

Load Tables, Technical Data and Installation Instructions

Strong-Drive® SDWH TIMBER-HEX HDG Screw

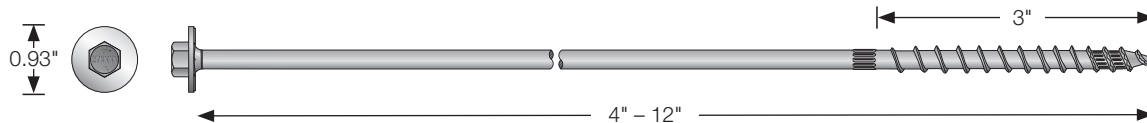
Structural Wood-to-Wood Connections

The Strong-Drive® line of structural screws includes a 0.276" diameter hot-dip galvanized screw suitable for heavy-duty marine and coastal applications. The SDWH Timber-Hex HDG screw has a SawTooth™ point and oversized integral washer that makes for fast installations; no predrilling or separate washer needed.

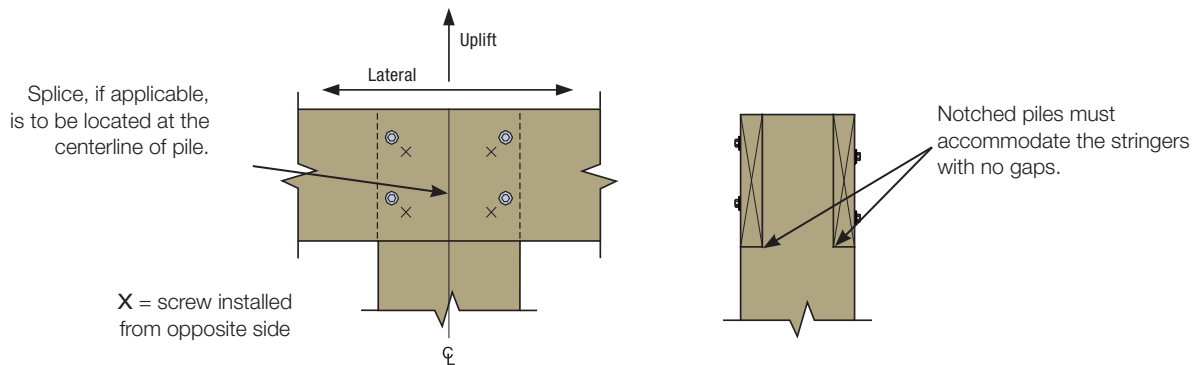
Codes/Standards: IAPMO-UES ER-192, City of Los Angeles RR25906, State of Florida FL13975

For More Product Information, see p. 72

U.S. Patent Pending



Round Pilings



SDWH Timber-Hex HDG – Stringer-to-Round Pile Connection Loads

Round Pile Diameter (in.)	Nominal Stringer Size (in.)	Total No. Stringers	Screw Length (in.)	Model No.	No. Screws (Each Side)	Allowable Connection Loads (lb.)					
						Uplift			Lateral		
						Continuous	Spliced	End	Continuous	Spliced	End
10	2 x 10	2	10	SDWH271000G	4	3,965	2,960	2,140	3,430	3,190	2,875
12	2 x 10	2	12	SDWH271200G	4	3,725	3,130	2,240	4,000	3,645	3,505
14	2 x 10	2	12	SDWH271200G	4	1,865	1,565	1,120	2,000	1,825	1,755
10	2 x 10	4	10	SDWH271000G	4	4,590	3,745	2,785	3,430	3,190	2,875
12	2 x 10	4	12	SDWH271200G	4	7,055	4,975	4,140	4,990	4,165	3,130
12	2 x 12	4	12	SDWH271200G	6	8,735	5,330	4,750	6,000	5,470	5,260
14	2 x 10	4	12	SDWH271200G	4	3,530	2,490	2,070	2,495	2,085	1,565
14	2 x 12	4	12	SDWH271200G	6	4,370	2,665	2,375	3,000	2,735	2,630

- All tabulated values are based on double shear action with the same size and quantity of stringers on each side of the pile.
- Dimensions and allowable connection loads are based on notched piles that must accommodate the stringers with adequate bearing and no gaps. Notched piles shall not be notched such that more than 50% of the cross section is removed. Unnotched piles may be used providing the width and area of wood between the stringers and the fastener placement geometry is unchanged from the notched conditions.
- 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.
- For in-service moisture content greater than 19%, use $C_M = 0.68$.
- For conditions with stringers on one side only, use the longest screw length that does not extend beyond the opposite surface of the pile. Use one quarter of the loads shown for that length screw and stringer condition.
- Wood piles are SP. Wood stringers may be sawn lumber, glulam, or SCL with minimum SG = 0.55 (or equivalent). For stringer widths at least 1.5" and less than 3.0" thick, use the table values for the conditions with a single 2x stringer on each side of the pile.
- For 14" diameter piles, use the same screw pattern as for the 12" piles. Loads for 14" diameter piles are based on single shear action.
- When a screw is loaded simultaneously in more than one direction, the allowable load must be evaluated using the unity equation: $(\text{Design Uplift} \div \text{Allowable Uplift}) + (\text{Design F1} \div \text{Allowable F1}) + (\text{Design F2} \div \text{Allowable F2}) \leq 1.0$. The three terms in the unity equation represent the possible generated force directions. The number of terms that must be considered for simultaneous loading is the sole discretion of the Designer and depends on the method of calculating wind forces and the utilization of the screws within the structural system.

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

SDWH Timber-Hex HDG – Allowable Single Shear and Withdrawal Loads

Screw Length (in.)	Screw Diameter (in.)	Thread Length (in.)	Model No.	Allowable Shear Loads (lb.)						Allowable Withdrawal Load W (lb./in.)			Max. Withdrawal Load W _{MAX} (lb./in.)				
				Wood Side Member Thickness (in.)						SP	DF	HF/SPF	SP	DF	HF/SPF		
				1.5		3		1.5								3	
				1.5	3	1.5	3	1.5	3								
4	0.276	3	SDWH27400G	505	—	440	—	400	—	287	255	212	860	765	635		
6	0.276	3	SDWH27600G	505	545	440	545	400	450								
8	0.276	3	SDWH27800G	570	675	430	675	430	595								
10	0.276	3	SDWH271000G	570	675	430	675	430	595								
12	0.276	3	SDWH271200G	570	675	430	675	430	595								
15	0.276	3	SDWH271500G	570	675	430	675	430	595								

- All shear loads 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.
- For in-service moisture content greater than 19% : withdrawal $C_M=0.65$; shear $C_M=0.70$.
- When using tabulated single shear loads for multiple fasteners, minimum fastener spacing requirements: 8" end distance, 1 1/2" edge distance, 5/8" between staggered rows of fasteners, 4" between non-staggered rows of fasteners and 8" between fasteners in a row, multiply the table values by 0.80.
- Tabulated loads are for both parallel and perpendicular to grain loading.
- Maximum withdrawal loads are based on the length of threads in the main member.
- SDWH271500G is not included in IAPMO-UES-ER-192.

Refer to engineering letter L-F-SDWH27GSQ16 for square pile connection loads and details.

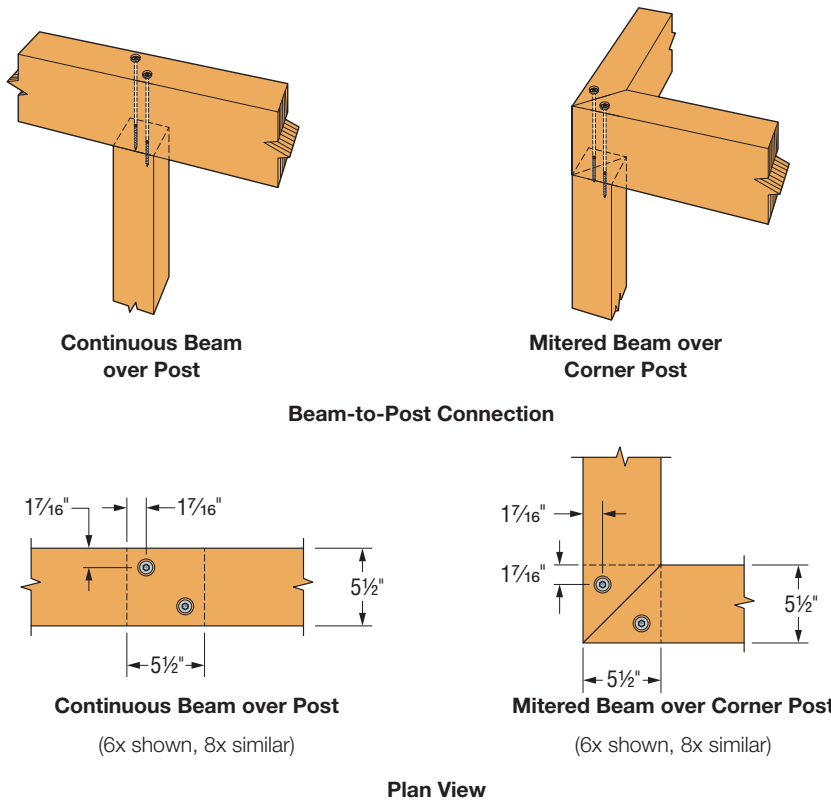
Refer to engineering letter L-F-SDWH27GRD16 for round pile connection loads and details.

Load Tables, Technical Data and Installation Instructions

Strong-Drive® SDWH TIMBER-HEX HDG Screw Beam-to-Top-of-Post Connection

The Simpson Strong-Tie® Strong-Drive® SDWH TIMBER-HEX HDG (SDWH27G) structural wood screws may be used to attach a 6x or 8x beam to the top of a post. The screws are available with a hot-dip galvanized coating in accordance with ASTM A153, Class C, suitable for severe exposure applications including preservative treated woods in general exterior construction (AWPA UC4C). The screw is the subject of IAPMO-UES ER-192.

See illustrations for two beam-to-post conditions using the SDWH27G to make the connection. Minimum fastener spacing requirements are shown below. The following table provides allowable shear and uplift loads tested in accordance with ICC-ES AC233, when installed through the top of a wood beam into the end grain of a wood post.



SDWH Timber-Hex HDG – Allowable Uplift Loads for Beam-to-Top-of-Post Connections

Screw Length (in.)	Model No.	Thread Length (in.)	Screws per Post	Max Beam Depth (in.)	DF/SP Allowable Load per Post (lb.)			
					Mitered Beam over Corner Post		Continuous Beam	
					Uplift	Shear	Uplift	Shear
8	SDWH27800G	3	2	5	905	665	920	725
10	SDWH271000G	3	2	7				
12	SDWH271200G	3	2	9				
15	SDWH271500G	3	2	12				

1. 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 $C_D = 1.6$. Tabulated values must be multiplied by all applicable adjustment factors per NDS.
2. Tabulated loads are based on entire threaded length installed into post.
3. For in-service moisture content greater than 19%: shear $C_M = 0.70$, withdrawal $C_M = 0.65$.

4. Tabulated shear loads are for the beam loaded parallel or perpendicular to grain with the SDWH27G embedded in the end grain of the post.
5. Tabulated loads are total for the connection, not per screw.
6. Maximum beam depths account for no countersinking of the screw. Screws may be countersunk a maximum of $\frac{1}{2}$ " depth with no reduction in allowable loads which will allow the 8", 10" and 12" screw lengths to be installed in 6x, 8x, 10x and 12x nominal beam depths respectively.