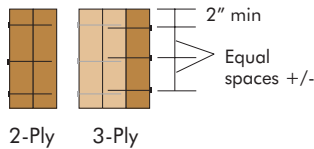


Fastening Recommendations For Multiple Ply Members

TOP LOADED MEMBERS - 2 & 3 PLY

For 12" deep (or less) members, nail plies together with 2 rows of 16dx3½" com. nails at 12" o.c. (add 1 row for 16d sinkers).

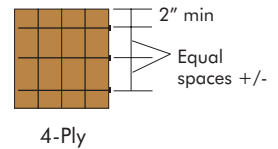


For 14", 16" or 18" deep members, nail plies together with 3 rows of 16dx3½" com. nails at 12" o.c. (add 1 row for 16d sinkers).

For 20", 22" or 24" deep members, nail plies together with 4 rows of 16dx3½" com. nails at 12" o.c. (add 1 row for 16d sinkers).

TOP LOADED MEMBERS - 4 PLY

For 4-Ply Top Loaded members, it is recommended to connect the plies together with appropriate wood screws (see page 41 for approved wood screws).



The recommended fastener spacing is two rows at 24" o.c. for up to and including 16" deep members, and 3 rows at 24" o.c. for members up to and including 24" deep. If the fastener point penetrates a minimum of 75% of the 4th ply, they may be applied from one side of the beam; otherwise, the fasteners must be applied from both sides and staggered.

Load must be applied evenly to all 4 plies; otherwise, use connections for side loaded members.

SIDE LOADED MEMBERS

MAXIMUM UNIFORM LOAD APPLIED TO EITHER OUTSIDE PIECE - POUNDS PER LINEAL FOOT

1-1/2" Thick Pieces in Member	Nail Size	Nailed				Bolted					
		2 rows 10d common at 12" o.c.		3 rows 10d common at 12" o.c.		2 rows 1/2" bolts at 24" o.c.		2 rows 1/2" bolts at 12" o.c.		3 rows 1/2" bolts at 12" o.c.	
		1.3E & 1.5E LVL	2.0E & 2.2E LVL	1.3E & 1.5E LVL	2.0E & 2.2E LVL	1.3E & 1.5E LVL	2.0E & 2.2E LVL	1.3E & 1.5E LVL	2.0E & 2.2E LVL	1.3E & 1.5E LVL	2.0E & 2.2E LVL
2 - 1-1/2"	10d com. (0.148" x 3")	465	465	700	700	395	435	795	870	1190	1305
3 - 1-1/2"	10d com. (0.148" x 3")	350	350	525	525	295	325	595	650	895	980
4 - 1-1/2"	use bolts	-	-	-	-	265	290	530	580	795	870
1-3/4" Thick Pieces in Member	Nail Size	Nailed				Bolted					
		2 rows 16d common at 12" o.c.		3 rows 16d common at 12" o.c.		2 rows 1/2" bolts at 24" o.c.		2 rows 1/2" bolts at 12" o.c.		3 rows 1/2" bolts at 12" o.c.	
		1.3E & 1.5E LVL	2.0E & 2.2E LVL	1.3E & 1.5E LVL	2.0E & 2.2E LVL	1.3E & 1.5E LVL	2.0E & 2.2E LVL	1.3E & 1.5E LVL	2.0E & 2.2E LVL	1.3E & 1.5E LVL	2.0E & 2.2E LVL
2 - 1-3/4"	16d com. (0.162" x 3-1/2")	560	560	845	845	460	505	925	1015	1390	1520
3 - 1-3/4"	16d com. (0.162" x 3-1/2")	420	420	635	635	345	380	695	760	1040	1140
4 - 1-3/4"	use bolts	-	-	-	-	305	335	615	675	925	1015
2 - 3-1/2"	use bolts	-	-	-	-	820	860	1640	1720	2465	2580

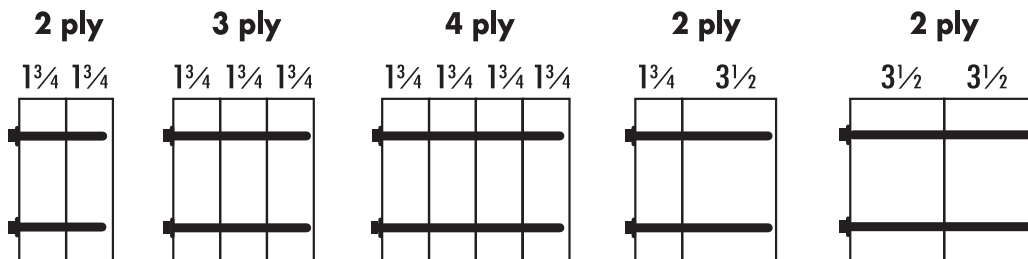
RECOMMENDED FASTENER DESIGN INFORMATION IN TERMS OF EQUIVALENT SPECIFIC GRAVITY FOR HEADER GRADES OF RIGIDLAM LVL

	Face		Edge	
	1.3E & 1.5E LVL	2.0E & 2.2E LVL	1.3E & 1.5E LVL	2.0E & 2.2E LVL
Withdrawal - nail	0.50	0.50	0.47	0.50
Dowel Bearing - nail	0.50	0.50	0.47	0.50
Dowel Bearing - bolt	0.47	0.50	Not applicable	

- Use appropriate software (e.g. Simpson Strong-Tie® Component Solutions™) or beam/header charts or plf load tables to size the beam.
- The table values apply to common (A307) bolts. Bolt holes must be centered at least two inches from the top and bottom edges of the beam. Bolt holes must be the same diameter as the bolts. Washers must be used under the bolt heads and nuts. Offset or stagger rows of bolt holes by one-half of the bolt spacing.
- The specified nailing applies to both sides of a three-piece beam.
- 7 inch wide beams may not be loaded from one side only. They must be loaded from both sides and/or top-loaded.
- The side loaded table values for nails may be doubled for 6" o.c. spacing and tripled for 4" o.c. spacing.
- Duration of load factors (e.g. 115%, 125% etc...) may be applied to the table values.

Fastening Recommendations For Multiple Ply LVL Members (cont.)

- The wood screws listed below are approved for use in connecting multiple plies of RigidLam® LVL together and may be used as an alternative to the nailing or bolting guidelines on the previous page.
- Pre-drilling of the LVL members is not required for the screws listed below.
- Carefully review and adhere to the design and installation information available from each of the screw manufacturers listed below.

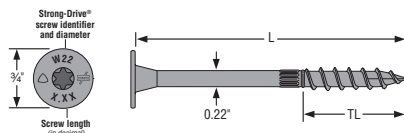


The diagrams above are for illustrative purposes only, screws may need to be applied to both sides. Refer to the manufacturers' information for the appropriate design and installation guidelines.

SIMPSON

Simpson SDW Wood Screws

Strong-Tie®
CONNECTORS



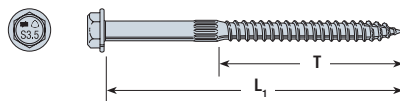
Model No.	L (in)	TL (in)	Head Stamp Length
SDW22338	3-3/8	1-9/16	3.37
SDW22500	5	1-9/16	5.00
SDW22634	6-3/4	1-9/16	6.75

- Code Evaluation Report – IAPMO ER-0192
- For SDW design and installation information, refer to the current Simpson Strong-Tie literature, www.strongtie.com or contact Simpson Strong-Tie at 800-999-5099.

SIMPSON

Simpson SDS Wood Screws

Strong-Tie®
CONNECTORS



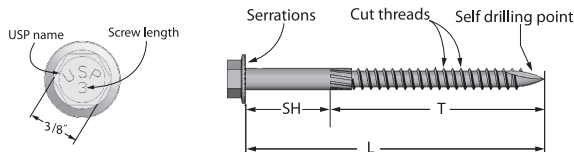
Model No.	L ₁ (in)	T (in)	Head Stamp
SDS25312	3-1/2	2-1/4	S3.5
SDS25412	4-1/2	2-3/4	S4.5
SDS25600	6	3-1/4	S6

- Code Evaluation Report – ICC-ES ESR-2236
- For SDS design and installation information, refer to the current Simpson Strong-Tie literature, www.strongtie.com or contact Simpson Strong-Tie at 800-999-5099.

For hanger information refer to the current Simpson Strong-Tie literature, www.strongtie.com or contact Simpson Strong-Tie at 800-999-5099



USP WS Wood Screws



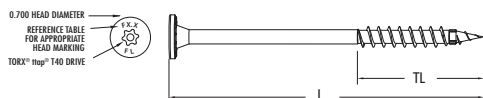
Model No.	L (in)	SH (in)	T (in)
WS35	3-1/2	3/4	2-3/4
WS45	4-1/2	1-1/4	3-1/4
WS6	6	1-3/4	4-1/4

- Code Evaluation Report – ICC-ES ESR-2761
- For WS design and installation information, refer to the current USP Structural Connectors literature, www.uspconnectors.com or contact USP Structural Connectors at 800-328-5934.

For hanger information refer to the current USP Structural Connectors literature, www.uspconnectors.com or contact USP Structural Connectors at 800-328-5934



FastenMaster FlatLOK™ Wood Screws



Product	L (in)	TL (in)	Head Marking
FL312	3-1/2	2	F3.5FL
FLO05	5	2	F5.0FL
FL634	6-3/4	2	F6.75FL

- Code Evaluation Report – DrJ - TER 1501-08
- For FlatLOK design and installation information, refer to the current FastenMaster literature, www.fastenmaster.com or contact FastenMaster at 800-518-3569