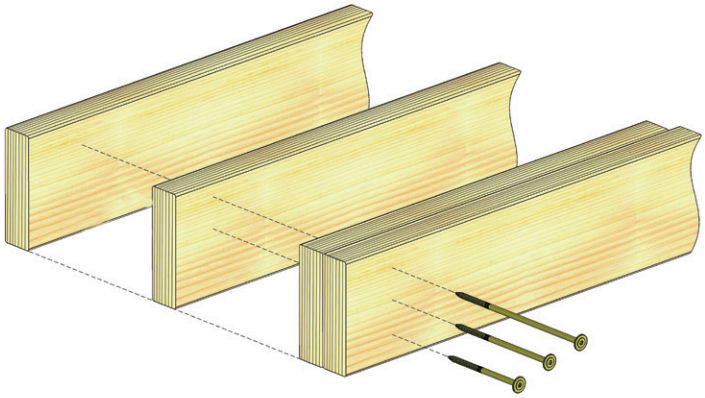
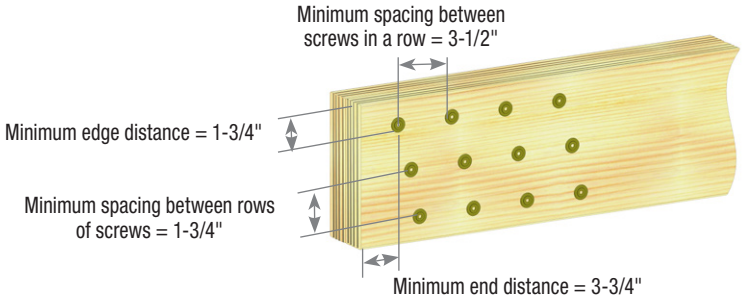
MiTek® PRO SERIES

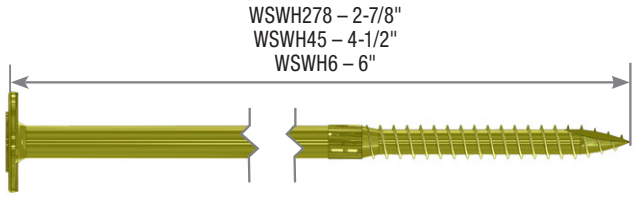
Joining Multi-Ply Dimensional Lumber Beams

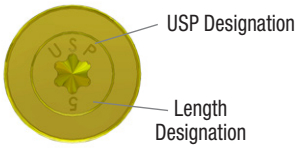
The MiTek Pro Series WSWH Washer Head Structral Wood Screws have been designed specifically for use in joining wood members of multiple-ply dimensional lumber beams. Using a standard 1/2'' low speed/high torque drill, install screws into the side of the outermost ply. As the threads fully engage the final ply, allow the underside of the washer head to pull the plies firmly together. Washer head will install flush with the surface of the wood, but do not overdrive as this may damage the beam. Refer to the information in this bulletin for proper WSWH screw size selection and fastening pattern.



Minimum Spacing Requirements:





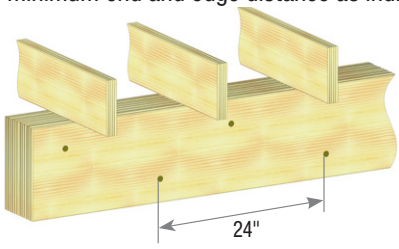


Fastener Identification

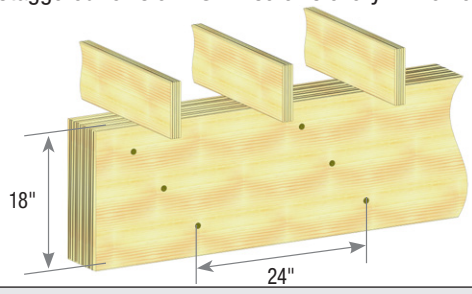
For easier selection and post installation inspection, all MiTek Pro Series Wood Screws carry an identifying head marking.

Top Loaded Beams

Where floor joists rest on all plies of the beam, WSWH screws should be installed in two staggered rows at 24" O.C. spacing. Maintain the minimum end and edge distance as indicated above.



For beam depths of 18" or more, this pattern should be increased to three staggered rows of WSWH screws every 24" on center.



General Guidelines:

- Excessively warped or curved lumber should never be forced into alignment by use of clamps, screws or bolts as splitting may occur, potentially decreasing the carrying capacity of the beam.
- The WSWH278, WSWH45, and WSWH6 are not designed for use with engineered wood. Refer to MiTek's *Joining Multi-Ply Engineered Wood (EWP) Beams* Technical Bulletin as a guide for selecting the proper length wood screw for that application.
- A qualified designer or engineer should always be consulted for critical assemblies and fastening requirements.

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Customer Service & Technical Assistance

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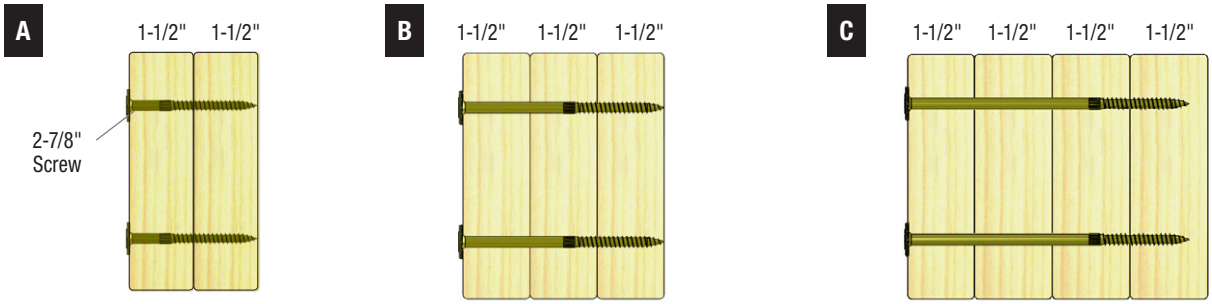
Joining Multi-Ply Dimensional Lumber Beams

Fastener Size Selection by Assembly Type

(2 rows shown)



WSWH278
2-7/8"

WSWH45
4-1/2"

WSWH6
6"

Side Loaded Beams

Where floor joists are joined to the side of the beam (typically using a joist hanger), this load chart must be used to establish the proper pattern based on the design load as determined by the engineer and noted on the plans.

Length (in)	MiTek Stock No.	No. of Screws Vertical Column	Spacing Between Screws in a Row (in)	Allowable Side Loads by Assembly Type (Lbs/Lineal Ft) (See Graphics) [1,2,3,4,5,6]					
				DF/SP			SPF		
				A	B	C	A	B	C
2-7/8	WSWH278	2	24	535	--	--	455	--	--
			19.2	670			570		
			16	805			680		
		3	24	805	--	--	680	--	--
			19.2	1005			850		
			16	1205			1020		
4-1/2	WSWH45	2	24	--	625	--	--	545	--
			19.2		780			685	
			16		935			820	
		3	24	--	935	--	--	820	--
			19.2		1165			1025	
			16		1400			1230	
6	WSWH6	2	24	--	--	555	--	--	485
			19.2			690			605
			16			830			730
		3	24	--	--	830	--	--	730
			19.2			1040			910
			16			1245			1090

1) Allowable loads are derived from tested fastener values as reported in ICC-ES ESR-2761.
2) All numbers in this table are based on Douglas Fir-Larch (DF), Southern Pine (SP), and Spruce-Pine-Fir (SPF). The DF/SP values are based on SG ≥ 0.50. The SPF values are based on 0.42 ≤ SG < 0.50.
3) The uniform loads in this table relate only to the capacity of the fastener to transfer shear loads between plies. The capacity of the beam may be less and should be verified by design professional.
4) Values listed reflect 100% load duration. (C_D=1.0) The designer may apply adjustment factors to increase or decrease these loads per the NDS based on conditions for each assembly.
5) To minimize rotation, 6" wide beams shall be side loaded only when loads are applied to both sides of the beam with the lesser loaded side bearing at least 25% of the overall design load.
6) Load values depicted in the table above assume all uniform load is applied to the outermost ply or point at entry for the screw (headed side of screw).
7) Tip side loading to beam is allowed for 50% of listed allowable side load. Head side and tip side of beam can be loaded concurrently so long as they do not exceed listed capacity. (Example: A 3-ply assembly with a head side load of 1,400 plf and tip side load of 700 plf may be fastened together with 3 rows of WSWH screws at 16" O.C. spacing between fasteners in a row).

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