each I-joist. Nail the bracing to a lateral restraint at the end of each bay. Top ends of adjoining bracing over at least two I-joists.

- Or, sheathing (permanent or temporary) can be nailed to the top flange of the first 4 feet of I-joists at the end of the bay.

3. For cantilevered I-joists, brace top and bottom flanges, and brace ends with closure panels, rim board, or cross-bridging.

4. Install and fully nail permanent sheathing to each I-joist before placing loads on the floor system. Then, stack building materials over beams or walk only.

- Never install a damaged I-joist.

- Improper storage or installation, failure to follow applicable building codes, failure to follow span ratings for Nordic I-joists, failure to follow allowable hole sizes and locations, or failure to use web stiffeners when required can result in serious accidents. Follow these installation guidelines carefully.

STORAGE AND HANDLING GUIDELINES

1. Bundle wrap can be stripipped when set. Avoid walking on wrapped bundles.

2. Store, stack, and handle I-joists vertically and level only.

3. Always stack and handle I-joists in the upright position only.

4. Do not store I-joists in direct contact with the ground or nearby water.

5. Protect I-joists from weather, and use spacers to separate bundles.

6. Bundled units should be kept intact until time of installation.

7. When handling I-joists with a crane on the job site, take a few simple precautions to prevent damage to the I-joists and injury to your crew.

- Pick I-joists in bundles as shipped by the supplier.

- Orient the bundles so that the webs of the I-joists are vertical.

- Pick the bundles at the 5th points, using a spreader bar if necessary.

8. Do not handle I-joists in a horizontal orientation.

9. Never use or try to repair a damaged I-joist.

Notes:

- Always follow applicable building codes.

- Do not install I-joists in earthquake prone areas or regions where a high wind load is anticipated.

- Always protect I-joists from water damage during transportation and storage.

- Install backer block tight to top flange.

- Install backer block where the backer block will fit. Clinch.

- Install double I-joist capacity to support concentrated loads.

- When I-joists are applied continuous over interior supports and a load-bearing wall is planned at that location, blocking will be required at the interior support.

- The IBC requires blocking over all interior supports.

- Do not install I-joists in earthquake prone areas or regions where a high wind load is anticipated.

- Timber sections are not covered by this detail.

NORDIC I-JOIST SERIES

RESIDENTAL SERIES

Notes:

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

- 2. For multiple-span application, the end spans shall be blocked.

- 3. Verify double I-joist capacity to support concentrated loads.

- 4. Bearing stiffeners are not required when I-joists are not covered by this detail.

- 5. Minimum bearing width shall be 1-1/2 inches for end bearing and 3 inches for intermediate bearings.

- 6. Bearing stiffeners are not required when I-joists are not covered by this detail.

- 7. When handling I-joists with a crane on the job site, take a few simple precautions to prevent damage to the I-joists and injury to your crew.

- 8. Do not handle I-joists in a horizontal orientation.

- 9. Never use or try to repair a damaged I-joist.

Notes:

- 1. The minimum grade for backer block material shall be Utility grade S-P-F (south) per AASHTO M218. For additional information, please contact Nordic Structures.

- 2. For multiple-span application, the end spans shall be blocked.

- 3. Verify double I-joist capacity to support concentrated loads.

- 4. Bearing stiffeners are not required when I-joists are not covered by this detail.

- 5. Minimum bearing width shall be 1-1/2 inches for end bearing and 3 inches for intermediate bearings.

- 6. Bearing stiffeners are not required when I-joists are not covered by this detail.

- 7. When handling I-joists with a crane on the job site, take a few simple precautions to prevent damage to the I-joists and injury to your crew.

- 8. Do not handle I-joists in a horizontal orientation.

- 9. Never use or try to repair a damaged I-joist.
1. Installation of Nordic I-joists shall be as shown in detail 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 I-joist. Concentrated loads should not be supported 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 16 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. Edges of floor joists shall be restrained to prevent rotation. Use rim board or 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 (simple 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 allowable vertical load using a single I-joist is 2,000 lb, and 4,000 lb for 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, bearing stiffeners 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, 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 3.3 of the Nordic Joist Technical Guide (NJT-GT).
13. Details 1 show only I-joist-specific fastener requirements. For other fastener requirements, see the applicable building code.

1. Cantilevered joists must be properly sized to support all design loads. Refer to Table 4.1.

2. Blocking is required along the cantilever support. Refer to details 1a and 1b, Table 4.2.

3. Blocking must be properly sized to support all design loads. Refer to Table 4.1.

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 one-third of the span. 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 -, permitted at that location.

5. A 1-1/2 inch hole or smaller shall be permitted anywhere in a cantilevered section of a joist. Holes of greater size may be installed over openings, such as doors or windows, where the differential deflection between the joist and opening meets the requirements for a single round hole circumscribed around them.

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 -, permitted at that location.

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 installed over openings, such as doors or windows, where the differential deflection between the joist and opening meets the requirements for a single round hole circumscribed around them.

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.
**WEB HOLES IN I-JOISTS**

**Rules for Cutting Holes in I-Joists**

1. The distance between the inside edge of the support and the centerline of any hole shall be in compliance with the requirements of Table 6.1.

2. Holes in web should be cut with a sharp saw.

3. Where more than one hole is necessary, the distance between adjacent holes shall equal the lesser of the diagonal edge of the hole and the adjacent flange.

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 inch. Maximum 1-1/2 inch or smaller holes shall be permitted anywhere in a straight line of holes of the same size.

5. Minimum 1/8" space between top or bottom flange and opening.

6. Where more than one hole is necessary, the distance between adjacent holes shall equal the lesser of the diagonal edge of the hole and the adjacent flange. Each hole must be sized and located in compliance with the requirements of Tables 6.1 and 6.2.

7. Holes measuring 1-1/2 inch or smaller shall be permitted anywhere in a straight line of holes of the same size.

8. All tables in Table 6.1 and 6.2 can be applied anywhere in the web provided that they meet the requirements of that number in another location.

**Duct chase openings**

1. The distance between the inside edge of the support and the centerline of a duct chase opening shall be in compliance with the restrictions listed in Table 6.2. Joist and bottom flange lines must not be cut, cut at an angle, or otherwise modified.

2. The maximum depth of a duct chase opening that can be cut in an I-joist web shall equal the maximum clear distance between the flanges of the I-joist plus 1/4 inch. In minimum of 100 lb. should always be maintained for the top or bottom of the opening and the adjacent flange.

3. All openings shall be cut in accordance with the restrictions listed above, and each hole must be sized and located in compliance with one or more of the requirements.

4. Limit three maximum-size holes per span.

5. Limit one maximum-size hole per span.

**HOLDS IN BLOCKING PANELS**

- The maximum allowable hole size is based on the blocking panel in 2/3 of the largest dimension of the blocking panel’s depth or length. Assuming the blocking panel is longer than the length of the opening, the table below applies.

- For other applications, consult Nordic Structures.

- Holes must be centered in the blocking horizontally.

- White oak blocking and red oak blocking panels may be used provided that the clear hole is not greater than 24 inches. Blocks flaring openings or permitting concrete penetration are prohibited.

- All holes must be in a workmanlike manner in accordance with the limitations listed above.

**TABLE 6.1 - LOCATION OF WEB HOLES**

<table>
<thead>
<tr>
<th>Hole Diameter (in.)</th>
<th>Minimum Distance from Flange Edge to Center of Any Hole (in.)</th>
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<tbody>
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**TABLE 6.2 - LOCATION OF DUCT CHASE OPENINGS**

<table>
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<tr>
<th>Hole Diameter (in.)</th>
<th>Minimum Depth of Duct Chase Opening (in.)</th>
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**RIM BOARDS**

- **Rim Board Joint Between Flange Joints**

  - **Notes:**
    1. All tables in Table 6.1 and 6.2 can be applied anywhere in the web provided that they meet the requirements of that number in another location.

- **Rim Board Joint Between Corner**

  - **Notes:**
    1. All tables in Table 6.1 and 6.2 can be applied anywhere in the web provided that they meet the requirements of that number in another location.

**INSTALLING THE NAILED-GLUED FLOOR SYSTEM**

1. Whips any must, dirt, dirt, or other from any flange bottoms before gluing.

2. Stake a cleat across the I-joists from the beam to the wall to prevent any distortion or spreading glue.

3. Spread evenly enough to lay one or two panels in a row as indicated. Spacing should be consistent.

4. Start the cutting of each I-joist web by drilling a 1-inch-diameter hole in each of the four corners and then making the cuts between the holes in a manner to minimize damage to the I-joist.

5. All openings shall be cut in accordance with the restrictions listed above.

6. The maximum allowable hole size is based on the blocking panel in 2/3 of the largest dimension of the blocking panel’s depth or length. Assuming the blocking panel is longer than the length of the opening, the table below applies.

- For other applications, consult Nordic Structures.

- Holes must be centered in the blocking horizontally.

- White oak blocking and red oak blocking panels may be used provided that the clear hole is not greater than 24 inches. Blocks flaring openings or permitting concrete penetration are prohibited.

- All holes must be in a workmanlike manner in accordance with the limitations listed above.

**Notes:**

- Always consider the limitations listed above.

**TABLE 6.1 - LOCATION OF WEB HOLES**

<table>
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<th>Hole Diameter (in.)</th>
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**TABLE 6.2 - LOCATION OF DUCT CHASE OPENINGS**

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**Notes:**

1. All tables in Table 6.1 and 6.2 can be applied anywhere in the web provided that they meet the requirements of that number in another location.

**APR Rated Stock/Floros/Floor Schedules**

<table>
<thead>
<tr>
<th>Minimum Joint Distance (in.)</th>
<th>Maximum Span (ft)</th>
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<td>7-1/4&quot;</td>
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**Notes:**

- Indian elm blocking is in blocking, where the blocking opening is larger than the opening.