Pursuant to Administrative Code Section 27-131, the following equipment or material has been found acceptable for use in accordance with the Report of Materials and Equipment Acceptance (MEA) Division.

Patricia J. Lancaster, F.A.I.A., Commissioner
MEAE101-00-E Vol. V
Report of Material and Equipment Acceptance Division

1.0 MANUFACTURER

LOUISIANA-PACIFIC CORPORATION 2706
HIGHWAY 421 NORTH WILMINGTON, NORTH CAROLINA 28401 9L0. 762.93"S www.ipcorporation.com

2.0 TRADE NAME

LPI 18, LPI 20W, LPI 20, LPI 20X1.5 (Also known as LPI 20PLUS), LPI 20X1.7, LPI 32W, LPI 32 AND LPI 42X1.8 (Also known as LPI 42PLUS) Series Wood I-JOISTS and RIM BOARDS

3.0 PRODUCT

Wooden I-joists, with flanges made of kiln-dried, solid sawn lumber and webs of oriented strand board structural panels. The I-joist series, depths and flange sizes are given in Table I.

4.0 USES

LPI Wood I-Joists are intended for structural applications such as, but not limited to, Moir joists, roof joists, blocking panels and rim joists.

5.0 DESCRIPTION

5.1 Pertinent Code Sections

Pertinent code sections for the LPI Wood I-Joists are: Article 7 Wood. Section 27-617 and Reference Standard RS-10, Section 27-133 Alternate or Equivalent Material.

5.2 General

LPI Wood I-Joists have structural wood flanges and a single web as specified in the approved Quality Assurance Manual (herein referred to as the Manual) that contains the manufacturing standards. Web sections are end-jointed together to form a continuous web. Web end joints shall be of the types specified in the Manual. The web-flange connection is made by inserting the beveled edge of the web into a groove centered in the wide face of the flange member.

The flange sizes, depths and manufacturing tolerances of the I-joists shall be as specified in the Manual.

5.3 Materials

5.3.1 Flanges

The flange material is solid sawn lumber that meets the requirements noted in the Manual.

5.3.2 Webs

Web panels must be at least 3/8-inch (9.5 mm) thick and comply with U.S. Voluntary Product Standard PS 2-92 and the Manual.

5.3.3 Adhesive

Adhesives are exterior wet use types complying with ASTM D25:9 and shall be of the types specified in the Manual.

5.3.4 Quality Assurance Manuals

All LPI Wood I-Joists are manufactured under a strict Quality Assurance Program outlined in the below Quality Assurance Manuals:


6.0 DESIGN AND INSTALLATION

6.1 Design

LPI Wood I-Joists must be designed in accordance with Tables I to S of this report, except that appropriate design load(s), Deflection limitation(s) and other performance standards of the New York City Building Code shall apply. The following conditions also apply:

1. Web stiffeners are optional when the LPI Wood I-Joists are designed in accordance with Tables I to S, except when any of the following conditions are encountered:

   a. Bird's mouth cuts. See Figure 6, Detail 6.
   b. Where sloped joist hangers support I-joists.
   c. Where joist hangers do not laterally support the I-joist's top flange.
   d. When required by Table I due to actual reaction loads.

2. The tabulated maximum resistive moments given in Table I for I-joist shall not be increased by any code allowed repetitive member use factor.

3. An analytical approach for the location and size of I-joist web holes, including use of the LP design software can be used in lieu of the hole chart tables or web hole equations noted in this report, provided the hole calculations are reviewed and approved by a professional engineer. Size and location of allowable web holes are noted in Tables 2A. 2B. 3A, and 3B for the LPI 18 Series I-joists, ind in Tables 4A, 4B, 5A. and S8 for all other LPI Series I-joists described in this report. Web hole equations are noted in Tables 6 and 7 for the LPI 18 and other LPI Series I-joists. respectively. If the engineer uses the LP design software for web hole design, the engineer must provide proper reference to the Software. Figure 1 shows the web hole drawings.

4. For the purpose of nailed connections, such as i wood structural panel connection to an I-joist top flange, the assumed specific gravity for the flange material shall be 0.42.

6.2 LPI I-Joist Rim Board Applications

The LPI I-joists are recognized for use as rim boards as shown in Figure 4, Detail 2. For the purpose of this report, rim boards are defined as
continuously supported structural members, either located at the joint elevation in an and bearing wall or located parallel to the joint framing, that are the full depth of the joint space and are used to transmit the forces generated by the concrete structure. Allowable vertical loads are denoted in Table 7 and Table 9 for the transfer details.

2. Transfer, from group to group, of all vertical loads at the joint level location. Allowable vertical loads are denoted in Table 7 and Table 9 for the transfer details.

3. Transfer of maximum 125 psi (870 kPa) in-plane lateral loads from the diagonals to the wall plate below. See Figure 4 for the transfer details.

4. Provide lateral support to the joint under varying resistance against rotation through attachment to the joint wall anchor.

6.3 Installation

LPI Wood-L-Joists are installed in details shown in Figures 1 to 8 of this report.

1. All LPI joint up flanges must be laterally supported, and the ends must be restrained against prevent mover. This support is normally provided by diaphragm stitching attached to the top flange and an end wall or shear transfer panel capable of transferring 14 pounds per foot (710 N/m). Blocking or cross-bracing with equilateral gauge may also be used.

2. Sheathing attachment to the LPI joint flanges shall not exceed the nail spacing and minimum spacing requirements given in Table 8 for this report.

3. LPI joint attachment to supports shall not exceed the nail spacing and minimum spacing requirements given in Table 8 for this report.

4. Bridge load may be omitted in floor and roof joint applications. Blocking is required during construction, in accordance with the manufacturer's instructions.

5. The material, size, and attachment of web reinforcement shall be as illustrated and described in Figure 7 of this report.

6. Details are directed towards proper installation of all LPI Wood-L-Joists. Other considerations, such as diaphragm connections, nailing and web transfers, require supplementary consideration by the responsible engineer.

7. Handling and Storage

a. Unload LPI joints carefully, by lifting. Support the bundles to reduce excessive bowing. Individual LPI joints should be handled in a manner that prevents physical damage to the LPI joint during measuring, cutting, erection, etc. LPI joints should be handled vertically and not allowed to topple.

b. LPI joints should remain stored in wrapped and strapped bundles, stacked no more than 12 feet high, using blocking supports between bundles spaced no more than 10 feet apart.

c. LPI joints must not be stored in contact with the ground, or have prolonged exposure to the weather.

d. When LPI joints are stored out of doors or exposed to wet weather conditions during construction, the use shall inspect LPI joints for flange-web separation, warping and warping if damaged.

6.4 One-Hour Fire-Resistance-Rated Floor-Ceiling Assembly

The single-layer floor or roof deck consists of 23.25-inch (60 mm) thick tempered-glass APA-rated plywood sheathing. Stair/Floor or equivalent (Exposure 1 or Exterior glue), over LPI joints spaced up to 34 inches (860 mm) on center. In lieu of the 23.25-inch (60 mm) thick floor sheathing, 19/12-inch (111 mm) thick sheathing with a 1/4-inch (6 mm) thick fire-resistant adhesive is acceptable.

The ceiling may be insulated with a minimum of 1 inch (25 mm) thick Type X gypsum board attached to the LPI joint with staggered end joints. The first layer of gypsum wallboard is attached perpendicular to the LPI joint with staggered end joints. The second layer of gypsum wallboard is attached parallel to the LPI joint, with end joints staggered. Using 1-5/8-inch (42 mm) long Type W screws spaced 12 inches (305 mm) on center. The second layer of gypsum wallboard is attached perpendicular to the LPI joint, all joints are staggered from the first layer. Using 1-5/8-inch (42 mm) long Type W screws spaced 12 inches (305 mm) on center on the LPI joint, and 1-1/2-inch (38 mm) long Type W screws spaced 16 inches (406 mm) on center under the LPI joint. The second layer must be finished with joints taped and compounded. See Figure 8 for additional details.

6.5 Sound Ratings

The systems in Section 6.4 have the sound transmission and impact insulation classification noted in Table 9 of this report.

7.0 IDENTIFICATION

LPI Wood-L-Joists shall be identified with the Louisiana-Pacific Corporation name or logo, the quality assurance agency name or logo (APA-The Engineered Wood Association), the minor number (MEA-000), the mill number and the date of fabrication.

8.0 EVIDENCE SUBMITTED

Tests - Floor Tension Tests, EI and Moment Capacity Tests, Shear Capacity Tests, Multiple Span Bearing Tests, Multiple Deck Bearing Tests, Round Web Opening Shear Capacity Tests, and Kerstenska Web Opening Shear Capacity Tests. Laboratory - Vibration testing was performed by Louisiana-Pacific Corporation and was reviewed by a representative of IFS Corporation, Intertek Testing Services or APA-The Engineered Wood Association. Tables and drawings contained in this report were prepared by Louisiana-Pacific Corporation and released by Donald Michael McGee, P.E., New York State License No. 04110.

Test Reports for LPI joint details are as follows:

- LPI 22 Series LPI-1: Tension, EI Bending, Moment, Deflection, Creep, R-factor, M2E and H2E Tests.
- LPI 22 Series LPI-2: Single and Multiple Span Tests.
- LPI 22 Series LPI-3: General Specifications: Test Reports, Simple Calculation and Data.
- Qualification Test Data for LPI 22 Series: 1/4 Test.
- Qualification Test Data for LPI 22 Series: Full Scale.
- Qualification Test Data for LPI 20X1 Series: 1/2 Series.
- Qualification Test Data for LPI 20X1 Series: Full Scale.
- Qualification Test Data for LPI 20X1 Series: Revised Recent Moment Design Values.
- Qualification Test Data for LPI 20X1 Series: 1/2 Series Manufactured by LP Rimens.
- Qualification Test Data for LPI 20X1 Series: Full Scale Manufactured by LP Watson.
- Qualification Test Data for LPI 20X1 Series: 1/2 Series Manufactured by LP Chabougou.
- Qualification Test Data for LPI 20X1 Series: Full Scale Manufactured by LP Rimens.
- Qualification Test Data for LPI 20X1 Series: 1/2 Series Manufactured by LP Watson.
- Qualification Test Data for LPI 20X1 Series: Full Scale Manufactured by LP Rimens.
- Qualification Test Data for LPI 20X1 Series: 1/2 Series Manufactured by LP Watson.
- Qualification Test Data for LPI 20X1 Series: Full Scale Manufactured by LP Rimens.
- Qualification Test Data for LPI 20X1 Series: 1/2 Series Manufactured by LP Watson.

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CONDITIONS OF USE

The LPI-I-joists described in this report shall comply with this report and are subject to the following conditions:

1. The LPI wood I-joists shall be designed in accordance with this report. Details provided in Figure 1 through 8 and Tables 1 through 9 of this report are to be confirmed for applicability for each project. Engineering calculations may be required. The following items should be considered when submitting calculations to the building official: lateral support, vertical support, connection including selection of clips, etc., location and size of web holes and uplifted loads and spans.

2. Structural designs using LPI-I-joists shall conformance to the manufacturer's specifications except that appropriate design load(s), deflection limitation(s) and other performance standards of the New York City Buildings Code shall apply.

3. Where a one-hour fire-resistance rating is required, construction shall comply with Section 6.4 of this report.

4. Where sound transmission and impact requirements are exceeded by the codes, this report shall comply with Section 6.3 and Table 9 of this report.

5. The I-joists must be installed in accordance with this report and the manufacturer's installation details. Installation details may require supplementary consideration as noted in Section 6.3.

6. The I-joists are manufactured in accordance with the Quality Assurance Manual using third-party inspections by APA, The Engineered Wood Association at the Louisiana-Pacific Corporation Engineered Wood Products facilities in Wilmington, North Carolina, Red Cliff, California, Larche, Quebec, Canada, St. Prince, Quebec, Canada, and in the Jager Building Systems facility in Bolton, Ontario, Canada and at the Les Chariots de Chimbouque, Limited, facility in Chimbouque, Quebec, Canada.

10.0 RECOMMENDATIONS

That the LPI-I-joists be accepted on the condition that all uses, locations and installations shall comply with the applicable requirements of the New York City Building Code and Technical Policy and Procedure Notice #8, 1992 dated August 19, 1992, and 1999 #2/90 dated July 24, 2000 (attached) and on further condition that:

1. Structure designs using wood I-joists shall conform to the manufacturer's specifications except that appropriate design load(s), deflection limitation(s) and other performance standards of the New York City Building Code shall apply.

2. When more than one location or exposed to wet weather conditions during construction, be inspected by the case for flange-web separation, warping or warping and replaced if so damaged.
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Notes:
1. The moment and shear values are for normal duration of load. Duration of load adjustments may be applied in accordance with the allowable load adjustments of the New York City Building Code.
2. The allowable design values are for dry use conditions only. Dry use applies to products installed in dry, covered areas, where the equilibrium moisture content will not exceed 15%.
3. When calculating deflection, both bending and shear deformations shall be determined.
4. The moment capacity shall not be increased by any code allowed repetitive member use factor.
5. W x L is the product stiffness, W x L x S is without web stiffeners.

Example: formula for uniform load on a simple span, for example:

\[ \Delta = \frac{2200 W L}{K EI} \]

where
- \( \Delta \) = Deflection in inches
- W = Uniform load in pounds per linear foot (plf)
- L = Design span in feet
- K = Shear deformation coefficient
- EI = Stiffness in kip-in.

For SI units: 1 in = 25.4 mm, 1 lb = 0.444 kN, 1 ft = 0.3048 m, 1 kip = 6.895 kN, 1 kip-ft = 10.8 Nm

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<td>9-1/2&quot;</td>
<td>1-1/4&quot;</td>
<td>1-1/2&quot;</td>
<td>1-1/8&quot;</td>
<td>1-1/4&quot;</td>
<td>1-1/2&quot;</td>
</tr>
<tr>
<td>11-7/8&quot;</td>
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<td>1-1/8&quot;</td>
<td>1-1/4&quot;</td>
<td>1-1/2&quot;</td>
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<tr>
<td>14&quot;</td>
<td>1-1/4&quot;</td>
<td>1-1/2&quot;</td>
<td>1-1/8&quot;</td>
<td>1-1/4&quot;</td>
<td>1-1/2&quot;</td>
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<tr>
<td>16&quot;</td>
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<td>1-1/8&quot;</td>
<td>1-1/4&quot;</td>
<td>1-1/2&quot;</td>
</tr>
</tbody>
</table>

**Design Assumptions:**
1. The hole locations listed above are valid for joists supporting only uniform loads. The total uniform load must not exceed 1.16 lbs per sq. ft. for joists greater than 9-1/2" deep, or 1.22 lbs per sq. ft. for joists greater than 11-7/8" deep.
2. Hole locations are measured from the inside face of the joist to the center of holes.
3. Maximum hole depth for circular and rectangular holes is 7/8" deep, except the maximum hole depth is 7/16" for 11-7/8" deep 14" long joists. Maximum hole depth for rectangular holes exceeds the maximum hole depth, the dimension is not shown. Where the Maximum Hole Dimension for rectangular holes extends the maximum hole depth, the dimension is not shown. Where the hole entry is concealed before checking hole location.

**General Notes:**
1. **Do Not Overcut Holes.** Do not cut jot planks.
2. Circular and rectangular holes may be placed anywhere within the depth of the joist. A maximum of 1" clear distance is maintained between the holes and the flange.
3. Round holes and 1-1/2" diameter may be placed anywhere in the web.
4. Perforated "Vent-Holes" may be registered when locating web holes.
5. Valved Joists are not permissible in the web without special engineering.
6. Miter holes must have a clear separation along the length of the joist of at least 16" between holes of the larger diameter, or a minimum of 12" center-to-center, whichever is greater.
7. Miter holes must be located not more than 16" on-center. A hole entry is made within the bearing of an acceptable larger hole. Examples: 1-1/2" round holes drilled parallel to the grain may be spaced 24" on-center in the web, and 36" on-center in the web. Round holes are spaced 36" on-center in the flanges, and 48" on-center in the flanges. A hole entry is made within the bearing of an acceptable larger hole. Examples: 2-1/2" round holes located parallel to the grain may be spaced 48" on-center in the web, and 72" on-center in the flanges. Round holes are spaced 72" on-center in the flanges.
8. Larger holes, including entry and adjacent holes, must not exceed 15-1/2" on-center, and 24" on-center in the flanges. Round holes may be spaced 24" on-center in the web, and 36" on-center in the flanges. Round holes are spaced 36" on-center in the flanges.
9. SI Units Conversion: 1 in. = 25.4 mm, 1 lb. = 0.45 kg.
10. MEA 101-00-E Vol. V

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<table>
<thead>
<tr>
<th>Joint Depth</th>
<th>Clear Span</th>
<th>Diameter to End Support</th>
<th>Diameter to Intermediate Support</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>9-1/2&quot;</strong></td>
<td>7 1/2&quot;</td>
<td>1 4/8&quot;</td>
<td>1 4/8&quot;</td>
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<tr>
<td></td>
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<td>1 3/4&quot;</td>
<td>1 3/4&quot;</td>
</tr>
<tr>
<td></td>
<td>5 1/2&quot;</td>
<td>1 1/8&quot;</td>
<td>1 1/8&quot;</td>
</tr>
<tr>
<td><strong>11-7/8&quot;</strong></td>
<td>7 1/2&quot;</td>
<td>1 7/8&quot;</td>
<td>1 7/8&quot;</td>
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<tr>
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</tr>
<tr>
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<td>1 3/8&quot;</td>
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<td><strong>16&quot;</strong></td>
<td>7 1/2&quot;</td>
<td>1 1/8&quot;</td>
<td>1 1/8&quot;</td>
</tr>
</tbody>
</table>

**DESIGN ASSUMPTIONS:**
1. The holes shown are valid for joints supporting only uniform loads. The overload design load must exceed 135% of the normal load, as provided in the Load Factor Table, for a 1 1/2" joint. For a joint depth less than 7 1/2", the joint depth limit is reduced to 1 4/8".
2. Intermediate holes are valid for any joint depth, except for 11-7/8" and 14" where they are not valid. The maximum joint depth is limited by the maximum load depth, as shown in the Load Factor Table.
3. Minimum joint depth is 7 1/2" for circular and rectangular holes in joint depths less than 11-7/8", except the maximum joint depth to be 11-7/8" for 11-7/8" and 14" joint depths. The maximum joint depth is limited by the maximum load depth, as shown in the Load Factor Table.

**GENERAL NOTES:**
1. CLUT HOLES CANNOT BE USED FOR LATERAL SUPPORT.
2. Round and rectangular holes may be placed anywhere within the depth of the joint. A minimum 1/4" clearance is required between the hole and flanges.
3. Holes should be placed at the top or bottom of the joint. For flanges, the clearances should be maintained at least 1/4" from the top or bottom of the joint.
4. Preferred "knuckle" may be selected when locating with holes.
5. Holes larger than 1 1/2" are not permitted in continuous wall without special engineering.

**NOTES:**
- LT: Joint holes must have a clear separation along the length of the joint of at least twice the length of the larger adjacent hole, or a minimum of 1 1/2" center-to-center. In practice, this separation is increased to 3 1/4" to prevent interference with adjacent holes.
- Multiple holes may be spaced closer provided they fit within the boundary of an acceptable larger hole. Example: two 3/8" holes may be placed adjacent in a 3/4" joint up to 2 1/2" apart (clear distances provided then 3 1/4" high by 3 1/4" large). The 3/4" joint is acceptable up to 2 1/2" apart (clear distances provided then 3 1/4" high by 3 1/4" large). The 3/4" joint is acceptable up to 2 1/2" apart (clear distances provided then 3 1/4" high by 3 1/4" large). The 3/4" joint is acceptable up to 2 1/2" apart (clear distances provided then 3 1/4" high by 3 1/4" large).
- Larger holes are subject to loads of conventional loads, and clear provisions to support and other holes may be modified with further analysis (see note 4).

**References:**
- MEA 101-00-E Vol. V
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**TABLE 3B – LPH II SERIES 1-HOISTS HOLE CHART: 40 PSF LIVE LOAD, 25 PSF DEAD LOAD, UP TO 24" OC**

<table>
<thead>
<tr>
<th>Joint/Depth</th>
<th>Clear Span</th>
<th>Rectangular Holes</th>
<th>Distance from End to Support</th>
<th>Maximum Hole Diameter in Wash</th>
<th>Distance from Center of Hole to Support</th>
<th>Maximum Hole Diameter in Wash</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 6 1/2</td>
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<td>1 1/4&quot;</td>
<td>1 1/4&quot;</td>
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<td>1 1/4&quot;</td>
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<td>3 1/4&quot;</td>
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</tr>
<tr>
<td>10 1/2</td>
<td>3 1/4&quot;</td>
<td>3 1/4&quot;</td>
<td>3 1/4&quot;</td>
<td>3 1/4&quot;</td>
<td>3 1/4&quot;</td>
<td>3 1/4&quot;</td>
</tr>
</tbody>
</table>

**DESIGN ASSUMPTIONS:**
1. The hole locations listed above are valid for holes supporting only uniform loads. The total uniform load is the sum of the live load (L) and a 75 lbs dead load (D), spaced up to 24" ext. The uniform Dead Load must be at max. 100 lbs.
2. Hole location is measured from the inside face of the beam in the center of a circular or rectangular hole in the beam. (Holes must be centered above the weld line for the equivalent support.)
3. Maximum hole depth for circular and rectangular holes is 6" unless otherwise specified in Table 3B-2. Maximum hole depth for rectangular holes is 18". Where the maximum hole dimension for rectangular holes exceeds the maximum hole diameter in Table 3B-2, the maximum hole width and depth is assumed to be the maximum for that joint depth.
4. Holes cannot be located in the span where designated "X", without further analysis by a design professional (i.e., not for 1/2" holes).
5. Clear Span has NOT been verified if these joints are used in a structure for residential purposes only. Verify that the joint units meet the Code for the span and loading conditions needed before checking hole location.

**GENERAL NOTES:**
1. CUT HOLES CAREFULLY! DO NOT CUT JOIST FLANGE!
2. Circular and rectangular holes may be placed anywhere within the depth of the joint. A minimum 1/4" clear distance is required between the hole and a flange.
3. Round holes up to 1 1/2" diameter may be placed anywhere in the web.
4. Perforated "access holes" may be required when hoisting with holes.
5. Holes larger than 1 1/2" are not permitted in cantilever without special engineering.
6. Multiple holes require a total separation along the length of at least twice the length of the larger adjacent hole. A minimum of 1/2" center-circumference is greater.
7. Multiple holes may be spaced closer provided the space is not less than the minimum shown. Example: 1 1/2" circular holes in 4" joist spacing. 1 1/2" circular holes spaced 4" center-to-center will provide a minimum of 1/2" between holes.
8. Holes larger than 1/2" require a total separation along the length of at least twice the length of the largest adjacent hole. A minimum of 1/2" center-circumference is greater.
9. All series are available in all depths. Check availability with a local LP Engineered Wood Products distributor.
10. M. Use Connections. 1 = 3/8". 2 = 7/32". 4 = 1/16". 8 = 9/64".
### TABLE 4A - WEB HOLE CHART (NOT INCLUDING LPI 18) - 40 PSF LIVE LOAD, 15 PSF DEAD LOAD, UP TO 24" OC (CIRCULAR HOLES)

<table>
<thead>
<tr>
<th>Joint Depth</th>
<th>Clear Span</th>
<th>Diameter from End Support</th>
<th>Diameter from Inside Support</th>
<th>Dovetail Hole</th>
</tr>
</thead>
<tbody>
<tr>
<td>6&quot;</td>
<td>1-1/2&quot;</td>
<td>1-1/2&quot;</td>
<td>1-1/2&quot;</td>
<td>1-1/2&quot;</td>
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<td>1-1/2&quot;</td>
<td>1-1/2&quot;</td>
<td>1-1/2&quot;</td>
</tr>
</tbody>
</table>

**DESIGN ASSUMPTIONS**

1. The hole location table above are valid for joints supporting only uniform loads. The total uniform load must exceed 11 gsf (i.e., 40 gsf up to 24" oc). The uniform Dead Load must be at least 15 gsf.

2. Hole location is measured from the inside face of bearing to the center of a circular or dovetail hole, or the center plane of a rectangular hole.

3. Rectangular holes are up to 10" full-width holes with symmetrically-located drilled holes defined by three overlapping circular holes spaced 2" on 6" centers.

4. Maximum hole depth for circular and rectangular holes is Joint Depth less 4", except the maximum hole depth is 3" for 14" on 6" centers for rectangular holes at 10".

**GENERAL NOTES**

1. CUT HOLES CAREFULLY! DO NOT CUT OR DRILL HOLES. DO NOT CUT OR DRILL FLANGES.

2. Circular and rectangular holes may be placed anywhere within the depth of the joist. A minimum 1" clear distance is required between the hole and a Flange. Dovetail holes may be up to full-width.

3. Rectangular holes up to 1-1/2" diameter may be placed anywhere in the web.

4. Perforated "knocked-out" holes may be used for locations where other holes are prohibited. The minimum 1" clear distance is required between the hole and a Flange.

5. Flathead holes may be placed up to 1-1/2" from the center of the 1-1/2" clear distance between holes.

### Footnotes:

- **LPI 18**: These hole locations are designed to be used with LPI 18 framing and are shown for informational purposes only. Verify that the joint selected will work for the specific application and that the wood is nominal grade 2. The material listed before the hole type is the nominal thickness of the framing member before the material is cut off.

- **Clear Span**: Has been verified for those joists designed "1-1/2" without further analysis by a design professional (see note 3 below).

- **Note**: All details are available in full depth. Check availability with a local LP Engineered Wood Products Department.

- **SL FRAMING**: A = 9.1 in²; C = 1.1 in.²; I = 38.4 in.⁴
<table>
<thead>
<tr>
<th>Column 1</th>
<th>Column 2</th>
<th>Column 3</th>
<th>Column 4</th>
<th>Column 5</th>
<th>Column 6</th>
<th>Column 7</th>
<th>Column 8</th>
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</thead>
<tbody>
<tr>
<td>2.5</td>
<td>3.8</td>
<td>5.1</td>
<td>6.4</td>
<td>7.7</td>
<td>9.0</td>
<td>10.2</td>
<td>11.5</td>
</tr>
<tr>
<td>5.5</td>
<td>8.7</td>
<td>11.9</td>
<td>15.1</td>
<td>17.3</td>
<td>19.5</td>
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<tr>
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<td>24.4</td>
<td>28.5</td>
<td>32.6</td>
<td>36.7</td>
</tr>
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</table>

**TABLE 4B - WEB HOLE CHART (NOT INCLUDING LPI 18): 40 PSI LIVE LOAD, 15 PSI DEAD LOAD, UP TO 24° OC**

**Rectangular Holes**

- **C style:** 2.3 to 4.7
- **C style:** 4.7 to 8.5
- **C style:** 8.5 to 11.5
- **C style:** 11.5 to 14.5
- **C style:** 14.5 to 17.5
- **C style:** 17.5 to 20.5
- **C style:** 20.5 to 23.5
- **C style:** 23.5 to 26.5

**Design Assumptions:***

1. The hole locations listed above are valid for joists supporting only uniform loads. The total uniform load must be recovered in the moment connection. The Design Moment (Max. Dead Load) must be at least 10 psi. The total moment must be the maximum.
<table>
<thead>
<tr>
<th>Joint</th>
<th>Clear</th>
<th>Diameter from End Support</th>
<th>Designing from Support</th>
<th>CIRCULAR HOLES (Including Obround Holes)</th>
<th>CIRCULAR HOLES (Including Obround Holes)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Clear</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4' 2&quot;</td>
<td>H2</td>
<td>8&quot; - 12&quot;</td>
<td>12&quot; - 16&quot;</td>
<td>24&quot; - 32&quot;</td>
<td>48&quot; - 64&quot;</td>
</tr>
<tr>
<td>11' 2&quot;</td>
<td>H4</td>
<td>8&quot; - 12&quot;</td>
<td>12&quot; - 16&quot;</td>
<td>24&quot; - 32&quot;</td>
<td>48&quot; - 64&quot;</td>
</tr>
<tr>
<td>16&quot;</td>
<td>H4</td>
<td>8&quot; - 12&quot;</td>
<td>12&quot; - 16&quot;</td>
<td>24&quot; - 32&quot;</td>
<td>48&quot; - 64&quot;</td>
</tr>
</tbody>
</table>

**DESIGN ASSUMPTIONS**

1. The hole clear diameters shown are valid for joint supports with obround holes. The total uniform load must not exceed 100 plf (p = 100). The uniform Dead Load must not exceed 10 plf.
2. It is recommended that the full-depth holes be used for a joint support when the uniform load is above 10 plf.
3. Obround holes are used for joint supports with a clear diameters of 8", 12", and 16".
4. The maximum depth for circular and rectangular holes is 16". The maximum depth for obround holes is 32". Where the Maximum Joint Depth is exceeded, the maximum dead load must be reduced to be the maximum for the particular depth.
5. Holes cannot be located in the area where designed "O", without further analysis by a competent engineer.
6. Bolt Stress has not been verified for these gusset plates for information purposes only.
7. For joint supports with dead loads above 10 plf, the designer should consult a qualified engineer for load calculations.

**GENERAL NOTES**

1. **CUT HOLES CAREFULLY!** DO NOT OVERCUT HOLES: DO NOT CUT JOINT FLANGES!
2. Circular and rectangular holes may be placed anywhere within the depth of the plate. A maximum 5" clear distance is required between the top and a flange. Obround holes may be placed 2" below the plate.
3. Round holes up to 2" diameter may be placed anywhere in the web.
4. Perforated "knuckle" may be allowed when tolerances are done by machine.
5. Holes larger than 2" may be placed in gusset plates without special engineering.
6. Multiple holes must be clearly separated by the distance of at least 1/2 the length of the longer plate, or a minimum of 12" when less than. A minimum of 12" between holes. Exception: A layout of holes smaller than 3" may be placed closer than 12" to a clear distance of 12".
7. Holes larger than 6" may be used for obround plates when the length of the plate is at least the length of the longer plate, or a minimum of 12" when less than. A minimum of 12" between holes. Exception: A layout of holes smaller than 6" may be placed closer than 12" to a clear distance of 12".
8. For joint supports with dead loads above 10 plf, the designer should consult a qualified engineer for load calculations.
9. The table includes a list of all holes available in all depths. Check availability with a local US government Product Standards office.
10. SI Units (British Standard) 1 m = 25 mm; 1 lb = 493 N.

**MEASUREMENTS**

- Width: 10" - 12" (250 mm - 300 mm)
- Height: 10" - 12" (250 mm - 300 mm)
- Depth: 8" - 12" (200 mm - 300 mm)
- Weight: 50 to 100 lbs (22 to 45 kg)
- Material: High-Strength Steel

**REFERENCES**

- ASME Boiler & Pressure Vessel Code
- UL 105/106/107 - Standard for Structural Steel Gusset Plates
- AISC 360-16 - Specification for Structural Steel Buildings

**NOTICE**

- All dimensions are approximate.
- All materials are subject to change without notice.
- Consult local code authorities for specific requirements.

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**DISCLAIMER**

- The information provided is for general guidance only.
- The designer should consult a qualified engineer for specific applications.

**CONTACT**

- For more information or to request a quote, please contact our sales team.
<table>
<thead>
<tr>
<th>Joint Depth</th>
<th>Crystal</th>
<th>Distance from End Support</th>
<th>Rectangle Holes</th>
<th>Distance from Interior Support</th>
<th>Rectangle Holes</th>
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<tbody>
<tr>
<td>0-15&quot;</td>
<td>4-1/2&quot;</td>
<td>11/2&quot; - 3&quot;</td>
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<td>3/8&quot; - 1&quot;</td>
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<td>3-1/2&quot; - 4&quot;</td>
<td>3-1/2&quot; - 4&quot;</td>
</tr>
</tbody>
</table>

**DESIGN ASSUMPTIONS:**
1. The hole locations (solid plane) are valid for joints supporting only uniform loads. The total uniform load must not exceed 50% of the allowable load based on 25 psf Dead Load and 40 psf Live Load, spaced up to 24 inch.
2. Hole locations are computed from the outside face of the column to the center of a circle or chord of hole, as in the specification.
3. Chordal hole locations for joint dead loads of each interior joint defined by the overlapping circle or chord of holes shown in the figure.
4. Stiffening hole locations for joints with Dead Loads less than 4", except the maximum chord of hole is 4" and 8". The Dead Load is assumed to be equal to the maximum chord of the beam.
5. Stiffening hole locations for joints with Dead Loads less than 4", except the maximum chord of hole is 4" and 8". The Dead Load is assumed to be equal to the maximum chord of the beam.
6. Clear hole locations for joints with Dead Loads less than 4", except the maximum chord of hole is 4" and 8". The Dead Load is assumed to be equal to the maximum chord of the beam.

**GENERAL NOTES:**
1. **CUT HOLES CAREFULLY!** DO NOT CUT HOLES WHICH DO NOT CUT JOINT FLANGES!
2. Circular and rectangular holes may be aligned anywhere within multiples of the joint. A minimum 1/8" clear distance is required between the holes and a flange. Chordal holes may be up to 1/2" web-depth.
3. Round holes up to 1/4" diameter may be placed anywhere in the web.
4. Perforated "Studholes" may be neglected when locating web holes.
5. Holes which are not penetrations are indicated without partial engineering.
6. Multiple hole rows must have a clear separation equal to the length of the stud or flange minus the thickness of the larger element hole or a minimum of 12", whichever is greater.
7. Exception: perforated "Studholes" may be placed within 1/2" clear distance between holes.
8. Multiple locations may be spaced closer provided they are within the boundary of a acceptable larger hole. Example: two 3" round holes spaced parallel to the centerline of the hole may be spaced 2" apart closer than provided for 2" spacing between centers provided both 2" holes are located parallel and spaced a maximum of 1/2" between centers.
9. Larger holes, greater uniform loads and web, and chord previsions in supports and other holes may be possible with further consultation. Section 1.5 of the AISC Specification should be consulted before proceeding.
10. All Unit Cylinders, 1.0 = 25 mm, 1.0 = .008 in.

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## Table 6 - LP18 Series Joint Web Hole Equations

(These may be used in lieu of the web hole charts)

**General Equation Form** for Circular and Rectangular Holes:

Allowable Web Hole Shear (lbs) = \( C_1 \times (D - H) \times D = C_2 \times W = C_3 \)

Where:
- \( D \) = Joint Depth (in.)
- \( H \) = Hole Height (in.)
- \( W \) = Hole Width (in.)

### Circular Holes

<table>
<thead>
<tr>
<th>Depth</th>
<th>( C_1 )</th>
<th>( C_2 )</th>
<th>( C_3 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;= 16”</td>
<td>946</td>
<td>0</td>
<td>224</td>
</tr>
</tbody>
</table>

### Rectangular Holes

<table>
<thead>
<tr>
<th>Depth</th>
<th>( C_1 )</th>
<th>( C_2 )</th>
<th>( C_3 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.5</td>
<td>534</td>
<td>-20.4</td>
<td>256</td>
</tr>
<tr>
<td>11.875</td>
<td>534</td>
<td>-20.4</td>
<td>256</td>
</tr>
<tr>
<td>14</td>
<td>977</td>
<td>-30.7</td>
<td>375</td>
</tr>
<tr>
<td>16</td>
<td>977</td>
<td>-30.7</td>
<td>375</td>
</tr>
</tbody>
</table>

### DESIGN ASSUMPTIONS

1. The Allowable Web Hole shear calculated from above is for normal load duration and can be increased for other durations.
2. The critical location for web shear in the center of a circular hole, or an equal edge of a rectangular hole.
3. Obtained holes are not allowed in the LP18 series.
4. Maximum hole depth for circular and rectangular holes is 1". Except the maximum hole depth is 6" for holes 2.5" and 3.5" in Diameter.
5. Minimum hole edge for rectangular holes is a horizontal line of the hole with no allowable depth is assumed to be the equivalent for the joint depth.

**FOR GENERAL NOTES, SEE TABLES 2 AND 3.**
TABLE 7 - WEB HOLE EQUATIONS (NOT INCLUDING LPI)

(May be used in lieu of the web hole charts)

Cutout Equation Formulas for Circle and Rectangular Holes:

\[
\text{ Allowable Web Hole Depth (in.): } D = 0.17 \times \frac{H}{W} \\
\text{ Where: } D = \text{Web depth (in.)} \]

\[
W = \text{Web width (in.)} \\
H = \text{Hole diameter (in.)} \\
\]

Cutout Table:

<table>
<thead>
<tr>
<th>Circle Holes</th>
<th>Rectangle Holes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depth (in.)</td>
<td>Depth (in.)</td>
</tr>
<tr>
<td>Holes (in.)</td>
<td>Holes (in.)</td>
</tr>
<tr>
<td>1/4&quot;</td>
<td>1/4&quot;</td>
</tr>
<tr>
<td>5/16&quot;</td>
<td>5/16&quot;</td>
</tr>
<tr>
<td>3/8&quot;</td>
<td>3/8&quot;</td>
</tr>
</tbody>
</table>

FIGURE 1 - WEB HOLE DRAWINGS

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FIGURE 2 - 1-IOIST LOAD BEARING CANTILEVER DETAILS

NOTES
1. Refer to Figure 1 for dimensions and details.
2. The maximum cantilever length is 2.0 ft.
3. The 3/4" ODB (or equal) reinforcement must match the full depth of the LIP beam.
4. SI Units Conversion: 1 in. = 25.4 mm, 1 ft. = 304.8 mm.
5. No Reinforcement
6. 3/4" ODB (or equal) Reinforcement
7. For SI Units: 1 in. = 25.4 mm, 1 ft. = 304.8 mm.

For SI Units: 1 in. = 25.4 mm, 1 ft. = 304.8 mm.
Figure 3 - Typical I-Joist Floor Layout

Notes:
1. These instructions are offered as a guide and are typical for the installation of I-Joists. Actual design and installation of I-Joists in some instances, either or additional details may be necessary.
2. All red-joint blocking, connectors, and necessary bracing must be installed before sections are allowed to be used on the structure.
3. No loads other than the weight of the structure are to be imposed on the structure before it is permanently anchored.
4. Numbered details are noted in Figure 4.

For SI Units Conversion: 1 in. = 25.4 mm, 1 ft. = 304.8 mm.

Details have been omitted for clarity.
FIGURE 4 - 1-JOIST FLOOR FRAMING DETAILS

1. LPI Blocking
2. LPI Rim Joist
3. LPI Blocking at Interior Support
4. Squash Blocks
5. Non-Stacking Walls
6. Post Loads

NOTES:
1. 1-1/2" minimum bearing is required at joint ends. 3-1/2" minimum bearings are required at intermediate supports.
2. Top and bottom flanges must be horizontally aligned at all supports.
3. Lateral support should be considered for bottom flange where there is no studding on one side.
4. Refer to Table 5 for 1-joint nailing schedule.

<table>
<thead>
<tr>
<th>JOINT SERIES</th>
<th>JOINT DEPTH</th>
<th>MAXIMUM DEPTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>LPI 32W</td>
<td>11-7/8&quot;</td>
<td>2000</td>
</tr>
<tr>
<td>LPI 32</td>
<td>14&quot;</td>
<td>1600</td>
</tr>
<tr>
<td>LPI 42X1.8</td>
<td>18&quot;</td>
<td>1500</td>
</tr>
<tr>
<td>LPI 10W</td>
<td>9-1/2&quot;</td>
<td>1097</td>
</tr>
<tr>
<td>LPI 20</td>
<td>11-7/8&quot;</td>
<td>1762</td>
</tr>
<tr>
<td>LPI 30XXL1.5</td>
<td>14&quot;</td>
<td>1600</td>
</tr>
<tr>
<td>LPI 30XXL1.7</td>
<td>18&quot;</td>
<td>1500</td>
</tr>
</tbody>
</table>

For 8' Grade 1, 1 sq. ft. = 20.4 sq. ft., 1 PCI = 14.6 lbs.

NOTE: The allowable shear values in pounds per foot (up to 225 lb./f) for horizontal wood structural panel diagonals with flanges of nominal 1-inch thick Douglas fir-larch or southern pine are applicable to LPI Rim Joist.

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FIGURE 4 - 1-JOIST FLOOR FRAMING DETAILS - (Continued)

**FILLER BLOCKS:**
For all 1-joint series except the LPI 42X1.8 series, use 2x lumber (minimum SPF) = 5/8-inch OSB (or equal) attached at 6 inches on center from each side. For the LPI 42X1.8 series joints, use two 2x lumber (minimum SPF) attached with nailable OSB, attached at 6 inches on center from each side.

**FILLERS:**
For all 1-joint series except the LPI 42X1.8 series, use 0.375-inch OSB (or equal) attached with two rows of 10d nails staggered at 6 inches on center from each side. For the LPI 42X1.8 series, use 2x lumber (minimum SPF) attached with two rows of 10d nails staggered at 6 inches on center from each side.

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FIGURE 3 - TYPICAL I-JOIST ROOF LAYOUT

Notes:
1. These instructions are offered as a guide and are typical for good practice in the handling, installation, and evaluation of I-Joists.
2. All rim joists, blocking, connections, and temporary bracing must be installed in the methods and manner as the structure.
3. No loads other than the weight of the enclosure are to be applied to the members unless the loads are designed.
4. Numbered details are noted in Figure 6.

For Scale: 1 ft. = 304.8 mm.
FIGURE 6 - 1-JOINT ROOF FRAMING DETAILS

1. Rafter Connection with Overlapping Joists
   - Lay Bending Plate $1/4" \times 2" \times 12"$
   - Male cut each side max. $1/8" \times 1"$
   - Dry masonry or wet
   - Support Beam or Wall
   - Bending Plate

2. Header Connection
   - Simpson ST-18 Series (6 ft. or 12 ft.) or wraps over 1/2"
   - Simpson ISU hanger or equivalent
   - Simpson ISU hanger or equivalent
   - Simpson ISU hanger or equivalent
   - Simpson ISU hanger or equivalent

3. Beveled Plate
   - 2x10 beveled plate
   - Bending beam or wall

4. Bird's Mouth (lower bearing style)
   - Bending beam or wall
   - Required each side

5. Flat Soffit (Passive support)
   - 2 x 4 cut to fit
   - 8d nails at 6" o.c.
   - Capped or wedged

6. Overhang
   - 8d nails at 6" o.c. driven
   - 2x6 or larger
   - 3/4" cut to fit
   - Beveled plate

7. Outrigger
   - Corner 2 x Outrigger around LR flange
   - Maximum overhang equal to rafter bearing

For SI Units: 1 in. = 25.4 mm; 1 ft. = 304.8 mm.

NOTES:
1. Eavestrough flange may be mitered or cut only at lower end of the 1-joint. Benders-coat can be used for mastic and waterproofing.
2. Bird's mouth must be fully on plate.
3. All detail are valid to a maximum 12:12 slope unless otherwise noted.
4. Refer to TABLE 8 for 1-joint nailing schedules.
For SI Units: 1 in = 25.4 mm; 1 ft = 304.8 mm; 1 lb = 4.45 N.

NOTES:
1. Web stiffeners, when required, must be installed in gussets – one on each side of the web. In addition to the requirements noted in Table 1, web stiffeners are required at bracketed cut locations, at sloped bracket locations, and for lateral support of the joist when used with hungers. Where sides of the hanger do not extend beyond the flange, the stiffener shall be installed between the flanges of the I-Joist, leaving a minimum 3/8 inch gap (1 inch maximum). At bracket locations, the stiffeners should be installed flush with the bottom flange with the gap in the top flange. At locations of concentrated loads, the stiffeners should be installed tight to the top flange with the gap in the bottom flange.
2. Web stiffeners should be installed tight to the bottom flange with the gap in the top flange. At locations of concentrated loads, the stiffeners should be installed tight to the top flange with the gap in the bottom flange.
3. Web stiffeners should be for 15/16-in. plywood or equivalent OSB or plywood, or from 2x lumber or structural composite lumber.
4. Web stiffeners should be the same width as the bearing surface, with a minimum of 3/12 inch.
5. For all I-Joists except the LP1 42X1I series, web stiffeners shall be a minimum of 1 1/2 inches, spaced.
6. For all I-Joists except the LP1 42X1I series, nail web stiffeners to the joist with 5d or smaller nails, equally spaced and staggered (see drawing above). For the LP1 42X1I series I-Joist, nail web stiffeners to the joist with 5d nails, equally spaced and staggered.

<table>
<thead>
<tr>
<th>JOIST DEPTH</th>
<th>9 1/4&quot;</th>
<th>11 1/2&quot;</th>
<th>12&quot;</th>
<th>12 1/4&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>STIFFENER HEIGHT</td>
<td>6 1/4&quot;</td>
<td>8 1/4&quot;</td>
<td>10 1/2&quot;</td>
<td>12 1/4&quot;</td>
</tr>
</tbody>
</table>

**TABLE 8 - NAILING SCHEDULES**

<table>
<thead>
<tr>
<th>NAIL SIZE</th>
<th>MINIMUM DISTANCE FROM JOIST END</th>
<th>CLOSEST OCCASIONAL SPACING</th>
</tr>
</thead>
<tbody>
<tr>
<td>8d box common</td>
<td>1&quot;</td>
<td>2&quot;</td>
</tr>
<tr>
<td>10d box</td>
<td>1&quot;</td>
<td>2&quot;</td>
</tr>
<tr>
<td>12d box</td>
<td>1&quot;</td>
<td>2&quot;</td>
</tr>
<tr>
<td>16d china</td>
<td>1-1/2&quot;</td>
<td>3&quot;</td>
</tr>
</tbody>
</table>

SHEATHING TO I-JOIST TOP FLANGE

<table>
<thead>
<tr>
<th>SHEATHING SIZE</th>
<th>MINIMUM DISTANCE FROM JOIST END</th>
<th>CLOSEST OCCASIONAL SPACING</th>
</tr>
</thead>
<tbody>
<tr>
<td>8d box common</td>
<td>1&quot;</td>
<td>2&quot;</td>
</tr>
<tr>
<td>10d box</td>
<td>1&quot;</td>
<td>2&quot;</td>
</tr>
<tr>
<td>12d box</td>
<td>1&quot;</td>
<td>2&quot;</td>
</tr>
</tbody>
</table>

For SI Units: 1 inch = 25.4 mm.
TABLE 9 - SOUND AND IMPACT RATINGS FOR ONE-HOUR FLOOR-CEILING ASSEMBLY

<table>
<thead>
<tr>
<th>FLOOR ASSEMBLY</th>
<th>STC</th>
<th>IC</th>
</tr>
</thead>
<tbody>
<tr>
<td>w/o GYPCRETE</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>w/ RESILIENT CHANNEL w/ CARPET/_PAD</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>w/ GYPCRETE</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>w/ RESILIENT CHANNEL w/CARPET/_PAD</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>w/o GYPCRETE</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>w/ RESILIENT CHANNEL w/CARPET/_PAD</td>
<td>50</td>
<td></td>
</tr>
</tbody>
</table>

NOTES:
1. Carpet is minimum 7/16 inch pile height and 1/16 inch thick, 4 oz density foam pad.
2. Vinyl is minimum 1/6 inch thick with 1/2 inch minimum 0.1 inch thick wear layer.
3. Gypro® Crete is minimum 3/4 inch thick over 1/2 inch plywood.
4. Gypsum must be glued at tongue and groove joints and to the l-joints.
5. For other details see FIGURE 8.
TECHNICAL
POLICY AND PROCEDURE NOTICE # 8/92

TO: Distribution

FROM: Richard C. Visconti, A.I.A.

DATE: August 19, 1992

SUBJECT: Laminated Wood "I" Beams

PURPOSE: To interpret the requirements of the Administrative Code, Sections 27-617 and 27-620, pertaining to firestopping requirements per RS 10-8 and Inspection of Methods of Construction per Table 10-2 for laminated wood "I" beams used in fire resistance rated floor/roof-ceiling assemblies.

To establish a new administrative procedure for applicant notification to the Fire Department of proposed use of laminated wood "I" beams.

SPECIFICS:

1. Firestopping

Reference Standard RS 10-8, Section 9.2.1 - General Requirements for Firestopping states that, "the space between the ceiling and the floor or roof above shall be divided by providing firestopping where ceilings are suspended below solid joists or suspended from or attached directly to the bottom of open wood floor trusses in buildings of combustible construction."

The Department now interprets the requirement to comply with the firestopping provisions of Section 9.2.1 et seq. to include laminated wood "I" beam assemblies. Therefore, the space between the ceiling and the floor or roof above shall be divided into approximately equal areas not greater than 500 square feet.
2. Inspection of Methods of Construction

Table 10-2 - Operations on Structural Elements that shall be Subject to Controlled Inspection, lists the "fabrication of glue-laminated assemblies and of plywood components."

The Department now interprets the requirement to comply with the controlled inspection provision of Table 10-2 to include laminated wood "I" beams. Therefore, the cutting of openings for ducts, pipes, conduit, etc. in laminated wood "I" beams shall be considered fabrication and, therefore, subject to controlled inspection.

3. Notification

The applicant shall be required to notify the Fire Department of the proposed installation of laminated wood "I" beams prior to the Department issuing a construction permit. Evidence of such notification shall be a certifying statement submitted on Form TR-1, Technical Report, reading as follows:

I hereby state that I have mailed a copy of this statement to the Fire Department, Bureau of Fire Prevention, Technology Management Unit, as notification of the proposed installation of laminated wood "I" beams at this location.

This statement shall be placed on the reverse side of the form in the lower right-hand box.

The copy of the completed Form TR-1 shall be mailed to:

Chief-in-Charge of the Bureau of Fire Prevention
Fire Department
Bureau of Fire Prevention
Technology Management Unit
250 Livingston Street
Brooklyn, NY 11201-5884

cc: Chief John Hodgens
TO: Distribution

FROM: Satish K. Babbar, R.A.

DATE: July 24, 2000

SUBJECT: Semi-Controlled Inspection for Structural Light Gage Cold-Formed Steel, Plate Connected Wood Floor Trusses and Laminated Wood “I” Beams

EFFECTIVE: Immediately

SUPERCEDES: Brooklyn Borough Memorandum by Borough Superintendent George E. Beiger dated August 11, 1983.

BACKGROUND: There have been several structural failures involving lightweight floor construction. Professional inspection is needed during construction of buildings and other structures utilizing it in order to insure that the delivered members are not damaged or defective, the installation is proper and safeguards are taken to prevent failure.

PURPOSE: To set forth the requirements for the semi-controlled inspection of the construction, including size, quality, framing, erection and both temporary and permanent bracing of light gage cold-formed steel structural members, plate connected wood floor trusses and laminated wood “I” beams.

REFERENCE: Section 27-132(5) of the Administrative Code.
SPECIFICS:

REQUIREMENTS: The plans submitted for approval/acceptance/professional certification showing those members shall be complete including member sizes, positions, locations, permanent and temporary bracing, fasteners (location, type and spacing), stiffeners, connections, etc., as needed for the proper erection of the structure.

The construction of all light gauge cold-formed steel structural members, plate connected wood floor trusses and laminated wood "I" beams shall be subject to semi-controlled inspection for size, quality, framing, erection and both temporary and permanent bracing, as set forth below.

Size Profiles used structurally shall conform to the specified dimension. Care shall be taken not to stretch, bend, or otherwise distort parts of the sections unless such forming is in the integral part of the design.

Quality All materials shall be clean, straight, and undamaged. Damaged members shall be discarded. Only BSAMEA approved laminated wood "I" beams shall be used. Glue shall completely bond all laminated wood "I" beam surfaces being joined. Quality Control for the erection of all members shall be under the supervision of the professional designated to perform the semi-controlled inspection.

Framing Components may be cut by slitting, shearing, sawing, or flame cutting, as appropriate, in accordance with manufacturers' instructions and the design drawings. All punched holes and sheared or flame cut edges of material in members subject to calculated stress shall be clean and free from notches and burled edges. The approved/accepted/professionally certified drawings shall be adhered to regarding member dimensions, locations, positions, beam separators, bearing surfaces and fasteners, including shear connectors, plate connectors, screws, bolts and welds, as applicable.
Erection Care shall be taken to avoid damage to members when erecting, loading, unloading and otherwise handling them.

Bracing Temporary bracing, shoring, jacks, etc. shall not be removed until the registered architect or professional engineer determines that they are no longer needed. Permanent bracing, web stiffeners, bridging, wind bracing, etc., shall be installed according to the approved/accepted/professionally certified drawings.

INSPECTIONS AND REPORT TO BE SUBMITTED: These inspections are to be performed by, or under the direct supervision of, licensed professional engineers or registered architects, who shall submit form(s) TR-1 indicating the following: "Semi-controlled inspection of light gauge cold-formed steel structural members, plate connected wood floor trusses or laminated wood "I" beams (as applicable) per TFPN #3/00".

SKB:NG:ng