# LDSS — Light Diaphragm Spline Strap for Mass Timber

#### Materials

1.5mm Carbon Steel

#### Finish

Zinc Galvanized, Z275

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Corrosion Resistance Leve
LOW
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#### Features & Benefits

- · No routing required; the strap can be placed directly on top of mass timber panels, reducing manufacturing time and cost
- · Less susceptible to moisture damage than plywood splines, reducing need for expensive repairs
- · Embossed hole helps guide the installation hold and increases capacity per fastener
- · Tested for in-plane shear values
- Can be used as part of a complete spline so faster installation and to save on the total co
- Can be installed in standing position when u with Quik Drive® and optional nose clip

### **Technical Data**

rs.	
tool into the	Edge milling is not required, but if used, the minimum panel depth after milling is 75mm.
olution throughout a project for ost of spline connections	Typical LDSS48 Installation with WSV75SA Screws at 100mm Centres in a Three-Ply CLT Panel
used	

	Model No.	Thickness (mm)	CLT Layup (min.)	Fasteners	Fastener Spacing (mm)	Shear Design Capacity per 1200mm Strap (kN)
LDSS			N10DHDGPT	100	7.0	
		1 5	Three why	NTUDIDUPT	50	13.3
	LDSS48 1.5	Three-ply	WSV75SA	100	19.6	
				50	35.6	

1 2.

Design capacity is based on the use of cross-laminated timber (CLT) with a density greater than 380kg/m<sup>3</sup>. Design capacity is for wind or seismic loading combination with no further increase allowed; reduce apply where other load combination are required.

З. Design capacity is based on lesser of calculations per AS1720.1 and AS/NZS 4600:2018. Nails: 3.75mm dia x 64mm Strong-Drive SCN Connector nails; Screws: #10 x 75mm WSV = model WSV75SA.

4 5. CLT panel minimum thickness is three-ply = 105mm.

6. The component of diaphragm deflection due to fastener slip at panel-to-panel joints calculated as  $\delta f = CLen$ , where,

 $\begin{array}{l} C = (1/PL+1/Pw)/2 \\ PL = Length of individual CLT panel; \\ Pw = Width of individual CLT panel \end{array}$ 

- L = Overall length of diaphragm
- en = Design load per fastener / Slip Modulus, Y

(Reference — Applied Technology Council. 1981. Guidelines for the design of horizontal wood diaphragms. Redwood City, CA) There is a European methodology for determining the integrity rating of CLT butt joints The European formula is below and assumes the gaps in the 7

joint are always less than 2mm throughout. D is the depth of panel (mm) and  $\beta o = 0.65$ mm/min. For a butt joint, the factor is Kj = 0.2.

$$t_{integrity} = K_j \cdot \frac{D}{\beta_0}$$

Simpson Strong-Tie® Australia Pty Ltd Call 1300 STRONGTIE (1300 787 664) www.strongtie.com.au

Simpson Strong-Tie® (New Zealand) Ltd Call 09 477 4440 www.strongtie.co.nz

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