



This technical flyer presents data on the industrial grade of TimberStrand™ LSL (laminated strand lumber).



STIFF – EVERY TIME

Stiff means less bowing than sawn timber under varying weather conditions and structural loads.



STRONG – EVERY TIME

TimberStrand™ LSL is engineered to a consistently high quality that promises strength, moisture resistance and dimensional stability. That means guaranteed performance for the life of the structure.



STRAIGHT – EVERY TIME

TimberStrand™ LSL is engineered to resist bowing, splitting and twisting. It has a consistent level of quality that cannot be matched by sawn timber.

DESCRIPTION AND APPLICATIONS

Everyone who knows sawn hardwood timber also knows its weaknesses. As it dries, timber can twist, split, bow and lose knots. Often, a significant percentage of the sawn timber you buy cannot be used.

Now Trus Joist provides an alternative that is better for your profitability, your customers and the environment.

The state-of-the-art manufacturing process that creates TimberStrand™ LSL converts more of each log into high-strength engineered timber than conventional sawmill techniques and eliminates wood's natural, strength-reducing defects, such as knots, wane and pitch pockets. Elimination of these defects means that every piece provides the same high performance, virtually eliminating waste. In addition, TimberStrand™ LSL is manufactured to a consistent moisture content to reduce problems caused by bowing, twisting and shrinking before and after installation.

Furthermore, TimberStrand™ LSL does not rely on old-growth timber, but is manufactured from readily-available, fast-growing, small-diameter trees such as aspen and yellow poplar. Trees that are easily renewed to provide long-term availability.

Because of its superior physical and mechanical properties, TimberStrand™ LSL is suitable for use in the following applications:

- In technical doors (fire doors, burglar proof doors, etc.), where TimberStrand™ LSL often replaces solid hardwood or other timber composite materials.
- Upholstered furniture frames, staircases, table-tops, office furniture, kitchen counter tops, etc.
- Joinery work and other industrial applications where strength and stability are required.

STANDARD SIZES, FINISHING AND HANDLING

Thickness

Standard thicknesses of 25, 32, 38, 50 and 60 mm are available.

Any thickness between 25 mm and 105 mm can be supplied upon request.

Format

TimberStrand™ LSL is available from stock in standard formats (1.22 m or 2.44 m width and 2.13 m, 2.65 m or 5.33 m length). Special formats are available upon request.

Manufacturing Tolerances

Standard length ± 3 mm

Standard thickness ± 0.5 mm

Standard width ± 1.5 mm; specific widths upon request 0.25 mm (for up to 600 mm width)

Tighter tolerances are available upon request through external post-processing partners.

Treating

A borate preservative treatment to protect against fungal decay can be applied, upon request. The treatment is nonhomogeneously applied to the individual strands before pressing, ensuring full treatment of the cross section.

Machining

TimberStrand™ LSL can be cut and machined with conventional equipment. However, carbide-tipped tools are recommended due to the high density of the material.

Finishing

A standard sanded surface of 50 grit is available, ensuring a tolerance of ± 0.5 mm at the time of manufacturing. The surface of TimberStrand™ LSL has occasional small voids caused by the overlapping of the surface strands. A smooth surface can be obtained through the application of a wood veneer or other wrapping material. It is recommended to conduct trials to determine the optimal type and thickness of the overlay material.

Coating

TimberStrand™ LSL can be coated with any type of wood coating available on the market.

Storage

TimberStrand™ LSL must be protected from exposure to climatic elements. It should be stored under cover and protected from moisture.

PHYSICAL PROPERTIES

TARGET DENSITY VALUES ⁽⁴⁾	MIN. 610 kg/m ³	MAX. 660 kg/m ³
Product Moisture Content (at time of manufacturing)	6-8%	6-8%
Dimensional Stability ⁽²⁾ :		
Thickness Change (per 1% variation in moisture content)	0.5%	0.5%
Width Change (per 1% variation in moisture content)	0.1%	0.1%
Length Change	Negligible	Negligible
Fire Resistance:		
Char rate	0.7 mm/min	0.7 mm/min
Flame Spread Index (per ASTM E84)	140	140
Thermal Conductivity I (W/m.k)	0.12	0.12

MECHANICAL PROPERTIES⁽¹⁾

TARGET DENSITY VALUES ⁽⁴⁾	MIN. 610 kg/m ³	MAX. 660 kg/m ³
Internal Bond	0.62 N/mm ²	0.62 N/mm ²
Average Ultimate Bending Stress (MOR) – Edge	35 N/mm ²	40 N/mm ²
Average Ultimate Bending Stress (MOR) – Flat	40 N/mm ²	45 N/mm ²
Average Bending Stiffness (MOE) – Edge	8900 N/mm ²	9600 N/mm ²
Average Bending Stiffness (MOE) – Flat	8900 N/mm ²	9600 N/mm ²
Ø 5.5 mm Screw Withdrawal – Edge ⁽³⁾	3 100 N	3 500 N
Ø 5.5 mm Screw Withdrawal – Face ⁽³⁾	3 600 N	4 000 N
Split Resistance – Perpendicular Face	890 N	890 N

(1) Mechanical properties shown are not to be used for structural design purposes.

(2) Dimensional stability data is applicable to an Equilibrium Moisture Content (EMC) between 6% and 15%.

(3) Screw withdrawal values are ultimate mean values, based on testing a Ø 5.5 mm screw, 38 mm long.

(4) Density is determined by the application of the material based on the customer's specification. Please contact Trus Joist for additional information.

OUR PATENTED HIGH-TECH MANUFACTURING PROCESS GUARANTEES EXCELLENT PRODUCTS

TimberStrand™ LSL is an engineered timber product made of aspen or poplar. The manufacturing process includes the four general steps as follows:



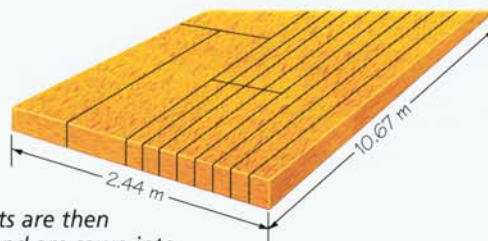
1. Aspen or poplar logs are cleaned, debarked and stranded into thin strands, about 1 mm to 1.5 mm thick and about 30 mm wide and up to 34 cm long.



2. The strands are dried to a uniform moisture content and coated with waterproof polyurethane resin.



3. The coated strands are then aligned in one direction to form a mat. Through a high pressure pressing operation with steam injection, solid billets are formed with dimensions of 2.44 m (width) and 10.67 m (length).



4. The billets are then sanded and are sawn into components of required sizes ready for use.



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