

ICC-ES Evaluation Report

ESR-3447

Reissued October 2022

This report also contains:

Revised July 2024

- LABC Supplement

Subject to renewal October 2024

- FBC Supplement

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<p>DIVISION: 06 00 00— WOOD, PLASTICS AND COMPOSITES</p> <p>Section: 06 05 23— Wood, Plastic and Composite Fastenings</p>	<p>REPORT HOLDER: MITEK® INC.</p> 	<p>EVALUATION SUBJECT: MITEK STRUCTURAL CONNECTORS AND BRICK TIES</p>	
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1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2024, 2021, 2018, 2015, and 2012 [International Building Code® \(IBC\)](#)
- 2024, 2021, 2018, 2015, and 2012 [International Residential Code® \(IRC\)](#)

For evaluation for compliance with codes adopted by [Los Angeles Department of Building and Safety \(LADBS\)](#), see [ESR-3447 LABC and LARC Supplement](#).

Property evaluated:

Structural

2.0 USES

The MiTek structural connectors described in this report are used for connecting wood framing members in accordance with Section 2304.10.4 of the 2024 and 2021 IBC (Section 2304.10.3 of the 2018 and 2015 IBC, and Section 2304.9.3 of the 2012 IBC) or in structures regulated under the IRC when an engineered design is submitted to, and approved by, the code official, in accordance with Section R301.1.3 of the IRC.

MiTek Brick Ties are used to anchor masonry veneer to wood construction in accordance with TMS 402 as required by IBC Chapters 14 and 21 and Section 104.11 of the IBC and Sections R703.8.4 and R301.1.3 of the IRC.

3.0 DESCRIPTION

3.1 KGH Floor Girder Hanger:

The KGH Floor Girder Hanger is designed to support girders and beams, and transfer loads onto a concrete or masonry foundation wall. The KGH Floor Girder Hanger is cold-formed from No. 12 gage steel, and it consists of a U-shaped strap factory-welded to a top-flange angle. The U-shaped strap is pre-punched for 16d common nails. See [Table 1](#) and [Figure 1](#) for product dimensions, fastener schedule, allowable loads, and a typical installation detail.

3.2 LUGT and LUGTC Girder Tiedowns:

LUGT and LUGTC Girder Tiedowns are designed to connect girder trusses and other framing members to the top of light-frame wood walls or posts. The LUGT and LUGTC series tiedowns are cold-formed from No. 14 gage steel and pre-punched for 10d common nails. See [Table 2](#) and [Figure 2](#) for product dimensions, fastener schedule, allowable loads, and typical installation details.

3.3 MPH Masonry Hanger:

The MPH Masonry Hanger is designed as a top flange hanger to support nominally dimensioned wood joists, I-joists or glued-laminated beams on concrete block walls. The hanger is fabricated from No. 12 gage hot-rolled steel plate; and is pre-punched for 16d double-headed nails to be embedded into the grouted cells of the masonry wall, and either 10d common nails or 10d-by-1½-inch nails driven into the joist. The U-shaped saddle is factory-welded to the flange. See [Table 3](#) and [Figure 3](#) for product dimensions, fastener schedule, allowable loads, and a typical installation detail.

3.4 MUGT15 Truss Anchor:

The MUGT15 Truss Anchor is designed to secure trusses to the top of a wall system, in a face-mounted or wrapped configuration. The MUGT15 is cold-formed from No. 12 gage steel. The load transfer plate is fabricated from 3/8-inch-thick (9.5 mm), cold-rolled, hot dipped galvanized steel. The MUGT15 Truss Anchor is pre-punched for 10d common nails, and the load transfer plate is pre-punched for a 5/8-inch-diameter (15.9 mm) bolt. See [Table 4](#) and [Figure 4](#) for product dimensions, fastener schedule and allowable loads.

3.5 BT Brick Ties: The MiTek BT Brick Tie is designed to anchor masonry veneer to wood framing. The BT Brick Tie vertically adjustable up to 2 5/8 inches and accommodates cavity wall airspaces up to 4 1/2 inches. The BT Brick Tie is fabricated from No. 18 gage galvanized steel and is pre-punched to accept one 8d common nail or 8d ring shank nail with a hot dipped galvanized or other approved corrosion resistant finish. See [Table 5](#) for Brick Tie stock number selection based on airspace along with the maximum tie spacing. MiTek BT Brick Tie dimensions and installation drawings can be found in [Figure 5](#).

3.6 Materials:

3.6.1 Steel: The specific types of steel and corrosion protection for each product are described in [Table 6](#) of this report. Minimum steel base-steel thicknesses for the different gages are shown in the following table:

GAGE NO.	MINIMUM BASE-STEEL THICKNESS (inch)
18	0.044
14	0.070
12	0.099

For **SI**: 1 inch = 25.4 mm.

3.6.2 Wood: Wood members must be sawn lumber or structural glued laminated timber with a minimum specific gravity of 0.50, or approved structural engineered lumber (structural composite lumber, alternative strand lumber, or prefabricated wood I-joists) with a minimum equivalent specific gravity of 0.50, unless otherwise noted in the applicable table within this report. Wood members must have a moisture content not exceeding 19 percent (16 percent for structural engineered lumber), except as noted in Section 4.1. For connectors installed with nails, the thickness of the wood member must be sufficient such that the specified fasteners do not protrude through the opposite side of the member, unless otherwise permitted in the applicable table within this report. Wood members that are structural engineered lumber must be recognized in, and used in accordance with, a current evaluation report. Refer to Section 3.6.4 for issues related to treated wood.

3.6.3 Fasteners: Required fastener types and sizes for use with the MiTek structural connectors described in this report are specified in Sections 3.6.3.1 and 3.6.3.2, and [Tables 1](#) through [5](#).

3.6.3.1 Bolts: At a minimum, bolts must comply with ASTM A307, Grade A, and must have a minimum bending yield strength, F_{yb} , of 45,000 lbf/in² (310 MPa). Required bolt diameters are specified, in inches, within the applicable tables of this report.

3.6.3.2 Nails: Nails used for connectors described in this report must be bright or hot-dipped galvanized carbon steel nails complying with material requirements, physical properties, tolerances, workmanship, protective coating and finishes, and packaging requirements specified in ASTM F1667; and must have lengths, diameters and bending yield strengths, F_{yb} , as shown in the following table:

FASTENER DESIGNATION	FASTENER LENGTH (inches)	SHANK DIAMETER (inch)	MINIMUM REQUIRED F_{yb} (psi)
8d x 2 1/2 common or ring shank	2.5	0.131	100,000
10d x 1 1/2	1.5	0.148	90,000
10d common	3.0	0.148	90,000
16d common	3.5	0.162	90,000
16d double-headed	3.0 ¹	0.162	90,000

For **SI**: 1 inch = 25.4 mm, 1 psi = 6.895 kPa.

¹Indicates the length of the shank, not including the length between the two heads.

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.

3.6.4 Use in Treated Wood: Connectors used in contact with preservative-treated or fire-retardant-treated wood must comply with Section 2304.10.6 of the 2024 and 2021 IBC (Section 2304.10.5 of the 2018 and 2015 IBC and Section 2304.9.5 of the 2012IBC) or Section R317.3 of the IRC. Nails used in contact with preservative-treated or fire-retardant-treated wood must be hot-dipped galvanized carbon steel nails or nails of other materials or finishes 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 the report holder (MiTek, Inc.), or both, should be contacted for recommendations on the appropriate level of corrosion resistance to specify for the connectors and fasteners as well as the connection capacities of the fasteners used with the specific proprietary preservative-treated or fire-retardant-treated lumber.

3.6.5 Concrete and Masonry Construction: Materials and quality of concrete and masonry construction must comply with the applicable provisions of Chapters 19 and 21 of the IBC. The compressive strength of the concrete and masonry construction must be in accordance with the approved design and with applicable provisions of the building code.

4.0 DESIGN AND INSTALLATION

4.1 Design:

The allowable load capacities in [Tables 1](#) through [5](#) are based on allowable stress design. The use of the allowable load values for the products described in this report and listed in [Table 6](#) must comply with all applicable requirements and conditions specified in this report. Tabulated allowable loads are for normal load duration or short load duration, or both, based on load duration factors, C_D , in accordance with Section 11.3.2 of the 2024, 2018 and 2015 *National Design Specification® for Wood Construction* (NDS) (Section 10.3.2 of the 2012 NDS for the 2012 IBC and IRC). No further increases are permitted for load durations other than those specified. Tabulated allowable loads are for connections in wood seasoned to a maximum moisture content of 19 percent (16 percent for engineered wood products) or less, used under continuously dry conditions and where sustained temperatures are limited to 100°F (37.8°C) or less. When connectors are installed in wood having a moisture content greater than 19 percent (16 percent for engineered wood products), or where the in-service moisture content is expected to exceed this value, the applicable wet service factor, C_M , must be applied. Unless otherwise noted in the tables of this report, the applicable wet service factor, C_M , is as specified in the NDS for lateral loading of dowel-type fasteners. When connectors are installed in wood that will experience sustained exposure to temperatures exceeding 100°F (37.8°C), the allowable loads in this evaluation report must be adjusted by the temperature factor for connections, C_t , specified in the NDS. For connectors installed with bolts, minimum edge distances and end distances within the wood members must be met, such that the geometry factor, C_A , is 1.0, in accordance with NDS, unless otherwise noted in this report. Connected wood members must be checked for load-carrying capacity at the connection in accordance with Section 11.1.2 of the NDS (Section 10.1.2 of the 2012 NDS for the 2012 IBC and IRC).

For connectors with anchors intended to transmit loads into 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 Chapter 19 or 21 of the IBC, as applicable, for design of anchorage to concrete and masonry structural members.

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, when design load combinations include earthquake loads or effects, the design strength of anchorage to concrete for the MUGT15 Truss Anchor ([Table 4](#)) must be determined based on strength design in accordance with Section 1901.3 of the 2024, 2021, 2018 and 2015 IBC, or Section 1909 of the 2012 IBC.

4.2 Installation:

Installation of the connectors must be in accordance with this evaluation report and the manufacturer's published installation instructions. Mechanical fasteners must be installed in wood members in accordance with Section 12.1 of the NDS (Section 11.1 of the 2012 NDS for the 2012 IBC).

4.3 Special Inspection:

4.3.1 Main Windforce-resisting Systems under the IBC: Periodic special inspection must be conducted for components within the main windforce-resisting system, where required in accordance with Sections 1704.2 and 1705.12 of the 2024 and 2021 IBC (Sections 1704.2 and 1705.11 of the 2018 and 2015 IBC, and Sections 1704.2 and 1705.10 of the 2012 IBC) as applicable.

4.3.2 Seismic force-resisting Systems under the IBC: Periodic special inspection must be conducted for components within the seismic force-resisting system, where required in accordance with Sections 1704.2 and 1705.13 of the 2024 and 2021 IBC (Sections 1704.2 and 1705.12 of the 2018 and 2015 IBC, and Sections 1704.2 and 1705.11 of the 2012 IBC) as applicable.

4.3.3 Installations under the IRC: Special inspections are normally not required for connectors used in structures regulated under the IRC. However, for components and systems requiring an engineered design in accordance with IRC Section R301, periodic special inspection requirements and exemptions must be in accordance with Sections 4.3.1 and 4.3.2 of this report.

5.0 CONDITIONS OF USE

The MiTek structural connectors 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 manufacturer's published installation instructions must be available at the jobsite at all times during installation. In the event of a conflict between this report and the manufacturer's published installation instructions, this report governs.

- 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 Connected wood members and fasteners must comply with Sections 3.6.2 and 3.6.3, respectively.
- 5.4 Adjustment factors, noted in Section 4.1 of this report and the applicable codes, must be considered in the design of the connections where applicable.
- 5.5 Use of connectors and fasteners with preservative-treated or fire-retardant-treated lumber must be in accordance with Section 3.6.4.
- 5.6 The design of the anchorage to, and bearing upon, concrete or masonry construction, inclusive of cast-in-place and post-installed anchors, used to attach the connectors described in this report to concrete or masonry construction, is outside of the scope of this report.
- 5.7 Anchored masonry veneer must be constructed in accordance with the IBC or IRC and local code, as applicable.
- 5.8 Connectors with factory welds are identified in [Table 6](#) as being manufactured at the designated facilities under a quality control program with inspections by ICC-ES.

6.0 EVIDENCE SUBMITTED

- 6.1 Data in accordance with the [ICC-ES Acceptance Criteria for Joist Hangers and Similar Devices \(AC13\)](#), dated April 2024.
- 6.2 Data in accordance with the [ICC-ES Acceptance Criteria for Proprietary Designs and Alternate Configurations of Sheet Metal Ties for Anchored Masonry Veneer Construction \(AC568\)](#), dated April 2024 (editorially revised June 2024).

7.0 IDENTIFICATION

- 7.1 Each connector described in this report is identified by 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 or USP Structural Connectors.
- 7.2 The report holder's contact information is the following:

MiTek[®] INC.
16023 SWINGLEY RIDGE ROAD
CHESTERFIELD, MISSOURI 63017
(800) 328-5934
www.mitek-us.com
uspcustomerservice@mii.com

TABLE 1—KGH FLOOR GIRDER HANGER ALLOWABLE LOADS^{1,2,3,4}

STOCK NO.	GIRDER SIZE	STEEL GA.	DIMENSIONS (inches)					FASTENER SCHEDULE		ALLOWABLE LOADS (lbs.)		
			W	L	D	S	H	Qty	Type	Download		
										C _D = 1.0	C _D = 1.15	C _D = 1.25
KGH46-6	4 x 6	12	3 ⁹ / ₁₆	5	3 ¹ / ₄	6	4	4	16d Common	2200	2200	2200
KGH46-8	4 x 6	12	3 ⁹ / ₁₆	5	3 ¹ / ₄	8	4	4	16d Common	2200	2200	2200
KGH48-6	4 x 8	12	3 ⁹ / ₁₆	5	3 ¹ / ₄	6	6	4	16d Common	2200	2200	2200
KGH48-8	4 x 8	12	3 ⁹ / ₁₆	5	3 ¹ / ₄	8	6	4	16d Common	2200	2200	2200
KGH66-6	6 x 6	12	5 ¹ / ₂	6 ¹ / ₄	3 ¹ / ₄	6	4	4	16d Common	3070	3070	3070
KGH66-8	6 x 6	12	5 ¹ / ₂	6 ¹ / ₄	3 ¹ / ₄	8	4	4	16d Common	3070	3070	3070
KGH68-6	6 x 8	12	5 ¹ / ₂	6 ¹ / ₄	3 ¹ / ₄	6	6	4	16d Common	3070	3070	3070
KGH68-8	6 x 8	12	5 ¹ / ₂	6 ¹ / ₄	3 ¹ / ₄	8	6	4	16d Common	3070	3070	3070

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

¹Allowable loads have been adjusted for load duration factors, C_D, as shown, in accordance with the NDS. The allowable loads do not apply to loads of other durations and are not permitted to be adjusted for other load durations. See Sections 4.1 and 4.2 for additional design and installations requirements.

²See Section 3.6.3 for required fastener dimensions and mechanical properties.

³Allowable loads shown are for installations in wood members complying with Section 3.6.2.

⁴A wood sill plate must be applied over the top of the hanger as shown in the following installation figure.

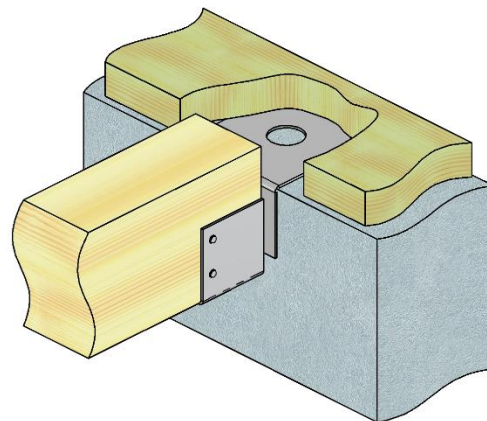
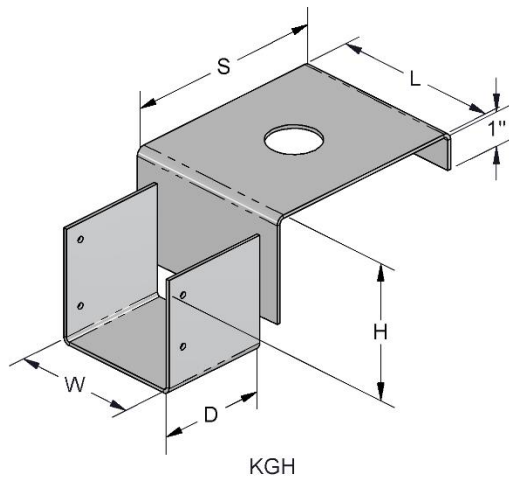


FIGURE 1—KGH FLOOR GIRDER HANGER

TABLE 2—LUGT AND LUGTC GIRDER TIEDOWN ALLOWABLE LOADS^{1,2,3}

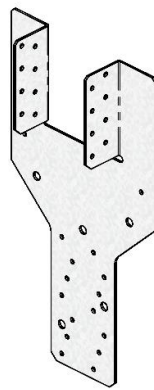
STOCK NO.	GIRDER MEMBER WIDTH (in.)	STEEL GAGE	DIMENSIONS (inches)				FASTENER SCHEDULE						ALLOWABLE LOADS (lbs)		
			W	H	A	B	Plate		Stud		Rafter/Truss		F ₁	F ₂	Uplift
							Qty	Nail Type	Qty	Nail Type	Qty	Nail Type	C _D =1.6	C _D =1.6	C _D =1.6
LUGT2	3	14	3 ¹ / ₄	12 ⁷ / ₈	1 ¹ / ₂	3 ³ / ₄	2	10d Common	14	10d Common	16	10d Common	880	495	2020
LUGTC2	3	14	3 ³ / ₁₆	14 ¹³ / ₁₆	1 ¹ / ₂	3 ³ / ₄	2	10d Common	14	10d Common	16	10d Common	455	--	2020

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

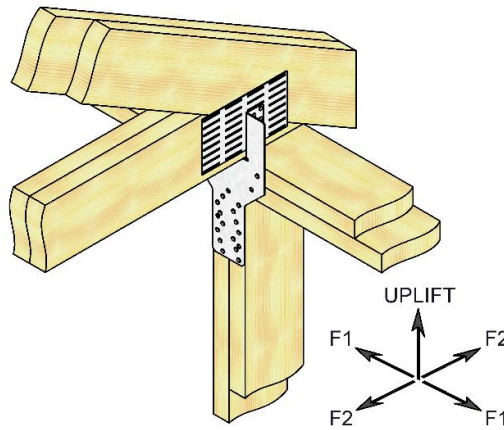
¹Allowable loads have been adjusted for a load duration factor, C_D, of 1.6, corresponding to a ten-minute load duration (i.e., wind or earthquake loading), in accordance with the NDS. The allowable loads do not apply to loads of other durations. See Sections 4.1 and 4.2 for additional design and installations requirements.

²See Section 3.6.3 for required fastener dimensions and mechanical properties.

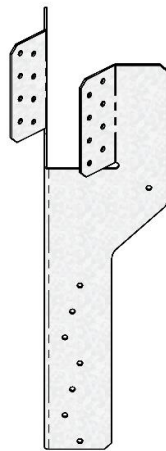
³Allowable loads shown are for installations in wood members complying with Section 3.6.2.



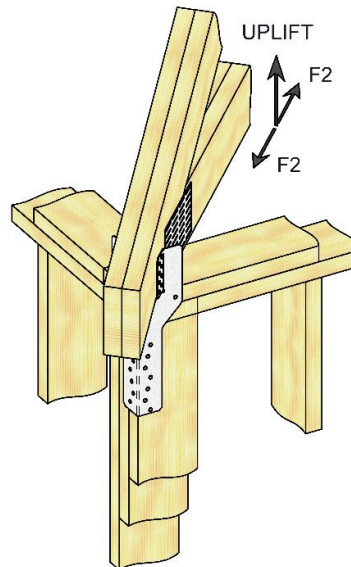
LUGT2



Typical LUGT2 Installation



LUGTC2



Typical LUGTC2 Installation

FIGURE 2—LUGT AND LUGTC GIRDER TIEDOWNS

TABLE 3—MPH MASONRY HANGER ALLOWABLE LOADS

STOCK NO.	STEEL GAGE	DIMENSIONS (in.)					FASTENER SCHEDULE				ALLOWABLE LOADS (lbs.)					
							Masonry		Joist		F _{C-perp} = 460 psi			F _{C-perp} = 625 psi		
		W	H	D	L	Qty.	Type	Qty.	Type	C _D = 1.0	C _D = 1.15	C _D = 1.25	C _D = 1.0	C _D = 1.15	C _D = 1.25	
MPH210 to 216	12	1 ⁹ / ₁₆	9 ¹ / ₄ to 15 ¹ / ₈	2 ¹ / ₂	7	2	16d Duplex	2	10d x 1 ¹ / ₂	1990	2030	2060	2610	2650	2675	
MPH210-2 to 216-2	12	3 ¹ / ₈	9 ¹ / ₄ to 15 ¹ / ₈	2 ¹ / ₂	7	2	16d Duplex	2	10d Com.	3715	3755	3785	4430	4430	4430	
MPH310 to 316	12	2 ⁹ / ₁₆	9 ¹ / ₄ to 15 ¹ / ₈	2 ¹ / ₂	7	2	16d Duplex	2	10d x 1 ¹ / ₂	3140	3180	3210	3295	3295	3295	
MPH410 to 416	12	3 ⁹ / ₁₆	9 ¹ / ₄ to 15 ¹ / ₈	2 ¹ / ₂	7	2	16d Duplex	2	10d Com.	4290	4330	4360	4430	4430	4430	
MPH610 to 616	12	5 ⁹ / ₁₆	9 ¹ / ₄ to 15 ¹ / ₈	2 ¹ / ₂	7	2	16d Duplex	2	10d Com.	4430	4430	4430	4430	4430	4430	
MPH810 to 816	12	7 ⁹ / ₁₆	9 ¹ / ₄ to 15 ¹ / ₈	2 ¹ / ₂	8	2	16d Duplex	2	10d Com.	4490	4490	4490	4490	4490	4490	
MPH325	12	3 ¹ / ₄	Spec.	2 ¹ / ₂	7	2	16d Duplex	2	10d Com.	3860	3900	3925	4430	4430	4430	
MPH525	12	5 ¹ / ₄	Spec.	2 ¹ / ₂	7	2	16d Duplex	2	10d Com.	4430	4430	4430	4430	4430	4430	
MPH687	12	6 ⁷ / ₈	Spec.	2 ¹ / ₂	7	2	16d Duplex	2	10d Com.	4430	4430	4430	4430	4430	4430	
MPH15925-1514	12	1 ⁹ / ₁₆	9 ¹ / ₄ to 14	2 ¹ / ₂	7	2	16d Duplex	2	10d x 1 ¹ / ₂	1990	2030	2060	2610	2650	2675	
MPH16925-1614	12	1 ¹¹ / ₁₆	9 ¹ / ₄ to 14	2 ¹ / ₂	7	2	16d Duplex	2	10d x 1 ¹ / ₂	2135	2175	2200	2805	2845	2870	
MPH17925-1716	12	1 ¹³ / ₁₆	9 ¹ / ₄ to 16	2 ¹ / ₂	7	2	16d Duplex	2	10d x 1 ¹ / ₂	2280	2320	2345	3000	3040	3065	
MPH20925-2020	12	2 ¹ / ₁₆	9 ¹ / ₄ to 20	2 ¹ / ₂	7	2	16d Duplex	2	10d x 1 ¹ / ₂	2565	2605	2635	3295	3295	3295	
MPH23925-2330	12	2 ⁹ / ₈	9 ¹ / ₄ to 30	2 ¹ / ₂	7	2	16d Duplex	2	10d x 1 ¹ / ₂	2925	2965	2990	3880	3920	3945	
MPH25925-2526	12	2 ¹ / ₂	9 ¹ / ₄ to 26	2 ¹ / ₂	7	2	16d Duplex	2	10d x 1 ¹ / ₂	3140	3180	3210	4170	4210	4240	
MPH26925-2620	12	2 ⁵ / ₈	9 ¹ / ₄ to 20	2 ¹ / ₂	7	2	16d Duplex	2	10d x 1 ¹ / ₂	3285	3325	3350	4370	4405	4430	
MPH27925-2720	12	2 ³ / ₄	9 ¹ / ₄ to 20	2 ¹ / ₂	7	2	16d Duplex	2	10d x 1 ¹ / ₂	3430	3470	3495	4430	4430	4430	
MPH35925-3520	12	3 ¹ / ₂	9 ¹ / ₄ to 20	2 ¹ / ₂	7	2	16d Duplex	2	10d Com.	4290	4330	4360	4430	4430	4430	
MPH52925-5220	12	5 ³ / ₈	9 ¹ / ₄ to 20	2 ¹ / ₂	7	2	16d Duplex	2	10d Com.	4430	4430	4430	4430	4430	4430	
MPH55925-5520	12	5 ⁵ / ₈	9 ¹ / ₄ to 20	2 ¹ / ₂	7	2	16d Duplex	2	10d Com.	4430	4430	4430	4430	4430	4430	
MPH15925-2 to 1514-2	12	3 ¹ / ₈	9 ¹ / ₄ to 14	2 ¹ / ₂	7	2	16d Duplex	2	10d Com.	3715	3755	3785	4430	4430	4430	
MPH17925-2 to 1716-2	12	3 ⁵ / ₈	9 ¹ / ₄ to 16	2 ¹ / ₂	7	2	16d Duplex	2	10d Com.	4290	4330	4360	4430	4430	4430	
MPH20925-2 to 2020-2	12	4 ¹ / ₈	9 ¹ / ₄ to 20	2 ¹ / ₂	7	2	16d Duplex	2	10d Com.	4430	4430	4430	4430	4430	4430	
MPH23925-2 to 2320-2	12	4 ⁵ / ₈	9 ¹ / ₄ to 20	2 ¹ / ₂	7	2	16d Duplex	2	10d Com.	4430	4430	4430	4430	4430	4430	
MPH25925-2 to 2520-2	12	5	9 ¹ / ₄ to 20	2 ¹ / ₂	7	2	16d Duplex	2	10d Com.	4430	4430	4430	4430	4430	4430	
MPH35925-2 to 3520-2	12	7 ¹ / ₈	9 ¹ / ₄ to 20	2 ¹ / ₂	8	2	16d Duplex	2	10d Com.	4490	4490	4490	4490	4490	4490	

For SI: 1 inch = 25.4 mm, 1 lbf = 4.45 N, 1 psi = 6.895 kPa.

¹Allowable loads have been adjusted for load duration factors, C_D, as shown, in accordance with the NDS. The allowable loads do not apply to loads of other durations, and are not permitted to be adjusted for other load durations. See Sections 4.1 and 4.2 for additional design and installations requirements.

²See Section 3.6.3 for required fastener dimensions and mechanical properties.

³Allowable loads shown are for installations in wood members complying with Section 3.6.2. Wood members must also have a minimum reference compression perpendicular to grain design value, F_{C⊥}, of either 460 psi (3.17 MPa), or 625 psi (4.31 MPa), as specified in the table above.

⁴Allowable loads shown do not apply to the anchorage to, or bearing upon, concrete or masonry. Anchorage to, and bearing upon, concrete or masonry must be designed by a registered design professional

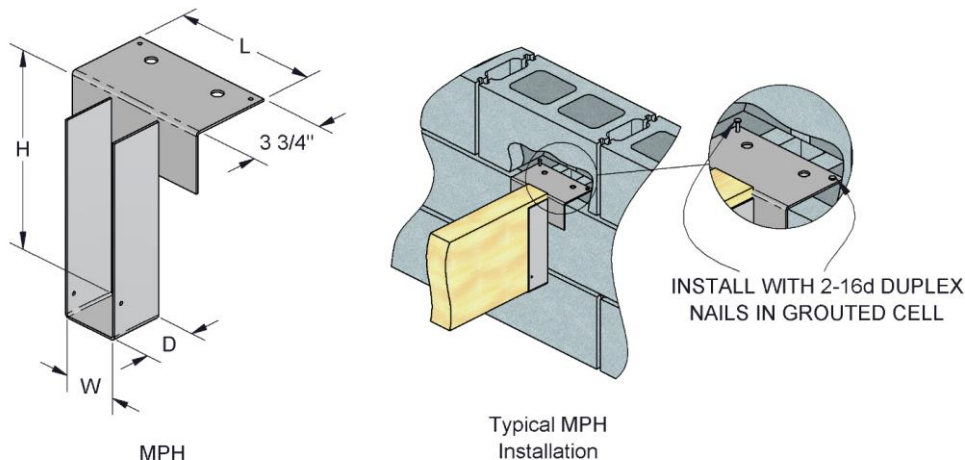


FIGURE 3—MPH MASONRY HANGER

TABLE 4—MUGT15 TRUSS ANCHOR DESIGN LOADS^{1,4}

STOCK NUMBER	STEEL GA.	CONNECTOR DIMENSIONS (in.)				MOUNTING CONDITION ²	FASTENERS ³						ALLOWABLE UPLIFT LOAD (lbs) C _D = 1.6
		Width	Depth	Unbent Height	Strap Width		Rafter/Truss				Anchor		
							Top	Face	Back	Type	Qty	Dia.	
MUGT15	12	3 ¹¹ / ₁₆	2 ⁷ / ₁₆	14 ⁵ / ₈	1 ¹¹ / ₁₆	Face-Max	-	28	-	10d	1	5/8	4240
						Top-Min	4	6	12	10d	1	5/8	3945

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

¹Allowable loads have been adjusted for a load duration factor, C_D, of 1.6, corresponding to a ten minute load duration (i.e., wind or earthquake loading), in accordance with the NDS. The allowable loads do not apply to loads of other durations. See Sections 4.1 and 4.2 for additional design and installation requirements.

²Mounting Conditions: Face-Max: All rafter/truss nails installed into the wide face of the rafter/truss.

Top-Min: The hanger is applied in a top mount condition with at least six nails installed on the rafter/truss face, four nails on top of the rafter/truss, and twelve nails into the back face.

³See Section 3.6.3 for required fastener dimensions and mechanical properties.

⁴Allowable loads shown are for installations in wood members complying with Section 3.6.2.

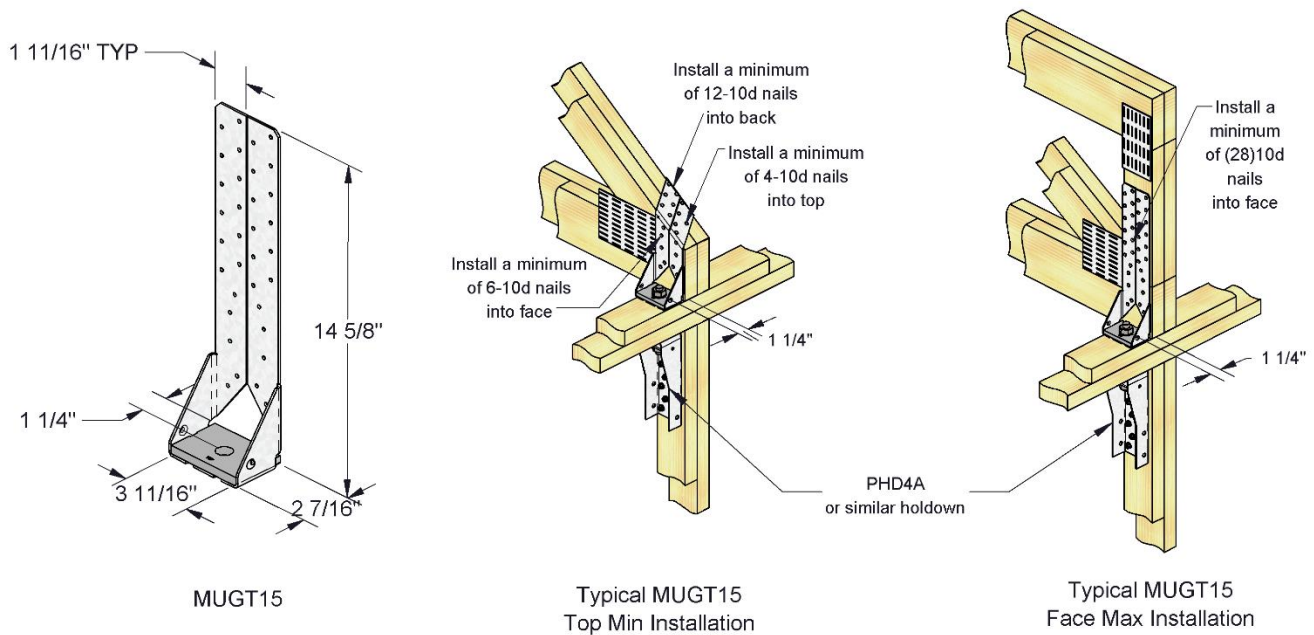


FIGURE 4—MUGT15 TRUSS ANCHOR

TABLE 5—BT BRICK TIE SELECTION AND SPACING

Brick Tie Selection and Spacing for Structures regulated by the IBC and IRC ³									
Stock Number	BT Length (L) ² (in.)	Airspace (in.)				Max. Wall Supported Area Per Tie (sq. ft.)	Max Vertical Tie Spacing (in.)		Fastener
		Modular Brick ¹		King/Queen Brick ¹			Every Stud (Horiz. 16" o.c.)	Every Other Stud (Horiz. 32" o.c.)	
		Minimum	Maximum	Minimum	Maximum				
BT3	2 ⁷ / ₈	1	1 ³ / ₈	1	1 ³ / ₈	2.67	24	12	8d Common (0.131 x 2 ¹ / ₂)
BT4	4	1	2 ¹ / ₂	1 ⁷ / ₈	2 ¹ / ₂				
BT45	4 ³ / ₈	1 ³ / ₈	2 ⁷ / ₈	2 ¹ / ₄	2 ⁷ / ₈				
BT5	5	2	3 ¹ / ₂	2 ⁷ / ₈	3 ¹ / ₂				
BT6	6	3	4 ¹ / ₂	3 ⁷ / ₈	4 ¹ / ₂				
Brick Tie Selection and Spacing for Structures SDC D ₀ , D ₁ , D ₂ or Townhouses in SDC C or in Wind Areas of more than 30 psf Pressure ³									
BT3	2 ⁷ / ₈	1	1 ³ / ₈	1	1 ³ / ₈	2.00	18	9	8d Ring Shank (0.131 x 2 ¹ / ₂)
BT4	4	1	2 ¹ / ₂	1 ⁷ / ₈	2 ¹ / ₂				
BT45	4 ³ / ₈	1 ³ / ₈	2 ⁷ / ₈	2 ¹ / ₄	2 ⁷ / ₈				
BT5	5	2	3 ¹ / ₂	2 ⁷ / ₈	3 ¹ / ₂				
BT6	6	3	4 ¹ / ₂	3 ⁷ / ₈	4 ¹ / ₂				

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

1. Airspace and spacing requirements are based on 3⁵/₈ in.-thick modular brick and 2³/₄ in. thick King/Queen Brick, as indicated.
2. Refer to [Figure 5](#) for BT dimensions and installation.
3. For openings larger than 16 inches in either dimension, additional anchors must be provided around the opening perimeter at a maximum spacing of 3 feet on center and placed within 12 inches of the openings.

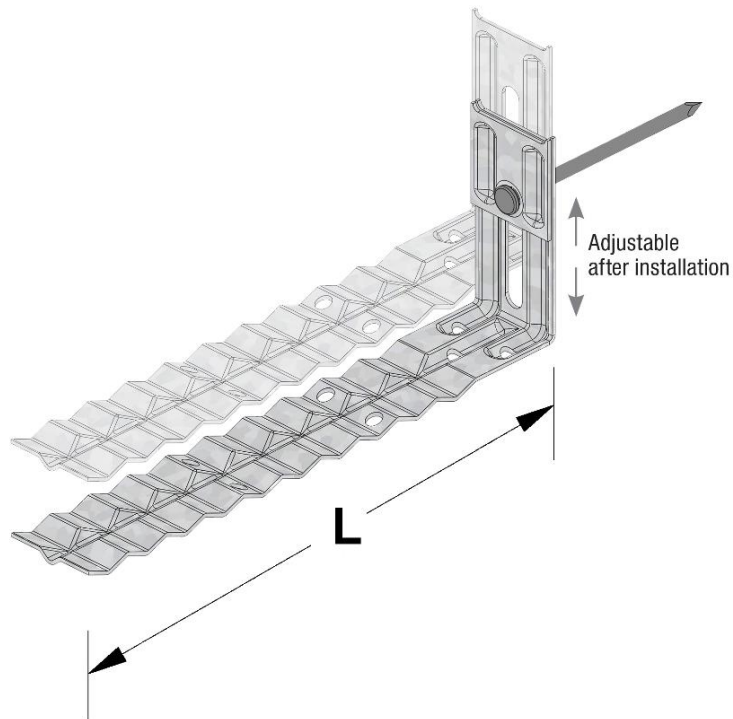


FIGURE 5—BT BRICK TIE DIMENSIONS AND INSTALLATION

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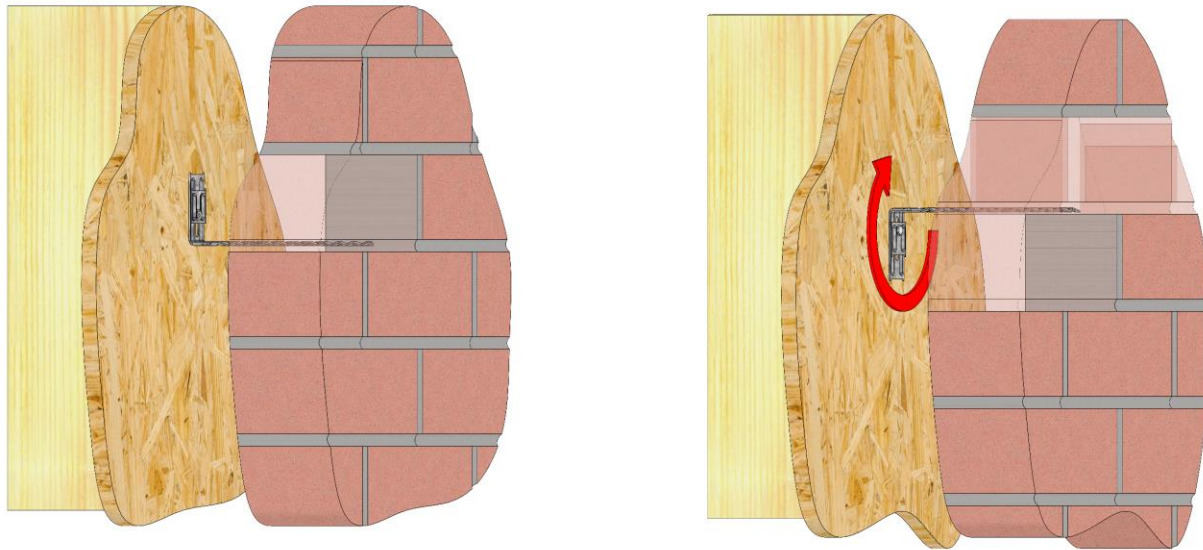


FIGURE 5—BT BRICK TIE DIMENSIONS AND INSTALLATION (Continued)

TABLE 6—STEEL TYPE, STRENGTH AND CORROSION RESISTANCE

PRODUCT	STEEL	COATING
KGH Floor Girder Hanger ³	ASTM A1011, SS designation, Grade 40	Painted
LUGT / LUGTC Girder Tiedown	ASTM A653, SS designation, Grade 40	G90 ¹
MPH Masonry Hanger ³	ASTM A1011, SS designation, Grade 40	Painted
MUGT15 Truss Anchor	ASTM A653, SS Grade 40 Load transfer plate: ASTM A108, Type 1018	G90 ¹ Hot Dipped ²
BT Brick Tie	ASTM A653, SS designation, Grade 40	G90 ¹

¹Corrosion protection is a zinc coating of sheet steel in accordance with ASTM A653.

²Corrosion protection is a minimum 1.0 ounce of zinc per square foot as determined in accordance with ASTM A153.

³Products are manufactured at the MiTek manufacturing facilities in Largo, FL; Tolleson, Arizona; and Montgomery, MN under a quality control program with inspections by ICC-ES.

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

REPORT HOLDER:

MITEK® INC.

EVALUATION SUBJECT:

MITEK STRUCTURAL CONNECTORS AND BRICK TIES

1.0 REPORT PURPOSE AND SCOPE**Purpose:**

The purpose of this evaluation report supplement is to indicate that MiTek structural connectors and brick ties, described in ICC-ES evaluation report [ESR-3447](#), 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:

- 2023 *City of Los Angeles Building Code* (LABC)
- 2023 *City of Los Angeles Residential Code* (LARC)

2.0 CONCLUSIONS

The MiTek structural connectors and brick ties, described in Sections 2.0 through 7.0 of the evaluation report [ESR-3447](#), comply with the LABC Chapters 14, 21, and 23, and the LARC, and are subjected to the conditions of use described in this supplement.

3.0 CONDITIONS OF USE

MiTek structural connectors and brick ties, described in this evaluation report supplement must comply with all of the following conditions:

- All applicable sections in the evaluation report [ESR-3447](#).
- The design, installation, conditions of use and identification are in accordance with the 2021 *International Building Code*® (IBC) provisions noted in the evaluation report [ESR-3447](#).
- The design, installation and inspection are in accordance with additional requirements of LABC Chapters 14, 16, 17, 21, and 23, as applicable.
- Allowable loads in tables are for the wood fastening devices and its fasteners. The connected member shall be checked for capacity (which may govern).
- The supported end of joist or beam must be within ¼ inch from the supporting member.
- Solid blocking must be required for all joist hangers supporting roof joists having one end twisted more than one-half degree per foot of length relative to the other end, except as specifically noted in the evaluation report [ESR-3447](#).
- Under the LARC, an engineered design in accordance with LARC Section R301.1.3 must be submitted.

This supplement expires concurrently with the evaluation report ESR-3447, reissued October 2022 and revised July 2024.

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

REPORT HOLDER:

MITEK® INC.

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MITEK STRUCTURAL CONNECTORS AND BRICK TIES

1.0 REPORT PURPOSE AND SCOPE**Purpose:**

The purpose of this evaluation report supplement is to indicate that the MiTek Structural Connectors and Brick Ties, described in ICC-ES evaluation report ESR-3447, have also been evaluated for compliance with the codes noted below.

Applicable code editions:

- 2023 Florida Building Code—Building
- 2023 Florida Building Code—Residential

2.0 CONCLUSIONS

The MiTek Structural Connectors and Brick Ties, described in Sections 2.0 through 7.0 of the evaluation report ESR-3447, comply with the *Florida Building Code—Building* and the *Florida Building Code—Residential*. The design requirements must be 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-3447 for the 2021 *International Building Code*® meet the requirements of the *Florida Building Code—Building* or the *Florida Building Code—Residential*, as applicable, with the following condition:

- a) Installation of MiTek brick ties must meet the requirements of Section R703.8.4.1 of the *Florida Building Code—Residential*, as applicable.

Use of the MiTek Structural Connectors and Brick Ties have also been found to be in compliance with the High-Velocity Hurricane Zone provisions of the *Florida Building Code—Building* and the *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 ESR-3447, reissued October 2022 and revised July 2024.