

TimberStrand® LSL Shear Walls

With 5 and 6 story wood frame construction now permitted in several Canadian jurisdictions, designers are looking for a wall system to address the dimensional stability challenges as well as the higher vertical and lateral loads that can be applied to these structures.

Shear Wall Strength Properties

To address these challenges, a significant test program that involved full scale cyclic testing of TimberStrand® LSL shear walls up to 16 ft. tall was performed by Weyerhaeuser and industry partners. The findings showed that when used as a stud material for shear walls, TimberStrand® LSL performed like sawn lumber with respect to ductility, drift, and strength performance. As a result, TimberStrand® LSL is now evaluated by the Canadian Construction Materials Center (CCMC) for use as studs in shear walls as follows:

- (1) Part 9 applications in the National Building Code of Canada (NBCC).
- (2) For NBCC Part 4 applications, the specified strengths for nailed shear walls in CSA 086 can be applied to TimberStrand® LSL with applicable adjustments and limitations.

It is important to note that for TimberStrand® LSL in shear wall applications, allowable nail spacing and capacities differ from those in typical “face nail” beam applications. The values also vary depending on the grade of TimberStrand® LSL specified. Refer to the table below for specific information:

TIMBERSTRAND® LSL STUDS IN SHEAR WALLS^[1]

Grade	Nailing Spacing	CSA 086-09	CSA 086-14 (and newer)
		Species Factor for Framing Material (J_{sp})	Mean Relative Density (G) for Lateral Connections
1.3E	6 in.	0.8	0.42
1.5E	3 in. ≤ Nail Spacing ≤ 6 in.	0.8	0.42

[1] Refer to [CCMC 12627-R](#) for a complete description of application scope and limitations.

Holes and Notches

For NBCC Part 9 applications, holes and notches can be drilled or cut into TimberStrand® LSL in accordance with Section 9.23.5 of the code. For Part 4 applications, engineering analysis is required by a design professional.

Connections to Rim Board

Connection of the wall plate to the rim board is also a critical design element to ensure a continuous lateral load path for wind and seismic loads down to the foundation. For guidance on minimum fastener spacing into the edge of TimberStrand® LSL rim board, refer to *Fastener Spacing in Weyerhaeuser Engineered Lumber Products* ([TB-206](#)).

If you have any questions, please contact your Weyerhaeuser representative.

Wall stud and column design is available in [ForteWEB®](#) software.