TRUS JOIST®
1 1/4" TIMBERSTRAND® LSL
RIM BOARD AND
iLEVEL® 1 1/8" RIM BOARD

Featuring Selection and Installation Information for Lateral Wind Loads

- 1 1/4" Thickness Matches Lateral Load Capacity of 2x Nominal Sawn Lumber in Unblocked Diaphragms
- Easy-to-Use Selection Tables Consider the Home’s Size, Shape, and Roof Design
- For Use in ASCE/SEI 7-05 Basic Wind Speed Regions of 90 and 120 mph
- Limited Product Warranty

#TJ-8000 SPECIFIER’S GUIDE

www.iLevel.com
1.888.iLevel8 (1.888.453.8358)
QUALITY RIM BOARD FROM iLEVEL

For years, little attention was paid to the importance of lateral forces. However, recent earthquake and hurricane disasters have demonstrated the importance of proper lateral load transfer. Engineering analysis and practical experience confirm that rim board is often an essential structural link in a home’s ability to resist the lateral loads generated by high winds.

iLevel® Trus Joist® 1¼” TimberStrand® laminated strand lumber (LSL) rim board supports vertical loads and provides the nailing surface necessary to adequately transfer wind and seismic loads. 1¼” TimberStrand® LSL rim board is manufactured by iLevel under quality assurance requirements for strength, stiffness, and durability. We’re so confident about its performance that we include it in our limited Product Warranty and recommend it for use with the iLevel® Trus Joist® Silent Floor® System.

For applications that don’t require the superior performance of 1¼” rim material, we offer iLevel® 1⅛” rim board. Also manufactured under our quality assurance program and included in our limited Product Warranty, iLevel® 1⅛” rim board has properties that comply with conventional construction framing practices.

Both iLevel® 1⅛” rim board and 1¼” TimberStrand® LSL rim board are recognized by the major building codes.

ABOUT THIS GUIDE
This guide for lateral wind loads is an easy-to-use design tool to help specifiers and builders select a rim board product. It provides selection information sufficient to build a home that can withstand lateral forces generated by design wind speeds of up to 120 mph.
Why is lateral load capacity of rim boards important?

Lateral loading on structures is typically from wind or seismic forces, and rim board is an important structural link in resisting those lateral loads. To further explain lateral loads, let's look at a typical home and how the wind loads travel through the building.

Why is TimberStrand® LSL rim board 1¼" thick?

iLevel, through field experience and testing, found that 1¼" thickness for rim board provides an adequate nailing surface and maximizes lateral load transfer.

Consideration was given to:

Panel edge distance
Section 2305.1.2.1 of the IBC states that nails shall be placed not less than 3⁄8" from the panel edge for lateral-force-resisting systems.

Nail edge distance
To avoid splitting, an edge distance of 2.5x the nail diameter is recommended. This applies to the sheathing nails or fasteners and the larger-diameter nails that transfer wall loads:

- 8d (0.131" x 2½") nail, 2.5 x 0.131" dia. = 0.33" = ¼" minimum edge distance
- 16d (0.162" x 3½") nail, 2.5 x 0.162" dia. = 0.41" = ¾" minimum edge distance

The 1¼" thickness is required to provide the necessary edge distance for wall nails and provides some margin for error in the placement of the sheathing nails or fasteners.

How do the lateral capacities of 1¼" TimberStrand® LSL rim board compare to sawn lumber framing?

In unblocked floor or roof diaphragms, 1¼" TimberStrand® LSL rim board is capable of transferring the same lateral loads allowed by code for 2" nominal framing members. This equivalency was verified by testing: International Building Code, Case 1, unblocked diaphragm at 240 plf with 7½⁄₈" sheathing and 8d (0.131" x 2½") nails at 6" on-center.

For conventional construction applications, the lateral load transfer capacity of thinner rim boards is not equivalent to 2" nominal framing and is limited by code to 180 plf.

For more information about the lateral load capacity of rim board in wind-controlled regions, see pages 6–7.

Are all 1¼" rim boards equal?

No. Not every rim board material meets iLevel’s tight manufacturing specifications for strength, dimensional stability, and durability.

iLevel offers 1¼" TimberStrand® LSL rim board as our premium rim board product and recommends it for use with our Silent Floor® System.

1¼" TimberStrand® LSL rim board is manufactured to a consistent moisture content and uniform dimensions, with depths that match other Silent Floor® System components.

Code Evaluations: See ICC ES ESR-1387, HUD MR 1265d
Allowable Design Stresses (100% Load Duration)

<table>
<thead>
<tr>
<th></th>
<th>1¼” TimberStrand® LSL Rim Board</th>
<th>iLevel® 1¼” Rim Board</th>
<th>1½” TimberStrand® LSL Rim Board</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modulus of elasticity E</td>
<td>1.3 x 10⁶ psi</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Adjusted modulus of elasticity E₄₅₉</td>
<td>660,750 psi</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Shear modulus of elasticity G</td>
<td>81,250 psi</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Flexural stress F₉</td>
<td>1,700 psi</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Compression perpendicular to grain F₀₂₂</td>
<td>680 psi</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Compression parallel to grain F₀</td>
<td>1,400 psi</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Horizontal shear parallel to grain F₀</td>
<td>400 psi</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Vertical load capacity</td>
<td>4,250 plf¹</td>
<td>4,000 plf</td>
<td>–</td>
</tr>
</tbody>
</table>

(1) 1¼” TimberStrand® LSL rim board is recognized by code as providing the lateral transfer capacity equivalent to 2” nominal Douglas fir-larch or southern pine in unblocked horizontal diaphragms.

Approximate Weights of Rim Board

<table>
<thead>
<tr>
<th>Depth</th>
<th>1¼” TimberStrand® LSL Rim Board</th>
<th>iLevel® 1¼” Rim Board</th>
</tr>
</thead>
<tbody>
<tr>
<td>9½”</td>
<td>3.5</td>
<td>2.8</td>
</tr>
<tr>
<td>11½”</td>
<td>4.3</td>
<td>3.5</td>
</tr>
<tr>
<td>14”</td>
<td>5.1</td>
<td>4.2</td>
</tr>
<tr>
<td>16”</td>
<td>5.8</td>
<td>4.8</td>
</tr>
</tbody>
</table>

NAILING RECOMMENDATIONS

<table>
<thead>
<tr>
<th>Encloses cantilevered TJI® joists</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attach to each joist with two 10d (0.128” x 3”) nails, one each at top and bottom flange.</td>
</tr>
<tr>
<td>High vertical load transfer capacity. Replaces TJI® rim joists and blocking panels.</td>
</tr>
<tr>
<td>Vertical load transfer at bearing</td>
</tr>
<tr>
<td>1¼” Rim Board</td>
</tr>
<tr>
<td>4,250 plf</td>
</tr>
</tbody>
</table>

Product Storage

Protect products from sun and water

Provides a solid surface for attachment of sheathing, siding, and deck ledgers

When attaching deck ledgers, locate bolts 2” minimum from top and bottom edges of rim board and deck ledger.

Required bolt frequency varies by application and is dictated by specific deck geometry/loading. Bolt spacing limits match NDS® minimum recommendations.

Lag Screw Capacities

<table>
<thead>
<tr>
<th>Fastener Size</th>
<th>Allowable Load¹ (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>¾” lag bolt</td>
<td>400</td>
</tr>
<tr>
<td>½” lag bolt</td>
<td>475</td>
</tr>
</tbody>
</table>

(1) Allowable load determined in accordance with AC 124.

Corrosion-resistant fasteners required for wet-service applications.

1¼” nailing surface increases load capacity, reduces splits, and makes subflooring easier to fasten

<table>
<thead>
<tr>
<th>Nail Size</th>
<th>1¼” Rim Board</th>
<th>1¼” Rim Board</th>
</tr>
</thead>
<tbody>
<tr>
<td>8d (0.113” x 2½”)</td>
<td>4”</td>
<td>6”</td>
</tr>
<tr>
<td>8d (0.131” x 2½”)</td>
<td>4”</td>
<td>6”</td>
</tr>
<tr>
<td>10d (0.128” x 3”)</td>
<td>4”</td>
<td>6”</td>
</tr>
<tr>
<td>10d (0.148” x 3”)</td>
<td>4”</td>
<td>6”</td>
</tr>
<tr>
<td>16d (0.135” x 3½”)</td>
<td>4”</td>
<td>16”</td>
</tr>
<tr>
<td>16d (0.148” x 3½”)</td>
<td>4”</td>
<td>16”</td>
</tr>
<tr>
<td>16d (0.162” x 3½”)</td>
<td>6”</td>
<td>16”</td>
</tr>
</tbody>
</table>

(1) Can be reduced to 5” on-center with maximum nail penetration of 1¾” into the narrow edge (for example nails that connect the sole plate above to the block or rim).

(2) Can be reduced to 4” on-center with maximum nail penetration of 1¾” into the narrow edge (for example nails that connect the sole plate above to the block or rim).
(1) All sheathing shall be properly blocked and nailed.

(2) Verify the lateral capacity of the wall. Not all types of code-allowed wall construction provide the same lateral resistance. Check with your local building official or design professional.

(3) Detail A3.3 shall be a segmented wall, location of full-height structural sheathing per code.

(4) Sheathing shall be continuous over all plate-to-plate and plate-to-rim board interfaces and may butt together at mid-depth of rim board as shown in A3.4. At foundation, fasten the bottom edge of the sheathing to the sill plate.

(5) In addition, one 6'-8" standard door opening is allowed.

(6) If required, hold-downs shall be Simpson Strong-Tie® CS20 (or equivalent) straps attached with four 8d (0.131" x 2 1/2") nails at each end. As an alternative to holddown straps, wall sheathing may be attached as shown in A3.4. See footnote 4.
# General Assumptions and Limitations

- Maximum building dimensions ($L_1$ is the longest side and $L_2$ is the shortest side): $L_1 = 80'$, $L_2 = 60'$. See Example on page 7.
- Structures are regular-shaped with continuous load paths to the foundation, as defined in ASCE/SEI 7-05.
- Tables are applicable for one- and two-story residential structures with bottom-level wall heights of 9' or less and second-level wall heights of 8' or less.
- Wind pressures are based on:
  - ASCE/SEI 7-05
  - 90 and 120 mph winds (3-second gust)
  - Exposure category A or B
- No special wind regions or topographical effects have been considered.
- User should verify that vertical load capacity of rim board is not exceeded. See page 4.
- Tables assume wall construction per the details and specifications on page 5.
- Wall framing assumes a stud spacing of 16" on-center and a specific gravity of 0.42.
- A higher-numbered detail may be used in place of the detail number shown.
- For other application conditions, contact your iLevel representative.
- Shaded cells indicate that conventional construction using iLevel® 11⁄8" rim board is acceptable.

## How to Use These Tables

1. **Check the General Assumptions and Limitations** to ensure applicability of these tables.
2. **Draw a box around the foundation of the structure as shown on page 7.** Carports, single story slab-on-grade garages, porches, decks, overhangs, or other such elements shall be excluded from the main structure.
3. **Calculate the Aspect Ratio** = $L_1/L_2$.
4. **Determine the Roof Pitch and Ridge Height.**
5. **Using the appropriate wind speed table, find the section corresponding to your rim board application.** Find the row where the Roof Pitch and Ridge Height meet or exceed those of the structure.
6. **To choose an appropriate detail, follow the row to the right until it intersects with an Aspect Ratio that meets or exceeds the ratio calculated in step 3.**
7. **See page 5 for details and specifications.**

### 90 mph or less

<table>
<thead>
<tr>
<th>Roof Pitch</th>
<th>Ridge Height (ft)</th>
<th>1</th>
<th>1.1</th>
<th>1.2</th>
<th>1.3</th>
<th>1.4</th>
<th>1.5</th>
<th>1.6</th>
<th>1.7</th>
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<tr>
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<td>1</td>
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<td>1</td>
<td>1</td>
<td>1</td>
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<td>1</td>
</tr>
<tr>
<td>6:12</td>
<td>17</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
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<td>1</td>
<td>1</td>
<td>1</td>
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<td>1</td>
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<tr>
<td>8:12</td>
<td>19</td>
<td>1</td>
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<td>1</td>
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<td>1</td>
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</tr>
<tr>
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<td>1</td>
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<td>1</td>
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<tr>
<td>12:12</td>
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<td>1</td>
<td>1</td>
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<td>1</td>
<td>1</td>
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<td>2</td>
<td>2</td>
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<tr>
<td>One Story</td>
<td>25</td>
<td>1</td>
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<td>33</td>
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<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

### Legend

- 1 = Detail A3.1
- 2 = Detail A3.2
- 3 = Detail A3.3
- 4 = Detail A3.4

See page 5 for details.
Example

Step 1. Assume the house below is two stories with a Roof Pitch of 8:12 and a Ridge Height of 30’.

Step 2. Draw a box around the structure.

Step 3.  \( \frac{L_1}{L_2} = \frac{48'}{40'} = 1.2 \)

Step 4. Roof Pitch = 8:12  Ridge Height = 30’

Step 5.  90 mph wind zone: lateral detail = A3.2

120 mph wind zone: lateral detail = A3.4

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**Legend**

1 = Detail A3.1
2 = Detail A3.2
3 = Detail A3.3
4 = Detail A3.4

See page 5 for details.
WE CAN HELP YOU BUILD SMARTER.

At iLevel, our goal is to help you build solid and durable homes by providing high-quality residential building products and unparalleled technical and field support.

**Floors and Roofs:** Start with the best framing components in the industry: iLevel® Trus Joist® Silent Floor® joists; TimberStrand® LSL rim board; and TimberStrand® LSL, Microllam® LVL, and Parallam® PSL headers and beams. Pull them all together with our durable iLevel® Structurwood® roof sheathing and self-gapping Structurwood Edge® or Structurwood Edge Gold® floor panels.

**Walls:** Get the best value out of your framing package—use TimberStrand® LSL studs for tall walls, kitchens, and bathrooms, and our traditional, solid-sawn lumber everywhere else. Cut down installation time by using TimberStrand® LSL headers for doors and windows, and our Structurwood® wall sheathing with its handy two-way nail lines.

**Software Solutions:** If you are a design professional or lumber dealer, iLevel offers a full array of software packages to help you specify individual framing members, create cut lists, manage inventories—even help you design whole-house framing solutions. Contact your iLevel representative to find out how to get the software you need.

**Technical Support:** Need technical help? iLevel has one of the largest networks of engineers and sales representatives in the business. Call us for help, and a skilled member from our team of experts will contact you within one business day to evaluate and help solve your structural frame problems—GUARANTEED.

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**CONTACT US**

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**OUR GUARANTEE**

![Product Warranty Card]

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