



Connecting Multiple-Ply 1 3/4" VERSA-LAM® Beams with Simpson Strong-Tie SDS® Screws

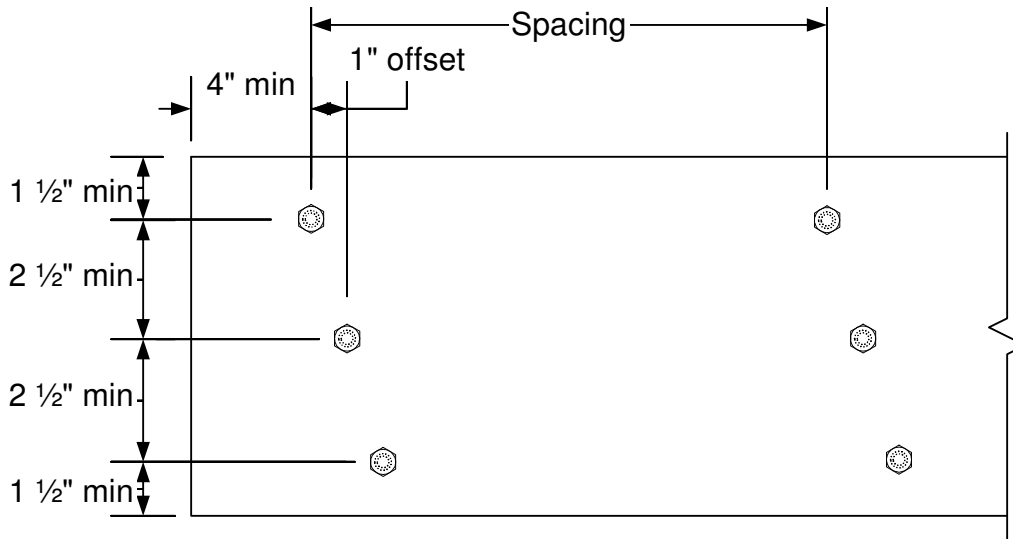
The connection of VERSA-LAM plies is a critical part of the design of a multiple ply beam. When side loaded beams are not connected properly, the inside plies do not support their share of the load and thus the load carrying capacity of the full member is reduced significantly.

Simpson Strong-Tie SDS screws are an acceptable fastener to connect 1 3/4" VERSA-LAM beams. The following is an allowable load chart for determining the proper connection schedule:

# of Members	Screw Size	2 rows – 24" o.c.	3 rows – 24" o.c.	2 rows – 12" o.c.	3 rows – 12" o.c.	2 rows – 6" o.c.	3 rows – 6" o.c.
2	1/4" x 3 1/2"	480	720	960	1440	1920	2880
3	1/4" x 3 1/2"	360	540	720	1080	1440	2160
3	1/4" x 4 1/2"	690	1035	1380	2070	2760	4140
4	1/4" x 6"	615	920	1225	1840	2450	3680

Notes:

- 2 Ply Beams: Install screws in loaded ply
- 3 & 4 Ply Beams: Install screws from both sides, stagger screws by 1/2 of the spacing to avoid splitting.
- Minimum 3 rows required for multiple ply beams deeper than 18".
- Spacing Requirements

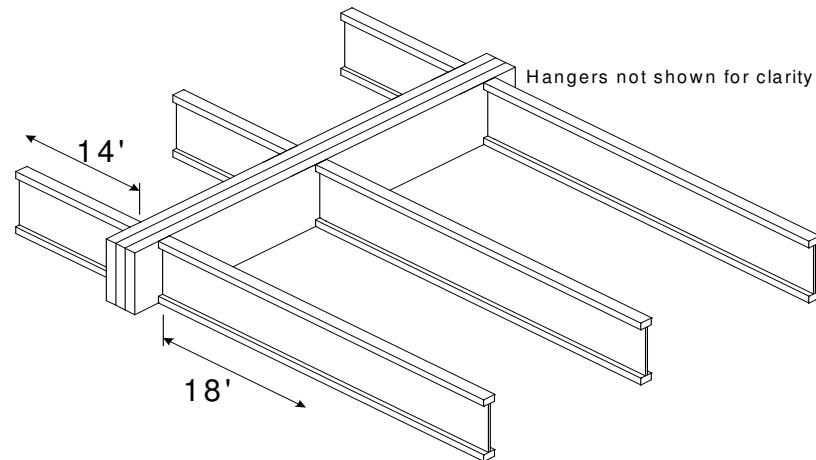


For more information, please consult *Simpson Technical Bulletin – Strong Drive Screw Applications*



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 SDS screws.

- 1) Calculate the tributary width that beam is supporting: $14'/2 + 18'/2 = 16'$.
- 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 2800 is found to adequately support the design loads.
- 3) Calculate the maximum plf load from one side (the right side in this case).
Max. Side Load = $(18'/2) \times (40 + 10 \text{ psf}) = 450 \text{ plf}$
- 4) Go to the table on previous page, the proper connection schedule must have a capacity greater than the max. side load:

SDS Screws: 3 rows 1/4" x 3 1/2" @ 24" o.c: 540 plf > 450 plf OK!
Or 2 rows 1/4" x 4 1/2" @ 24" o.c: 690 plf > 450 plf OK!