Strong-Drive° WSV SUBFLOOR Screw



For Subfloor and Sheathing Applications



SIMPSON Strong-Tie

Now in 1³/₄", 2", 2¹/₂" and 3" lengths

Simpson Strong-Tie has re-engineered its popular subfloor screws to reduce driving force and increase installation speed. The new Strong-Drive[®] WSV Subfloor screw has been developed for fastening subfloor sheathing to wood and I-joist framing using the Quik Drive[®] auto-feed screw driving system.

- Redesigned point and thread pattern provide easy starts and up to 25% less torque $^{\rm 1}$ which leads to faster driving. $^{\rm 2}$
- Less installation torque also means less wear on tools.
- Deep 6-lobe recess and ribbed underhead provide secure bit retention and clean countersinking.
- The holding power of WSV screws reduces the gaps between the joist and subfloor that cause floor squeaks.
- WSV screws can be easily backed out, allowing for future access to floor cavities.

The ideal replacement for 8d and 10d nails

The Strong-Drive WSV Subfloor screws are the only fasteners to be dual-evaluated per ICC-ES AC233 and ICC-ES AC120. Tests of single fasteners and full-scale diaphragms indicate that the WSV Subfloor screws have lateral, shear and withdrawal characteristics that exceed those of 10d common nails. Wood-frame diaphragms tested with WSV Subfloor screws meet or exceed the strength and stiffness of wood frame diaphragms built with 10d common nails.



Features



1. Test data shows the Strong-Drive WSV Subfloor screw requires up to 25% less driving torque in single-material LVL.

The redesigned WSV thread pattern will result in 20% faster screw installations.
AdvanTech[®] is a registered trademark of Huber Engineered Woods.

Strong-Drive® WSV SUBFLOOR Screw

Drive More, Squeak Less



"Using the new Strong-Drive® WSV Subfloor screw with the Quik Drive® system is amazingly fast and easy. I don't want to use anything else - it is so easy to drive. I don't have to work as hard! There's also less wear on my equipment."

> - Tommy Hughes Tommy Hughes Construction Powder Springs, GA

Strong-Drive WSV Subfloor screws collated for Quik Drive systems.

"See" the Difference on the Jobsite

The WSV screw gives visual confirmation of a secure joist connection by countersinking, while "shot-in" power-driven fasteners or hand-driven nails look the same whether or not they hit the joist. Missed fasteners could result in floor flexing that can cause squeaking in other parts of the structure and reduced diaphragm load capacity.



"Hear" the Difference over Time

Squeaking of newly installed floors can result in callbacks (expensive travel, labor, materials) and possibly a damaged reputation. Fastening subflooring with WSV screws, rather than power-driven fasteners or hand-driven nails, provides the power necessary to pull together joists and plywood (or WSP sheathing), eliminate gaps, hold materials firm, and thereby reduce squeaks.



develop over time. These gaps cause the subfloor to ride up and down on the power-driven fastener's shank, which leads to squeaks.



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Strong-Drive® WSV SUBFLOOR Screw 0.333"



Allowable Shear (Pounds per Foot) for Wood Structural Panel Diaphragms with Douglas Fir–Larch or Southern Pine Framing

			Minimum	Screw spacing	Blocked D (inches) at diar	iaphragms phragm bounda	ries (all cases).	Unblocked [Diaphragms
	Minimum Screw	Minimum	of Framing Members at	at continuous	panel edges pa and at all edges	rallel to load (C (Cases 5 and 6	ases 3 and 4),	Screws space maximum, at s	ed 6 inches support edges
Panel Grade	Penetration	Nominal Panel Thickness	Adjoining	6	4	2 ½	2	Case 1	All other
arado	in Framing (in)	(in.)	Panel Edges and	Screw	spacing (inches	s) at other pane	edges	edges or	configurations
	()		Boundaries (in.)	6	6	4	3	continuous joints parallel to load)	(Cases 2, 3, 4, 5 and 6)
		3/6	2	270	360	530	600	240	180
Structural I		/8	3	300	400	600	675	265	200
Structurari		15/~	2	320	425	640	730	285	215
		/32	3	360	480	720	820	320	240
		3/2	2	240	320	480	545	215	160
	11/.	78	3	270	360	540	610	240	180
	1 74	7/10	2	255	340	505	575	230	170
Sheathing and		716	3	285	380	570	645	255	190
single floor		15/20	2	290	385	575	655	255	190
		/32	3	325	430	650	735	290	215
		19/22	2	320	425	640	730	285	215
		732	3	360	480	720	820	320	240

1. For framing of other species, the allowable diaphragm shear capacity is found by: (1) Determining the specific gravity for the applicable species of lumber in the NDS and (2) Finding the allowable diaphragm shear value from the table above and multiplying this value by the Specific Gravity Adjustment Factor = [1-(0.5-SG)], where SG = Specific Gravity of the framing lumber. This adjustment factor must not be greater than 1.0.

2. For shear loads of normal or permanent load duration as defined by the NDS, the values in the table above must be multiplied by 0.63 or 0.56, respectively. 3. Diaphragm construction must be in accordance with Sections 4.2.6 and 4.2.7 of the 2018 SDPWS, as applicable.

4. See ESR-1472 or 2018 SDPWS for case diagrams.

WSV — Allowable Pull-Through and Withdrawal for Wood Structural Panels and Lumber

				Refere	nce Allowa	ble Pull-Th	rough (lb.)		Referen	ce Allowat	ole Withdra	awal Load
Size	Model	Thread	Minimun	n Nominal F	Panel Thick	ness (in.)	Minimum 1	hickness (in.)			CDE/LIE	ODE/LIE
(in.)	No.	(in.)	OSB/Plywo	ood Rated S	Sheathing, I	Exposure 1	DFL/SP	SPF/HF	(lb./in.)	(lb.)	(lb./in.)	(lb.)
			7⁄16	15/32	19/ ₃₂	²³ /32	1 ½	1 ½	W	Wmax	W	Wmax
#9 x 1¾	WSV134S	1.20							123	147	98	117
#9 x 2	WSV2S	1.45	66	66	06	100	105	1 / 1	128	185	99	144
#9 x 21⁄2	WSV212S	2.00	00	00	90	109	190	141	128	256	117	233
#9 x 3	WSV3S	2.20							141	311	121	266

1. Use the lower of the pull-through or withdrawal values to determine axial design value.

2. Screws must be installed normal to the side grain of the wood main member with the screw axis at a 90° angle to the wood fibers.

3. Lumber specific gravities and equivalent specific gravities for engineered wood products: DFL/SP = 0.50, SPF/HF = 0.42.

4. Withdrawal values, W, are in pounds per inch of the thread penetration in to the main member. W_{max} is the maximum reference withdrawal value.

5. Allowable loads are shown at the wood load duration factor of CD = 1.0. Loads may be increased for load duration up to CD = 1.6.



Strong-Drive WSV Subfloor Screw Spacing Detail

1¾"-3" WSV Fasteners Meet Code Requirements

As listed in ICC-ES ESR-1472, WSV screws meet requirements for the 2015 and 2018 International Building Code (IBC) and International Residential Code (IRC). The evaluation report recognized uses of WSV screws include the following applications:

- Substitute for 8d and 10d common nails in horizontal diaphragms per AWC SDPWS 2015, Tables 4.2A, 4.2C, and 4.2D; IBC 2018 and 2015, Table 2304.10.1, and IRC 2018 and 2015, Table R602.3(1).
- Code prescribed connections per IBC 2018 and 2015, Table 2304.10.1 and IRC 2015 and 2018, Table R602.3(1).
- Horizontal and diagonally-sheathed lumber diaphragms per AWC SDPWS 2015, Table 4.2D.
- Prescriptive sheathing applications in IRC 2018 and 2015, Table R602.3(1), and in structures regulated by the IRC where the engineered design is submitted in accordance with IRC R301.1.3.

Guidelines for Fastening Diaphragms Without Glue

The design of wood floor systems constructed with wood structural panel (WSP) sheathing fastened to framing considers the diaphragm performance of the system as presented in the IBC and IRC (as affected by framing, sheathing thickness, sheathing layout and fastening), and may also consider the composite action of the sheathing with the framing system (composite action is the combined stiffness of the joist with the sheathing). The framing systems can be grouped into two classes: (1) sawn lumber and parallel-chord wood trusses, and (2) wood I-joists. WSV screws may be used as alternate fasteners to common nails in each floor class subject to certain constraints.

For Diaphragms with a Framing System That Is Sawn Lumber or Parallel-Chord Wood Trusses

Simpson Strong-Tie WSV screws may be used as one-for-one substitutes for 10d common and smaller nails that are specified for horizontal diaphragm design in accordance with AWC SDPWS 2015 and IBC and IRC 2015 and 2018.*





For Diaphragms with Wood I-Joist Framing Systems

I-joist manufacturers use the extra stiffness resulting from composite action when developing allowable floor joist span tables. Therefore, I-joist floor span tables generally assume glued-nailed construction.

- 1. For floor systems designed or intended to be glued/nailed:
 - WSV screws may be substituted one-for-one for common nails, without glue, provided the maximum allowable I-joist span is reduced by 12" compared to the I-joist manufacturer's glued-nailed spans. The screws shall have at least 1 ¼" penetration into the I-joist flange (or full penetration for flanges less than 1 ¼" thick).
 - Where glue is used with the screws, no reduction in span is required.
 - Check with the I-joist manufacturer for any additional diaphragm requirements.
- 2. For floor systems designed or intended to be nailed only:
 - WSV screws may be substituted one-for-one for common nails, with no reduction in span, provided at least 1 ¼" penetration into the I-joist flange is achieved (or full penetration for flanges less than 1 ¼" thick).
 - Check with the I-joist manufacturer for any additional diaphragm requirements.
- * Simpson Strong-Tie has not evaluated diaphragm performance in relation to the blocking/adhesive/vibration/span criteria of the National Building Code of Canada.



Shank	Length	Head	Point	Drive	Ret	ail Pack	Contra	ictor Pack		Quik Drive® (Compatibility	
Size	(in.)	(in.)	Туре	Туре	Fasteners per Pack	Model No.	Fasteners per Pack	Model No.	PR0200G2	PR0200SG2	PR0250G2	PR0300SG2
#9	1¾	0.333	Sharp	6-Lobe	1,000	HCKWSV134S	2,000	WSV134S	Х	Х	Х	Х
#9	2	0.333	Sharp	6-Lobe	1,000	HCKWSV2S	2,000	WSV2S	Х	Х	Х	Х
#9	21⁄2	0.333	Sharp	6-Lobe	750	HCKWSV212S	1,500	WSV212S		—	Х	Х
#9	3	0.333	Sharp	6-Lobe		_	1,000	WSV3S		_		Х

Each kit includes BITTX25 driver bit.

Save Time, Save Money, Save Your Back! Faster Installation Speeds, Consistent Performance and Reduced Worker Fatigue

The Quik Drive PRO250G2 Subfloor System is the ideal choice for driving collated Strong-Drive WSV Subfloor screws. Stand-up driving allows for improved labor savings, less user fatigue and better consistency.

The PRO250G2 subfloor system includes:

- PRO250G2 subfloor attachment
- Extension for stand-up driving
- Choice of DeWalt[®] or Makita[®] screwdriver motors
- Limited lifetime warranty (see strongtie.com/warranty for more information)

System Motor Options	Model No.
Cordless DeWalt 2,000 rpm screwdriver motor	PR0250G2DC2K
DeWalt 2,500 rpm screwdriver motor	PR0250G2D25K
Makita 2,500 rpm screwdriver motor	PR0250G2M25K
Makita 3,500 rpm screwdriver motor	PR0250G2M35K

This filer is effective until June 30, 2024, and reflects information available as of February 1, 2022. This information is updated periodically and should not be relied upon after June 30, 2024. Contact Simpson Strong-Tie for current information and limited warranty or see strongtie.com.

(800) 999-5099 strongtie.com