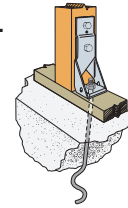


**HDA** Holdowns

Allowable loads for HDA Holdowns have traditionally been limited by the calculated value of their stud bolts. Preliminary testing to the new acceptance criteria for testing and evaluating holdowns (AC 155) indicates that the ultimate capacity divided by a factor of safety exceeds the previously calculated values; however, the allowable loads are limited by deflection under the new criteria. Since significantly lower deflections are obtained with comparable SDS-style holdowns we recommend the use of the HDU series of holdowns (see page 37). For those conditions which necessitate a bolted holddown our existing HD product line provides the best alternative for high loads at low deflection.



Holdowns & Tension Ties

**HD** Holdowns

HD holdowns provide a bolted holddown solution.

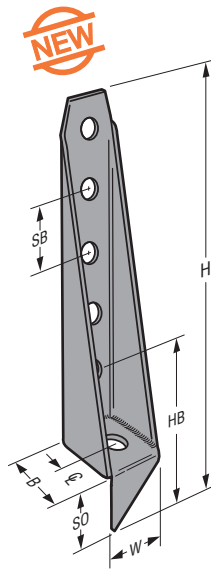
**NEW!** The HD19 is a high-capacity bolted holddown designed for applications that require loads beyond the capacity of the HDU series holdowns. The HD19 can be installed back-to-back when maximum capacity is needed or when eccentricity is an issue.

The HD9, HD12 and HD19 holdowns are self-jigging, ensuring that the code required minimum of seven bolt diameters from the end of the post is met. The HD5 and 7 must be raised such that the seven bolt diameter minimum from the end of the post is maintained.

**MATERIAL:** See table **FINISH:** Simpson Strong-Tie® gray paint  
**INSTALLATION:** • Use all specified fasteners. See General Notes.

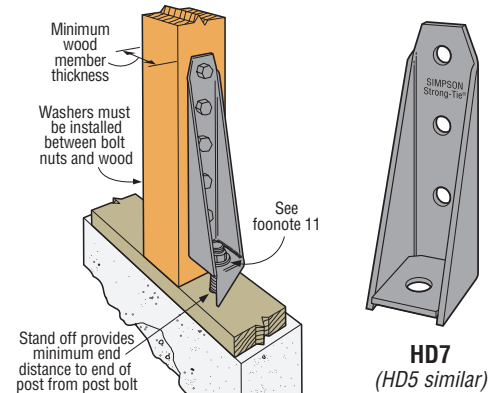
- For use in vertical and horizontal applications.
- HD holdowns are required to be installed such that the bottom stud bolt is a minimum of seven bolt diameters from the end of the post (2005 NDS, Section 11.5.1) which is indicated by the dimension in the drawing labeled (HB). HD9, 12 and 19 holdowns are self-jigging, ensuring that the code required minimum of seven bolt diameters from the end of the post is met. The HD5 and 7 must be raised such that the seven bolt diameter minimum from the end of the post is maintained (refer to table for HB dimension).
- Bolt holes shall be a minimum of 1/32" to a maximum of 1/16" larger than the bolt diameter (per NDS, section 11.1.2).
- Standard cut washer required between nut and base when using smaller diameter anchor bolts (see footnote 11).
- Stud bolts should be snugly tightened with standard cut washers between the wood and nut (BP's are required in the City of Los Angeles).
- The Designer must specify anchor bolt type, length, and embedment. See SB and SSTB Anchor bolts (pages 27-29).
- To tie multiple 2x members together, the Designer must determine the fasteners required to join members to act as one unit without splitting the wood (see page 20 for SDS values).
- Refer to technical bulletin T-ANCHORSPEC for post-installed anchorage solutions (see page 191 for details).

**CODES:** See page 12 for Code Reference Key Chart.

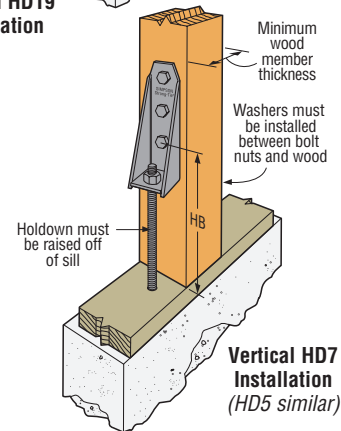


**HD19**  
(HD9 and HD12 similar)

For holdowns, per ASTM test standards, anchor bolt nut should be finger-tight plus 1/3 to 1/2 turn with a hand wrench, with consideration given to possible future wood shrinkage. Care should be taken to not over-torque the nut. Impact wrenches should not be used.



**Vertical HD19 Installation**



**Vertical HD7 Installation**  
(HD5 similar)

Model No.	Material (Ga)		Dimensions							Fasteners		Allowable Tension Loads DF/SP (160)						Deflection at Highest Allowable Load	Code Ref.
	Base	Body	HB <sup>3</sup>	SB	W	H	B	SO	C	Anchor Dia.	Stud Bolts	Wood Member Thickness							
												1½	2½	3	3½	4½	5½		
HD5	3 ga	7 ga	5¼	3	2¾	6¾	3½	3½	2½	5/8	2-¾	2405	3835	3850	4630	4945	—	0.178	160
										¾	2-¾	2405	3835	4055	4875	5010	—		
HD7	5/16	3 ga	6¾	3½	3½	11¾	3¾	2¾	2½	7/8, 1	3-7/8	—	—	6480	6480	6480	6480	0.172	
										1½	3-7/8	—	—	6600	6600	6600	6600		
HD9	¾	3 ga	7	4	3½	16½	47/16	3¾	2½	7/8, 1	3-1	—	—	8810	10330	12100	12100	0.178	
										1½	3-1	—	—	8810	10330	12185	12185		
HD12	¾	3 ga	7	4	3½	20¾	47/16	3¾	2½	1	4-1	—	—	11350	12665	14220 <sup>2</sup>	14220 <sup>2</sup>	0.177	
										1½	4-1	—	—	11945	13335	15510 <sup>2</sup>	15510 <sup>2</sup>		
HD19	¾	3 ga	7	4	3½	24½	47/16	3¾	2½	1½	5-1	—	—	—	—	—	16735 <sup>2</sup>	0.177	
										1¼	5-1	—	—	—	—	—	19070 <sup>2</sup>		

1. Allowable loads have been increased for earthquake or wind load durations with no further increase allowed; reduce where other load durations govern.
2. HD12 and HD19 require a minimum 4x8 (in a 3½" wide shearwall) or 6x6 nominal post to ensure the tension load carrying capacity of the critical net section meets the holdown capacity. Designer to evaluate combined bending and tension stresses.
3. HB is the required minimum distance from the end of the stud to the center of the first stud bolt hole. End distance may be increased as necessary for installation (see General Notes). Tension values are valid for holdowns installed flush to, or raised off of, the sill plate provided that the minimum HB distance is maintained.
4. The Designer must specify anchor bolt type, length and embedment. See SB and SSTB Anchor Bolts (pages 27-29). Refer to technical bulletin T-ANCHORSPEC for retrofit anchor solutions (see page 191 for details).
5. Lag bolts will not develop the listed loads.
6. Deflection at Highest Allowable Tension Load includes fastener slip holdown elongation, and anchor bolt elongation (L = 8"). Additional elongation of anchor bolts

7. Structural composite lumber columns have sides that show either the wide face or the edges of the lumber strands/veneers. Values in the tables reflect installation into the wide face. See technical bulletin T-SCLCOLUMN for values on the narrow face (edge) (see page 191 for details).
8. To achieve published loads, machine bolts shall be installed with the nut on the opposite side of the holdown (see drawing). If reversed, the Designer shall reduce the allowable loads shown per NDS requirements when bolt threads are in the shear plane.
9. For SPF/HF allowable loads use 0.85 of the DF/SP allowable loads.
10. Tabulated values may be doubled when the HD holdown is installed on opposite sides of the wood member. The Designer must evaluate the capacity of the wood member and the anchorage.
11. Standard cut washer required under anchor nut for HD5 with 5/8" anchor and HD7, HD9 and HD12 with 7/8" or 1" anchors. HD19 requires a cut washer with 1½" anchors.
12. Post design shall be by Designer. Tabulated loads are based on 3½" wide post minimum.