

DIVISION: 06 00 00—WOOD, PLASTICS AND COMPOSITES
Section: 06 05 23—Wood, Plastic, and Composite Fastenings

REPORT HOLDER:

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EVALUATION SUBJECT:

MITEK USP STRUCTURAL CONNECTORS HTT SERIES TENSION TIE HOLD-DOWNS, ADTT-TZ ADJUSTABLE DECK TENSION TIE, AND TDX HOLD-DOWN SERIES

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2018, 2015, 2012, and 2009 *International Building Code*® (IBC)
- 2018, 2015, 2012, and 2009 *International Residential Code*® (IRC)

For evaluation for compliance with codes adopted by the Los Angeles Department of Building and Safety (LADBS), see [ESR-3847 LABC and LARC Supplement](#).

Property evaluated:

Structural

2.0 USES

MiTek USP Structural Connectors HTT Series Tension Tie hold-downs include the HTT16 and HTT45 tension tie hold-downs. The HTT16 and HTT45 are used to connect wood members to concrete foundations, in accordance with applicable sections of the IBC and IRC, as well as applicable sections of the SDPWS (Special Design Provisions for Wind and Seismic). The HTT16 and HTT45 tension tie hold-downs may also be used in structures regulated under the IRC, when an engineered design is submitted in accordance with Section R301.1.3 of the IRC; or when used in accordance with the applicable prescriptive provisions of the IRC.

The ADTT-TZ Adjustable Deck Tension Tie is a deck anchor that connects deck joists directly to the upper double top plate of an exterior wall in accordance with Section R507.9.2 of the 2018 IRC [Figure R507.9.2(2)] and

R507.2.4 of the 2015 IRC [Figure R507.2.3(2)] and is used to transfer short term lateral tension loads from the deck into the plate. The ADTT-TZ may also be used in structures regulated by the IBC when an engineered design is submitted in accordance with Section 1604.8.3 of the IBC and when approved by the code official. The TDX Hold-down series include the TDX2, TDX5, TDX6, TDX8, TDX10 and TDX14 hold-downs. They are used to connect wood members to concrete foundations using cast-in-place threaded rods, in accordance with applicable standards of the IBC and IRC. The TDX hold-downs are attached to the wood member with through bolts, washer and nut.

3.0 DESCRIPTION

3.1 Hold-down and Tension Tie Devices:

3.1.1 HTT Series Tension Tie Hold-downs: The HTT16 and HTT45 tension tie hold-downs consist of a main structural steel strap with prepunched round holes for installation of the 10d or 16d common nails or the NA16d nails (2¹/₂ inches long and 0.162 inches in diameter) used to connect the hold-downs to the wood member. The HTT45 includes a load transfer washer that provides a seat for an anchor rod/bolt nut. The HTT45 tension tie hold-down is also prepunched with additional diamond shape holes for higher load capacity. The HTT series tension tie hold-downs are cold-formed from No. 10 gage galvanized steel having the minimum base metal thickness of 0.129 inch (3.28 mm). See Table 1A and Figure 1 for HTT tension tie hold-down dimensions, fastener schedule requirements, and a typical installation.

3.1.2 ADTT-TZ Adjustable Deck Tension Tie: The ADTT-TZ Adjustable Deck Tension Tie consists of a field adjustable front brace with two vertical legs. The vertical legs are installed vertically around the joist and the front brace is installed either at an angle or horizontally flush to the joist. The angle of the front brace is dependent on the elevation difference between the bottom of the deck joist and the center of the upper top wall plate. If the deck joist bottom aligns with the upper top wall plate, the ADTT-TZ will be installed in a flush position (see Figure 2). The maximum allowable elevation difference is 4³/₈ inches for dry use conditions and 2³/₄ inches for wet use conditions. The ADTT-TZ also has a two-hole break-out washer that can be removed in the field from the front brace and serves as a washer for attachment to the upper top wall plate. The ADTT-TZ is manufactured from Grade 40 steel with a minimum yield strength of 40,000 psi (280 MPa) and a minimum tensile strength of 55,000 psi (380 MPa). See Figure 2 and Table 2 for more information.

3.1.3 TDX Hold-down: The TDX hold-down consists of a main steel component with a formed u-shaped base with

overlapping areas welded together to form the bucket (seat). Some models also have a square washer welded on the top of the bucket. The bucket is predrilled for a cast-in-place embedded threaded rod (see Table 3 for sizes). The side strap is pre-punched for through bolts for attachment to the wood member (see Figure 3). The number and diameter size of the bolt is dependent on the model number. The TDX hold-down is cold formed from either 10 gauge or 12 gauge steel with a minimum yield strength of 36,000 psi (250 MPa) and a minimum tensile strength of 58,000 psi (400 MPa). The washer is manufactured from either 7 gauge or 3 gauge steel with a minimum yield strength of 36,000 psi (250 MPa) and a minimum tensile strength of 58,000 psi (400 MPa). See Figure 3 and Table 3 for more information.

3.2 Materials:

3.2.1 Steel: The HTT Series tension tie hold-downs are fabricated from ASTM A653, SS, Grade 40, galvanized steel, having a minimum yield strength, F_y , of 40,000 psi (275 MPa) and a minimum tensile strength, F_u , of 55,000 psi (379 MPa). The load transfer washer supplied with the HTT45 tension ties complies with ASTM A36, having a minimum yield strength, F_y , of 36,000 psi (248 MPa) and a minimum tensile strength, F_u , of 58,000 psi (400 MPa).

The galvanization of the HTT Series Tension tie hold-downs is a minimum G90 zinc coating in accordance with ASTM A653.

The ADTT-TZ is manufactured from ASTM A653 Grade 40 galvanized having a minimum yield strength of 40,000 psi (280 MPa) and a minimum tensile strength of 55,000 psi (380 MPa).

The TDX hold-down is manufactured from either 10 gauge or 12 gauge ASTM A653 Grade 40 steel with a minimum yield strength of 40,000 psi (280 MPa) and a minimum tensile strength of 55,000 psi (380 MPa). The washer is manufactured from either 7 gauge ASTM A1011 Grade 40 steel with a minimum yield strength of 40,000 psi (280 MPa) and a minimum tensile strength of 55,000 psi (380 MPa) or 3 gauge ASTM A36 steel with a minimum yield strength of 36,000 psi (248 MPa) and a minimum tensile strength of 58,000 psi (400 MPa).

The lumber treater or MiTek should be contacted for recommendations on minimum corrosion resistance protection of steel hold-down connectors in contact with the specific proprietary preservative-treated or fire-retardant treated lumber. The use of hold-downs in contact with preservative-treated or fire-retardant treated lumber is outside the scope of this report, and is subject to the approval of the code official.

3.2.2 Wood: Wood members to which the HTT Series tension tie hold-downs are attached must be sawn lumber having a minimum specific gravity of 0.50. The wood members may be multi-ply 2x sawn lumber studs or a single wood member. Multi-ply 2x sawn lumber must be fastened together to act as a single built-up column per applicable sections of the AWC *National Design Specification® for Wood Construction (NDS®)*. The minimum thickness of wood members in the direction of the fastener penetration must be 3 inches (76 mm). The minimum width of the wood members must be 3½ inches (89 mm) for the HTT16 tension tie hold-downs and the HTT45 when installed with 10d nails. The minimum width of the wood member must be 5½ inches (140 mm) for the HTT45 tension tie hold-downs when installed with NA16d nails. Wood members to which the TDX Series hold-downs and ADTT-TZ Adjustable Deck Tension Ties are attached must be sawn lumber having a

minimum specific gravity of 0.50.

Fasteners: Nails used to attach the hold-downs and tension ties in this report must be bright or hot-dipped galvanized carbon steel complying with ASTM F1667 and have the minimum fastener dimensions and bending yield strengths (F_{yb}) as noted in Table 4. Alternatively, nails of other materials or finishes may be used when they are recognized in an ICC-ES evaluation report as having bending yield strength and withdrawal capacity equal to or better than those of a bright carbon steel of the same nominal diameter.

Wood screws (WS8-HDG) used for the ADTT-TZ are described in [ESR-2761](#). Lag screws (¾" Lag-HDG) used for the ADTT-TZ must comply with ASTM A307 Grade A steel standard.

Fasteners used in contact with preservative treated or fire retardant treated lumber must be hot-dipped galvanized carbon steel nails. Alternatively, nails of other materials and finishes may be used when they are recognized in an ICC-ES evaluation report for use in the applicable treated lumber and have equivalent or greater capacities as those required in this report. The lumber treater or MiTek should be contacted for recommendations on minimum corrosion resistance and connection capacities of fasteners used with the specific proprietary preservative treated or fire retardant treated lumber.

3.2.3 Threaded Anchor Rods: As a minimum, threaded steel anchor bolt/rods must comply with ASTM Standards A307, A36 or F1554.

4.0 DESIGN AND INSTALLATION

4.1 Design:

4.1.1 Hold-down or Adjustable Deck Tension Tie Assembly: The allowable loads shown in this report are for assemblies consisting of the following components: (1) HTT Series tension tie vertical hold-downs, TDX Series vertical hold-downs or ADTT-TZ Adjustable Deck Tension Tie (2) an anchor bolt/rod attached to the seat of the HTT series or TDX series hold-downs only; (3) a wood member, having minimum specified dimensions and properties; (4) quantity and size of nails used to attach the hold-down device to the wood member; and (5) washers. The allowable loads for these assemblies are based on allowable stress design (ASD) and include the load duration factor, C_D , corresponding with the applicable loads in accordance with the National Design Specification (NDS) for Wood Construction. The assembly must have an allowable strength equal to or exceeding the required strength of the assembly under the action of the ASD (Allowable Stress Design) load combinations referenced in the applicable code.

Where design load combinations include earthquake loads or effects, story drifts of the structure must be determined in accordance with Section 12.8.6 of ASCE 7 by using strength-level seismic forces without reduction for ASD. The deflection of a shear wall restrained from overturning by hold-downs installed in accordance with this report is calculated using Equation 23-2 shown in Section 2305.3 of the IBC, or Equation 4.3-1 shown in Section 4.3.2 of AWC SDPWS-2015 or ANSI AF&PA SDPWS-2008, as applicable. The total deflection values, Δ_{all} and Δ_s , at ASD-level and strength-level forces, respectively, for hold-down assemblies shown in Tables 1B of this report, include all sources of hold-down assembly elongation, such as fastener slip, hold-down device extension and rotation, and anchor rod elongation. The contribution of the hold-down anchor rod elongation to the total elongation (deflection) of

the hold-down assembly needs to be considered when the actual diameter or ASTM steel specification of the anchor rod differs from that described in this report.

Note: For seismic design, the symbol Δ_s as used in this report for hold-down *assemblies* refers to the symbol d_a in Section 2305.3 of the IBC and to the symbol Δ_a in Section 4.3.2 of AWC SDPWS-2015 or ANSI/AF&PA SDPWS-2008, as applicable.

Tabulated allowable loads are for hold-downs connected to wood used under continuously dry interior conditions, and where sustained temperatures are 100°F (37.8°C) or less.

When hold-downs are fastened to wood having a moisture content greater than 19 percent, or where wet service is expected, the allowable loads shown in Table 1B of this report must be adjusted by the wet service factor, C_M , specified in the NDS.

When hold-downs are fastened to wood that will experience sustained exposure to temperatures exceeding 100°F (37.8°C), the allowable loads shown in Table 1B in this report must be adjusted by the temperature factor, C_t , specified in the NDS.

The design of wood members fastened to the hold-down devices must consider combined stresses due to axial tension or compression, and flexural bending induced by eccentricities in the connection about either or both axes, relative to the centroid of the wood member. Stresses must be evaluated at the critical net section for total combined stress in accordance with the NDS.

The design of hold-downs used in series must account for the cumulative deformation of all hold-downs within that series.

4.1.2 Anchorage to Concrete or Masonry: Adequate embedment length and anchorage details, including edge and end distances, must be determined by a registered design professional in accordance with Chapters 19 or 21 of the IBC, as applicable, for design of anchorage to concrete and masonry structural members.

Where design load combinations include earthquake loads or effects, the design strength of anchorage to concrete must be determined in accordance with Sections 1901.3 and 1905 of the 2018 and 2015 IBC, Section 1909 of the 2012 IBC or Section 1912 of the 2009 or 2006 IBC, except for detached one- and two-family dwellings assigned to Seismic Design Category A, B or C, or located where the mapped short-period spectral response acceleration, S_s , is less than 0.4g.

4.2 Installation:

Installation of the HTT Series Tension Tie hold-downs, TDX Series hold-downs or ADTT-TZ Adjustable Deck Tension Tie must be in accordance with this evaluation report and the manufacturer's published installation instructions. In the event of a conflict between this report and the manufacturer's published installation instructions, this report governs.

4.3 Special Inspection:

4.3.1 IRC: For compliance with the 2018, 2015, 2012 or 2009 IBC, a statement of special inspection must be prepared by the registered design professional in responsible charge, and submitted to the code official for approval, where required by Section 1704.3 of the 2018, 2015 and 2012 IBC or Section 1705 of the 2009 IBC. Special inspections for seismic resistance must be conducted as required, and in accordance with the appropriate sections of

Chapter 17 of the IBC. Special inspections for anchor bolts in concrete or masonry must be conducted in accordance with Section 1705.3 or 1705.4 of the 2018, 2015 and 2012 IBC; and Section 1704.4 or 1704.5 of the 2009 IBC.

4.3.2 IRC: For installations under the IRC, special inspection is not required. Exception: For an engineered design where calculations are required to be signed by a registered design professional, periodic special inspection requirements and exemptions are as stated in Section 4.3.1 of this evaluation report, as applicable for installations under the IRC.

5.0 CONDITIONS OF USE

The MiTek USP HTT Series Tension Tie hold-down connectors, TDX Series hold-downs or ADTT-TZ Adjustable Deck Tension Tie described in this report comply with, or are suitable alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

- 5.1** The connectors must be manufactured, identified and installed in accordance with this report and the manufacturer's published installation instructions. A copy of the instructions must be available at the jobsite at all times during installation.
- 5.2** Calculations showing compliance with this report must be submitted to the code official. The calculations must be prepared by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed.
- 5.3** Adjustment factors noted in Section 4.1 and the applicable codes must be considered, where applicable.
- 5.4** Connected wood members and fasteners must comply, respectively, with Sections 3.2.2 and 3.2.3 of this report.
- 5.5** Use of hold-downs with preservative- or fire-retardant-treated lumber must be in accordance with Section 3.2.1 of this report. Use of fasteners with preservative- or fire-retardant-treated lumber must be in accordance with Section 3.2.3 of this report.
- 5.6** Anchorage to concrete or masonry structural members must be designed in accordance with Section 4.1.2 of this report.
- 5.7** No further duration of load increase for wind or earthquake loading is allowed.

6.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for Hold-downs (Tie-downs) Attached to Wood Members (AC155), dated May 2015 (editorially revised January 2018).

7.0 IDENTIFICATION

The hold-down devices described in this report are identified with a die-stamped label or an adhesive label indicating the product model (stock) number, the number of the ICC-ES index evaluation report for MiTek ([ESR-2685](#)), and by one or more of the following designations: MiTek, USP Structural Connectors, or USP.

TABLE 1A—DIMENSIONS AND FASTENER REQUIREMENTS FOR HTT SERIES TENSION TIE HOLD-DOWNS

STOCK NO.	STEEL GAGE	DIMENSIONS (inches)				FASTENER SCHEDULE ^{1, 2, 3}			
		W	L	D	CL	Anchor Bolts ⁴		Nails	
						Qty	Dia.	Qty	Type
HTT16	10	2½	16	2	1¾	1	5/8	18	10dC
								18	16dC
HTT45 (Min) ⁴	10	2½	16	2	1¾	1	5/8	18	10dC
								18	NA16d
HTT45 (Max) ⁴	10	2½	16	2	1¾	1	5/8	26	10dC
								26	NA16d

For SI: 1 inch = 25.4 mm.

¹A 10d Common nail is 3 inches long and 0.148 inches in diameter.

²A NA16d nail is 21/2 inches long and 0.162 inches in diameter.

³A 16d Common nail is 31/2 inches long a 0.162 inches in diameter.

⁴HTT45 (Min) refers to the minimum nail quantity option; HTT (Max) refers to the maximum nail quantity option.

TABLE 1B—TENSION LOADS AND DISPLACEMENTS FOR HTT SERIES HOLD-DOWN ASSEMBLIES^{1,2,3,4}

STOCK NO.	FASTENER SCHEDULE ^{1,2,3}				ALLOWABLE LOAD (lbs) ^{4,5}	DEFLECTION AT ALLOWABLE LOAD, Δ _a (inch)	STRENGTH LEVEL FACTORED RESISTANCE, P _s (lbs)	STRENGTH LEVEL DEFORMATION Δ _s (inch)
	Anchor Bolts ⁶		Nails					
	Qty	Dia.	Qty	Type	DF-L/SP			
					C _D = 1.6			
HTT16	1	5/8	18	10dC	3,610	0.142	4,110	0.170
			18	16dC	3,735			
HTT45 (Min) ⁷	1	5/8	18	10dC	4,215	0.115	4,110	0.112
			18	NA16d	4,160			
HTT45 (Max) ⁷	1	5/8	26	10dC	5,795	0.101	5,935	0.131
			26	NA16d	5,005			

For SI: 1 inch = 25.4 mm, 1 lb = 4.45 N.

¹A 10d Common nail is 3 inches long and 0.148 inches in diameter.

²A NA16d nail is 2½ inches long and 0.162 inches in diameter.

³A 16d Common nail is 3½ inches long a 0.162 inches in diameter.

⁴Allowable loads include a 60% increase for wind or seismic load conditions. No further increase shall be permitted.

⁵The minimum width of the wood members for HTT16 must be 3½ inches. The minimum width of the wood members for HTT45 must be 3½ inches for 10dC nailing and 5½ inches for NA16d nailing.

⁶The designer must specify anchor bolt type, length and embedment depth.

⁷HTT45 (Min) refers to the minimum nail quantity option; HTT (Max) refers to the maximum nail quantity option.

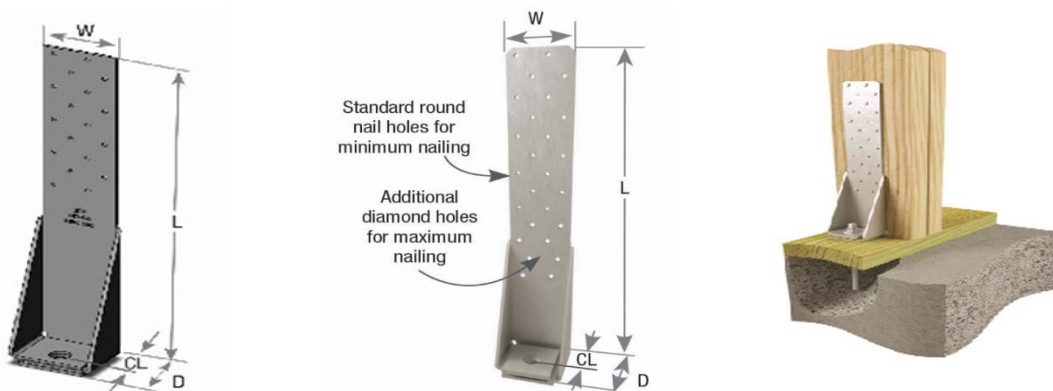


FIGURE 1—HTT16 AND HTT45 TENSION TIE HOLD-DOWN AND TYPICAL INSTALLATION

TABLE 2—ADTT-TZ TENSION TIE ASSEMBLY

STOCK NO.	STEEL GA.	DIMENSIONS (inches)				FASTENER SCHEDULE ^{1, 2, 3}				Installation Type ⁵	ALLOWABLE LOAD (lbs) ⁴						
		W	L	D	CL	Wall Fastener		Joist Nails/Screws			Dry Use $C_m = 1.0$ ⁵			Wet Use $C_m = 0.7$ ⁶			
						Qty	Dia.	Qty	Type		Vert. Dist from Bend Line to Joist (in)	DF-L / SP	DEFLECTION AT ALLOWABLE DESIGN LOADS (inches)	Vert. Dist from Bend Line to Joist (in)	DF-L / SP	DEFLECTION AT ALLOWABLE DESIGN LOADS (inches)	
ADTT-TZ	14	1 ⁹ / ₁₆	10 ¹ / ₂	1 ⁵ / ₁₆	3 ³ / ₈	1	3 ³ / ₈ " Lag - HDG		10	10d x 1-1/2	Contracted	0	820	0.070	0	820	0.070
							WS8 - HDG					4- ³ / ₈	850	0.117	2- ³ / ₄	750	0.104
							WS8 - HDG					0	830	0.080	0	820	0.079
							WS8 - HDG					4- ³ / ₈	835	0.113	2- ³ / ₄	750	0.108

For SI: 1 inch = 25.4 mm, 1 lbf = 4.45 N, 1 psi = 6.89 kPa

¹A 10d x 1 1/2" nail is 1 1/2 inches long and 0.148 inches in diameter.

²A 3/8" Lag - HDG is an ASTM A307 Grade A lag screw with a thread diameter of 3/8 inch. The minimum thread penetration into the top plate of the wall framing is 3 inches. The lag screw is hot-dipped galvanized to ASTM A153 standards.

³A WS8 - HDG is 1/4 inch diameter by 8 inch long hot-dipped galvanized screw sold by MiTek. The minimum thread penetration into the top plate of the wall framing is 3 inches.

⁴Allowable loads include a 60% increase for short duration load conditions. No further increase shall be permitted.

⁵The listed allowable loads are for the ADTT-TZ installed tight to the bottom of the joist (contracted) and fully extended (4 inches from bottom of joist to ADTT-TZ bend line). Interpolation of allowable loads for installations with extensions between 0 inches and the maximum shown is permitted.

⁶Maximum extension for wet use is 2 3/4 inches to achieve the minimum 750-lb requirement as set forth by the IRC.

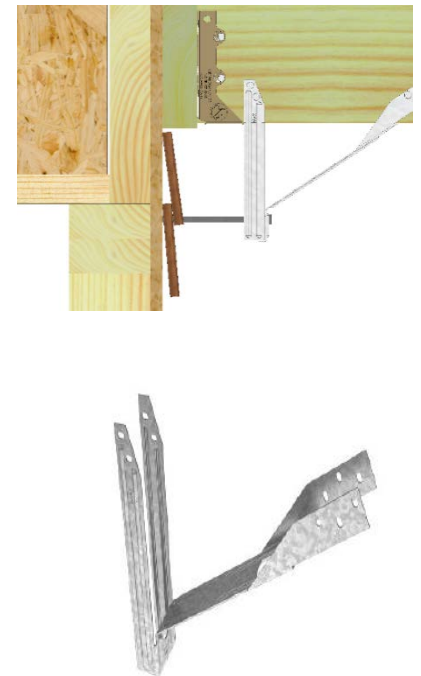
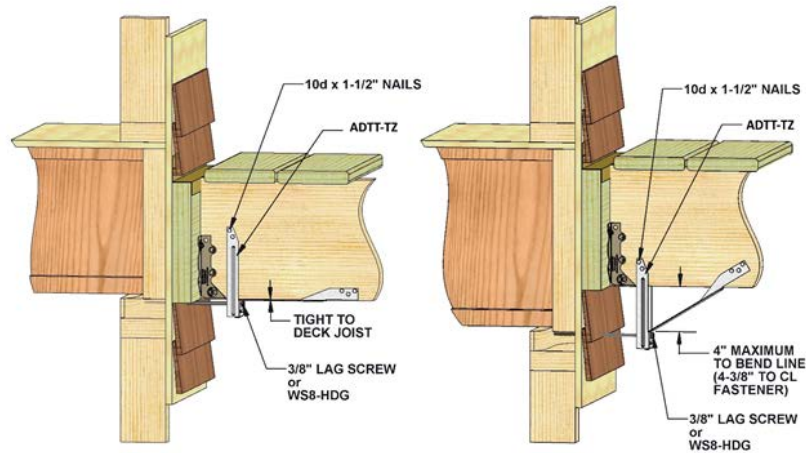
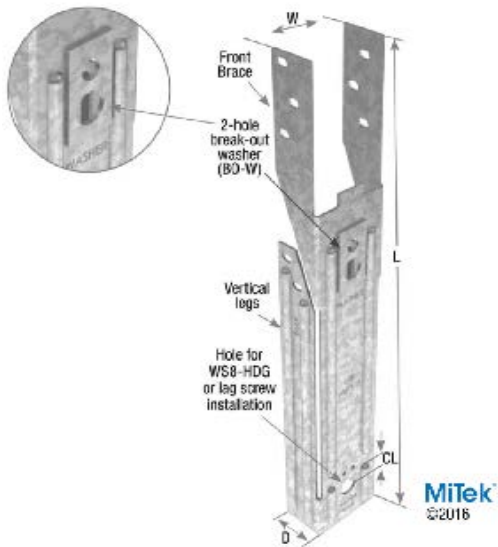


FIGURE 2—ADTT-TZ TENSION TIE AND TYPICAL INSTALLATION

TABLE 3—TDX HOLD-DOWN SERIES

STOCK NUMBER	STEEL GAGE	DIMENSIONS (inches)				FASTENER SCHEDULE					LENGTH OF BOLT IN VERTICAL MEMBER (inches) ⁶	ALLOWABLE LOADS (lbs) ^{2,3}	DEFLECTION AT ALLOWABLE DESIGN LOADS (inches)	STRENGTH LEVEL DEFORMATION Δ_s (in) ⁴
						Anchor Bolts ⁵			Bolts ¹					
		W	H	D	CL	Qty.	Size	Min. End Distance	Qty.	Size		160%	Δ At 160%	
TDX2	12	2 ¹ / ₁₆	8 ¹ / ₈	2 ³ / ₄	1 ¹ / ₂	1	5 ⁵ / ₈	4 ¹ / ₂	2	5 ⁵ / ₈	1 ¹ / ₂	1,920	0.150	0.142
											3	3,295	0.169	0.158
											3 ¹ / ₂	3,295	0.169	0.157
											5 ¹ / ₂	3,295	0.169	0.157
TDX5	10	2 ¹ / ₂	9 ³ / ₈	3 ⁷ / ₈	2	1	3 ³ / ₄	5 ¹ / ₄	2	3 ³ / ₄	1 ¹ / ₂	2,340	0.079	0.074
											3	4,515	0.151	0.130
											3 ¹ / ₂	4,530	0.151	0.148
											4 ¹ / ₂	4,530	0.151	0.147
TDX6	7	3 ¹ / ₂	11 ¹ / ₈	3 ³ / ₄	2	1	7 ⁷ / ₈	6 ¹ / ₈	2	7 ⁷ / ₈	1 ¹ / ₂	2,835	0.093	0.089
											3	5,350	0.128	0.116
											3 ¹ / ₂	5,805	0.138	0.133
											4 ¹ / ₂	5,805	0.138	0.149
TDX8	7	3 ¹ / ₂	14 ⁵ / ₈	3 ³ / ₄	2	1	7 ⁷ / ₈	6 ¹ / ₈	3	7 ⁷ / ₈	1 ¹ / ₂	4,160	0.060	0.056
											3	7,870	0.132	0.113
											3 ¹ / ₂	9,125	0.172	0.142
											4 ¹ / ₂	9,125	0.172	0.168
TDX10	7	3 ¹ / ₂	18 ¹ / ₈	3 ³ / ₄	2	1	7 ⁷ / ₈	6 ¹ / ₈	4	7 ⁷ / ₈	3	10,140	0.128	0.110
											3 ¹ / ₂	10,570	0.137	0.138
											4 ¹ / ₂	10,570	0.137	0.157
											5 ¹ / ₂	10,570	0.137	0.160
TDX14	3	3 ¹ / ₂	20 ¹ / ₂	3 ⁵ / ₈	2 ¹ / ₈	1	1	7	4	1	3	11,995	0.117	0.106
											3 ¹ / ₂	13,895	0.146	0.126
											4 ¹ / ₂	15,015	0.166	0.171
											5 ¹ / ₂	15,015	0.166	0.178

For SI: 1 inch = 25.4 mm, 1 lbf = 4.45 N, 1 psi = 6.89 kPa

¹Bolts shall conform to ASTM A307 Grade A or better.

²Allowable loads include a 60% increase for wind or seismic load conditions. No further increase shall be permitted.

³Allowable load values of the hold-down (tie-down) device are a measure of the strength of the assembly with a safety factor of 3.0 applied to the lowest maximum test load.

⁴The design of hold-down (tie-down) devices used in series shall account for the cumulative deformation of all hold-downs (tie-downs) within said series.

⁵The designer must specify anchor bolt type, length and embedment depth.

⁶The design of the framing member is outside of the scope of this report. The designer should select a framing member(s) that is sized so that the minimum end and edge distances for the fasteners, as specified in the NDS, are met and with strength properties that resist the anticipated loads.

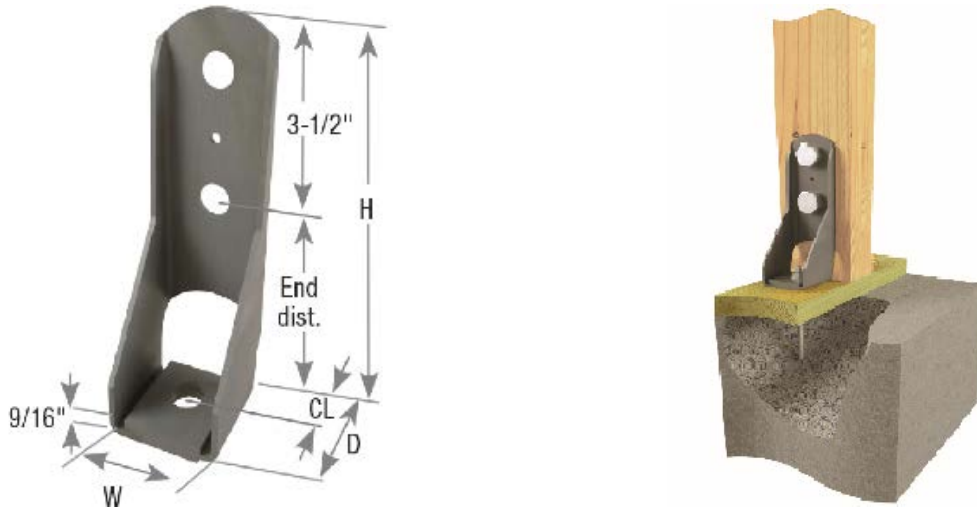


FIGURE 3—TDX HOLD-DOWN SERIES AND TYPICAL INSTALLATION

TABLE 4—MINIMUM FASTENER DIMENSIONS AND BENDING YIELD STRENGTHS

Fasteners	Shank Diameter (inch)	Nail Length (Inch)	F _{yb} (psi)
10d x 1½	0.148	1½	90,000
10dC	0.148	3	90,000
16d x 2½ (NA16d)	0.162	2½	90,000
16dC	0.162	3½	90,000

For SI: 1 inch = 25.4 mm, 1 lbf = 4.45 N, 1 psi = 6.89 kPa

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1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that the MiTek USP Structural Connectors HTT Series Tension Tie Hold-downs, ADTT-TZ Adjustable Deck Tension Tie, and TDX Hold-down Series, described in ICC-ES evaluation report [ESR-3847](#), have also been evaluated for compliance with the codes noted below as adopted by the Los Angeles Department of Building and Safety (LADBS).

Applicable code editions:

- 2020 *City of Los Angeles Building Code* (LABC)
- 2020 *City of Los Angeles Residential Code* (LARC)

2.0 CONCLUSIONS

The MiTek USP Structural Connectors HTT Series Tension Tie Hold-downs, ADTT-TZ Adjustable Deck Tension Tie, and TDX Hold-down Series, described in Sections 2.0 through 7.0 of the evaluation report [ESR-3847](#), comply with the LABC Chapter 23, and the LARC, and are subject to the conditions of use described in this supplement.

3.0 CONDITIONS OF USE

The MiTek USP Structural Connectors HTT Series Tension Tie Hold-downs, ADTT-TZ Adjustable Deck Tension Tie, and TDX Hold-down Series used to connect wood members to concrete foundations, described in this evaluation report supplement must comply with all of the following conditions:

- All applicable sections in the evaluation report [ESR-3847](#).
- The design, installation, conditions of use and labeling are in accordance with the 2018 *International Building Code*® (2018 IBC) provisions noted in the evaluation report [ESR-3847](#).
- The design, installation and inspection are in accordance with additional requirements of LABC Chapters 16 and 17, Sections 2305 and 2306, as applicable.
- Under the LARC, an engineered design in accordance with LARC Section R301.1.3 must be submitted.
- In accordance with LABC Section 2305.5, allowable seismic load values of MiTek USP Structural Connectors HTT Series Tension Tie Hold-downs must be 75 percent of those in the evaluation report [ESR-3847](#).
- The seismic design provisions for hillside buildings referenced in LABC Section 2301.1 have not been considered and are outside the scope of this supplement.
- The seismic design provisions in accordance with City of Los Angeles Information Bulletin P/BC 2020-071 for the design of wall anchorage assemblies to flexible diaphragms, have not been considered and are outside of the scope of this supplement.

This supplement expires concurrently with the evaluation report, reissued May 2019 and revised July 2020.

DIVISION: 06 00 00— WOOD, PLASTICS AND COMPOSITES
Section: 06 05 23—Wood, Plastic, and Composite Fastenings

REPORT HOLDER:

MITEK® INC.

EVALUATION SUBJECT:

MITEK USP STRUCTURAL CONNECTORS HTT SERIES TENSION TIE HOLD-DOWNS, ADTT-TZ ADJUSTABLE DECK TENSION TIE, AND TDX HOLD-DOWN SERIES

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that MiTek USP Structural Connectors HTT Series Tension Tie Hold-downs, ADTT-TZ Adjustable Deck Tension Tie, and TDX Hold-down Series, described in ICC-ES evaluation report ESR-3487, have also been evaluated for compliance with the codes noted below.

Applicable code editions:

- 2020 and 2017 *Florida Building Code—Building*
- 2020 and 2017 *Florida Building Code—Residential*

2.0 CONCLUSIONS

The MiTek USP Structural Connectors HTT Series Tension Tie Hold-downs, ADTT-TZ Adjustable Deck Tension Tie, and TDX Hold-down Series, described in Sections 2.0 through 7.0 of ICC-ES evaluation report ESR-3487, comply with the *Florida Building Code—Building* and the *Florida Building Code—Residential*, provided the design requirements are determined in accordance with the *Florida Building Code-Building* or the *Florida Building Code-Residential*, as applicable. The installation requirements noted in ICC-ES evaluation report ESR-3487 for the 2018 and 2015 *International Building Code*® meet the requirements of the *Florida Building Code-Building* or the *Florida Building Code-Residential*, as applicable.

Use of the MiTek USP Structural Connectors HTT Series Tension Tie Hold-downs, ADTT-TZ Adjustable Deck Tension Tie, and TDX Hold-down Series has also been found to be in compliance with the High-Velocity Hurricane Zone provisions of the *Florida Building Code—Building and Florida Building Code—Residential* with the following condition:

- a) For connections subject to uplift, the connection must be designed for no less than 700 pounds (3114 N).

For products falling under Florida Rule 61G20-3, verification that the report holder's quality assurance program is audited by a quality assurance entity approved by the Florida Building Commission for the type of inspections being conducted is the responsibility of an approved validation entity (or the code official when the report holder does not possess an approval by the Commission).

This supplement expires concurrently with the evaluation report, reissued on May 2019 and revised July 2020.