

Exterior Screws

Strong-Drive® SDWH TIMBER-HEX SS Screw

Structural Wood and Engineered Wood Connections Including Ledgers

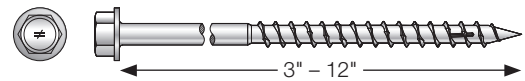
Stainless-steel structural fasteners designed for lag-screw replacement. These 0.185" and 0.275" diameter hex-head fasteners require no predrilling, making them easier and faster to install than typical lag screws. It meets 2018 and 2021 IRC® and IBC® code requirements for most common wood framing applications.

Features:

- Type 316 stainless steel for maximum corrosion protection
- No predrilling necessary in most applications
- Driver bit included (replacement driver bit — BITHEXR516-R1 or BITHEXR12-R1)
- Can be used in ledger applications
- Unique "box" thread design with raised-ridge technology significantly reduces driving torque
- Hex-washer head provides large bearing area

For more information regarding driver bits for Simpson Strong-Tie fasteners, see p. 129.

For Technical Data and Loads, see C-F-2023TECHSUP *Fastening Systems Technical Guide*, pp. 64–65, 164–165



Type 316 Stainless Steel

Model No.	Hex Drive (in.)	Dimensions							
		Inches				Millimeters			
		O.D. x Length	Shank Diameter	Thread Length	Head Diameter	O.D. x Length	Shank Diameter	Thread Length	Head Diameter
SDWH19400SS	5/16	0.255 x 4	0.185	2 3/4	0.455	6.5 x 101	4.7	60	11.5
SDWH19450SS	5/16	0.255 x 4.5	0.185	2 3/4	0.455	6.5 x 114	4.7	70	11.5
SDWH19500SS	5/16	0.255 x 5	0.185	2 3/4	0.455	6.5 x 127	4.7	60	11.5
SDWH19600SS	5/16	0.255 x 6	0.185	2 3/4	0.455	6.5 x 152	4.7	60	11.5
SDWH19800SS	5/16	0.255 x 8	0.185	2 3/4	0.455	6.5 x 203	4.7	60	11.5
SDWH27300SS	1/2	0.370 x 3	0.275	3	0.655	9.5 x 76	7.0	76	16.6
SDWH27400SS	1/2	0.370 x 4	0.275	3	0.655	9.5 x 101	7.0	76	16.6
SDWH27500SS	1/2	0.370 x 5	0.275	3	0.655	9.5 x 127	7.0	76	16.6
SDWH27600SS	1/2	0.370 x 6	0.275	3	0.655	9.5 x 152	7.0	76	16.6
SDWH27800SS	1/2	0.370 x 8	0.275	3	0.655	9.5 x 203	7.0	76	16.6
SDWH271000SS	1/2	0.370 x 10	0.275	3	0.655	9.5 x 254	7.0	76	16.6
SDWH271200SS	1/2	0.370 x 12	0.275	3	0.655	9.5 x 305	7.0	76	16.6

See footnotes below.

Multi-Screw Packaging

Individually Flagged		Retail Clamshell		Retail Pack	
Fasteners Qty.	Model No.	Fasteners per Pack	Model No.	Fasteners per Pack	Model No.
—	—	20	SDWH19400SS-R20	—	—
—	—	10	SDWH19450SS-R10	100	SDWH19450SS-R100
—	—	10	SDWH19500SS-R10	100	SDWH19500SS-R100
—	—	10	SDWH19600SS-R10	—	—
—	—	10	SDWH19800SS-R10	50	SDWH19800SS-R50
1	SDWH27300SS-RP1	10	SDWH27300SS-R10	100	SDWH27300SS-R100
1	SDWH27400SS-RP1	10	SDWH27400SS-R10	100	SDWH27400SS-R100
1	SDWH27500SS-RP1	10	SDWH27500SS-R10	50	SDWH27500SS-R50
1	SDWH27600SS-RP1	10	SDWH27600SS-R10	50	SDWH27600SS-R50
1	SDWH27800SS-RP1	10	SDWH27800SS-R10	50	SDWH27800SS-R50
1	SDWH271000SS-RP1	5	SDWH271000SS-R5	25	SDWH271000SS-R25
—	—	5	SDWH271200SS-R5	25	SDWH271200SS-R25

1. O.D. denotes thread outer diameter.
2. 3" flagged fasteners per master carton: 50;
4" flagged fasteners per master carton: 40;
5" flagged fasteners per master carton: 40;
6" flagged fasteners per master carton: 35;
8"–12" flagged fasteners per master carton: 25.

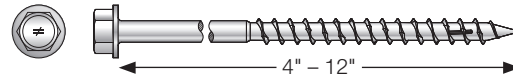
Structural and General Fastening

Strong-Drive® SDWH TIMBER-HEX SS Screw

Structural Wood-to-Wood Connections Including Ledgers, Indoor/Outdoor Projects, Applications Requiring High to Severe Corrosion Resistance

Type 316 stainless steel provides severe corrosion resistance, making it suitable for exterior and preservative-treated wood applications.

For more information, see p. 62, C-F-2023 Fastening Systems catalog



SDWH Timber Hex SS Screw — Allowable Shear Loads — Douglas Fir–Larch, Southern Pine, Spruce-Pine-Fir, Hem-Fir

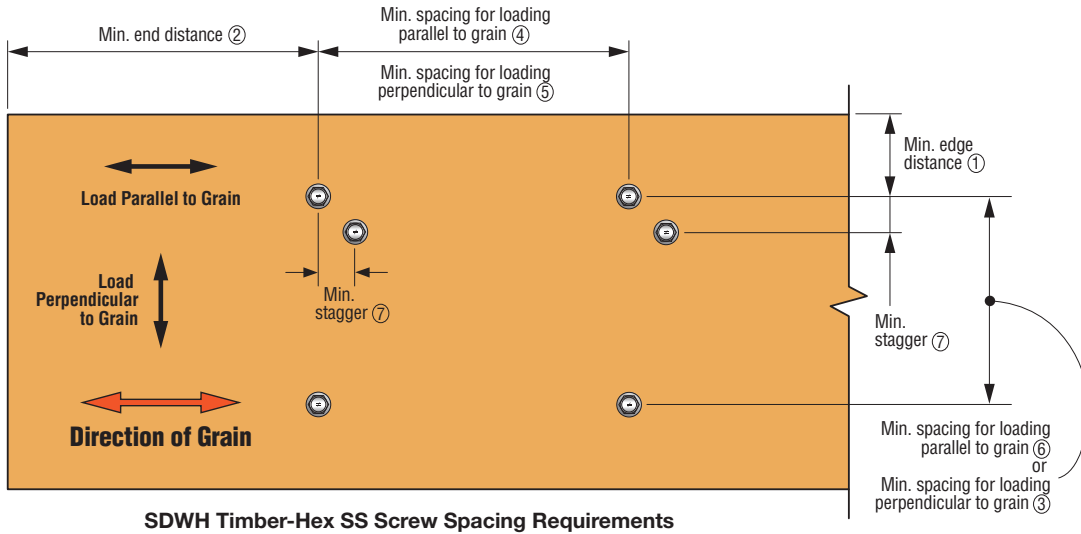
Length (in.)	Model No.	Thread Length (in.)	Head Diameter (in.)	Reference Allowable Shear Loads (lb.)		
				Wood Side Member Thickness (in.)		
				1½	3	3½
4	SDWH19400SS	2.40	0.46	177	—	—
4½	SDWH19450SS	2.75	0.46	177	177	—
5	SDWH19500SS	2.40	0.46	177	177	177
6	SDWH19600SS	2.40	0.46	177	177	177
8	SDWH19800SS	2.40	0.46	177	177	177
4	SDWH27400SS	3.00	0.65	235	—	—
5	SDWH27500SS	3.00	0.65	235	235	235
6	SDWH27600SS	3.00	0.65	235	235	235
8	SDWH27800SS	3.00	0.65	235	235	235
10	SDWH271000SS	3.00	0.65	235	235	235
12	SDWH271200SS	3.00	0.65	235	235	235

Note: See p. 65 for spacing requirements.

- All applications are based on full penetration into the main member. Full penetration is the screw length minus the side member thickness.
- Allowable loads are shown at the load duration factor of $C_D = 1.0$. Loads may be increased for load duration per the building code up to a $C_D = 1.6$. Tabulated values must be multiplied by all applicable adjustment factors per the NDS.
- Table values based on testing in SPF lumber.
- Design values include NDS wet service factor; no adjustment required for in-service moisture content greater than 19%.
- Allowable loads are perpendicular or parallel to grain.
- Installs best with 18V high-torque cordless or ½" low speed drill. If splitting occurs predrill with ⅝" drill bit for SDWH19 screws and ⅞" drill bit for SDWH27 screws.
- Allowable withdrawal load for the SDWH19 screw for DFL/SP is 155 lb./in. and for SPF/HF is 108 lb./in. Allowable load is based on inches of thread penetration into the main member.
- Allowable withdrawal load for the SDWH27 screw for DFL/SP is 260 lb./in. and for SPF/HF is 160 lb./in. Allowable load is based on inches of thread penetration into the main member.
- For LRFD values, the reference connection design values shall be adjusted in accordance with NDS-18, section 11.3.

Structural and General Fastening

Strong-Drive® SDWH TIMBER-HEX SS Screw (cont.)



SDWH Timber-Hex SS Screw Spacing Requirements

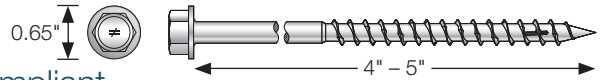
Condition	Direction of Load to Grain	ID	Minimum Distance or Spacing (in.)
Edge Distance	Perpendicular	①	1 7/16
	Parallel	①	1 7/16
End Distance	Perpendicular	②	3
	Parallel	②	3
Spacing Between Fasteners in a Row	Perpendicular	③	3
	Parallel	④	3
Spacing Between Rows of Fasteners	Perpendicular	⑤	3
	Parallel	⑥	3
Spacing Between Staggered Rows	Perpendicular or Parallel	⑦	1 1/2

1. For SDWH19 screws subject to axial loading only, use the following minimum dimensions: end distance = 2 3/8", edge distance = 1", spacing parallel to grain = 1 1/2", spacing perpendicular to grain = 1".
2. For SDWH27 screws subject to axial loading only, use the following minimum dimensions: end distance = 3 1/4", edge distance = 1 3/8", spacing parallel to grain = 2 3/8", spacing perpendicular to grain = 1 1/2".

Deck Construction — Ledgers

Strong-Drive® SDWH TIMBER-HEX SS Screw

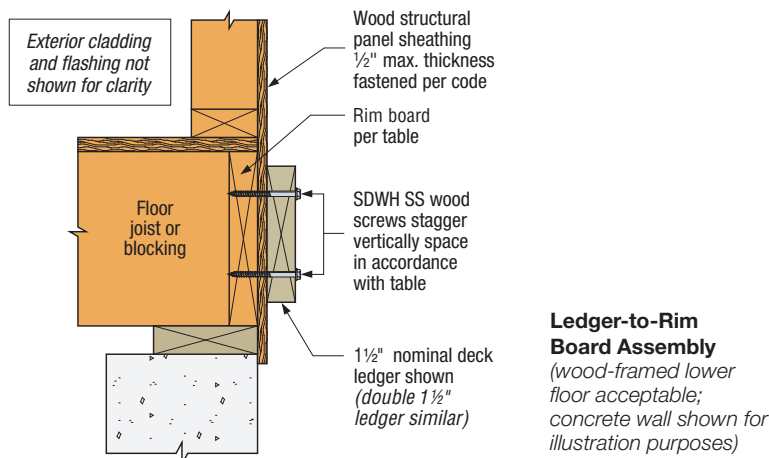
For more information, see p. 62, C-F-2023 Fastening Systems catalog



SDWH TIMBER-HEX SS — 2021 and 2018 IRC Compliant Spacing for a Sawn Lumber Deck Ledger-to-Rim Board

Loading Condition	Nominal Ledger Thickness (in.)	Length (in.)	Model No.	Rim Board Material and Size	Maximum Deck Joist Span						
					Up to 6 ft.	Up to 8 ft.	Up to 10 ft.	Up to 12 ft.	Up to 14 ft.	Up to 16 ft.	Up to 18 ft.
					Maximum On-Center Spacing of Fasteners (in.)						
40 psf Live 10 psf Dead	2x	4	SDWH27400SS	1" OSB	19	14	11	9	8	7	6
				1" LVL							
				1 1/8" OSB							
				1 5/16" LVL							
				1 1/4" OSB							
				1 1/2" LVL							
				1 1/4" LSL							
				1 3/4" LVL							
60 psf Live 10 psf Dead	2x	4	SDWH27400SS	1" OSB	13	10	8	7	6	5	4
				1" LVL							
				1 1/8" OSB							
				1 5/16" LVL							
				1 1/4" OSB							
				1 1/2" LVL							
				1 1/4" LSL							
				1 3/4" LVL							
40 psf Live 10 psf Dead	(2) 2x	5	SDWH27500SS	1" OSB	19	14	11	9	8	7	6
				1" LVL							
				1 1/8" OSB							
				1 5/16" LVL							
				1 1/4" OSB							
				1 1/2" LVL							
				1 1/4" LSL							
				1 3/4" LVL							
60 psf Live 10 psf Dead	(2) 2x	5	SDWH27500SS	1" OSB	13	10	8	7	6	5	4
				1" LVL							
				1 1/8" OSB							
				1 5/16" LVL							
				1 1/4" OSB							
				1 1/2" LVL							
				1 1/4" LSL							
				1 3/4" LVL							
40 psf Live 10 psf Dead	(2) 2x	5	SDWH27500SS	2x SP, DFL, SPF, HF	19	14	11	9	8	7	6
				1" OSB							
				1" LVL							
				1 1/8" OSB							
				1 5/16" LVL							
				1 1/4" OSB							
				1 1/2" LVL							
				1 1/4" LSL							
1 3/4" LVL											
60 psf Live 10 psf Dead	(2) 2x	5	SDWH27500SS	2x SP, DFL, SPF, HF	13	10	8	7	6	5	4
				1" OSB							
				1" LVL							
				1 1/8" OSB							
				1 5/16" LVL							
				1 1/4" OSB							
				1 1/2" LVL							
				1 1/4" LSL							
1 3/4" LVL											

See footnotes on next page.



Deck Construction — Ledgers

Strong-Drive® SDWH TIMBER-HEX SS Screw (cont.)

SDWH TIMBER-HEX SS — 2021 and 2018 IRC Compliant Spacing for a Sawn Lumber Deck Ledger-to-Rim Board

Loading Condition	Nominal Ledger Thickness (in.)	Length (in.)	Model No.	Rim Board Material and Size	Maximum Deck Joist Span						
					Up to 6 ft.	Up to 8 ft.	Up to 10 ft.	Up to 12 ft.	Up to 14 ft.	Up to 16 ft.	Up to 18 ft.
					Maximum On-Center Spacing of Fasteners (in.)						
40 psf Live 10 psf Dead	2x	4	SDWH19400SS	1" OSB	14	11	8	7	6	5	5
				1" LVL							
				1 1/8" OSB	14	11	8	7	6	5	5
				1 5/16" LVL							
				1 1/4" OSB							
				1 1/2" LVL							
				1 1/4" LSL	14	11	8	7	6	5	5
				1 3/4" LVL							
2x SP, DFL, SPF, HF											
60 psf Live 10 psf Dead	2x	4	SDWH19400SS	1" OSB	10	8	6	5	4	4	3
				1" LVL							
				1 1/8" OSB	10	8	6	5	4	4	3
				1 5/16" LVL							
				1 1/4" OSB							
				1 1/2" LVL							
				1 1/4" LSL	10	8	6	5	4	4	3
				1 3/4" LVL							
2x SP, DFL, SPF, HF											
40 psf Live 10 psf Dead	(2) 2x	5	SDWH19500SS	1" OSB	14	11	8	7	5	5	5
				1" LVL							
				1 1/8" OSB	14	11	8	7	5	5	5
				1 5/16" LVL							
				1 1/4" OSB							
				1 1/2" LVL							
				1 1/4" LSL	14	11	8	7	5	5	5
				1 3/4" LVL							
2x SP, DFL, SPF, HF											
60 psf Live 10 psf Dead	(2) 2x	5	SDWH19500SS	1" OSB	10	8	6	5	4	4	3
				1" LVL							
				1 1/8" OSB	10	8	6	5	4	4	3
				1 5/16" LVL							
				1 1/4" OSB							
				1 1/2" LVL							
				1 1/4" LSL	10	8	6	5	4	4	3
				1 3/4" LVL							
2x SP, DFL, SPF, HF											

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Deck and Dock Applications

- Screw spacing values are equivalent to 2021/2018 IRC Table R507.9.1.3(1) and 2015 IRC Table R507.2. The table above also provides screw spacing for a wider range of materials commonly used for band joists, and an alternate loading condition as required by some jurisdictions.
- Sawn rim board shall be spruce-pine-fir, hem-fir, Douglas fir-larch, or southern pine species. Ledger shall be hem-fir, Douglas fir-larch, or southern pine species.
- Fastener spacings are based on the lesser of single fastener ICC-ES AC233 testing with a safety factor of 5.0 or ledger assembly testing with a factor of safety of 5.0. Spacing includes NDS wet service factor adjustment.
- Multiple ledger plies shall be fastened together per code independent of the screws.
- Screws shall be placed 1.5" to 2" from the top and bottom of the ledger or rim board with 3" minimum and 6" maximum vertical distance between fasteners with horizontal on-center spacing per the table. End screws shall be located 6" from the end and at 1.5" to 2" from the bottom of the ledger. For screws located at least 2" but less than 6" from the end, use 50% of the load per screw and 50% of the table spacing between the end screw and the adjacent screw, and for screws located between 2" and 4" from the end, predrill using a 5/32" drill bit for SDWH19SS and 7/32" drill bit for SDWH27SS.
- Structural sheathing between the ledger and band shall be a maximum of 1/2" thick and fastened per code.
- See figure on previous page.
- Visit strongtie.com/drawings and search for SD1-L for additional ledger fastening detail sheets and load tables in DWG, PDF or DXF format.

Deck Construction — Ledgers

Strong-Drive® SDS, SDWS and SDWH Sawn Lumber Deck Ledger to Band Joist Applications

Simpson Strong-Tie Company manufactures six fastener types that are suitable for installing ledgers to band joist floor framing. The fasteners do not require predrilling and can be made of stainless steel or carbon steel that has a double barrier coating or is hot-dip galvanized. The design table is based on the lesser of single-fastener connection testing in compliance with ICC-ES AC233 or ledger assembly testing following ICC-ES AC13 with an applied factor of safety of 5.0. Loads include NDS wet service factor adjustment.

Allowable Shear Loads for Attachment of Lumber Deck Ledger to Band Joist

Fastener	Nominal Ledger Size	Screw Length (in.)	Model No.	Band Joist Material and Minimum Size	Allowable Shear Load (lb.)
Strong Drive SDWS TIMBER Screw	2x	4	SDWS22400DB	1" OSB OR 1" LVL	170
	2x			1 1/8" OSB	205
	2x			1 5/16" LVL OR 1 1/4" LSL	265
	2x			2x Nominal Sawn Lumber	270
	2-2x	5	SDWS22500DB	1" OSB OR 1" LVL	190
	2-2x			1 1/8" OSB	200
	2-2x			1 5/16" LVL OR 1 1/4" LSL	200
	2-2x			2x Nominal Sawn Lumber	200
Strong Drive SDWH TIMBER-HEX Screw	2x	4	SDWH19400DB	1" OSB OR 1" LVL	155
	2x			1 1/8" OSB	220
	2x			1 5/16" LVL OR 1 1/4" LSL	225
	2x			2x Nominal Sawn Lumber	190
Strong Drive SDWH TIMBER-HEX SS Screw	2x	4	SDWH27400SS	1" OSB OR 1" LVL	235
	2x			1 1/8" OSB	235
	2x			1 5/16" LVL OR 1 1/4" LSL	235
	2x			2x Nominal Sawn Lumber	235
	2-2x	5	SDWH27500SS	1" OSB OR 1" LVL	235
	2-2x			1 1/8" OSB	235
	2-2x			1 5/16" LVL OR 1 1/4" LSL	235
	2-2x			2x Nominal Sawn Lumber	235
	2x	4	SDWH19400SS	1" OSB OR 1" LVL	177
	2x			1 1/8" OSB	177
	2x			1 5/16" LVL OR 1 1/4" LSL	177
	2x			2x Nominal Sawn Lumber	177
	2-2x	5	SDWH19500SS	1" OSB OR 1" LVL	177
	2-2x			1 1/8" OSB	177
	2-2x			1 5/16" LVL OR 1 1/4" LSL	177
	2-2x			2x Nominal Sawn Lumber	177
Strong Drive SDS HEAVY-DUTY CONNECTOR Screw	2x	3 1/2	SDS25312	1" OSB OR 1" LVL	155
	2x			1 1/8" OSB	185
	2x			1 5/16" LVL OR 1 1/4" LSL	190
	2x			2x Nominal Sawn Lumber	165
	2-2x	5	SDS25500	2x Nominal Sawn Lumber	165

Footnotes on next page.

Deck Construction — Ledgers

Strong-Drive®

SDS, SDWS and SDWH HDG Sawn Lumber Deck Ledger to Band Joist Applications (cont.)

Allowable Shear Loads for Attachment of Lumber Deck Ledger to Band Joist (cont.)

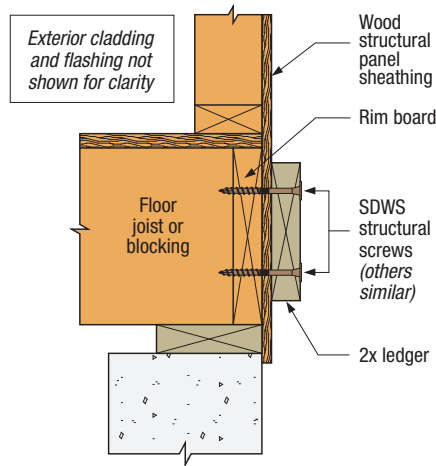
Fastener	Nominal Ledger Size	Screw Length (in.)	Model No.	Band Joist Material and Minimum Size	Allowable Shear Load (lb.)
Strong Drive TIMBER SS Screw	2x	4	SDWS27400SS	1" OSB OR 1" LVL	160
				1 1/8" OSB	225
				1 5/16" LVL OR 1 1/4" LSL	225
				2x Nominal Sawn Lumber	225
	2-2x	5	SDWS27500SS	1" OSB OR 1" LVL	190
				1 1/8" OSB	190
				1 5/16" LVL OR 1 1/4" LSL	190
				2x Nominal Sawn Lumber	190
Strong Drive SDWH TIMBER-HEX HDG Screw	2x	4	SDWH27400G	1" OSB OR 1" LVL	280
				1 1/8" OSB	280
				1 5/16" LVL OR 1 1/4" LSL	280
				2x Nominal Sawn Lumber	280
	2-2x	6	SDWH27600G	1" OSB OR 1" LVL	315
				1 1/8" OSB	315
				1 5/16" LVL OR 1 1/4" LSL	315
				2x Nominal Sawn Lumber	315

- Specific gravity of the solid sawn band joists and ledgers shall be typical of species combinations with $0.42 \leq SG \leq 0.55$.
- Multiple ledger plies shall be fastened together per code independent of the SDS, SDWS or SDWH fasteners listed in the table.
- Allowable loads are shown at the wood load duration factor of $C_D = 1.0$. Loads may be increased for load duration by the building code up to a $C_D = 1.6$.
- Structural sheathing between the ledger and band joist shall be a maximum of 1/2" thick and fastened per code.
- See Screw Spacing Detail on the following page for spacing requirements.
- End screws shall be located near the bottom of the ledger. For end distances between 2" and 6", use 50% of the load and 50% of the standard spacing between the end screw and the adjacent screw. For end distances between 2" and 4", predrill using a 7/32" drill bit for SDWH27SS fasteners, a 3/16" drill bit for the SDWH27G and SDWS27SS fasteners, a 5/32" drill bit for SDS, SDWS22DB, and SDWH19SS fasteners, and a 1/8" drill bit for SDWH19DB.
- Visit strongtie.com/drawings and search for SD1-L for additional ledger fastening detail sheets and load tables in DWG, PDF or DXF format.

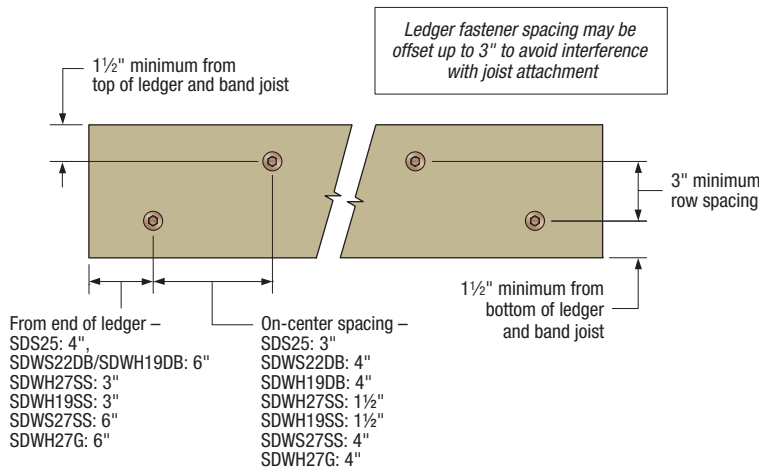
Deck Construction — Ledgers

Strong-Drive®

SDS, SDWS and SDWH — Lumber Deck Ledger-to-Band Joist Applications (cont.)



Ledger-to-Band Joist Assembly



Screw Spacing Detail