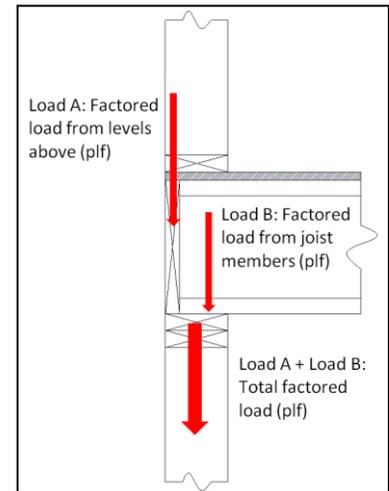


TimberStrand® LSL Wall Tables for Mid-Rise Construction

With five and six storey wood frame construction now permitted in several jurisdictions across Canada, designers are looking for wall systems to address the high vertical load capacities that these applications demand from wall framing. This document provides load tables that the designer can use to specify a TimberStrand® LSL wall solution quickly and efficiently.

How to Use These Tables

- Step 1:** Determine the uniform factored loads from the levels above (Load A) and the joist members (Load B) on the current level. The sum of these two loads (Load A + Load B) is the total factored load.
- Step 2:** From Table 1A or 1B, select the stud and on-centre spacing with an axial load capacity that is greater than or equal to the total factored load developed in Step 1.
- Step 3:** From Table 2, scan down the appropriate stud on-centre spacing column (determined in Step 2) to find a rim board equal in depth to the floor joists with a factored vertical load capacity that meets or exceeds the uniform factored load from the levels above (Load A).
- Step 4:** From Table 3, scan down the appropriate stud on-centre spacing column (determined in step 2) to find a wall plate equal in width to the wall studs with a factored vertical load capacity that meets or exceeds the uniform factored loads from joist members on the current level (Load B).



The information contained in this document is focused on structural capacities. For the fire-resistance rating of the wall systems, a fire protection consultant should be engaged to ensure adequacy of design.

Shearwall Strength Properties

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 shearwalls, 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 Centre (CCMC) for use as studs in shear walls as follows:

- Part 9 applications in the National Building Code of Canada (NBCC).
- For NBCC Part 4 applications, the specified strengths for nailed shearwalls in Table 9.5.1A of CSA 086-09 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	Species Factor for Framing Material (J_{sp})
1.3E	6 in.	0.8
1.5E	3 in. ≤ Nail Spacing ≤ 6 in.	0.8
1.55E		0.8

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

Some products may not be available in your region. Contact your Weyerhaeuser representative for information.

TABLE 1A: WALL FACTORED AXIAL RESISTANCE (PLF) – 1.3E TIMBERSTRAND® LSL WALL PLATES

TimberStrand® LSL Grade	Stud	Exterior Stud Wall Spacing (in.)					Interior Stud Wall Spacing (in.)				
		6	8	12	16	24	6	8	12	16	24
8 ft. Wall Height											
1.3E	2x4	8,900	6,585	4,275	3,120	1,965	9,260	6,945	4,630	3,475	2,315
	2x6	17,250	12,940	8,625	6,470	4,315	17,250	12,940	8,625	6,470	4,315
	3" x 3 1/2"	18,160	13,530	8,900	6,585	4,275	18,525	13,890	9,260	6,945	4,630
	3" x 5 1/2"	31,190	23,390	15,595	11,695	7,795	31,190	23,390	15,595	11,695	7,795
9 ft. Wall Height											
1.3E	2x4	7,540	5,555	3,570	2,580	*	7,950	5,965	3,975	2,980	1,990
	2x6	17,250	12,940	8,625	6,470	4,315	17,250	12,940	8,625	6,470	4,315
	3" x 3 1/2"	15,485	11,510	7,540	5,555	3,570	15,905	11,925	7,950	5,965	3,975
	3" x 5 1/2"	31,190	23,390	15,595	11,695	7,795	31,190	23,390	15,595	11,695	7,795
10 ft. Wall Height											
1.3E	2x4	6,340	4,650	2,960	*	*	6,795	5,095	3,395	2,545	1,700
	2x6	17,250	12,940	8,625	6,395	4,130	17,250	12,940	8,625	6,470	4,315
	3" x 3 1/2"	13,125	9,730	6,340	4,650	2,960	13,585	10,190	6,795	5,095	3,395
	3" x 5 1/2"	31,190	23,390	15,595	11,695	7,795	31,190	23,390	15,595	11,695	7,795

TABLE 1B: WALL FACTORED AXIAL RESISTANCE (PLF) – 1.5E TIMBERSTRAND® LSL WALL PLATES

TimberStrand® LSL Grade	Stud	Exterior Stud Wall Spacing (in.)				Interior Stud Wall Spacing (in.)					
		6	8	12	16	24	6	8	12	16	24
8 ft. Wall Height											
1.5E	2x4	11,340	8,415	5,490	4,030	2,570	11,710	8,780	5,855	4,390	2,925
	2x6	20,400	15,300	10,200	7,650	5,100	20,400	15,300	10,200	7,650	5,100
	2x8	26,890	20,165	13,445	10,080	6,720	26,890	20,165	13,445	10,080	6,720
9 ft. Wall Height											
1.5E	2x4	9,500	7,025	4,550	3,315	*	9,920	7,440	4,960	3,720	2,480
	2x6	20,400	15,300	10,200	7,650	5,100	20,400	15,300	10,200	7,650	5,100
	2x8	26,890	20,165	13,445	10,080	6,720	26,890	20,165	13,445	10,080	6,720
10 ft. Wall Height											
1.5E	2x4	7,930	5,840	3,755	*	*	8,380	6,285	4,190	3,140	2,095
	2x6	20,400	15,300	10,200	7,650	5,100	20,400	15,300	10,200	7,650	5,100
	2x8	26,890	20,165	13,445	10,080	6,720	26,890	20,165	13,445	10,080	6,720

General Notes:

- Asterisk (*) indicates plate/stud configuration not permitted.
- Table is based on:
 - Exterior wall stud deflection limit of L/180.
 - Maximum specified wind load of 1 kPa (20.9 psf) for exterior walls (includes C_gC_p).
 - Fully braced in the weak axis with properly attached structural sheathing.
 - System factor K_H of 1.04.
 - Axial loads applied eccentrically, at 1/6 of the wall thickness dimension of the stud measured from the center line.
 - Wall plate compressive strength determined in accordance with CCMC [12627-R](#).

TABLE 2: RIM BOARD VERTICAL LOAD CAPACITY (PLF)

TimberStrand® LSL	Depth (in.)	Stud Spacing (in.)				
		6	8	12	16	24
1 ¼" 1.3E	9 ½	7,830			6,635	4,425
	11 ⅞	7,830				5,530
	14	7,830				6,520
	16	7,250				
	18	6,295				
	20	5,365				
	22	4,580				
	24	3,930				
1 ½" 1.3E	9 ½	9,395			7,960	5,310
	11 ⅞	9,395				6,635
	14	9,395				7,825
	16	9,395				8,940
	18	9,250				
	20	8,325				
	22	7,350				
	24	6,440				
1 ¾" 1.55E	9 ½	10,960	9,560		7,170	4,780
	11 ⅞	10,960			8,960	5,975
	14	10,960			10,565	7,045
	16	10,960				8,050
3 ½" 1.55E	9 ½	21,920	19,120		14,340	9,560
	11 ⅞	21,920			17,925	11,950
	14	21,920			21,130	14,090
	16	21,920				16,100

General Notes:

- Table is based on:
 - Uniform loads only.
 - Deflection criteria of L/240 for total load.
 - $M_{max}=wL^2/9$, $V_{max}=0.6wL$.
 - Minimum of rim board vertical load transfer capacity (see [TJ-8500](#)) or span capability between studs.
- For two ply rim board applications, double values in table above.

TABLE 3: TIMBERSTRAND® LSL – WALL PLATE FACTORED VERTICAL LOAD RESISTANCE (PLF)

1.3E or 1.5E TimberStrand® LSL	Wall Width (in.)	Stud On-Centre Spacing (in.)				
		6	8	12	16	24
2-ply 1 ½" or Single 3"	3 ½	5,880	4,410	2,940	2,205	1,470
	5 ½	9,240	6,930	4,620	3,465	2,310
	7 ¼	12,180	9,135	6,090	4,570	3,045
3-ply 1 ½"	3 ½	8,820	6,615	4,410	3,310	2,205
	5 ½	13,860	10,395	6,930	5,200	3,465
	7 ¼	18,270	13,705	9,135	6,850	4,570

General Notes:

- Table is based on:
 - Uniform loads only.
 - Deflection criteria of L/240 for total load.
 - $M_{max}=wL^2/9$, $V_{max}=0.6wL$.

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

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