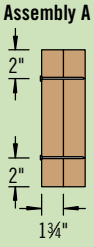
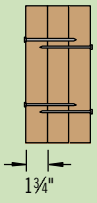
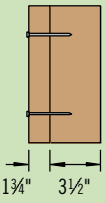
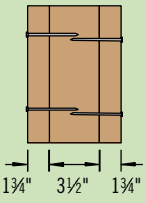
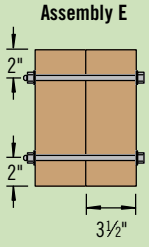
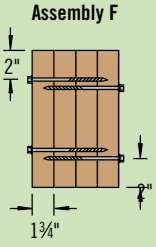
L17 Uniform Load—Maximum Uniform Load Applied to Either Outside Member (PLF)

Connector Type	Number of Rows	Connector On-Center Spacing	Connector Pattern					
			Assembly A 	Assembly B 	Assembly C 	Assembly D 	Assembly E 	Assembly F 
			3½" wide, 2-ply	5¼" wide, 3-ply	5¼" wide, 2-ply	7" wide, 3-ply	7" wide, 2-ply	7" wide, 4-ply
10d (0.128" x 3") Nail(1)	2	12"	370	***280***	280	***245***		
	3	12"	555	***415***	415	***370***		
½" A307 Through Bolts(2)(3)	2	24"	505	380	520	465	860	340
		19.2"	635	475	655	580	1,075	425
		16"	760	570	785	695	1,290	505
SDS ¼" x 3½"(3)	2	24"	680	***510***	510	***455***		
		19.2"	850	***640***	640	***565***		
		16"	1,020	***765***	765	***680***		
SDS ¼" x 6"(3)	2	24"				***455***	***465***	***455***
		19.2"				***565***	***580***	***565***
		16"				***680***	***695***	***680***
USP WS35(3)	2	24"	480	***360***	360	***320***		
		19.2"	600	***450***	450	***400***		
		16"	715	***540***	540	***480***		
USP WS6(3)	2	24"				***350***	***525***	***350***
		19.2"				***440***	***660***	***440***
		16"				***525***	***790***	***525***
3⅜" TrussLOK®(3)	2	24"	535	***400***	400	***355***		
		19.2"	670	***500***	500	***445***		
		16"	800	***600***	600	***535***		
5" TrussLOK®(3)	2	24"		435	435	***385***		
		19.2"		545	545	***485***		
		16"		655	655	***580***		
6¾" TrussLOK®(3)	2	24"				385	580	385
		19.2"				485	725	485
		16"				580	870	580
3⅜" SDW22(3)	2	24"	800	***600***	600	***535***		
		19.2"	1,000	***750***	750	***665***		
		16"	1,200	***900***	900	***800***		
5" SDW22(3)	2	24"		450	450	***535***		
		19.2"		565	565	***665***		
		16"		675	675	***800***		
6¾" SDW22(3)	2	24"				400	800	400
		19.2"				500	1,000	500
		16"				600	1,200	600

(1) Nailed connection values may be doubled for 6" on-center or tripled for 4" on-center nail spacing.

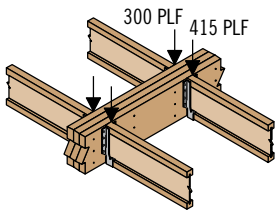
(2) Washers required. Bolt holes to be 9/16" maximum.

(3) 24" on-center bolted and screwed connection values may be doubled for 12" on-center spacing.

General Notes

- Connections are based on NDS® 2005 or manufacturer's test or code reports.
- Use specific gravity of 0.5 when designing lateral connections.
- Values listed are for 100% stress level. Increase 15% for snow-loaded roof conditions or 25% for non-snow roof conditions, where code allows.
- ***Bold Italic*** cells indicate **Connector Pattern** must be installed on both sides. Stagger fasteners on opposite side of beam by ½ the required connector spacing.
- Verify adequacy of beam in allowable load tables on pages 16–33.
- 7" wide beams should be side-loaded only when loads are applied to both sides of the members (to minimize rotation).
- Minimum end distance for bolts and screws is 6".
- Beams wider than 7" require special consideration by the design professional.

Uniform Load Design Example

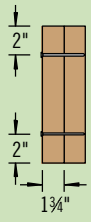
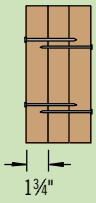
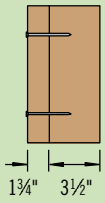
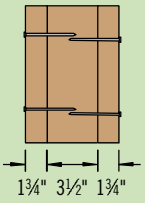
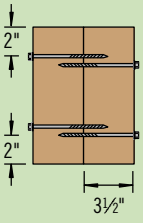
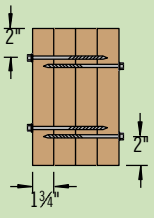


First, check the allowable load tables on pages 16–33 to verify that three pieces can carry the total load of 715 plf with proper live load deflection criteria. Maximum load applied to either outside member is 415 plf. For a 3-ply, 1¾" assembly, two rows of 10d (0.128" x 3") nails at 12" on-center is good for only 280 plf. Therefore, use three rows of 10d (0.128" x 3") nails at 12" on-center (good for 415 plf).

Alternative: Two rows of ½" bolts or ¼" x 3½" SDS screws at 19.2" on-center.

MULTIPLE-MEMBER CONNECTIONS FOR SIDE-LOADED BEAMS

L18 Point Load—Maximum Point Load Applied to Either Outside Member (lbs)

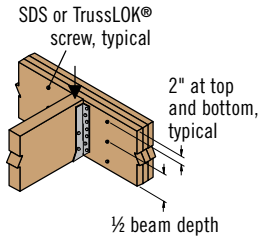
Connector Type	Number of Connectors	Connector Pattern: Assembly A	Assembly B	Assembly C	Assembly D	Assembly E	Assembly F
							
		3½" wide, 2-ply	5¼" wide, 3-ply	5¼" wide, 2-ply	7" wide, 3-ply	7" wide, 2-ply	7" wide, 4-ply
10d (0.128" x 3") Nail	6	1,110	***835***	835	***740***		
	12	2,225	***1,670***	1,670	***1,485***		
	18	3,335	***2,505***	2,505	***2,225***		
	24	4,450	***3,335***	3,335	***2,965***		
¼" x 3½" or ¼" x 6" SDS, USP WS35, or USP WS6	4	1,915	***1,435***	1,435	***1,275***	***1,860(3)***	***1,405(3)***
	6	2,870	***2,155***	2,155	***1,915***	***2,785(3)***	***2,110(3)***
	8	3,825	***2,870***	2,870	***2,550***	***3,715(3)***	***2,810(3)***
3⅜", 5", or 6¾" TrussLOK®	4	2,135	***1,600(1)***	1,600	***1,425(2)***	2,320(4)	1,425(4)
	6	3,205	***2,405(1)***	2,405	***2,135(2)***	3,480(4)	2,135(4)
	8	4,270	***3,205(1)***	3,205	***2,850(2)***	4,640(4)	2,850(4)
3⅜", 5", or 6¾" SDW22	4	3,200	***1,800(1)***	1,800	***1,600(2)***	3,200(4)	1,600(4)
	6	4,800	***2,700(1)***	2,700	***2,400(2)***	4,800(4)	2,400(4)
	8	6,400	***3,600(1)***	3,600	***3,200(2)***	6,400(4)	3,200(4)

(1) 5" long screws screws may be installed from one side only.
(2) 6¾" long screws screws may be installed from one side only.
(3) 6" long screw required.
(4) 6¾" long screw required.

Bold italic cells indicate that fastener pattern must be installed from both sides. See General Notes on page 38.

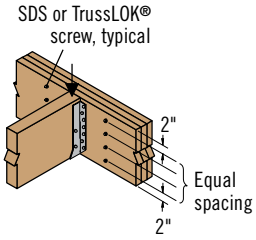
Point Load Connector Spacing

4- or 6-Screw Connection



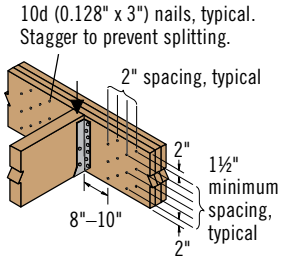
L19

8-Screw Connection



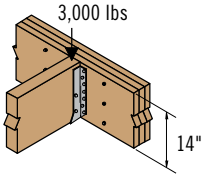
L20

Nail Connection



L21 ***There must be an equal number of nails on each side of the connection***

Point Load Design Example



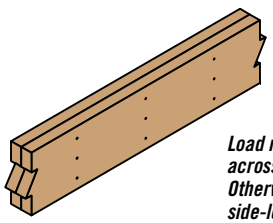
First, verify that a 3-ply, 1¾" x 14" beam can support a 3,000 lb point load and all other loads applied. The 3,000 lb point load is being transferred to the beam with a face mount hanger. For a 3-ply, 1¾" assembly, eight 3⅜" TrussLOK® screws are good for 3,205 lbs with a face mount hanger.

MULTIPLE-MEMBER CONNECTIONS FOR TOP-LOADED BEAMS

Connector Installation Requirements

Piece Width	# of Plies	Fastener: Type	Min. Length	# Rows	O.C. Spacing	Location
1¾"	2	10d nails	3"	3(2)	12"	One side
		12d–16d nails	3¼"	2(2)		
		Screws	3⅜" or 3½"	2	24"	
	3	10d nails	3"	3(2)	12"	Both sides
		12d–16d nails	3¼"	2(2)		
		Screws	3⅜" or 3½"	2	24"	Both sides
			5"		24"	One side
	4	Screws	5" or 6"	2	24"	Both sides
			6¾"	2	24"	One side
3½"	2	Screws	5" or 6"	2	24"	Both sides
			6¾"	2	24"	One side
		½" bolts	8"	2	24"	–

(1) 10d nails are 0.128" diameter; 12d–16d nails are 0.148"–0.162" diameter; screws are SDS, SDW, WS, or TrussLok™.
(2) An additional row of nails is required with depths of 14" or greater.
- With connectors on both sides, stagger fasteners on opposite side of beam by ½" of the required connector spacing.



Load must be applied evenly across entire beam width. Otherwise, use connections for side-loaded beams

L6 ***Multiple pieces can be nailed or bolted together to form a header or beam of the required size, up to a maximum width of 7"***