

The WS Wood Screw is a self-drilling screw used for numerous interior framing applications. For use in wood-to-wood and steel-to-wood applications. Head stamped to indicate length for easy inspection.

Features and Benefits:

- 1/4" diameter
- No predrilling
- Type 17 point reduces installation torque and splitting
- 3/8" Hex Drive
- Length identification stamps on all WS heads

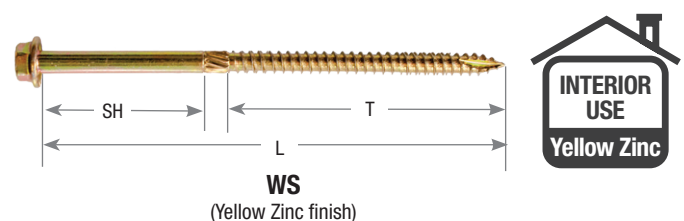
Materials: 1/4" diameter Grade 5 steel

Finish: Yellow Zinc

Codes: IBC, FL, LA

Installation:

- Screws are self-drilling.
- Install using a low speed clutch drill with 3/8" hex head driver. The washer head should be flat to the surface and the serrations will oppose turning and release the clutch. Do not over-tighten the screws.
- Care should be given to ensure the fastener is installed perpendicular to the plane of the side plate.



Specification Table

Size (in)	MiTek Stock No.	Ref. No.	Dimensions (in)			Finish ¹	DF/SP Allowable Loads (Lbs.) ^{2,4}							S-P-F Allowable Loads (Lbs.) ^{2,4}								Code Ref.
			L	SH	T		Wood to-Wood ³	Shear (100%)				Withdrawal Capacity (Lbs/in of thread)	Steel-to-Wood Withdrawal Capacity (Lbs.) ⁵	Shear (100%)				Withdrawal Capacity (Lbs/in. of thread)	Steel-to-Wood Withdrawal Capacity (Lbs.) ⁵			
								Steel-to-Wood						Steel-to-Wood								
								Gauge						Gauge								
14	10	7	3	100%	100%	Wood to-Wood ³	14	10	7	3	100%	100%										
1/4 x 1-1/2	WS15	SDS1/4X1.5, SDS1/4X11/2	1-1/2	1/4	1-1/4	Zinc	--	230	261	259	266	164	206	--	188	211	190	217	103	129	IBC, FL, LA	
1/4 x 2	WS2	SDS1/4X2	2	1/4	1-3/4	Zinc	--	306	307	289	316	160	281	--	215	244	249	248	117	204		
1/4 x 2-1/2	WS25	SDS1/4X2.5	2-1/2	1/4	2-1/4	Zinc	--	362	352	338	369	199	398	--	256	292	286	294	141	281		
1/4 x 3	WS3	SDS1/4X3	3	3/4	2-1/4	Zinc	268	418	396	387	457	199	398	227	297	340	322	365	141	281		
1/4 x 3-1/2	WS35	SDS1/4X3.5, SDS1/4X31/2	3-1/2	3/4	2-3/4	Zinc	398	451	460	454	481	208	520	311	338	380	356	370	154	385		
1/4 x 4-1/2	WS45	SDS1/4X4.5, SDS1/4X41/2	4-1/2	1-1/4	3-1/4	Zinc	415	516	588	589	531	214	642	364	421	460	425	379	163	489		
1/4 x 5	WS5	--	5	1-3/4	3-1/4	Zinc	415	516	588	589	531	214	642	364	421	460	425	379	163	489		
1/4 x 6	WS6	SDS1/4X6	6	1-3/4	4-1/4	Zinc	415	516	588	589	531	214	642	364	421	460	425	379	163	489		
1/4 x 8	WS8	--	8	4-3/4	3-1/4	Zinc	415	516	588	589	531	214	642	364	421	460	425	379	163	489		

1) Zinc = Yellow Zinc Dichromate.

2) Allowable shear loads assume a side plate tensile strength of 45 ksi for 14 gauge and 10 gauge, 52 ksi for 7 gauge and 58 ksi for 3 gauge.

3) Shear loads for wood-to-wood connections assume a side member thickness of 1-1/2".

4) Loads are for 100% duration of load factors, and may be increased for other duration factors in accordance with the NDS.

5) Withdrawal loads for steel-to-wood connections assume a side plate thickness of 1/4" or less.

New products or updated product information are designated in **blue font**.

Packaging Table

Use	Size (in)	Retail Box Offering		Mini Bulk Offering		Bulk Offering	
		MiTek Stock No.	Box/Ctn Qty	MiTek Stock No.	Box/Ctn Qty	MiTek Stock No.	Box/Ctn Qty
Interior for wood-to-wood connections	1/4 x 1-1/2	WS15-R25	12-pack/25-ea	WS15-MB	3-box/300-ea	WS15-BP	1500-ea
	1/4 x 2	WS2-R25	12-pack/25-ea	WS2-MB	3-box/250-ea	WS2-BP	1300-ea
	1/4 x 2-1/2	WS25-R25	12-pack/25-ea	WS25-MB	3-box/200-ea	WS25-BP	1100-ea
	1/4 x 3	WS3-R25	12-pack/25-ea	WS3-MB	3-box/150-ea	WS3-BP	950-ea
	1/4 x 3-1/2	WS35-R10	12-pack/10-ea	WS35-MB	3-box/125-ea	WS35-BP	900-ea
	1/4 x 4-1/2	WS45-R10	12-pack/10-ea	WS45-MB	3-box/100-ea	WS45-BP	800-ea
	1/4 x 5	WS5-R10	12-pack/10-ea	WS5-MB	3-box/100-ea	WS5-BP	500-ea
	1/4 x 6	WS6-R10	12-pack/10-ea	WS6-MB	3-box/100-ea	WS6-BP	600-ea
	1/4 x 8	WS8-R10	12-pack/10-ea	--	--	WS8-BP	400-ea

WSWH Washer Head Interior Structural Wood Screws

MiTek[®] PRO SERIES Fasteners

The MiTek Pro Series Washer Head is the ideal screw for interior Multi-Ply EWP and dimensional wood connections. The specific lengths of the WSWH allow for one-sided connections on multi-ply beams and girder trusses.

Features and Benefits:

- 1/4" diameter
- No predrilling
- Flat head style allows for less interference after installation
- Type 17 point reduces installation torque and splitting
- T30* drive eliminates cam-out
- Nibs under head seat head flush to wood surface
- Length identification stamps on all WSWH heads

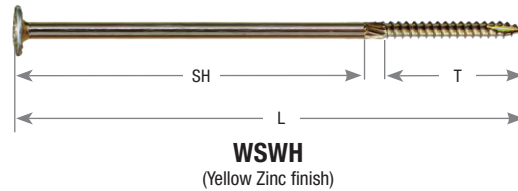
Materials: 1/4" diameter Grade 5 steel

Finish: Yellow Zinc

Codes: IBC, FL, LA

Installation:

- For best results, install the MiTek Pro Series Washer Head using a high torque, 1/2" variable speed drill.
- Bring the washer portion of head flush to the surface of the wood. **Do not overdrive.**



Specification Table

Size (in)	MiTek USP Stock No.	Ref. No.	Dimensions (in)			Finish ¹	DF/SP Allowable Loads (Lbs.) ⁴		SPF Allowable Loads (Lbs.) ⁴		LVL Allowable Loads (Lbs.) ⁴		Code Ref.
			L	SH	T		Wood-to-Wood		Wood-to-Wood		Wood-to-Wood		
							Shear ² 100%	Withdrawal ³ 100%	Shear ² 100%	Withdrawal ³ 100%	Shear ² 100%	Withdrawal ³ 100%	
Wood-to-Wood Connections													
1/4 x 2-7/8	WSWH278	SDW22300	2-7/8	5/8	2	Zinc	268	274	227	194	--	--	IBC, FL, LA
1/4 x 4-1/2	WSWH45	SDW22458	4-1/2	2-1/4	2	Zinc	415	398	364	282	358	382	
1/4 x 5	WSWH5	SDW22500	5	2-3/4	2	Zinc	415	398	364	282	358	382	
1/4 x 6	WSWH6	SDW22600	6	3-3/4	2	Zinc	415	398	364	282	358	382	
Multi-Ply EWP Connections													
1/4 x 3-3/8	WSWH338	SDW22338	3-3/8	1-1/8	2	Zinc	398	373	311	264	319	310	IBC, FL, LA
1/4 x 5	WSWH5	SDW22500	5	2-3/4	2	Zinc	415	398	364	282	358	382	
1/4 x 6-3/4	WSWH634	SDW22634	6-3/4	4-1/2	2	Zinc	415	398	364	282	358	382	
Multi-Ply Dimensional Connections													
1/4 x 2-7/8	WSWH278	SDW22300	2-7/8	5/8	2	Zinc	268	274	227	194	--	--	IBC, FL, LA
1/4 x 4-1/2	WSWH45	SDW22458	4-1/2	2-1/4	2	Zinc	415	398	364	282	358	382	
1/4 x 6	WSWH6	SDW22600	6	3-3/4	2	Zinc	415	398	364	282	358	382	
1/4 x 6-3/8	WSWH638	SDW22638	6-3/8	4-1/8	2	Zinc	415	398	364	282	358	382	

1) Zinc = Yellow Dichromate.

2) Shear and withdrawal loads for wood-to-wood connections assume a side member thickness of 1-1/2" for DF/SP and SPF allowable loads and 1-3/4" for LVL allowable loads.

3) Withdrawal loads are derived from the minimum of head pull through tests and withdrawal capacity of threaded portion in main member.

4) Load are for 100% duration of load, and may be increased for the other duration factors in accordance with the NDS.

New products or updated product information are designated in **blue font**.

Packaging Table

Use	Size (in)	50-count Pack ¹		Mini Bulk Offering ¹		Bulk Offering ¹	
		MiTek Stock No.	Box/Ctn Qty	MiTek Stock No.	Box/Ctn Qty	MiTek Stock No.	Box Qty
Interior for Multi-Ply EWP & Multi-Ply Truss Girders	1/4 x 2-7/8	WSWH278-R50	5-box/50-ea	--	--	WSWH278-BP	500-ea
	1/4 x 3-3/8	WSWH338-R50	5-box/50-ea	WSWH338-MB	200-ea	--	--
	1/4 x 4-1/2	WSWH45-R50	5-box/50-ea	--	--	WSWH45-BP	400-ea
	1/4 x 5	WSWH5-R50	5-box/50-ea	WSWH5-MB	200-ea	--	--
	1/4 x 6	WSWH6-R50	5-box/50-ea	--	--	WSWH6-BP	300-ea
	1/4 x 6-3/8	WSWH638-R50	5-box/50-ea	--	--	WSWH638-BP	300-ea
	1/4 x 6-3/4	WSWH634-R50	5-box/50-ea	WSWH634-MB	200-ea	--	--

1) T30* drive is included in packaging.

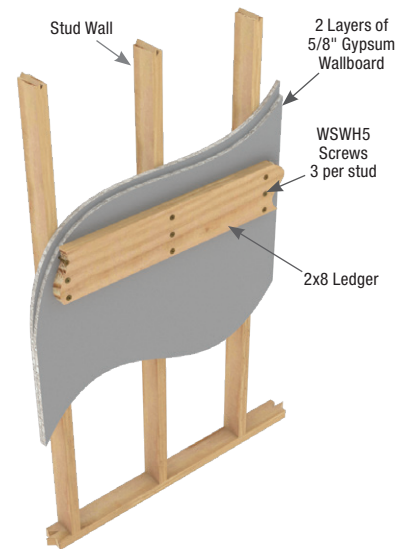
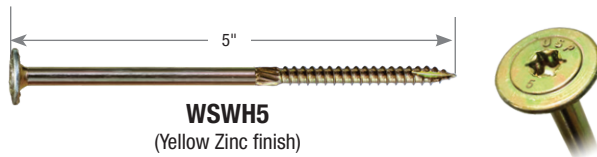
* T30 is a trademark of Acument

Attaching 2x Ledger-to-Wall Studs Application

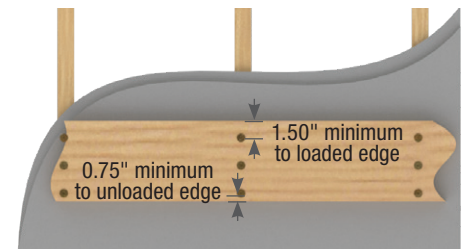
MiTek's WSWH Washer Head Structural Wood Screw can be used to attach a ledger to studs directly, through 1/2" APA rated sheathing or through one or two layers of 5/8" gypsum wallboard (drywall). Screws are to be installed into the wide face of the single 2x ledger, through the gypsum board and into the center of the narrow face of the 2x stud.

Installation:

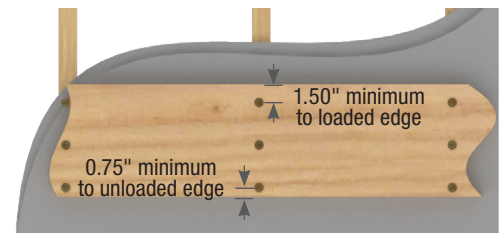
- Ledger design to be performed by a certified design professional.
- Locate studs in wall where ledger is to be installed.
- Install MiTek's WSWH5 structural wood screws through ledger and 5/8" gypsum wallboard into wall framing using a T30* drive.
- Follow the minimum edge distance guidelines in images shown below.
- Wall design must be performed by certified design professional.
- Care should be taken to install the ledger only where studs are plumb and free of any defects.
- **WSWH45 should be used when no gypsum wallboard is present.**



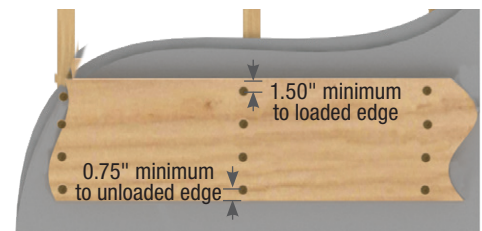
Typical 2x8 Ledger attached through 2 layers of 5/8" Gypsum Wallboard installation



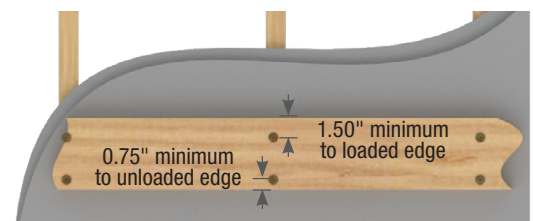
2x8 Detail



2x10 Detail



2x12 Detail



2x6 Detail

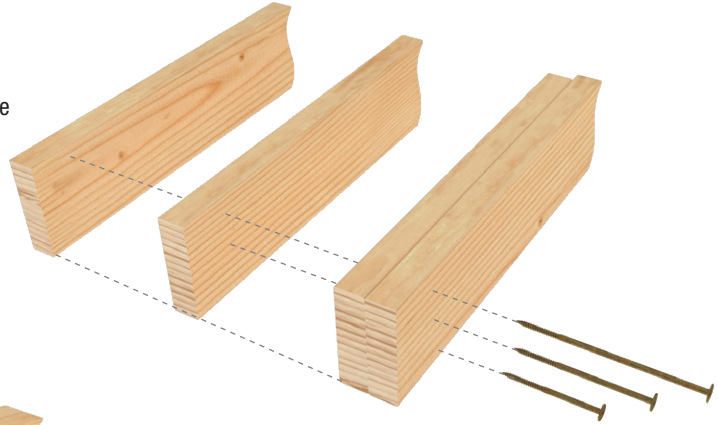
MiTek Stock No.		Ledger Size ⁹	Number of Screws per Stud ^{4,8}	Allowable Shear Per Stud (Lbs.) ^{2,5,6,7}	
Zinc Finish ¹	EXT Finish ¹			DF/SP SG ≥ 0.50	S-P-F/HF 0.42 ≤ SG < 0.50
WSWH45	WSWH45-EXT	2x6	2	520	455
WSWH5	WSWH5-EXT	2x8 or 2x10	3	860	750
		2x12	4	1040	900

- 1) Zinc = Yellow Zinc Dichromate; EXT = Exterior Coat.
- 2) Allowable Loads are based on DF or equivalent wood members with a specific gravity ≥ 0.50 , or SPF/HF members with specific gravity in the following range: $0.42 \leq SG < 0.50$.
- 3) Gypsum board must be attached per building code requirements.
- 4) Screws must be installed in the center of the 2x stud, with a tolerance of 3/16" to either side. Minimum loaded end distance for the stud is 3" and 6" when loaded away from the end. Ledger end distance must be 6" or greater for full values. For ledger end distances between 2" and 6" use 50% of the load table, for end distance between 2" and 4" predrill with a 5/32" bit.
- 5) The values above can be used when designing a ledger connection with (1) or (2) layers of 5/8" gypsum board, a direct connection with no gypsum between the ledger and studs, or a ledger connection with a single layer of APA rated 1/2" OSB.
- 6) Allowable loads are shown above at a load duration factor of $C_D = 1.00$. Loads may be increased where applicable to the current NDS. When in-service moisture content is greater than 19%, use $C_M = 0.70$.
- 7) For LRFD values, the values above should be adjusted in accordance with the 2018 NDS, Section 11.3.
- 8) Main members (stud) shall be loaded parallel to grain with a minimum penetration of 2-1/4" while side members (ledger) shall be loaded perpendicular to grain with a minimum penetration of 1-1/2".

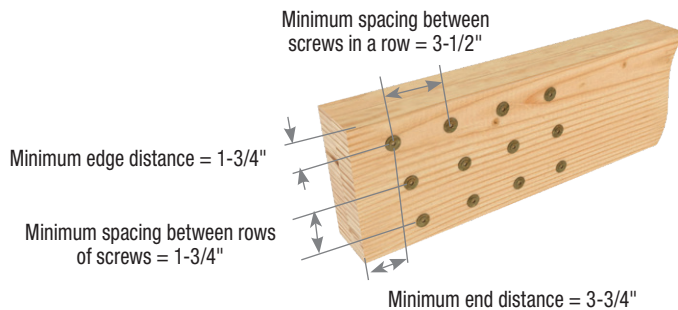
* T30 is a trademark of Acument

Joining Multi-Ply Dimensional Lumber Beams Application

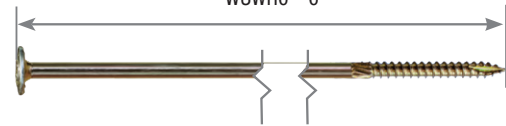
The MiTek Pro Series WSWH Structural Wood Screws have been designed specifically for use in joining wood members of multiple-ply dimensional lumber beams. Using a standard 1/2" low speed/high torque drill, install screws into the side of the outermost ply. As the threads fully engage the final ply, allow 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 on page 29 for proper WSWH screw size selection and fastening pattern.



Minimum Spacing Requirements:



WSWH278 – 2-7/8"
WSWH45 – 4-1/2"
WSWH6 – 6"

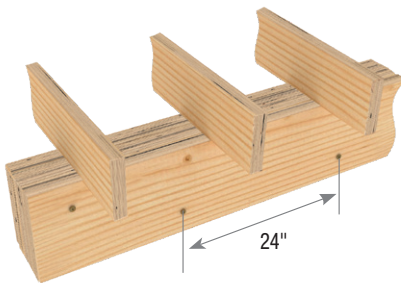


Fastener Identification

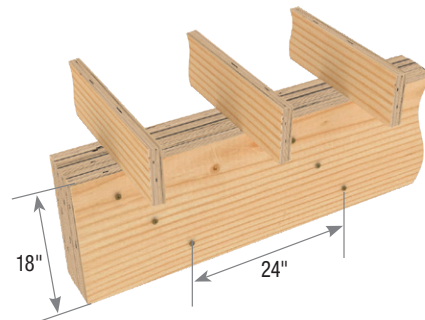
For easier selection and post installation inspection, all MiTek Pro Series Structural Wood Screws carry an identifying head marking.

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.



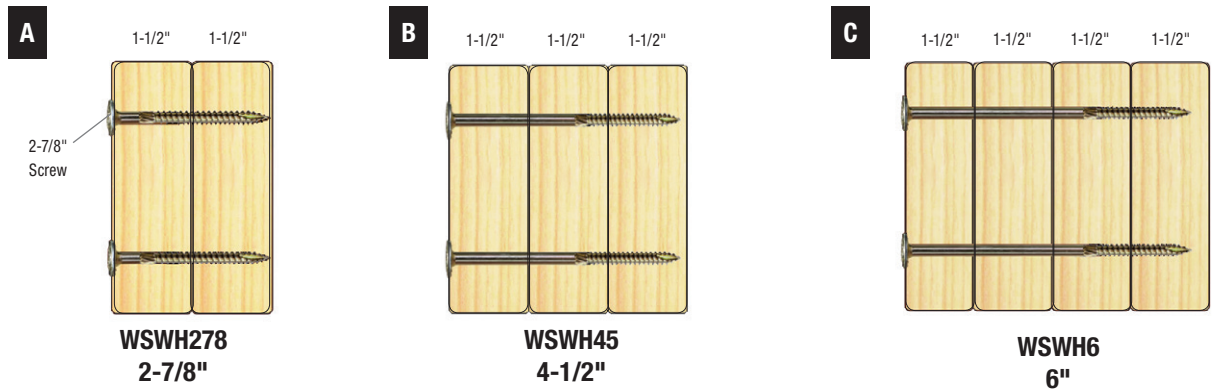
General Guidelines:

- 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 Application information on page 30.
- A qualified designer or engineer should always be consulted for critical assemblies and fastening requirements.

Continued on next page

Fastener Size Selection by Assembly Type

(2 rows shown)



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 $SG \geq 0.50$. The SPF values are based on $0.42 \leq SG \leq 0.50$.

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 assume all uniform load is applied to the outermost ply or point of entry for the screw.

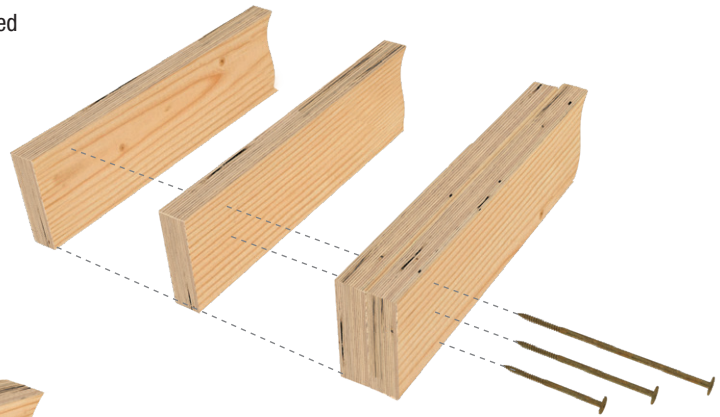
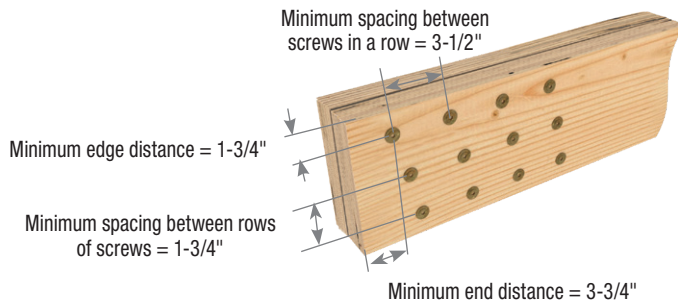
7) **Tip side loading to beam is allowed for 50% of listed allowable side load. Head side and tip side of beam can be loaded concurrently so long as they do not exceed listed capacity. (Example: A 3-ply assembly with a head side load of 1,400 plf and tip side load of 700 plf may be fastened together with 3 rows of WSWH screws at 16" O.C. spacing between fasteners in a row).**

New products or updated product information are designated in **blue font**.

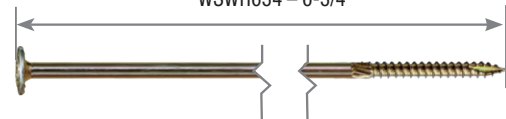
Joining Multi-Ply Engineered Wood (EWP) Beams Application

The MiTek Pro Series WSWH Structural Wood Screws have been designed specifically for use in joining wood members of multiple-ply engineered wood beams (LVL, LSL & PSL). 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 below for proper WSWH screw size selection and fastening pattern.

Minimum Spacing Requirements:



WSWH338 – 3-3/8"
WSWH5 – 5-1/2"
WSWH634 – 6-3/4"

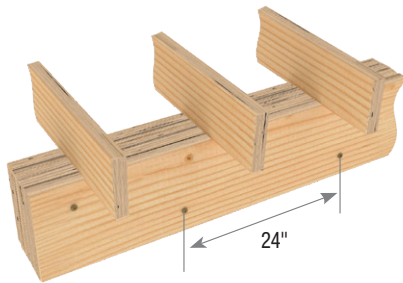


Fastener Identification

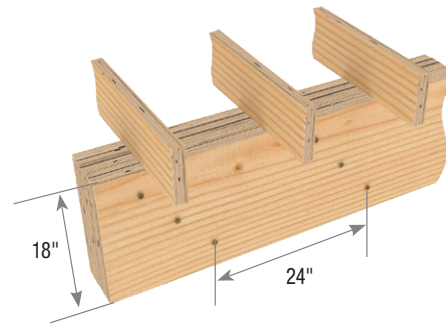
For easier selection and post installation inspection, all MiTek Pro Series Wood Screws carry an identifying head marking.

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.

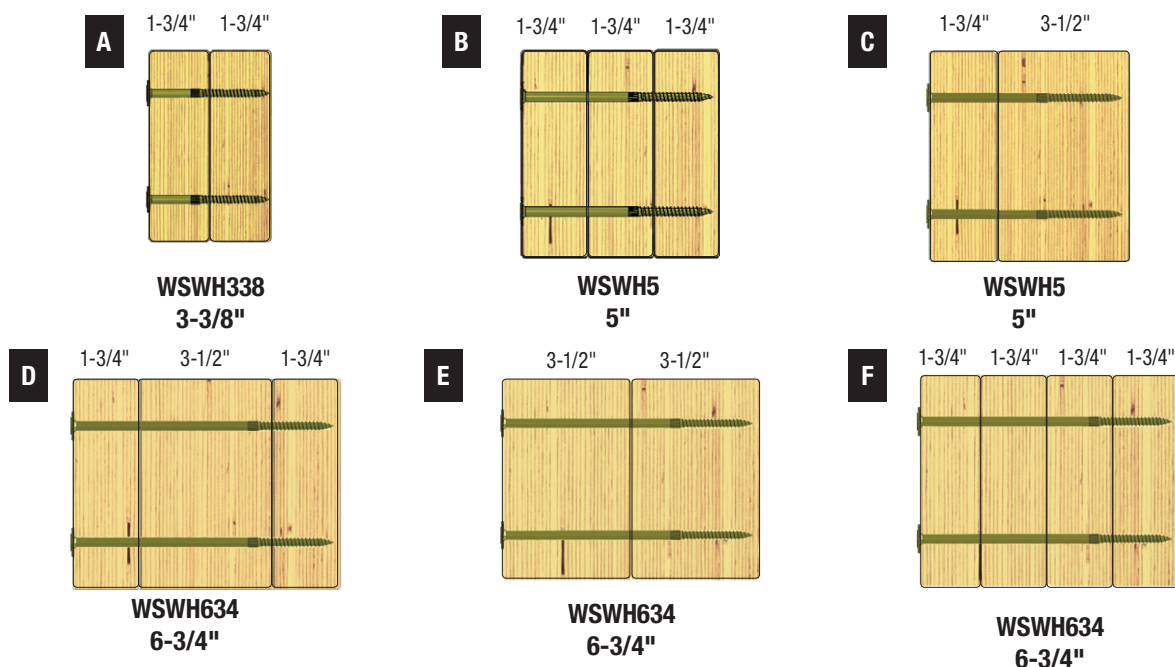


General Guidelines:

- Beams wider than 7" require special consideration by the design professional. The values on the next page do not apply.
- Excessively warped or curved LVL 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 WSWH338, WSWH5, and WSWH634 are not designed for use with dimensional lumber. Refer to MiTek's Joining Multi-Ply Dimensional Lumber Beams Application information on page 28.
- A qualified designer or engineer should always be consulted for critical assemblies and fastening requirements.

Continued on next page

Fastener Size Selection by Assembly Type (2 rows shown)



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}											
				EWP Wood Specific Gravity G=0.50						EWP Wood Specific Gravity G=0.42					
				A	B	C	D	E	F	A	B	C	D	E	F
3-3/8	WSWH338	2	24	640						455					
			19.2	800	--	--	--	--	--	570	--	--	--	--	--
			16	955						680					
			12	1275						910					
		3	24	955						680					
			19.2	1195	--	--	--	--	--	850	--	--	--	--	--
			16	1435						1020					
			12	1915						1360					
		5	24		535	535					545	545			
			19.2	--	670	670	--	--	--	--	685	685	--	--	--
			16		805	805				--	820	820			
			12		1075	1075				--	1090	1090			
		3	24		805	805				--	820	820			
			19.2	--	1005	1005	--	--	--	--	1025	1025	--	--	--
			16		1210	1210				--	1230	1230			
			12		1610	1610				--	1640	1640			
6-3/4	WSWH634	2	24				475	715	475				485	730	485
			19.2	--	--	--	595	895	595	--	--	--	605	910	605
			16				715	1075	715				730	1090	730
			12				955	1430	955				970	1455	970
		3	24				715	1075	715				730	1090	730
			19.2	--	--	--	895	1345	895	--	--	--	910	1365	910
			16				1075	1610	1075				1090	1640	1090
			12				1430	2150	1430				1455	2185	1455

1) Allowable loads are derived from tested fastener values as reported in ICC-ES ESR-2761.

2) The uniform loads in this table relate only to the capacity of the fastener to transfer shear loads between plies. The specific gravity (SG) and the capacity of the EWP should be verified with manufacturer's literature.

3) 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.

4) Load values depicted assume all uniform load is applied to the outermost ply or point of entry for the screw.

5) To minimize rotation, 7" 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) Tip side loading to beam is allowed for 50% of listed allowable head side load. Head side and tip side of beam can be loaded concurrently so long as they do not exceed 150% listed head side capacity. (Example: A 3-ply assembly with a head side load of 1,200 plf and tip side load of 600 plf may be fastened together with 3 rows of WSWH5 screws at 16" O.C. spacing between fasteners in a row).

New products or updated product information are designated in blue font.

WS Hex Head Exterior Structural Wood Screws

MiTek[®] PRO SERIES Fasteners

The MiTek Pro Series Hex Head is the ideal screw for numerous framing applications. It can be used in wood-to-wood and steel-to-wood applications.

Features and Benefits:

- 1/4" diameter
- No predrilling
- Type 17 point reduces installation torque and splitting
- 3/8" hex drive
- Length identification stamps on all WS heads

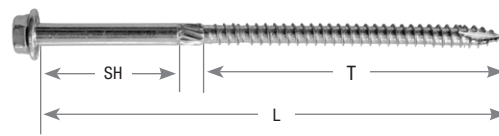
Materials: 1/4" diameter Grade 5 steel

Finish: Exterior Coat

Codes: IBC, FL, LA

Installation:

- Screws are self-drilling.
- Install using a low speed clutch drill with 3/8" hex head driver.
The washer head should be flat to the surface and the serrations will oppose turning and release the clutch. Do not over-tighten the screws.
- Care should be given to ensure the fastener is installed perpendicular to the plane of the side plate.
- Refer to page 34 for Attaching Deck Ledger to Rim Board Application.



Specification Table

Size (in)	MiTek Stock No.	Ref. No.	Dimensions (in)			Finish ¹	DF/SP Allowable Loads (Lbs.) ^{2,4}						S-P-F Allowable Loads (Lbs.) ^{2,4}						Corrosion Finish	Code Ref.		
			L	SH	T		Shear (100%)				Withdrawal Capacity (Lbs/in. of thread)	Steel to Wood Withdrawal Capacity (Lbs.) ⁵	Shear (100%)				Withdrawal Capacity (Lbs/in. of thread)	Steel to Wood Withdrawal Capacity (Lbs.) ⁵				
							Wood -to- Wood ³	Steel-to-Wood					Wood -to- Wood ³	Steel-to-Wood								
								Gauge						Gauge								
								14	10	7				3	100%	100%					14	10
1/4 x 1-1/2	WS15-EXT	SDS25112	1-1/2	1/4	1-1/4	EXT	--	230	261	259	266	164	206	--	188	211	190	217	103	129		IBC, FL, LA
1/4 x 2	WS2-EXT	SDS25200	2	1/4	1-3/4	EXT	--	306	307	289	316	160	281	--	215	244	249	248	117	204		
1/4 x 2-1/2	WS25-EXT	SDS25212	2-1/2	1/4	2	EXT	--	362	352	338	369	199	398	--	256	292	286	294	141	281		
1/4 x 3	WS3-EXT	SDS25300	3	3/4	2	EXT	268	418	396	387	457	199	398	227	297	340	322	365	141	281		
1/4 x 3-1/2	WS35-EXT	SDS25312	3-1/2	3/4	2-1/2	EXT	398	451	460	454	481	208	520	311	338	380	356	370	154	385		
1/4 x 4-1/2	WS45-EXT	SDS25412	4-1/2	1-1/4	3	EXT	415	516	588	589	531	214	642	364	421	460	425	379	163	489		
1/4 x 5	WS5-EXT	SDS2500	5	1-3/4	3	EXT	415	516	588	589	531	214	642	364	421	460	425	379	163	489		
1/4 x 6	WS6-EXT	SDS25600	6	1-3/4	4	EXT	415	516	588	589	531	214	642	364	421	460	425	379	163	489		
1/4 x 8	WS8-EXT	SDS25800	8	4-3/4	3	EXT	415	516	588	589	531	214	642	364	421	460	425	379	163	489		

1) EXT = Exterior Coat.

2) Allowable shear loads assume a side plate tensile strength of 45 ksi for 14 gauge and 10 gauge, 52 ksi for 7 gauge and 58 ksi for 3 gauge.

3) Shear loads for wood-to-wood connections assume a side member thickness of 1-1/2".

4) Loads are for 100% duration of load factors, and may be increased for other duration factors in accordance with the NDS.

5) Withdrawal loads for steel-to-wood connections assume a side plate thickness of 1/4" or less.

New products or updated product information are designated in **blue font**.

Corrosion Finish

■ Stainless Steel
 ■ Gold Coat
 ■ HDG
 ■ Triple Zinc

Packaging Table

Use	Size (in)	Retail Box Offering ¹		50-count Pack ¹		Mini Bulk Offering ¹		Bulk Offering ¹	
		MiTek Stock No.	Box/Ctn Qty	MiTek Stock No.	Box/Ctn Qty	MiTek Stock No.	Box/Ctn Qty	MiTek Stock No.	Box Qty
Exterior for Deck Ledgers & other wood-to-wood connections	1/4 x 1-1/2	WS15-EXTR25	10-pack/25-ea	--	--	WS15-EXTMB	2-box/200-ea	WS15-EXTBP	1500-ea
		WS15-GCR25		--	--				
	1/4 x 2	WS2-EXTR25	10-pack/25-ea	--	--	WS2-EXTMB	2-box/200-ea	WS2-EXTBP	1300-ea
	1/4 x 2-1/2	WS25-EXTR25	10-pack/25-ea	--	--	WS25-EXTMB	2-box/200-ea	WS25-EXTBP	1100-ea
	1/4 x 3	WS3-EXTR25	10-pack/25-ea	WS3-EXTR50	5-box/50-ea	WS3-EXTMB	200-ea	WS3-EXTBP	950-ea
	1/4 x 3-1/2	WS35-EXTR12	10-pack/12-ea	WS35-EXTR50	5-box/50-ea	WS35-EXTMB	200-ea	WS35-EXTBP	900-ea
	1/4 x 4-1/2	WS45-EXTR12	10-pack/12-ea	WS45-EXTR50	5-box/50-ea	WS45-EXTMB	200-ea	WS45-EXTBP	800-ea
	1/4 x 5	WS5-EXTR12	10-pack/12-ea	WS5-EXTR50	5-box/50-ea	WS5-EXTMB	200-ea	WS5-EXTBP	600-ea
	1/4 x 6	WS6-EXTR12	10-pack/12-ea	WS6-EXTR50	5-box/50-ea	WS6-EXTMB	200-ea	WS6-EXTBP	500-ea
	1/4 x 8	WS8-EXTR12	10-pack/12-ea	WS8-EXTR50	5-box/50-ea	WS8-EXTMB	200-ea	--	--

The WSWH is an ideal alternative for the Pro or DIYer to traditional lag screws and through-bolts, for installing deck ledgers and more. It is easy to install and reduces labor on the jobsite. The large, flat washer head maximizes bearing area and allows for less interference after installation.

Features and Benefits:

- 1/4" diameter
- No predrilling
- Flat head style allows for less interference after installation
- Type 17 point reduces installation torque and splitting
- T30* drive eliminates cam-out
- Large washer maximizes bearing area
- Nibs under head seat head flush to wood surface
- Length identification stamps on all WSWH heads

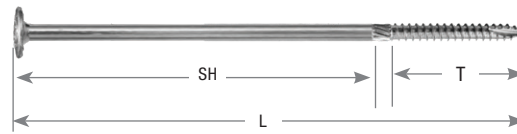
Materials: 1/4" diameter Grade 5 steel

Finish: Exterior Coat

Codes: IBC, FL, LA

Installation:

- For best results, install the MiTek Pro Series Washer Head using a high torque, 1/2" variable speed drill.
- Bring the washer portion of head flush to the surface of the wood.
Do not overdrive.
- See page 34 for Attaching Deck Ledger to Rim Board Application, page 27 for Attaching 2x Ledger-to-Wall Studs Application, page 28 for Joining Multi-Ply Dimensional Lumber Beams Application and page 30 for Joining Multi-Ply Engineered Wood (EWP) Beams Application.



Specification Table

Size (in)	MiTek Stock No.	Ref. No.	Dimensions (in)			Finish ¹	DF/SP		SPF		LVL		Code Ref.
			L	SH	T		Allowable Loads (Lbs.) ⁴		Allowable Loads (Lbs.) ⁴		Allowable Loads (Lbs.) ⁴		
							Wood-to-Wood		Wood-to-Wood		Wood-to-Wood		
							Shear ² 100%	Withdrawal ³ 100%	Shear ² 100%	Withdrawal ³ 100%	Shear ² 100%	Withdrawal ³ 100%	
Deck Ledger and Other Wood-to-Wood Connections													
1/4 x 2-7/8	WSWH278-EXT	SDW22300	2-7/8	5/8	2	EXT	268	274	227	194	--	--	IBC, FL, LA
1/4 x 3-5/8	WSWH358-EXT	--	3-5/8	1-3/8	2	EXT	398	398	311	282	319	358	
1/4 x 4-1/2	WSWH45-EXT	SDW22458	4-1/2	2-1/4	2	EXT	415	398	364	282	358	382	
1/4 x 5	WSWH5-EXT	SDW22500	5	2-3/4	2	EXT	415	398	364	282	358	382	
1/4 x 6	WSWH6-EXT	SDW22600	6	3-3/4	2	EXT	415	398	364	282	358	382	
1/4 x 8	WSWH8-EXT	SDWS22800	8	5-3/4	2	EXT	415	398	364	282	358	382	

1) EXT = Exterior Coat.

2) Shear and withdrawal loads for wood-to-wood connections assume a side member thickness of 1-1/2" for DF/SP and SPF allowable loads and 1-3/4" for LVL allowable loads.

3) Withdrawal loads are derived from the minimum of head pull through tests and withdrawal capacity of threaded portion in main member.

4) Load are for 100% duration of load, and may be increased for the other duration factors in accordance the NDS.

New products or updated product information are designated in **blue font**.

Packaging Table

Use	Size (in)	Retail Box Offering ¹		50-count Pack ¹		Mini Bulk Offering ¹	
		MiTek Stock No.	Box/Ctn Qty	MiTek Stock No.	Box/Ctn Qty	MiTek Stock No.	Box/Ctn Qty
Exterior for Deck Ledgers & other wood-to-wood connections	1/4 x 2-7/8	WSWH278-EXTR25	10-pack/25-ea	WSWH278-EXTR50	5-box/50-ea	WSWH278-EXTMB	200-ea
	1/4 x 3-5/8	WSWH358-EXTR12	10-pack/12-ea	WSWH358-EXTR50	5-box/50-ea	WSWH358-EXTMB	200-ea
	1/4 x 4-1/2	WSWH45-EXTR12	10-pack/12-ea	WSWH45-EXTR50	5-box/50-ea	WSWH45-EXTMB	200-ea
	1/4 x 5	WSWH5-EXTR12	10-pack/12-ea	WSWH5-EXTR50	5-box/50-ea	WSWH5-EXTMB	200-ea
	1/4 x 6	WSWH6-EXTR12	10-pack/12-ea	WSWH6-EXTR50	5-box/50-ea	WSWH6-EXTMB	200-ea
	1/4 x 8	WSWH8-EXTR12	10-pack/12-ea	WSWH8-EXTR50	5-box/50-ea	WSWH8-EXTMB	200-ea

1) T30* drive is included in packaging.

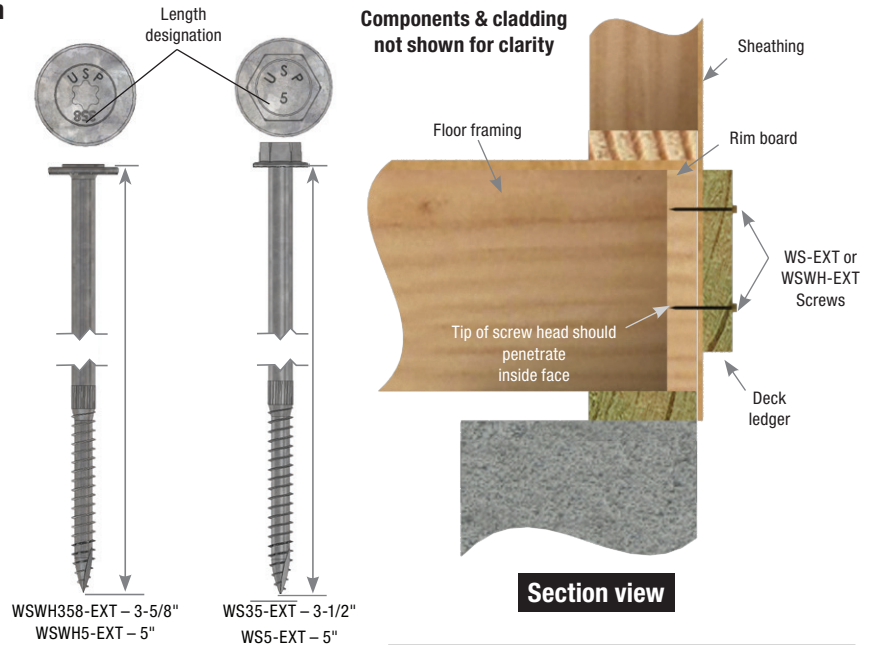
* T30 is a trademark of Acument

Attaching Deck Ledger to Rim Board Application

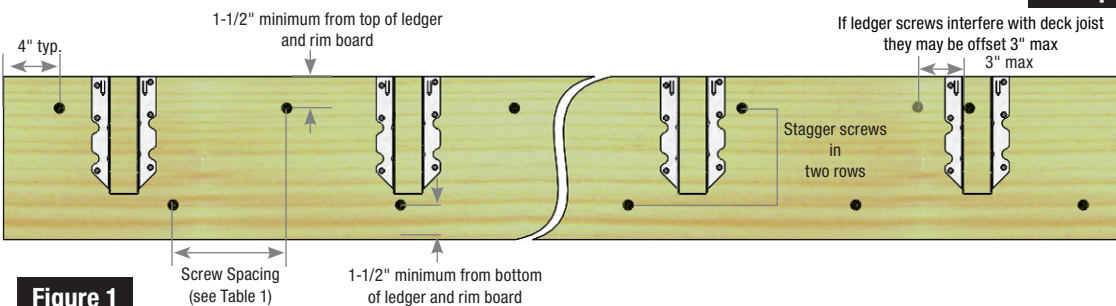
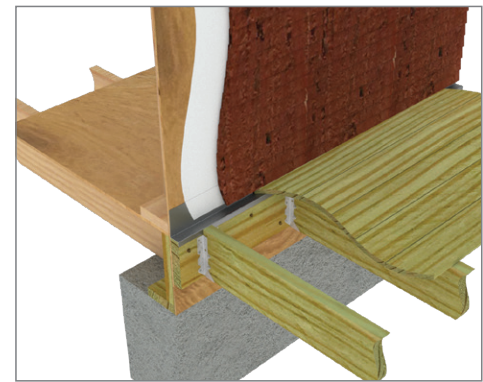
The MiTek WS structural wood screws can be used to fasten deck ledgers to the rim board (AKA band/rim joist) of structures to meet the connection requirements of the International Residential Building Code (IRC). Both the standard hex head (WS-EXT) and washer head (WSWH-EXT) styles may be used for this purpose. Table R507.9.1.3(1) of the 2018 IRC calls out lag screws for deck ledger attachment and the WS-EXT and WSWH-EXT may be used in place of the lag screws.

Installation:

1. Select the proper MiTek's WS-EXT or WSWH-EXT screw length. The threads should have full engagement with the rim board with the tip of the screw protruding and visible beyond the inside face of the rim board member. See **Section View** image.
2. With appropriate screw length selected, drive the screw through the ledger, sheathing, and rim board with a high torque variable speed drill.
3. Drive screw so head is firm and flush with surface of deck ledger, but do not overdrive.
4. Repeat these steps and install the appropriate number of screws at the prescribed edge, end distance, and spacing as called out in the table below and **Figure 1**.



Head markings for identification



MiTek Stock No.	Live Load	Ledger	Rim Board	Spacing between WS-EXT / WSWH-EXT Screws based on Joist Span (in)						
				≤ 6-ft	≤ 8-ft	≤ 10-ft	≤ 12-ft	≤ 14-ft	≤ 16-ft	≤ 18-ft
WS35-EXT	40 psf	DF-L / SP / SPF	2" Nominal Solid Sawn	23	17	13	11	10	8	7
WSWH358-EXT			1" Min EWP	22	16	12	11	9	7	7
WS5-EXT	60 psf	DF-L / SP / SPF	2" Nominal Solid Sawn	16	12	9	7	7	5	5
WSWH5-EXT			1" Min EWP	15	11	8	7	6	5	5

- 1) Numbers are based on use of 3-1/2", 3-5/8" and 5" length screws.
- 2) Screw spacing based on requirements of 2018 IRC Section R507.9.1.3 and Table R507.9.1.3(1) and equivalent spacing of 1/2" diameter lag bolts. Stagger screws into 2 rows.
- 3) Multiple ledger plies should be fastened together to act as one unit independent of the WS-EXT or WSWH-EXT ledger attachment screws.
- 4) Solid Sawn Rim Board shall be Douglas Fir-Larch (DF-L), Southern Pine (SP), or Spruce-Pine-Fir (SPF), G > 0.42.

The WSBH is a multi-purpose structural wood screw ideal for a low profile appearance in wood-to-wood connections. This structural wood screw allows the Pro Contractor or DIYer to drive the head flush or countersink it below the wood surface. The WSBH is easy to install and a high strength alternative to traditional lags, bolts and pole barn nails.

Features and Benefits:

- 1/4" diameter
- No predrilling
- Comparable to 1/2" Lag Screw
- Low profile head style can be driven flush or countersunk
- Type 17 point reduces installation torque and splitting
- T30* drive eliminates cam-out
- Length identification stamps on all WSBH heads

Materials: 1/4" diameter Grade 5 steel

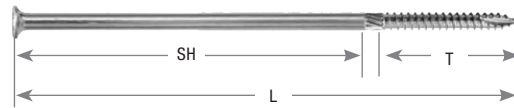
Finish: Exterior Coat

Options: See chart for Corrosion Finish Options

Codes: IBC, FL, LA

Installation:

- For best results, install the MiTek Pro Series Bugle Head using a high torque, 1/2" variable speed drill. Bring the washer portion of head flush to the surface of the wood or countersink.



WSBH
(Exterior Coat finish)



Specification Table

Size (in)	MiTek Stock No.	Ref. No.	Dimensions (in)			Finish ¹	DF/SP		SPF		LVL		Code Ref.
			L	SH	T		Allowable Loads (Lbs.) ⁴		Allowable Loads (Lbs.) ⁴		Allowable Loads (Lbs.) ⁴		
							Wood-to-Wood		Wood-to-Wood		Wood-to-Wood		
							Shear ² 100%	Withdrawal ³ 100%	Shear ² 100%	Withdrawal ³ 100%	Shear ² 100%	Withdrawal ³ 100%	
1/4 x 2-1/2	WSBH25-EXT	--	2-1/2	1/4	2	EXT	179	199	151	141	--	--	IBC, FL, LA
1/4 x 4	WSBH4-EXT	--	4	1-3/4	2	EXT	315	282	246	208	252	339	
1/4 x 6	WSBH6-EXT	--	6	3-3/4	2	EXT	328	282	288	208	283	339	
1/4 x 8	WSBH8-EXT	--	8	5-3/4	2	EXT	328	282	288	208	283	339	
1/4 x 10	WSBH10-EXT	--	10	7-3/4	2	EXT	328	282	288	208	283	339	

1) EXT = Exterior Coat.

2) Shear and withdrawal loads for wood-to-wood connections assume a side member thickness of 1-1/2" for DF/SP and SPF allowable loads and 1-3/4" for LVL allowable loads.

3) Withdrawal loads are derived from the minimum of head pull through tests and withdrawal capacity of threaded portion in main member.

4) Load are for 100% duration of load, and may be increased for the other duration factors in accordance the NDS.

New products or updated product information are designated in **blue font**.

Packaging Table

Use	Size (in)	Retail Box Offering ¹		50-count Pack ¹		Mini Bulk Offering ¹	
		MiTek Stock No.	Box/Ctn Qty	MiTek Stock No.	Box/Ctn Qty	MiTek Stock No.	Box/Ctn Qty
Exterior for General Purpose wood-to-wood connections	1/4 x 2-1/2	WSBH25-EXTR25	10-pack/25-ea	WSBH25-EXTR50	5-box/50-ea	WSBH25-EXTMB	2-box/200-ea
	1/4 x 4	WSBH4-EXTR12	10-pack/12-ea	WSBH4-EXTR50	5-box/50-ea	WSBH4-EXTMB	200-ea
	1/4 x 6	WSBH6-EXTR12	10-pack/12-ea	WSBH6-EXTR50	5-box/50-ea	WSBH6-EXTMB	200-ea
	1/4 x 8	WSBH8-EXTR12	10-pack/12-ea	WSBH8-EXTR50	5-box/50-ea	WSBH8-EXTMB	200-ea
	1/4 x 10	WSBH10-EXTR12	10-pack/12-ea	WSBH10-EXTR50	5-box/50-ea	WSBH10-EXTMB	200-ea

1) T30* drive is included in packaging.

* T30 is a trademark of Acument

LL LumberLok Exterior Structural Connector Screws

MiTek[®] PRO SERIES Fasteners

The LumberLok Exterior Structural Connector Screw is a self-drilling screw that can be used with a number of MiTek connectors and also for wood-to-wood applications. The screws feature a T20* drive head with integral washer and gimlet point for ease of installation. The twin-lead threads drive in twice as fast as the single lead threads significantly reducing installation time. The USP head stamp identifies the screw length for easy inspection.

Screw shear capacities are based on a diameter of 0.162" when the shear plane is on the screw shank (SH) and 0.109" when the shear plane is on the threads (T). MiTek LumberLok Exterior Structural Connector Screws have a bending yield strength of 180,000 psi.

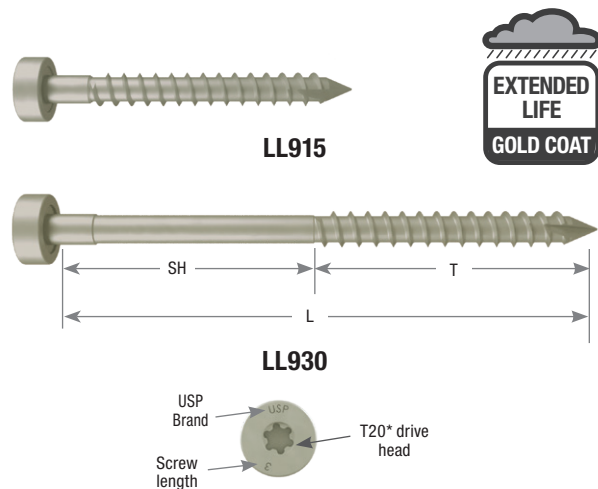
Materials: Low carbon hardened steel.

Finish: Gold Coat

Codes: IBC, FL, LA

Installation:

- Screws are self-drilling.
- Install using a low speed clutch drill with T20* drive (not included). The washer head should be flat to the surface. Do not over-tighten the screws.
- Installing the screw at an angle may introduce additional bending and tension forces into the fastener if the screw head is not flat to the bearing surface. Care should be given to ensure the fastener is installed perpendicular to the plane of the fastener hole.
- **Impact drills are not recommended for use with LumberLok Screws**
- Reference list of MiTek connectors compatible with LumberLok screws on page 37.



Specification Table

Size	MiTek Stock No.	Ref. No.	Dimensions (in)			Finish ¹	DF/SP Allowable (Lbs.) ^{2,5}				S-P-F Allowable (Lbs.) ^{2,5}				Code Ref.
			L	SH	T		Shear Capacity			Withdrawal Capacity ³	Shear Capacity			Withdrawal Capacity ³	
							Wood-to- Wood ⁴	Steel-to-Wood			Wood-to- Wood ⁴	Steel-to-Wood			
								18 Ga	16 Ga			18 Ga	16 Ga		
#9 x 1-3/8	LL915	SD9112	1-3/8	1/4	1-1/8	GC	--	105	130	120	--	105	105	110	IBC, FL, LA
#9 x 2-7/8	LL930	SD9212	2-7/8	1-3/8	1-1/2	GC	105	165	165	150	100	140	140	150	

1) GC = Gold Coat over Clear Zinc Trivalent.

2) Allowable shear loads assume a side plate tensile strength of 45 ksi.

3) Withdrawal loads are for steel-to-wood connections and assume a side plate thickness of 1/4" or less.

4) Shear loads for wood-to-wood connections assume a side member thickness of 1-1/2".

5) Loads are for 100% duration of load factors and may be increased for other duration factors in accordance with the NDS.

Packaging Table

Use	Size (in)	Retail Box Offering	
		MiTek Stock No.	Box/Ctn Qty
Exterior for Deck & other wood-to-wood connections	#9 x 1-3/8"	LL915R50	50-pack/24-ea
	#9 x 2-7/8"	LL930R50	50-pack/24-ea

* T20 is a trademark of Acument

Continued on next page

Common Deck Connectors that are Compatible with LumberLok Structural Connector Screws

This is not a complete list of MiTek connectors that are compatible with LumberLok Structural Connector Screws. Most connectors that are installed with nails can also be installed with LumberLok Structural Connector Screws. For the connectors shown below, the catalog allowable design values will not change when installed with MiTek's LumberLok Structural Connector Screws shown.



LL915



LL930



MiTek Stock No.	LumberLok Screw		MiTek Stock No.	LumberLok Screw		MiTek Stock No.	LumberLok Screw	
	LL915 Qty	LL930 Qty		LL915 Qty	LL930 Qty		LL915 Qty	LL930 Qty
Angles / Framing Plates			Hangers			Column / Post Bases		
AC5-TZ	--	6	JUS28-GC	--	10	PA44E-GC	--	6
AC7-GC	--	8	JUS28-TZ	--	10	PA44E-TZ	--	6
AC7-TZ	--	8	JUS28-2TZ	--	10	PA44-TZ	--	8
AC9-TZ	--	10	JUS28-3TZ	--	10	PAU44-TZ	--	12
MPA1-GC	12	--	JUS210-GC	--	12	PA46E-GC	--	8
MPA1-TZ	12	--	JUS210-TZ	--	12	PA46E-TZ	--	8
MP34-TZ	8	--	JUS210-2GC	--	14	PA46-TZ	--	14
MP4F-TZ	12	--	JUS210-2TZ	--	14	PAU46-TZ	--	12
MP3-TZ	--	6	JUS210-3TZ	--	14	PA66E-GC	--	8
MP5-TZ	--	8	JUS44-TZ	--	6	PA66E-TZ	--	8
MP7-GC	--	10	JUS46-TZ	--	8	PA66-TZ	--	16
MP7-TZ	--	10	JUS48-TZ	--	10	PAU66-TZ	--	12
MP9-GC	--	12	JUS410-TZ	--	14	PAU88-TZ	--	14
MP9-TZ	--	12	SKH26L/R-GC	6	6	Hurricane Ties		
SDPT5-TZ	5	--	SKH26L/R-TZ	6	6	RT3A-TZ	8	--
SDPT7-TZ	5	--	SKH28L/R-TZ	8	10	RT4-TZ	8	--
Hangers			SKH210L/R-GC	10	14	RT5-TZ	8	--
ADTT-TZ	10	--	SKH210L/R-TZ	10	14	RT7-TZ	10	--
CSH-TZ	10	--	SKH210L/R-2TZ	--	24	RT7A-GC	10	--
JUS24-GC	--	6	Column / Post Caps			RT7A-TZ	10	--
JUS24-TZ	--	6	PB44-6GC	--	16	RT8A-TZ	10	--
JUS24-2TZ	--	6	PB44-6TZ	--	16	RT15-GC	10	--
JUS26-GC	--	8	PB66-6GC	--	16	RT15-TZ	10	--
JUS26-TZ	--	8	PB66-6TZ	--	16	RT16A-TZ	9	8
JUS26-2GC	--	8	PBES44-TZ	--	16	RT16-2TZ	16	--
JUS26-2TZ	--	8	PBES66-TZ	--	16			