

Load Tables, Technical Data and Installation Instructions

Strong-Drive® SDWH TIMBER-HEX Screw

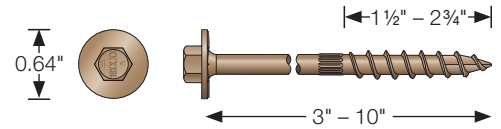
Structural Wood-to-Wood Connections, Including Ledgers

Double-barrier coating provides corrosion resistance equivalent to hot-dip galvanization, making it suitable for certain exterior and preservative-treated wood applications, as described in the evaluation report.

Codes/Standards: IAPMO-UES ER-192, State of Florida FL13975

U.S. Patents 5,897,280; 7,101,133

For More Product Information, see p. 70



SDWH – Allowable Shear Loads – Douglas Fir-Larch and Southern Pine Lumber

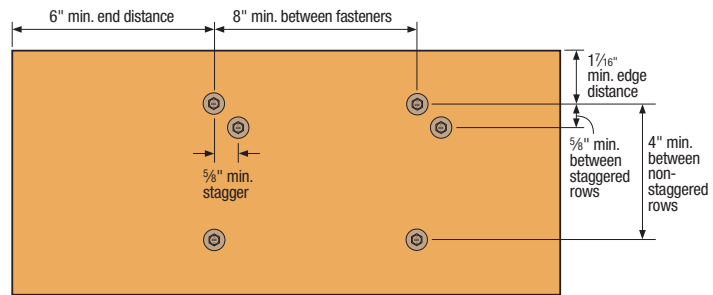
Size (dia. x length) (in.)	Model No.	Thread Length (in.)	DF/SP Allowable Shear Loads (lb.)									
			Wood Side Member Thickness (in.)									
			1.5	2	2.5	3	3.5	4	4.5	6	8	
0.195 x 3	SDWH19300DB	1½	285	—	—	—	—	—	—	—	—	—
0.195 x 4	SDWH19400DB	2¾	370	300	300	—	—	—	—	—	—	—
0.195 x 6	SDWH19600DB	2¾	370	265	265	265	265	245	245	—	—	—
0.195 x 8	SDWH19800DB	2¾	370	265	265	265	265	265	260	245	—	—
0.195 x 10	SDWH191000DB	2¾	370	265	265	265	265	265	260	260	245	—

See footnotes below.

SDWH – Allowable Shear Loads – Spruce-Pine-Fir and Hem-Fir Lumber

Size (dia. x length) (in.)	Model No.	Thread Length (in.)	SPF/HF Allowable Shear Loads (lb.)									
			Wood Side Member Thickness (in.)									
			1.5	2	2.5	3	3.5	4	4.5	6	8	
0.195 x 3	SDWH19300DB	1½	230	—	—	—	—	—	—	—	—	—
0.195 x 4	SDWH19400DB	2¾	330	235	195	—	—	—	—	—	—	—
0.195 x 6	SDWH19600DB	2¾	350	265	265	265	265	215	180	—	—	—
0.195 x 8	SDWH19800DB	2¾	350	265	265	265	265	265	215	215	—	—
0.195 x 10	SDWH191000DB	2¾	350	265	265	265	265	265	250	250	215	—

- 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 wood 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.
- Minimum fastener spacing requirements to achieve table loads: 6" end distance, 1½" edge distance, 5/8" between staggered rows of fasteners, 4" between non-staggered rows of fasteners and 8" between fasteners in a row.
- For in-service moisture content greater than 19%, use $C_M = 0.7$.
- Loads are based on installation into the side grain of the wood with the screw axis perpendicular to the face of the member.



SDWH Spacing Requirements

SDWH – Allowable Withdrawal Loads – Douglas Fir-Larch, Southern Pine, Spruce-Pine-Fir and Hem-Fir Lumber

Size (dia. x length) (in.)	Model No.	Fastener Length (in.)	Thread Length (in.)	Reference Withdrawal Design Value, W (lb./in.)		Max. Reference Withdrawal Design Value, W_{Max} (lb.)	
				DF and SP Main Member	HF and SPF Main Member	DF and SP Main Member	HF and SPF Main Member
				0.195 x 3	SDWH19300DB	3	177
0.195 x 4	SDWH19400DB	4	192	147	455	350	
0.195 x 6	SDWH19600DB	6	197	164	545	445	
0.195 x 8	SDWH19800DB	8	197	164	545	445	
0.195 x 10	SDWH191000DB	10	197	164	545	445	

- The tabulated reference withdrawal design value, W , is in pounds per inch of the thread penetration into the side grain of the main member.
- The tabulated reference withdrawal design value, W_{Max} , is in pounds where the entire thread length must penetrate into the side grain of the main member.
- Tabulated reference withdrawal design values, W and W_{Max} , are shown at a $C_D = 1.0$. 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 from the NDS as referenced in the IBC or IRC.
- Embedded thread length is that portion held in the main member including the screw point.
- Values are based on the lesser of withdrawal from the main member or pull-through of a 1½" side member.
- For in-service moisture content greater than 19%, use $C_M = 0.7$.

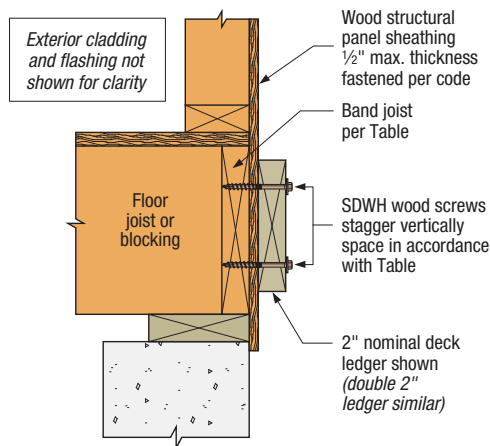
Load Tables, Technical Data and Installation Instructions

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

SDWH – 2012 and 2015 IRC Compliant Spacing for
a Sawn Lumber Deck Ledger to Rim Board

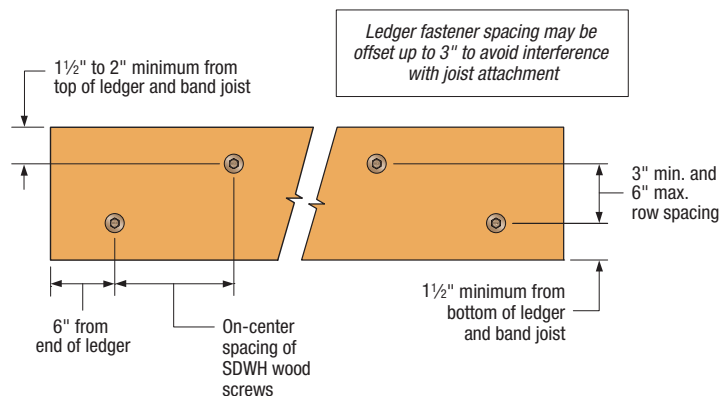
Loading Condition	Nominal Ledger Size	Model No.	Rim Board Material and Minimum Size	Maximum Deck Joist Span						
				Up to 6 ft.	Up to 8 ft.	Up to 10 ft.	Up to 12 ft.	Up to 14 ft.	Up to 16 ft.	Up to 18 ft.
				Maximum On-Center Spacing of Fasteners (in.)						
40 psf Live 10 psf Dead	2x	SDWH19400DB	1" OSB	13	9	8	6	5	5	4
			1" LVL							
			1 1/8" OSB	18	13	11	9	8	7	6
			1 5/16" LVL							
			1 1/4" LSL							
2x SP, DFL – 2x SPF, HF	15	12	9	8	7	6	5			
60 psf Live 10 psf Dead	2x	SDWH19400DB	1" OSB	9	7	5	5	4	—	—
			1" LVL							
			1 1/8" OSB	13	10	8	6	5	5	4
			1 5/16" LVL							
			1 1/4" LSL							
			2x SP, DFL – 2x SPF, HF	11	8	7	6	5	4	4

- SDWH screw spacing values are equivalent to 2012/2015 IRC table R507.2. The table above also provides SDWH screw spacing for a wider range of materials commonly used for rim board, and an alternate loading condition as required by some jurisdictions.
- Solid-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 of the Strong-Drive® SDWH screw with a safety factor of 5.0 or ICC-ES AC13 assembly testing with a factor of safety of 5.0. Spacing includes NDS wet service factor adjustment.
- Rows of screws shall be vertically offset and evenly staggered. Screws shall be placed 1 1/2" to 2" from the top and bottom of the ledger or rim board with 3" minimum and 6" maximum between rows and spaced per the table. End screws shall be located 6" from the end and at 1 1/2" 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 1.8" drill.
- Structural sheathing between the ledger and rim board shall be a maximum of 1/2" thick and fastened per code.



Ledger-to-Rim Board Assembly

(Wood-framed lower floor acceptable, concrete wall shown for illustration purposes)



SDWH Screw Spacing Detail

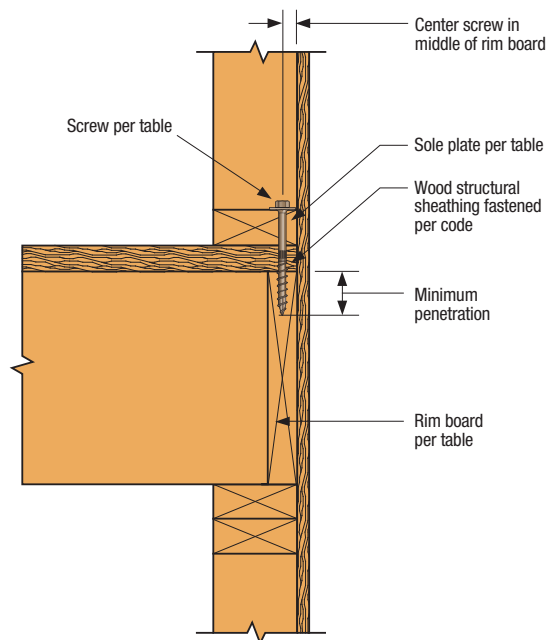
Load Tables, Technical Data and Installation Instructions

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

SDWH – Allowable Shear Loads for Sole-to-Rim Connections

Size (in.)	Model No.	Nominal Sole Plate Thickness (in.)	Minimum Penetration into Rim Board (in.)	Allowable Loads (lb.)							
				2x DF/SP Rim Board		2x SPF/HF Rim Board		1 1/4" Min. LVL Rim Board		1 1/4" Min. LSL Rim Board	
				DF/SP Sole Plate	SPF/HF Sole Plate	DF/SP Sole Plate	SPF/HF Sole Plate	DF/SP Sole Plate	SPF/HF Sole Plate	DF/SP Sole Plate	SPF/HF Sole Plate
0.195 x 4	SDWH19400DB	2x	1.75	315	295	295	295	255	255	275	275
0.195 x 6	SDWH19600DB	2x or 3x	2	315	295	295	295	255	255	275	275

1. Allowable loads are based on testing per ICC-ES AC233 and are limited to parallel-to-grain loading.
2. Allowable loads are shown at the wood load duration factor of $C_D = 1.00$. Loads may be increased for load duration by the building code up to a $C_D = 1.60$.
3. Minimum spacing of the SDWH is 6" o.c., minimum end distance is 6", and minimum edge distance is 5/8".
4. Wood structural panel up to 1 1/8" thick is permitted between the sole plate and rim board provided it is fastened to the rim board per code and the minimum penetration of the screw into the rim board is met.
5. A double 2x sole plate is permitted provided it is independently fastened per the code and the minimum screw penetration per the table is met.



Sole-to-Rim Board Assembly

Load Tables, Technical Data and Installation Instructions

Strong-Drive®

SDWH TIMBER-HEX and SDWS TIMBER Screw

2012/2015 IRC Compliant Spacing and Allowable Shear Loads for Fastening a Sawn Lumber Deck Ledger to Rim Board with ½" Gap

Strong-Drive® SDWS Timber screws and SDWH Timber-Hex screws are suitable for installing ledgers with up to ½" drainage gap between the ledger and the rim board. These fasteners do not require predrilling and have a double barrier coating providing corrosion resistance equivalent to hot-dip galvanization. The gap is formed by stacking hot-dipped galvanized or stainless steel ¼" Type A plain washers (0.625" outside diameter, 0.281" inside diameter) on the shank of the screws between the ledger and the rim board. Weather proofing shall be the responsibility of the installer. The table below lists the maximum on-center spacing of SDWS Timber screws and SDWH Timber-Hex screws when attaching a 2x ledger to the listed rim board of various widths with a maximum ½" gap between them.

Loading Condition: 40 PSF Live Load and 10 PSF Dead Load

Ledger Nominal Size (in.)	Rim Board Material (in.)	Model No.	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.)						
2x	2x DFL, SP, SPF #2	SDWS22400DB	15	11	9	7	6	5	5
		SDWH19400DB	14	11	8	7	6	5	4
	1.125" LSL	SDWS22400DB	14	10	8	7	6	5	4
		SDWH19400DB	13	10	8	6	5	5	4
	1.75" LVL	SDWS22400DB	16	12	9	8	7	6	5
		SDWH19400DB	14	10	8	7	6	5	4

- Solid sawn ledger shall be Spruce-Pine-Fir or Hem-Fir (SG = 0.42) or better. Rim board is to be dry lumber (specific gravity at least 0.42) or EWP rim board product (equivalent specific gravity of at least 0.42 for nails and screws installed in the face orientation).
- Fastener spacings are based on the lesser of single fastener testing following ICC-ES AC233 or ledger assembly testing following ICC-ES AC13 using a safety factor of 5.0. Spacing includes NDS wet service factor adjustment.
- Screws shall be placed at least 2" from the top and 1 ½" from the bottom of the ledger or rim board, 6" from the end of the ledger with 3" between rows (minimum) and 6" between rows (maximum) and spaced per the table. End screws shall be located near the bottom of the ledger. See figure.
- Wood structural panel sheathing between the ledger and rim board shall be a maximum of ½" thick and fastened per code.
- Screws shall be tightened such that the washer stacks are tightly compressed between the ledger and the rim board.
- Maximum ½" gap formed by stacked hot-dipped galvanized or stainless steel ¼" Type A plain washers with a nominal outside diameter of 0.625" and inside diameter of 0.281".
- The fastener specifications in this table meet the prescriptive deck ledger attachment solutions and loading requirements per Table R507.2 of the 2012 and 2015 IRC.

Load Tables, Technical Data and Installation Instructions

Strong-Drive® **SDWH TIMBER-HEX** and **SDWS TIMBER** Screw (cont.)

2012/2015 IRC Compliant Spacing and Allowable Shear Loads
for Fastening a Sawn Lumber Deck Ledger to Rim Board with 1/2" Gap

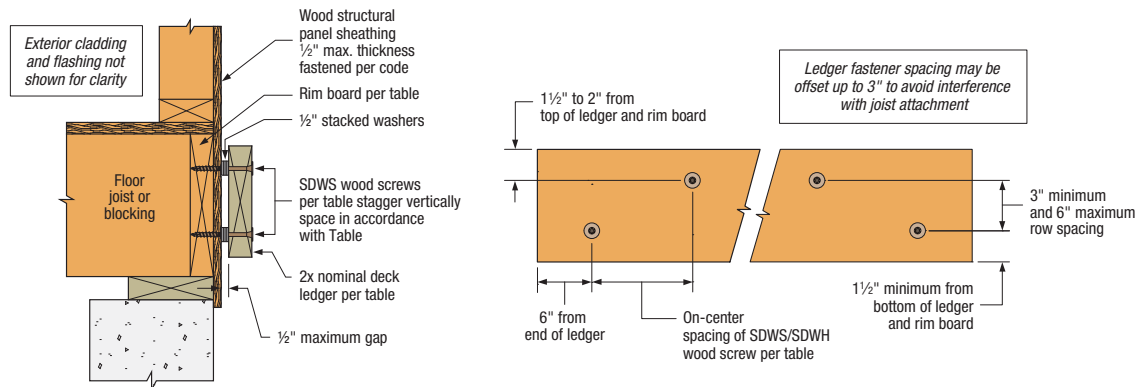


Table below lists the allowable shear loads for SDWS Timber Screws and SDWH Timber-Hex Screws when attaching a 2x ledger with up to 1/2" thickness of stacked washers to the listed rim board.

Single-Fastener Allowable Shear Loads for Fastening a Sawn Lumber Deck Ledger to Rim Board with 1/2" Gap

Nominal Ledger Size (in.)	Rim Board	Model No.	Allowable Load (lb.)
2x	2x SPF, DF, SP #2	SDWS22400DB	270
		SDWH19400DB	260
	1 1/8" LSL	SDWS22400DB	255
		SDWH19400DB	245
	1 3/4" LVL	SDWS22400DB	290
		SDWH19400DB	255

- Solid Sawn 2x nominal ledger shall be Spruce-Pine-Fir or Hem-Fir (SG = 0.42) or better.
- Band joist is to be dry lumber (specific gravity at least 0.42) or EWP rim board product (equivalent specific gravity of at least 0.42 for nails and screws installed in the face orientation).
- Fastener spacings are based on the lesser of single fastener testing following ICC-ES AC233 or ledger assembly testing following ICC-ES AC13 using a safety factor of 5.0.
- Screws shall be placed at least 2" from the top and 1 1/2" from the bottom of the ledger or rim board, 6" from the end of the ledger with 3" between rows (minimum) and 6" between rows (maximum) and have a minimum on-center spacing of 4".
- Wood structural panel sheathing between the ledger and rim board shall be a maximum of 1/2" thick and fastened per code.
- Screws shall be tightened such that the washer stack is tightly compressed between the ledger and the rim board.
- Maximum 1/2" gap composed of stacked hot-dipped galvanized or stainless steel 1/4" Type A plain washers with an outside diameter equal to 0.625" and inside diameter equal to 0.281".
- Allowable loads are shown at the wood 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, including wet service factor.

Load Tables, Technical Data and Installation Instructions

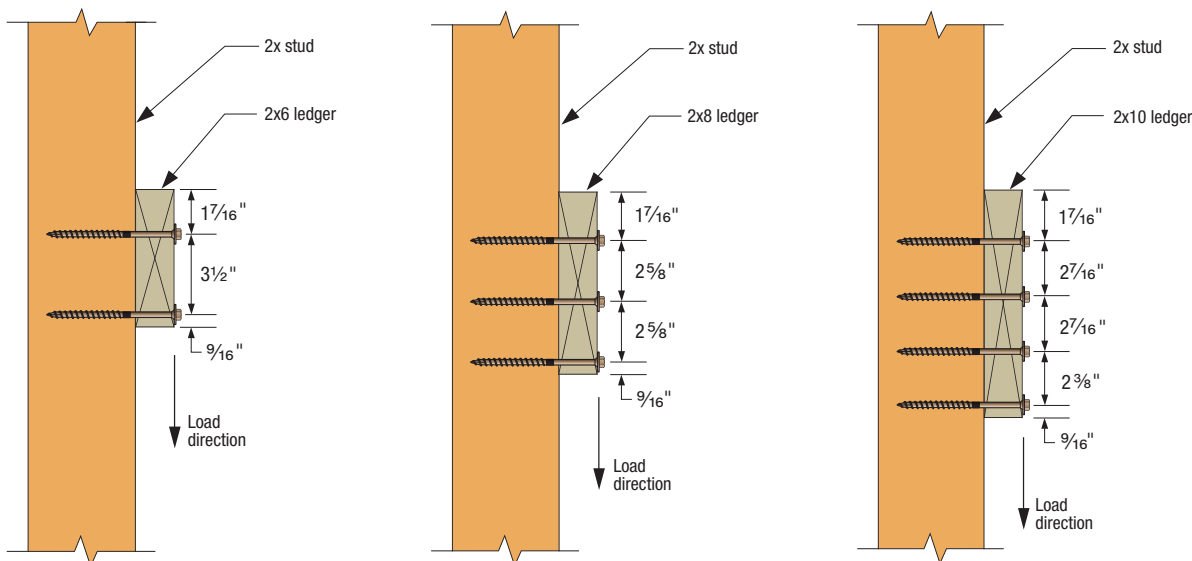
Strong-Drive® SDWH TIMBER-HEX Screw in Ledger-to-Stud Applications

Strong-Drive® SDWH Timber-Hex screws may be used to attach a ledger to the narrow face of nominal 2x lumber studs according to the following table. Tests and analyses were performed in accordance with ICC-ES Acceptance Criteria AC233.

SDWH Timber-Hex Screw – Allowable Shear Loads for Ledger Attachment to Studs

Model No.	Length (in.)	Nominal Ledger Size (in.)	Number of Screws per Stud	Allowable Shear Load (lb.)		
				DF	SPF/HF	SP
SDWH19400DB	4	2x6	2	630	540	630
		2x8	3	815	815	630
		2x10	4	1,170	975	—

- Allowable loads shall be limited to parallel-to-grain loaded solid sawn main members (minimum 2" nominal). Wood side members shall be loaded perpendicular to grain.
- Allowable loads are based on DF, SPF/HF, and SP wood members having a minimum specific gravity of 0.50, 0.42, and 0.55, respectively. Where the side and main members have different specific gravities, the lower values shall be used.
- Allowable loads are shown at the wood load duration factor of $C_D = 1.00$. Loads may be increased for load duration as permitted by the building code up to a $C_D = 1.60$. All adjustment factors shall be applied per the NDS-2012. For in-service moisture content greater than 19%, use $C_M = 0.70$.
- Fasteners shall be centered in the stud and spaced as shown in the figure. The stud minimum end distance is 6" when loaded toward the end and 2½" when loaded away from the end. The ledger end distance is 6" for full values. For ledger end distanced between 2" and 6" use 50% of the table loads. For end distances between 2" and 4", predrill using a ⅛" bit for the SDWH.
- Screws may be installed with an intermediate layer of wood structural panel between the side and main member provided the wood structural panel is fastened to the main member per code and the minimum screw penetration of 2½" into the main member (excluding the wood structural panel) is met. Longer lengths of the screw series may be used.
- For LRFD values, the reference connection design values shall be adjusted in accordance with the NDS-2012, section 10.3.
- For 2x10 SP ledgers, use the number of screws and allowable loads of the 2x8 SP ledger.
- For 2x8 ledgers with two screws, use 2x6 values. For 2x10 ledgers with three screws, use 2x8 values. Spacings and edge distances shown in the figure are minimum dimensions.
- For loads in the opposite direction from that shown in the figure, use the table values multiplied by: 0.50 for two screw connections, 0.67 for three screw connections, and 0.75 for four screw connections.



Load Tables, Technical Data and Installation Instructions

Strong-Drive® SDWH TIMBER-HEX Screw with Gypsum Board Interlayer(s)

The Strong-Drive® SDWH Timber-Hex screw may be installed with one or two layers of 5/8" gypsum board between the wood ledger and the main member. See table for the required screw lengths and allowable loads for these applications. Loads are derived from assembly testing based on ICC-ES AC233.

SDWH Timber-Hex Screw – Douglas Fir-Larch and Southern Pine Lumber Allowable Single Shear Loads with One Layer of 5/8" Gypsum Board

Size (in.)	Model No.	Thread Length (in.)	DF/SP Allowable Shear Loads (lb.)									
			Wood Side Member Thickness (in.)									
			1.5	2.0	2.5	3.0	3.5	4.0	4.5	6.0	8.0	
0.19 x 4	SDWH19400DB	2.375	240	—	—	—	—	—	—	—	—	—
0.19 x 6	SDWH19600DB	2.75	240	170	170	170	170	—	—	—	—	—
0.19 x 8	SDWH19800DB	2.75	240	170	170	170	170	170	170	—	—	—
0.19 x 10	SDWH191000DB	2.75	240	170	170	170	170	170	170	170	—	—

See notes on following page.

SDWH Timber-Hex Screw – Douglas Fir-Larch and Southern Pine Lumber Allowable Single Shear Loads with Two Layers of 5/8" Gypsum Board

Size (in.)	Model No.	Thread Length (in.)	DF/SP Allowable Shear Loads (lb.)									
			Wood Side Member Thickness (in.)									
			1.5	2.0	2.5	3.0	3.5	4.0	4.5	6.0	8.0	
0.19 x 4	SDWH19400DB	2.375	—	—	—	—	—	—	—	—	—	—
0.19 x 6	SDWH19600DB	2.75	240	170	170	170	—	—	—	—	—	—
0.19 x 8	SDWH19800DB	2.75	240	170	170	170	170	170	170	—	—	—
0.19 x 10	SDWH191000DB	2.75	240	170	170	170	170	170	170	170	—	—

See notes on following page.

SDWH Timber-Hex Screw – Spruce-Pine-Fir and Hem-Fir Lumber Allowable Single Shear Loads with One Layer of 5/8" Gypsum Board

Size (in.)	Model No.	Thread Length (in.)	SPF/HF Allowable Shear Loads (lb.)									
			Wood Side Member Thickness (in.)									
			1.5	2.0	2.5	3.0	3.5	4.0	4.5	6.0	8.0	
0.19 x 4	SDWH19400DB	2.375	215	—	—	—	—	—	—	—	—	—
0.19 x 6	SDWH19600DB	2.75	230	170	170	170	170	—	—	—	—	—
0.19 x 8	SDWH19800DB	2.75	230	170	170	170	170	170	140	—	—	—
0.19 x 10	SDWH191000DB	2.75	230	170	170	170	170	170	165	165	—	—

See notes on following page.

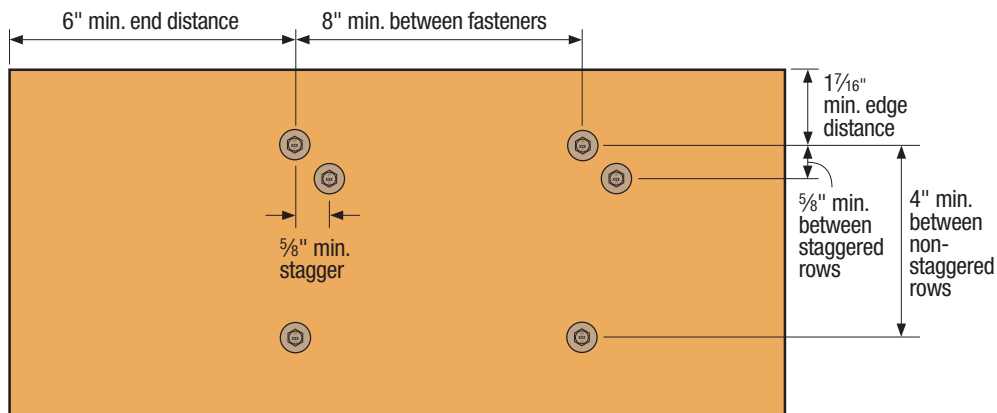
Load Tables, Technical Data and Installation Instructions

Strong-Drive® SDWH **TIMBER-HEX** Screw with Gypsum Board Interlayer(s) (cont.)

SDWH Timber-Hex Screw – Spruce-Pine-Fir and Hem-Fir Lumber
Allowable Single Shear Loads with Two Layers of 5/8" Gypsum Board

Size (in.)	Model No.	Thread Length	SPF/HF Allowable Shear Loads (lb.)									
			Wood Side Member Thickness (in.)									
			1.5	2.0	2.5	3.0	3.5	4.0	4.5	6.0	8.0	
0.19 x 4	SDWH19400DB	2.375	215	—	—	—	—	—	—	—	—	—
0.19 x 6	SDWH19600DB	2.75	230	170	170	170	—	—	—	—	—	—
0.19 x 8	SDWH19800DB	2.75	230	170	170	170	170	170	140	—	—	—
0.19 x 10	SDWH191000DB	2.75	230	170	170	170	170	170	165	165	—	—

1. All applications are based on full penetration which equals fastener length minus member thickness.
2. Allowable loads are shown at the wood load duration factor of $C_D = 1.0$. Loads may be increase 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.
3. Minimum fastener spacing requirements: 6" end distance, 1 7/16" edge distance, 5/8" between staggered rows of fasteners, 4" between non-staggered rows of fasteners and 8" between fasteners in a row. See figure below.
4. For in-service moisture content greater than 19% use $C_M = 0.7$.
5. Gypsum board must be attached as required per the building code.



Spacing Requirements

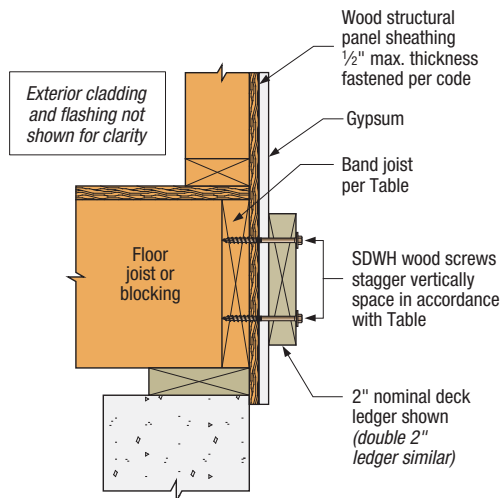
Load Tables, Technical Data and Installation Instructions

Strong-Drive® SDWH TIMBER-HEX Screw with Gypsum Board Interlayer(s) (cont.)

SDWH Timber-Hex Screw – 2012 and 2015 IRC Compliant Spacing for a Sawn Lumber Ledger to Rim Board with One or Two Layers of 5/8" Gypsum Board

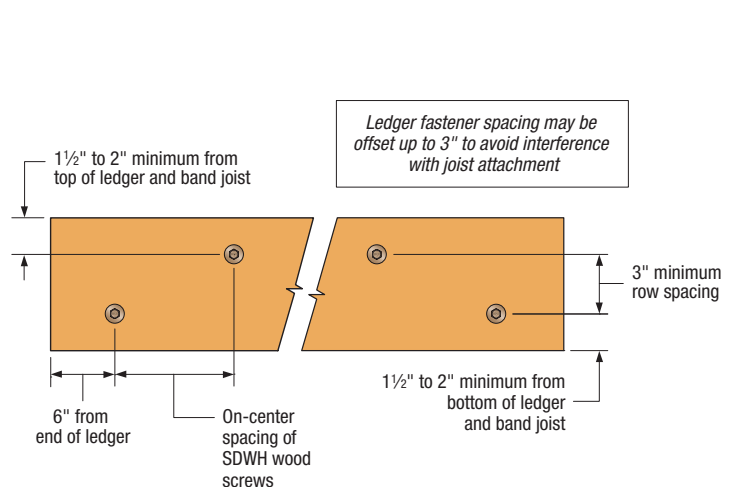
Loading Condition	Nominal Ledger Thickness (in.)	Model No.	Rim Board Material and Minimum Size	Maximum Deck Joist Span						
				Up to 6 ft.	Up to 8 ft.	Up to 10 ft.	Up to 12 ft.	Up to 14 ft.	Up to 16 ft.	Up to 18 ft.
				Maximum On-Center Spacing of Fasteners (in.)						
40 psf Live 10 psf Dead	2x	For one layer of gypsum board use: SDWH19400DB For two layers of gypsum board use: SDWH19600DB	1" OSB 1" LVL	12	9	7	6	5	4	4
			1 1/8" OSB 1 5/16" LVL 1 1/4" LSL	17	12	10	8	7	6	6
			2x SP, DF 2x SPF, HF	14	11	9	7	6	5	5
60 psf Live 10 psf Dead	2x	For one layer of gypsum board use: SDWH19400DB For two layers of gypsum board use: SDWH19600DB	1" OSB 1" LVL	8	6	5	4	4	—	—
			1 1/8" OSB 1 5/16" LVL 1 1/4" LSL	12	9	7	6	5	4	4
			2x SP, DF 2x SPF, HF	10	8	6	5	4	4	—
100 psf Live 10 psf Dead	2x	For one layer of gypsum board use: SDWH19400DB For two layers of gypsum board use: SDWH19600DB	1" OSB 1" LVL	5	4	—	—	—	—	—
			1 1/8" OSB 1 5/16" LV 1 1/4" LSL	8	6	5	4	—	—	—
			2x SP, DF 2x SPF, HF	7	5	4	—	—	—	—

- Solid-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 of the Strong-Drive® SDWH screw with a safety factor of 5.0 or ledger assembly testing based on ICC-ES AC13 with a factor of safety of 3.0. Spacing does NOT include NDS wet service factor adjustment.
- Multiple ledger plies shall be fastened together per code independent of the SDWH screws.
- SDWH screw spacing values are equivalent to 2012/2015 IRC Table R507.2. The tables also provides SDWH screw spacing for a wider range of materials commonly used for rim board, and an alternate loading condition as required by some jurisdictions.
- Rows of screws shall be vertically offset and evenly staggered. Screws shall be placed 1 1/2" to 2" from the top and bottom of the ledger or rim board with 3" minimum and 6" maximum between rows and spaced per the table. End screws shall be located 6" from the end and at 1 1/2" 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 1/8" drill.
- The design installation permits a wood structural panel (WSP) interlayer in addition to one or two layers of gypsum board. If present, the WSP shall be a maximum of 1/2" thick, adjacent to the framing and fastened directly to the framing per the code.
- Gypsum board must be attached as required per the building code.



Ledger-to-Rim Board Assembly

(Wood-framed lower floor acceptable, concrete wall shown for illustration purposes)



SDWH Screw Spacing Detail

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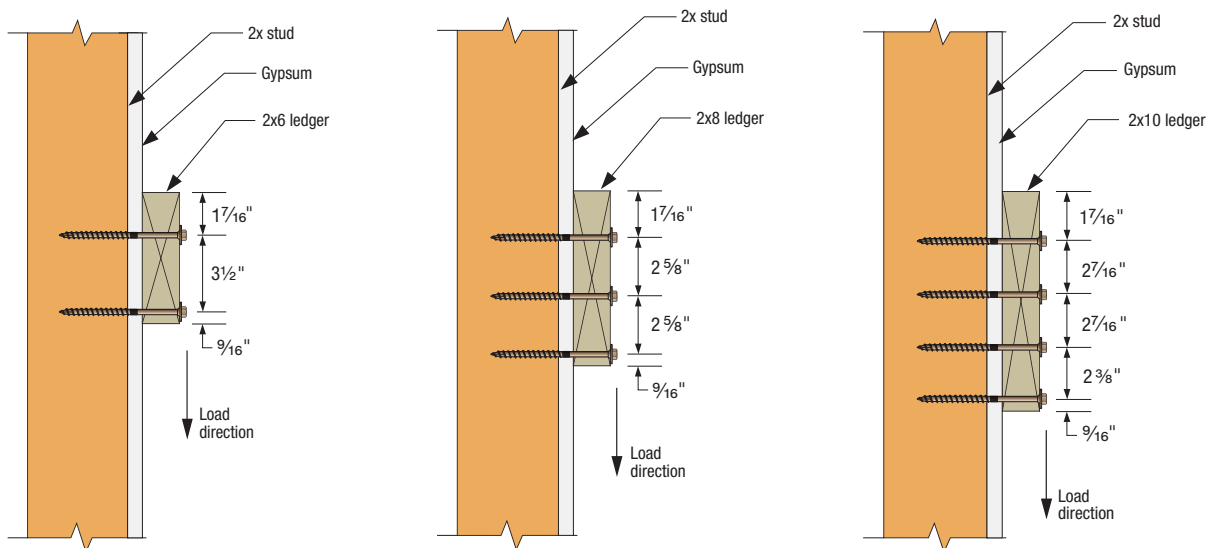
Load Tables, Technical Data and Installation Instructions

Strong-Drive® SDWH TIMBER-HEX Screw with Gypsum Board Interlayer(s) (cont.)

SDWH Timber-Hex Screw – Allowable Shear Loads for Ledger Attachment to Studs with One or Two Layers of 5/8" Gypsum Board

Model No.	Length (in.)	Nominal Ledger Size (in.)	Number of Screws per Stud	Allowable Shear Load (lb.)		
				DF	SPF/HF	SP
SDWH19600DB	6	2x6	2	410	350	410
		2x8	3	530	530	410
		2x10	4	760	635	—

- Allowable loads shall be limited to parallel-to-grain loaded solid sawn main members (minimum 2" nominal). Wood side members shall be loaded perpendicular to grain.
- Allowable loads are based on DF, SPF/HF, and SP wood members having a minimum specific gravity of 0.50, 0.42, and 0.55, respectively. Where the side and main members have different specific gravities, the lower values shall be used.
- Allowable loads are shown at the wood load duration factor of $C_D = 1.00$. Loads may be increased for load duration as permitted by the building code up to a $C_D = 1.60$. All adjustment factors shall be applied per the 2012 National Design Specification (NDS). For in-service moisture content greater than 19%, use $C_M = 0.70$.
- Fasteners shall be centered in the stud and spaced as shown in the figure. The ledger minimum end distance is 6". The stud minimum end distance is 6" when the load is toward the end and 2 1/2" when the load is away from the end. For ledger end distances between 2" and 6", use half of table loads and pre drill with 1/8" drill bit.
- Screws may be installed with an interlayer of wood structural panel (WSP) between the framing and the gypsum panel(s). When a WSP is present, it shall be a maximum of 1/2" thick, adjacent to the framing and fastened directly to the framing per code. Minimum screw penetration into the framing of 2 1/2" shall be required; longer screw lengths shall be used to achieve the required penetration.
- For LRFD values, the reference connection design values shall be adjusted in accordance with the NDS-12, section 10.3.
- For 2x10 SP ledgers, use the number of screws and allowable loads of the 2x8 SP ledger.
- For 2x8 ledgers with two screws, use 2x6 values. For 2x10 ledgers with three screws, use 2x8 values. Spacings and edge distances shown in the figure are minimum dimensions.
- For loads in the opposite direction from that shown in the figure, use the table values multiplied by: 0.50 for two screw connections, 0.67 for three screw connections, and 0.75 for four screw connections.
- Gypsum board must be attached as required per the building code.



Notes to Installer Regarding the Attachment of Ledgers to Studs:

The screws must be installed into the middle of the stud with a tolerance of 3/16" either side of center. Various methods can be used to ensure proper placement of the screws in the stud including snapping a chalk line, using a stud finder, or prerocking (attaching only a strip of gypsum at the ledger location until the ledger is fastened to the studs). If proper screw placement into the stud cannot be achieved in the field, blocking should be installed between studs to receive and support the ledger screws.