Connecting Multiple-Ply VERSA-LAM® Beams with Simpson Strong-Tie SDW Strong-Drive® Screws

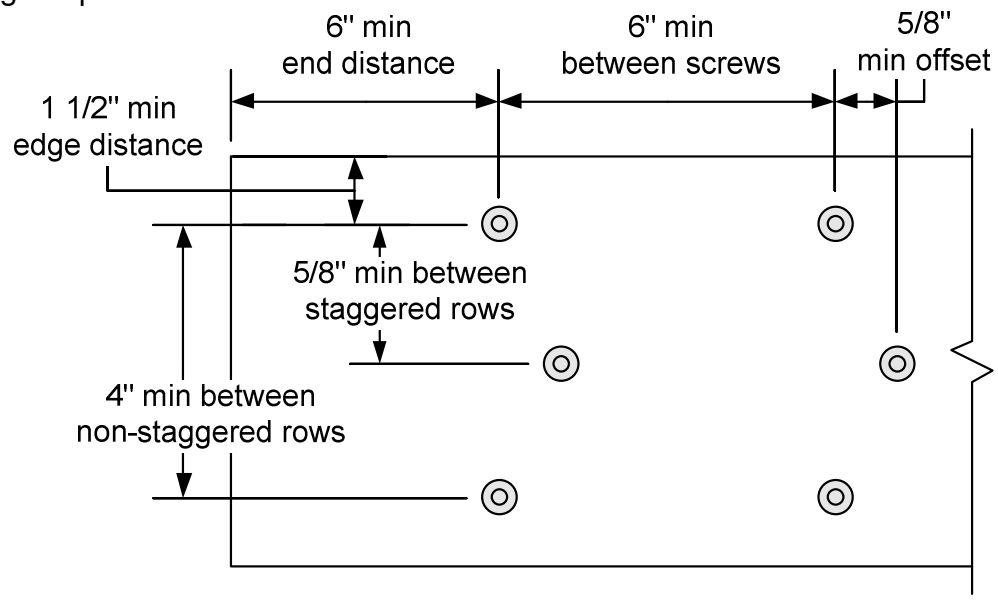
The connection of VERSA-LAM plies is a critical part of the design of a multiple ply beam. When side loaded beams are not connected properly, the inside plies do not support their share of the load and thus the load carrying capacity of the full member is reduced significantly.

Simpson Strong-Tie SDW screws are an acceptable fastener to connect multiple ply VERSA-LAM beams. The following is an allowable load chart for determining the proper connection schedule:

Versa-Lam Beam	SDW Model & Length	2 rows – 12" o.c.	3 rows – 12" o.c.	2 rows – 16" o.c.	3 rows – 16" o.c.	2 rows – 24" o.c.	3 rows – 24" o.c.
(2) – 1 ¾"	SDW22338 3 3/8"	1600	2400	1200	1800	800	1200
(3) – 1 ¾"	SDW22500 5"	900	1350	675	1012	450	675
(4) – 1 ¾"	SDW22634 6 ¾"	800	1200	600	900	400	600
(2) – 3 ½"	SDW22634 6 ¾"	1600	2400	1200	1800	800	1200

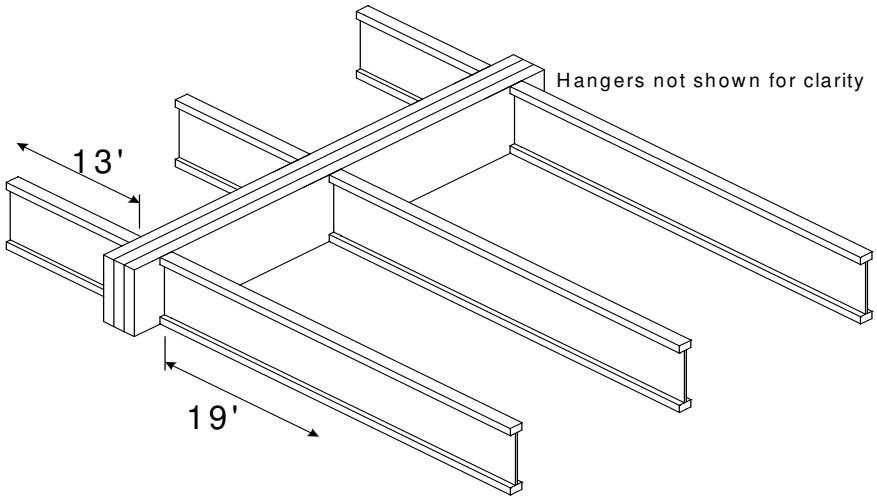
Notes:

- Table assumes that each ply supports an equal proportion of load.
- Screws may be installed from one side only, table assumes worst case of the screw tip located on the side of maximum load. Simpson Strong-Tie publishes additional combinations not addressed in the table above, please refer to *F-SDW10: SDW Strong-Drive Structural Wood Screws.*
- Minimum 3 rows required for multiple ply beams deeper than 18".
- When hangers are installed on the tip side of the screw, hanger face nails/screws shall have a minimum length of 3".
- Spacing Requirements:



Connection Design Example

Given: Beam shown below is supporting residential floor load (40 psf live load, 10 psf dead load) and is spanning 16'-0". Beam depth is limited to 14".



Find: A multiple 1 3/4" ply VERSA-LAM that is adequate to support the design loads and the member's proper connection schedule with Simpson SDW screws.

1) Calculate the tributary width that beam is supporting: 13'/2 + 19'/2 = 16'.
2) Use PLF tables in *Boise Cascade EWP Specifier Guide* or enter the loads and span in BC Calc and run Best Beam for 2, 3 & 4 ply beams: A Triple 1 3/4" x 14" Versa-Lam 2.0 2800 is found to adequately support the design loads.
3) Calculate the maximum plf load from one side (the right side in this case).
   Maximum Side Load = (19'/2) x (40 + 10 psf) = 475 plf
4) Go to the table on previous page, the proper connection schedule must have a capacity greater than the maximum side load:

SDW Screws: 3 rows SDW22500 (5" long) @ 24" o.c: 675 plf > 475 plf OK!
or 2 rows SDW22500 (5" long) @ 16" o.c: 675 plf > 475 plf OK!