

LP SOLIDSTART LSL STAIR STRINGER

U.S. TECHNICAL GUIDE



LP® SOLIDSTART® LSL STAIR STRINGERS

When Straight And Consistent Are Not An Option

LP SolidStart Laminated Strand Lumber (LSL) is ideal for stair stringers because it offers numerous advantages over traditional lumber products. Our manufacturing process gives LP SolidStart LSL more consistent moisture content than lumber, which helps keep it from twisting, warping and shrinking. With LP SolidStart LSL's density, dimensional stability and straightness, the risk of callbacks is reduced. Additionally, because LSL can be used throughout the structure and it is available in long lengths, LSL offers far greater design flexibility and efficiency than traditional lumber.

As the main structural component of a staircase, straight, true and consistent stair stringers couldn't be more important. And LP SolidStart LSL couldn't be more perfect for the job. Every piece is usable, so there's no more cutting around knots. The uniformity makes installation fast and accurate. With all of the traffic a staircase will endure through time, true from the start means durability through the years.

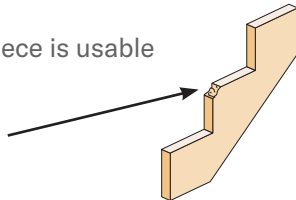
LP SolidStart LSL: Better Performance. Better Value.

Predictable Performance

LP SolidStart LSL Rim Board and Framing Lumber is straight, uniform, and won't split like traditional lumber when notched. Along with its predictable performance, it also allows the builder to use inventoried products so there's no need for an extra SKU. Here are just a few of the key advantages.

Consistently Stable = Fewer Callbacks

- Reduces squeaks
- No knots to cut around: every piece is usable
- Uniform and consistent
- Less prone to tread support breakage (dog-ears)



Increased Efficiency = Reduced Build Cycle

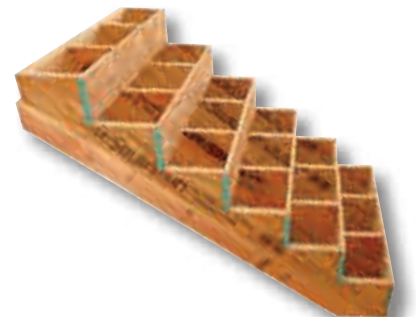
- No scabbing or reinforcements needed

Better Value = Better Homes

- No wasted time culling
- Lifetime Limited Warranty

LP SolidStart LSL Is Made From Wood—A Renewable, Natural Resource

- Our wood procurement process targets small, fast growing trees that can be replenished more quickly than larger, older trees.
- We use SFI® certified forest management and fiber sourcing systems to help ensure that our wood comes from well-managed forests. LP SolidStart LSL is certified to the SFI chain-of-custody standard.
- Virtually the entire log is used in our manufacturing process. The wood waste is repurposed or used to help fuel our mills.
- We only use low-emitting, safe resins in the manufacture of LP SolidStart LSL and do not add any urea-formaldehyde.
- LP SolidStart LSL may help you achieve certification points in a number of leading green building programs.



Horizontal Span (Run) Tables

40 psf Live Load; 12 psf Dead Load						
Thickness Grade	Depth	Stair Tread Width				
		36"		42"	44"	48"
		2 Stringers	3 Stringers	3 Stringers	3 Stringers	3 Stringers
1-1/4" 1.35E LSL	9-1/2"	5'-7"	5'-7"	5'-4"	5'-3"	5'-1"
	11-7/8"	9'-8"	9'-8"	9'-2"	9'-0"	8'-9"
	14"	13'-3"	13'-3"	12'-7"	12'-5"	12'-1"
	16"	16'-8"	16'-8"	15'-10"	15'-7"	15'-2"
1-1/2" 1.35E LSL	9-1/2"	5'-11"	5'-11"	5'-8"	5'-7"	5'-5"
	11-7/8"	10'-3"	10'-3"	9'-9"	9'-7"	9'-4"
	14"	14'-1"	14'-1"	13'-4"	13'-2"	12'-9"
	16"	17'-8"	17'-8"	16'-9"	16'-6"	16'-1"
1-1/2" 1.55E LSL	9-1/2"	6'-3"	6'-3"	5'-11"	5'-10"	5'-8"
	11-7/8"	10'-8"	10'-8"	10'-2"	10'-0"	9'-8"
	14"	14'-8"	14'-8"	14'-0"	13'-9"	13'-5"
	16"	18'-6"	18'-6"	17'-7"	17'-4"	16'-10"
1-3/4" 1.55E LSL	9-1/2"	6'-7"	6'-7"	6'-3"	6'-2"	6'-0"
	11-7/8"	11'-3"	11'-3"	10'-8"	10'-7"	10'-3"
	14"	15'-6"	15'-6"	14'-9"	14'-6"	14'-1"
	16"	19'-5"	19'-5"	18'-6"	18'-2"	17'-8"

DESIGN ASSUMPTIONS:

- General guidelines for calculating Step Rise and Run:
 - The rise times the run should equal approximately 75".
 - Two times the rise plus one run should equal approximately 25".
 - Rise plus run should be 17" to 18".
- Spans have been limited by the capacity of framing anchors at the stringer to header connection listed below. Longer spans may be possible with other details.
 - One (1) Simpson® A35 framing anchor for stringers supporting the ends of the tread.
 - Two (2) Simpson® A35 framing anchors for stringers supporting the middle or center of the tread.
 - Additional bottom support such as a ledger must be provided for spans shown in white numbers in black background.
- Design Values for LP® SolidStart® LSL are located in ICC-ES Report ESR-2403.

100 psf Live Load; 12 psf Dead Load						
Thickness Grade	Depth	Stair Tread Width				
		36"		42"	44"	48"
		2 Stringers	3 Stringers	3 Stringers	3 Stringers	3 Stringers
1-1/4" 1.35E LSL	9-1/2"	4'-2"	4'-2"	3'-11"	3'-11"	3'-9"
	11-7/8"	7'-2"	7'-2"	6'-10"	6'-8"	6'-6"
	14"	9'-10"	9'-10"	9'-4"	9'-3"	9'-0"
	16"	12'-4"	12'-4"	11'-9"	11'-7"	11'-2"
1-1/2" 1.35E LSL	9-1/2"	4'-5"	4'-5"	4'-2"	4'-1"	4'-0"
	11-7/8"	7'-7"	7'-7"	7'-3"	7'-1"	6'-11"
	14"	10'-5"	10'-5"	9'-11"	9'-9"	9'-6"
	16"	13'-1"	13'-1"	12'-6"	12'-3"	11'-11"
1-1/2" 1.55E LSL	9-1/2"	4'-7"	4'-7"	4'-5"	4'-4"	4'-2"
	11-7/8"	7'-11"	7'-11"	7'-7"	7'-5"	7'-3"
	14"	10'-11"	10'-11"	10'-4"	10'-3"	9'-11"
	16"	13'-8"	13'-8"	13'-0"	12'-10"	12'-6"
1-3/4" 1.55E LSL	9-1/2"	4'-10"	4'-10"	4'-7"	4'-6"	4'-5"
	11-7/8"	8'-4"	8'-4"	7'-11"	7'-10"	7'-7"
	14"	11'-6"	11'-6"	10'-11"	10'-9"	10'-3"
	16"	14'-5"	14'-5"	13'-8"	13'-6"	13'-2"

ADDITIONAL NOTES:

- Tables are valid for stairs with an 8" maximum riser and 9" minimum tread. Consult local building codes for restrictions on riser and tread dimensions.
- Deflection criteria of L/360 live load and L/240 total load.
- Stringers are not stable until treads and risers are securely in place.
- Subfloor adhesive will minimize squeaks.
- A 12' floor-to-floor height (or between landings) is the maximum allowed by code.
- Adequate moisture barrier is required between stringers and concrete.
- Refer to LP's technical guide for LP SolidStart LSL for additional information.
- LP SolidStart LSL is intended for dry-use conditions only.

100 psf Live Load; 25 psf Dead Load						
Thickness Grade	Depth	Stair Tread Width				
		36"		42"	44"	48"
		2 Stringers	3 Stringers	3 Stringers	3 Stringers	3 Stringers
1-1/4" 1.35E LSL	9-1/2"	4'-2"	4'-2"	3'-11"	3'-11"	3'-9"
	11-7/8"	7'-2"	7'-2"	6'-10"	6'-8"	6'-6"
	14"	9'-10"	9'-10"	9'-2"	9'-1"	8'-8"
	16"	12'-3"	12'-3"	11'-4"	11'-2"	10'-8"
1-1/2" 1.35E LSL	9-1/2"	4'-5"	4'-5"	4'-2"	4'-1"	4'-0"
	11-7/8"	7'-7"	7'-7"	7'-3"	7'-1"	6'-11"
	14"	10'-5"	10'-5"	9'-11"	9'-8"	9'-5"
	16"	13'-1"	13'-1"	12'-5"	12'-2"	11'-7"
1-1/2" 1.55E LSL	9-1/2"	4'-7"	4'-7"	4'-5"	4'-4"	4'-2"
	11-7/8"	7'-11"	7'-11"	7'-6"	7'-5"	7'-3"
	14"	10'-11"	10'-11"	10'-2"	10'-3"	9'-11"
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	14"	11'-5"	11'-5"	10'-11"	10'-9"	10'-5"
	16"	14'-5"	14'-5"	13'-8"	13'-6"	13'-1"

Suggested Details for Residential Construction

SPAN TABLE DETAILS			CUT DIMENSIONS
<p>SIMPLE SPAN</p>	<p>MULTIPLE SPAN</p>	<p>TWO STRINGER OPTION</p> <p>THREE STRINGER OPTION</p>	<p>ALLOWABLE CUT DIMENSIONS</p> <p>Alternate step style—maintain minimum throat depth</p> <p>Sawn out to receive treads and risers</p> <p>Depth</p> <p>9" min. run* (typ)</p> <p>8" max. rise* (typ)</p> <p>Minimum Throat Depth 3-1/2" min. for 9-1/2" 5-7/8" min. for 11-7/8" 8" min. for 14" 10" min. for 16"</p> <p>* Consult local building codes for restrictions on riser and tread dimensions</p>

SUGGESTED DETAILS FOR RESIDENTIAL CONSTRUCTION

For 40 psf Live Load/12 psf Dead Load. Consult design professional for Live Loads greater than 40 psf.

<p>STAIR STRINGER - BOTTOM SUPPORT - BEAM</p> <p>Min. 2x4 let-in block nailed to sheathing; Clinch nails</p> <p>Align support with back of stringer</p>	<p>STAIR STRINGER - TOP SUPPORT - CONNECTOR</p> <p>Simpson® LSC Adjustable Stair-Stringer Connector "or equal"</p> <p>Design professional to verify capacity and fastening requirements for all connections.</p>	<p>STAIR STRINGER - TOP SUPPORT - LEDGER</p> <p>Provide restraint to ensure stringer lateral stability.</p> <p>Ledger</p> <p>Studs at 16" on-center max. Toenail stringer to ledger with one 8d nail per side.</p> <p>2x8 min. ledger nailed with three 16d common nails per stud.</p> <p>For SPF & Hem-fir framing with runs longer than 10'-9", 2x10 with four 16d common nails required.</p> <p>Alternate connection: three 1/4" x 4" (min.) lag screws per stud, all framing.</p>	<p>STAIR STRINGER - BOTTOM SUPPORT - CONCRETE</p> <p>Connect each stringer to 2x plates with two 10d or 16d nails, toe-nailed to each 2x plate. Connect each 2x plate to concrete with three 1/2" diameter x 3" long anchor bolts.</p> <p>Min. 2x4 let-in block connected to the plate below</p> <p>Concrete slab</p> <p>Treated 2x plates connected to concrete supporting both front and back of the stringer. Use only connectors/fasteners that are approved for use with the corresponding wood treatment.</p>
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WARNINGS

<p>DON'T overcut stair stringer.</p> <p>Do not overcut stringer</p>	<p>DON'T support stringer on notch detail.</p> <p>Do not support stringer on notch</p> <p>Possible fracture point</p> <p>Support with framing anchor</p>	<p>DON'T support stringer on let-in nailer only.</p> <p>Possible fracture point</p> <p>Full bearing required on bottom of stringer—no gaps allowed</p>	<p>DON'T use shallow header depths.</p> <p>Bottom of stringer cannot extend below bottom of header</p>
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LP® SolidStart® Engineered Wood Products are manufactured at different locations in the United States and Canada. Please verify availability with the LP SolidStart Engineered Wood Products distributor in your area before specifying these products.



For product catalog & complete warranty details, visit LPCorp.com

For more information on the full line of LP SolidStart Engineered Wood Products or the nearest distributor, please contact 1.888.820.0325 or e-mail customer.support@lpcorp.com. Visit our web site at www.lpcorp.com.

Cal. Prop 65 Warning:

⚠ WARNING: Drilling, sawing, sanding or machining wood products can expose you to wood dust, a substance known to the State of California to cause cancer. Avoid inhaling wood dust or use a dust mask or other safeguards for personal protection. For more information go to www.P65Warnings.ca.gov/wood.

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