

## iLevel® Shear Brace Garage Portal System

### Background

When the iLevel® Shear Brace (iSB) is used in a double portal application, there is a certain amount of fixity at the header to iSB connections. When this fixity exists at the ends of the header, it reduces the amount of deflection and moment induced in the member when compared to an equivalent simple span header with no end fixity. The iLevel® Shear Brace Garage Portal System takes advantage of this end fixity to optimize headers in portal applications.

### Design Guidelines

In double portal applications, 1.55E TimberStrand® LSL can be used as a substitute for an equivalent cross section 1.9E Mircolam® LVL when the design guidelines below are followed:

<b>Application</b>	<b>iSB double portal applications only</b>
<b>Hardware</b>	See detail SB3 on the following page. <i>Note: Use portal straps and attach with sixteen 0.148" x 2 3/8" minimum nails, 8 into the header and 8 into the iSB.</i>
<b>Header Width</b>	Single ply 3 1/2" wide or double 1 3/4" 1.55E TimberStrand® LSL.
<b>Load Duration Factor (K<sub>D</sub>)</b>	Max K <sub>D</sub> =1.0 (Including short term wind and seismic load combinations)
<b>Header Stiffness</b>	<ul style="list-style-type: none"> <li>- Max Allowed Header Stiffness K<sub>beam</sub>=265</li> </ul> $K_{beam} = \frac{Ebd^3}{12L^3} \quad \text{where}$ <p><b>E</b> – Header modulus of elasticity (psi)      <b>d</b> – Header depth (in)  <b>b</b> – Header width (in)                                      <b>L</b> – Header clear span (in)</p> <ul style="list-style-type: none"> <li>- A summary of maximum header depths for a given span which meets the K<sub>beam</sub>=265 criteria are shown in the table 1.</li> </ul>

**TimberStrand® LSL and the iSB are intended for dry use applications.**

**Some iSB series may not be available in your region.**

If you require additional information, please contact your iLevel representative.



Table 1: Maximum Header Depth Table

Clear Span (ft)	1.55E TimberStrand® LSL Beam Dimensions	
	Width (in)	Max Depth (in)
9'-6"	3½	9½
10'-0"	3½	9½
11'-0"	3½	9½
11'-6"	3½	11¼
12'-0"	3½	11⅞
14'-0"	3½	14
16'-3"	3½	16
18'-3"	3½	16

