Fastener Design Information

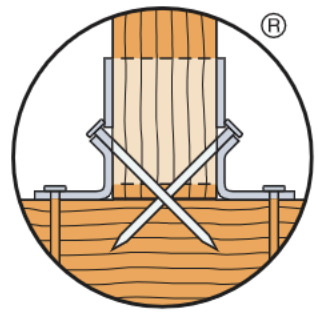
In some cases, it is desirable to install Simpson Strong-Tie face-mount joist hangers, post basses and caps, and straight straps and with nails that are a different type or size than what is called out in the load table. In these cases, these reduction factors must be applied to the allowable loads listed for the connector.

Load Adjustment Factors for Optional Fasteners Used with Face-Mount Hangers, Post Bases and Caps, and Straight Straps

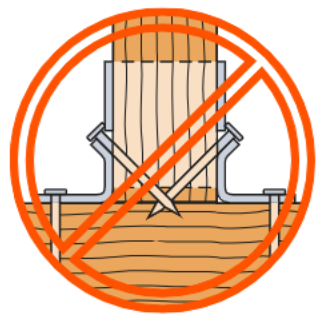
Connector Table Fastener	Replacement Fastener	Allowable Load Adjustment Factor				
		Face-Mount Hangers			Post Bases and Caps	Straight Straps
		Straight Download/ Uplift	Double Shear			
			Uplift	Download		
0.131" x 1½"	#9 x 1½" SD Connector screw	1.00	N/A	N/A	N/A	1.00
0.131" x 2½"	0.131" x 1½"	0.85	N/A	N/A	N/A	1.00
	#9 x 1½" SD Connector screw	1.00	N/A	N/A	N/A	1.00
0.148" x 1½"	#9 x 1½" SD Connector screw	1.00	N/A	N/A	N/A	1.00
	0.131" x 1½"	0.83	N/A	N/A	N/A	0.83
0.148" x 2½" 0.148" x 3" 0.148" x 3¼"	0.131" x 1½"	0.71	0.65[10]	0.71[10]	N/A	0.83
	0.131" x 2½"	0.83	0.65	0.83	0.83	0.83
	0.148" x 1¼"	0.64	Not allowed	Not allowed	N/A	1.00[9]
	0.148" x 1½"	0.77	0.77[10]	0.77[10]	N/A	1.00[9]
	0.148" x 2½"	1.00	0.80	1.00	1.00	1.00
	0.148" x 3¼"	1.00	1.00	1.00	1.00	1.00
	#9 x 1½" SD Connector screw	1.00	See **strongtie.com**[4]		N/A	1.00
	#9 x 2½" SD Connector screw	1.00	See **strongtie.com**[4]		1.00	1.00
#9 x 2½" SD Connector screw	#9 x 1½" SD Connector screw	0.86	0.86[10]	0.86[10]	N/A	0.86
#10 x 1½" SD Connector screw	#9 x 1½" SD Connector screw	0.83	N/A	N/A	0.83	0.83
#10 x 2½" SD Connector screw	#9 x 1½" SD Connector screw	0.71	0.71[10]	0.71[10]	N/A	0.71
#10 x 2½" SD Connector screw	#9 x 2½" SD Connector screw	0.83	0.83	0.83	0.83	0.71
#10 x 2½" SD Connector screw	#10 x 1½" SD Connector screw	0.80	0.80[10]	0.80[10]	N/A	0.80
0.162" x 2½" 0.162" x 3½"	0.162" x 2½"	1.00	0.67	1.00	1.00	1.00
	0.148" x 2½"	0.84	0.67	0.84	0.84	0.84
	0.148" x 3"	0.84	0.84	0.84	0.84	0.84
	0.148" x 3¼"	0.84	0.84	0.84	0.84	0.84
	0.148" x 1½"	0.64	0.64[10]	0.64[10]	Not allowed	0.84
	#9x 1½" SD Connector screw	0.83	See **strongtie.com**[4]		N/A	0.83
	#9 x 2½" SD Connector screw	0.83	See **strongtie.com**[4]		0.83	0.83
	#10 x 1½" SD Connector screw	1.00	See **strongtie.com**[4]		N/A	1.00
	#10 x 2½" SD Connector screw	1.00	See **strongtie.com**[4]		1.00	1.00

1. Allowable load adjustment factors shown in the table are applicable to all face-mount hangers, post bases and caps, and straight straps throughout this catalog, except as noted in the footnotes below.
2. Some products have been tested specifically with alternative fasteners and have allowable load adjustment factors or reduced capacities published on the specific product page or **strongtie.com**. Values published on the product page or **strongtie.com** may be used in lieu of using this table.
3. This table does not apply to SUR/SUL/HSUR/HSUL hangers or to hangers modified per allowed options, or to connectors made from steel thicker than 10 ga.
4. Strong-Drive® SD Connector screw substitutions in this table do not apply to sloped, skewed, or double-shear hangers. Strong-Drive SD Connector screws may be used in these connectors. For additional information and specific allowable loads, refer to **strongtie.com/sd**. Where published allowable loads are for installation with #10 SD screws, multiply by 0.83 to obtain allowable loads for #9 SD screws.
5. Nails and Strong-Drive® SD Connector screws may not be combined in a connection.
6. Do not substitute 0.148" x 1½" nails for face nails in slope and skew combinations or in skewed-only LSU.
7. For straps installed over ⅝" maximum wood structural panel sheathing, use a 2½"-long fastener minimum.
8. Where noted, use 0.80 for 10 ga., 11 ga., and 12 ga. products when using SPF lumber.
9. Where noted, use 0.92 for 10 ga., 11 ga., and 12 ga. products when using SPF lumber.
10. Where noted, 1½"-long fasteners may be substituted for the specified fastener into the header only; double-shear fasteners shall be minimum 2½" long.

For LUS, MUS, HUS, LRU, HHUS and HGUS Hangers



Double-shear nailing shall use minimum 2½"-long nails or 2½"-long SD screws



Shorter fasteners may not be used as double-shear nails

Over-Driven Nails in Connectors and Straps

A nail that is installed such that the head deforms the steel of the connector or strap is considered over-driven. Extra care to prevent over-driven nails should be taken when installing power-driven nails. Simpson Strong-Tie has evaluated the effect of over-driven nails in connectors and straps. No load reductions for connectors or straps apply as a result of over-driven nails if all of the following conditions are met:

- Connectors and straps are 14-, 16-, or 18-gauge steel.
- The top of the nail head is not driven past flush with the face of the metal hardware.
- The nail goes through an existing fastener hole without enlarging it.
- The steel around the hole is not torn or damaged other than denting caused by the nail head.