

DTT™

Deck Tension Ties

DTT tension ties are safe, cost-effective connectors designed to meet or exceed code requirements for deck construction. These versatile DTT connectors are also load-rated as a holdown for light-duty shearwalls and braced-wall panel applications.

For new construction or to make an existing deck code-compliant, the DTT1Z can be used as a tension-tie to satisfy the 2015, 2018, 2021 and 2024 IRC provision for a 750 lb. lateral load connection to the house at four locations per deck. This code detail permits the lateral connection from the deck joists to be made to top plates, studs or headers within the supporting structure, which eliminates the need to access to the floor joists inside the home. The DTT1Z is available in a kit (DTT1Z-KT) that includes four DTT1Z connectors, four Strong-Drive® SDWH™ Timber-Hex HDG screws (SDWH27800G) and (26) #9 x 1½" Strong-Drive SD Connector screws.

The DTT1Z® fastens to the narrow or wide face of a single 2x with Strong-Drive SD Connector screws or nails and accepts a ¾" bolt, anchor bolt or lag screw (washer required) or can be installed with the Strong-Drive SDWH Timber-Hex HDG screw with an integral washer.

The DTT2 can be used to satisfy the IRC provision for a 1,500 lb. lateral load connection at two locations per deck. Additionally, the DTT2 has been tested and evaluated in deck guardrail post applications to resist the code-specified lateral forces at the top of railing assemblies. The DTT2 is also available with longer 2½" Strong-Drive SDS Heavy-Duty Connector screws (model DTT2Z-SDS2.5) to achieve higher loads when needed. The DTT2 fastens easily to the wide face of a single or double 2x using Strong-Drive SDS Heavy-Duty Connector screws (included) and accepts a ½"-diameter bolt or anchor bolt.

For guard post installations using Strong-Drive SDWS™ Timber screws, see technical bulletin T-F-GRDPSTRL at strongtie.com.

Material: 14 gauge

Finish: DTT1Z/DTT2Z — ZMAX® coating;
 DTT1SS-KT and DTT2SS — stainless steel

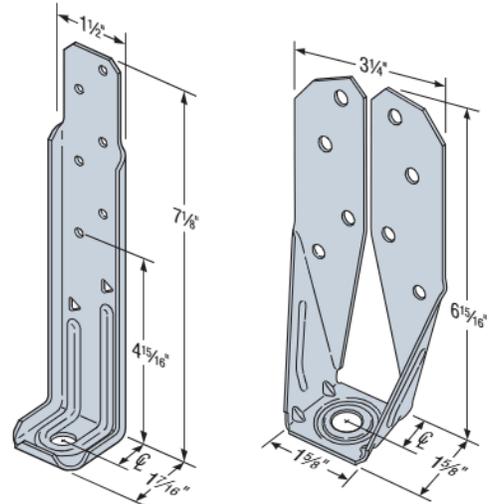
Installation:

- Use all specified fasteners; see General Notes.
- A standard-cut washer (included for DTT2) must be installed between the nut and the seat.
- Both typical details are shown with a wood wall below the interior floor system. Details would be similar with a foundation wall below the interior floor system.
- Strong-Drive SDS Heavy-Duty Connector screws (SDS) install best with a low-speed high-torque drill with a ¾" hex-head driver (Model BITHEXR38-R1).
- Strong-Drive SD Connector screws (SD) install with a ¼" hex-head driver.
- Strong-Drive SDWH Timber-Hex HDG screws install with a ¾" hex-head driver (Model BITHEXR38-R1).

Codes: See p. 12 for Code Reference Key Chart

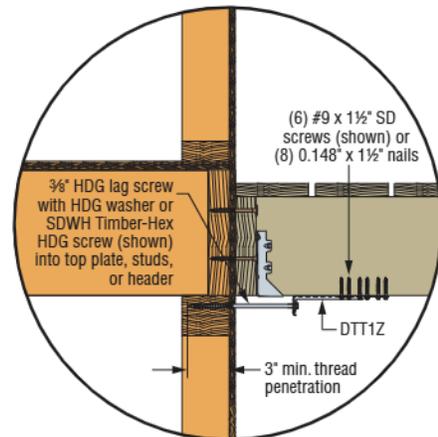
Web Applications:

- Visit app.strongtie.com/dps to access our Deck Planner Software™.
- Visit app.strongtie.com/pfd to access our Post-to-Foundation Designer web application.



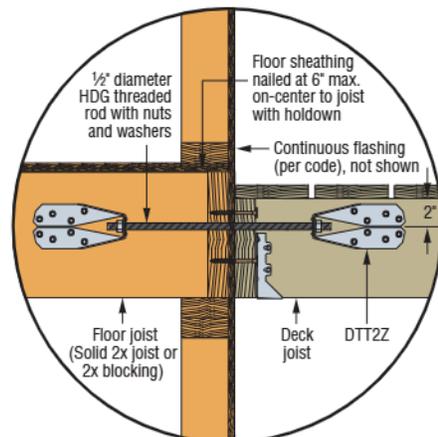
DTT1Z
 US Patent, see
strongtie.com/patents

DTT2Z®
 US Patent, see
strongtie.com/patents



Typical DTT1Z Deck-to-House Lateral Load Connection

For more information on lateral load connections, see technical bulletin T-C-DECKLAT at strongtie.com



Typical DTT2Z Deck-to-House Lateral Load Connection

For more information on lateral load connections, see technical bulletin T-C-DECKLAT at strongtie.com

DTT™

Deck Tension Ties (cont.)

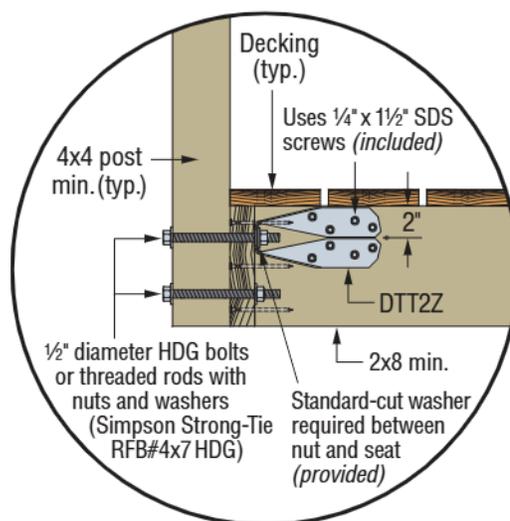
■ These products are available with additional corrosion protection. For more information, see pp. 13–19.

SS For stainless-steel fasteners, see p. 25.

SD Many of these products are approved for installation with Strong-Drive® SD Connector screws. See pp. 380–382 for more information.

Model No.	CL (in.)	Anchor Diameter (in.)	Fasteners (in.)	Minimum Wood Member Thickness (in.)	Allowable Tension Loads		Code Ref.
					DF/SP (160)	SPF/HF (160)	
■ DTT1Z®	¾	⅝ ⁵ or SDWH ³	(6) #9 x 1½" SD	1½	840	840	IBC, FL, LA
			(6) 0.148 x 1½		910	640 ²	
			(8) 0.148 x 1½		910	850	
SS DTT1SS-KT	¾	⅝ ⁵ or SDWHSS ⁵	(6) #9 x 1½" SDSS	1½	840	840	
			(6) 0.148 x 1½ SCNR™		755	650	
			(8) 0.148 x 1½ SCNR		755	755	
SS DTT2Z®/DTT2SS	1¾ ₁₆	½	(8) ¼ x 1½ SDS	1½	1,825	1,800	
				3	2,145	1,835	
SS DTT2Z-SDS2.5	1¾ ₁₆	½	(8) ¼ x 2½ SDS	3	2,145	2,105	

1. Allowable loads have been increased for wind or earthquake loading with no further increase allowed. Reduce where other loads govern.
2. DTT1Z installations with allowable loads below 750 lb. do not satisfy the 2015/2018/2021 IRC requirements for deck-to-house lateral load connections.
3. The Strong-Drive SDWH™ Timber-Hex HDG screw with a minimum of 3" thread penetration into dry lumber has an allowable withdrawal load (160) of 1,380 lb. into SP, 1225 lb. into DF, and 1,020 lb. into SPF/HF.
4. Load values are valid if the product is flush with the end of the framing member or installed away from the end.
5. The guardrail post illustration above addresses an outward force on the guardrail. An additional DTT2 can be added at the lower bolt to address an inward force.
6. A ⅜"-diameter round washer is required when using a ⅜"-diameter machine bolt, anchor bolt, SDWHSS or lag screw.
7. **Fasteners:** Nail dimensions are listed diameter by length. SD and SDS screws are Simpson Strong-Tie Strong-Drive SD Connector and SDS Heavy-Duty Connector screws. SCNR are Simpson Strong-Tie Strong-Drive Ring-Shank Connector stainless-steel nails. Use stainless-steel fasteners with stainless-steel connectors. Use galvanized fasteners with galvanized connectors. See pp. 25–26 for fastener information.



DTT2Z Installed for a Deck Guardrail Post
For more information on guardrail post connections, see technical bulletin T-C-GRDRLPST at strongtie.com

HDUE™/DTT™

Holdowns



This product is preferable to similar connectors because of (a) easier installation, (b) higher loads, (c) lower installed cost, or a combination of these features.

Engineered for higher load capacity, the new patent-pending HDUE holdown is ideal for meeting the higher design demands of today's residential wood structures. The HDUE provides exceptional overturning resistance for shearwalls, braced wall panels and other lateral force-resisting applications in wood construction. The HDUE is available in six sizes to meet a wide range of load requirements.

Tested per ICC-ES AC155, higher capacity models uniquely combine fasteners in both shear and tension, while reducing the number of screws required. The HDUE is fast and easy to install using Strong Drive® SDS Heavy Duty Connector screws, which reduce fastener slip and allow wood posts to maintain a greater net section than bolts.

The DTT tension ties are designed for lighter-duty holdown applications on single 2x posts. The DTT1Z® is installed with nails or Strong-Drive SD Connector screws and the DTT2 installs easily with the Strong-Drive SDS Heavy-Duty Connector screws (included). The DTT1Z holdowns have been tested for use in designed shearwalls and prescriptive braced wall panels as well as prescriptive wood-deck applications (see pp. 326–327 for deck applications).

HDUE Features:

- Predeflected seat reduces deflection under load
- Angled fastening in the four larger sizes engages the screws in tension for higher load capacity, reducing the number of screws required
- Angled fastening tabs help drive fastener at a 45° angle and offset holes on the second back plate block the fastener from being driven straight
- Overlapping back plate increases fastener strength and shear values, helping prevent post splitting
- Optimized screw patterns reduce splitting at the end of the post and maximize individual fastener capacity
- Installs with Strong-Drive SDS Heavy Duty Connector screws (included)

Material: See table

Finish: HDUE — G90 and HDG;

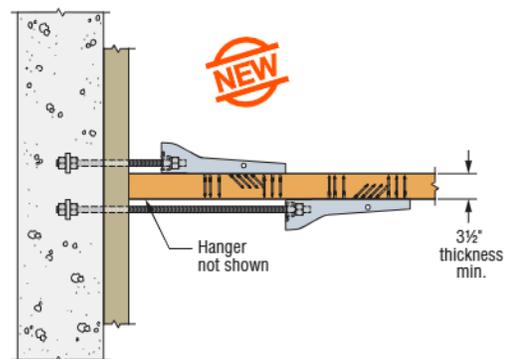
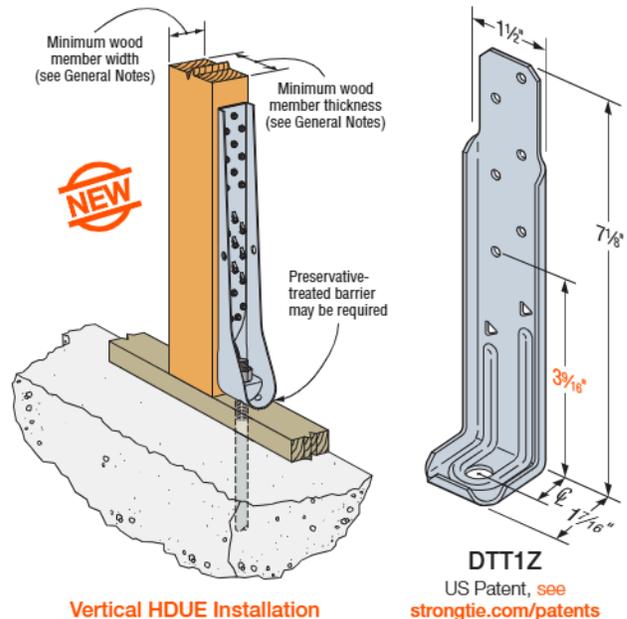
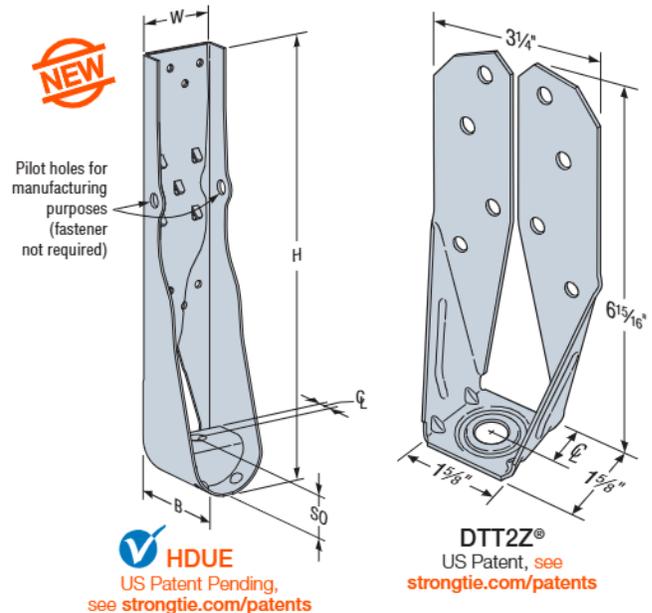
DTT1 and DTT2 — ZMAX® coating and stainless steel

Installation:

- See Holdown and Tension Tie General Notes on pp. 57–58.
- The HDUE requires no additional washer; the DTT requires a standard-cut washer (included) be installed between the nut and the seat.
- HDUE13 requires heavy hex nut (provided).
- Strong-Drive SDS Heavy-Duty Connector screws install best with a low-speed high-torque drill with a 3/8" hex-head driver.
- Angled fasteners should be driven at 45° angle.
- Fasteners and crescent washer are included with the holdowns. To order replacements, please contact Simpson Strong-Tie.

Codes: See p. 12 for Code Reference Key Chart

Web Applications: Visit app.strongtie.com/pfd to access our Post-to-Foundation Designer web application.



Horizontal HDUE Offset Installation (plan view)

See Holdown and Tension Tie General Notes on pp 57–58.

Holdowns (cont.)

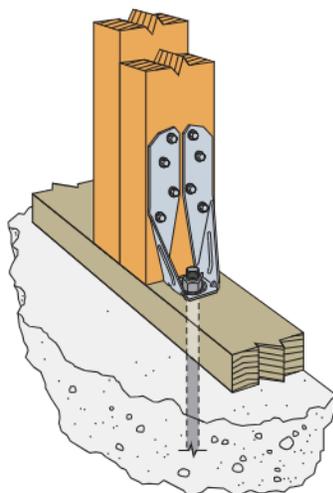
These products are available with additional corrosion protection. For more information, see pp. 13-19.

SS For stainless-steel fasteners, see p. 25.

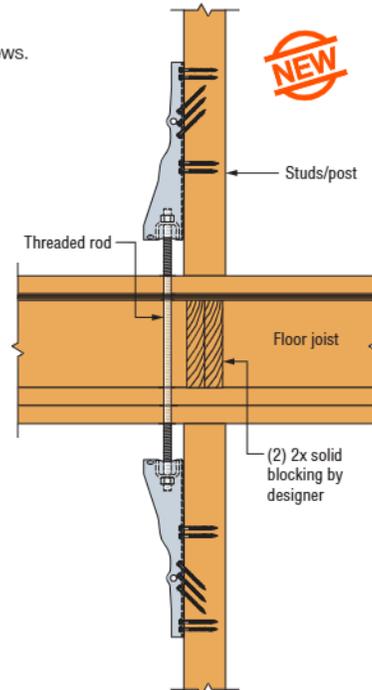
SD Many of these products are approved for installation with Strong-Drive® SD Connector screws. See pp. 380-382 for more information.

Model No.	Ga.	Dimensions (in.)					Fasteners (in.)		Minimum Wood Member Size Thickness x Width (in.)	Allowable Tension Loads (160)			Code Ref.	
		W	H	B	CL	SO	Anchor Bolt Dia.	Wood Fasteners		DF/SP	SPF/HF	Deflection at Allowable Load (in.)		
SS DTT1Z®	14	1½	7½	1⅞	¾	¾	¾	(6) #9 x 1½ SD	1½ x 3½	840	840	0.170	IBC, FL, LA	
								(6) 0.148 x 1½		910	640	0.167		
								(8) 0.148 x 1½		910	850	0.167		
SS DTT2Z®	14	3¼	6⅞	1½	1⅞	¾	½	(8) ¼ x 1½ SDS	1½ x 3½	1,825	1,800	0.105		
								(8) ¼ x 1½ SDS		2,145	1,835	0.128		
SS DTT2Z-SDS2.5								(8) ¼ x 2½ SDS	3 x 3½	2,145	2,105	0.128		
HDUE3-SDS3	14	2⅞	8⅞	3½	1½	1½	¾	(7) ¼ x 3 SDS	3 x 3½	3,790	3,340	0.127		
HDUE5-SDS3	14	2⅞	11⅞	3½	1½	1½	¾	(10) ¼ x 3 SDS	3 x 3½	5,375	4,700	0.146		
HDUE7-SDS3	14	2⅞	14⅞	3½	1½	1½	¾	(13) ¼ x 3 SDS	3 x 3½	7,015 ³	6,030	0.154		
HDUE9-SDS3.5	12	3	17½	4⅞	1⅞	1½	⅞	(16) ¼ x 3½ SDS	3½ x 3½	8,425	7,305	0.159		
										4½ x 3½	9,390	7,995	0.134	
HDUE13-SDS3.5	12	3	23⅞	4⅞	1⅞	1½	1	(23) ¼ x 3½ SDS	5½ x 3½	11,900	10,215	0.164		
										7¼ x 3½	12,950	11,030	0.145	
										5½ x 5½	13,110	10,980	0.135	
HDUE17-SDS4.5	10	3	27⅞	5⅞	1⅞	1½	1	(28) ¼ x 4½ SDS	5½ x 3½	16,040	13,545	0.094		
										5½ x 5½	17,685 ³	14,775	0.111	

1. Allowable loads have been increased for wind or earthquake loading with no further increase allowed. Reduce where other loads govern.
2. To obtain LRFD values for holdowns, multiply allowable loads by 1.4. See evaluation report for LRFD deflections.
3. The designer must specify anchor bolt type, length and embedment. Some of the tabulated holddown tension loads exceed the tensile strength for of ASTM F1554 Grade 36 anchor bolts.
4. HDUE13 requires heavy-hex anchor nut to achieve tabulated loads (supplied with holddown).
5. Allowable loads for alternate HDUE installations using shorter screws are provided in engineering letter L-C-HDUESDS at strongtie.com.
6. Refer to p. 327 for DTT1SS loads and required fasteners.
7. **Fasteners:** Nail dimensions are listed diameter by length. SD and SDS screws are Simpson Strong-Tie Strong-Drive SD Connector and SDS Heavy-Duty Connector screws. See pp. 25-26 for fastener information.



Typical DTT2Z Installation



Typical HDUE Tie Between Floors