ICC-ES Evaluation Report

ESR-5466

Issued July 2026

This report remains under an active continuous compliance program through the end of July 2027

DIVISION: 06 00 00—WOOD, PLASTICS AND COMPOSITES **Section: 06 05 23.35—Mass Timber Connectors**	**REPORT HOLDER:** **MY-TI-CON TIMBER CONNECTORS INC. DBA MTC SOLUTIONS**	**EVALUATION SUBJECT:** **APEX CONNECTORS**	

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2024, 2021 and 2018 *International Building Code*® (IBC)
- 2024, 2021 and 2018 *International Residential Code*® (IRC)

Property evaluated:

- Structural

2.0 USES

The APEX Connectors described in this report are face-mounted hangers used as wood framing connectors complying with Section 2304.10.4 of the 2024 and 2021 IBC (Section 2304.10.3 of the 2018 IBC), to transfer loads from a supported beam to a supporting column or beam. The hangers 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.

3.0 DESCRIPTION

3.1 General:

The APEX Connectors are pairs of connector plates that mate together, with each plate fabricated from a single piece of aluminum. The plates have predrilled holes for the installation of self-tapping screws.

The APEX Connectors are installed in inverted pairs and are face-mounted to structural glued-laminated timber (glulam) or sawn lumber , for beam-to-beam and beam-to-column connections. The connectors are installed using screws complying with Section 3.2.3. The total nominal thickness of a connector pair is 2 inches (50 mm). Table 1 lists model designations, dimensions, fastening schedules and allowable loads. See Figure 1 for depictions of the APEX Connector models.

3.2 Materials:

3.2.1 Aluminum: The APEX Connectors are fabricated from ASTM B221 6061-T6 aluminum alloy with a specified minimum yield strength, F_y, of 35 ksi (241 MPa) and a specified minimum tensile strength, F_u, of 38 ksi (262 MPa).

3.2.2 Wood: Wood beams and columns to which the APEX connector plates are face-mounted must be glulam complying with Section 2303.1.3 of the IBC or sawn lumber complying with Section 2303.1.1 of the IBC. The wood must have an assigned specific gravity as shown in the ANSI/AWC *National Design Specification for Wood Construction*® (NDS), SG_{NDS}, corresponding to the design values in Table 1 and must

have a moisture content of no more than 19 percent at the time of fastener installation. The dimensions of the wood members must be sufficient to ensure all screw tips remain completely embedded in the member when fully installed and must be as required by wood member design.

3.2.3 Screws: The screws used for installation of the beam hangers described in this report are $^3/_8$-inch x $7^7/_8$ inches (10 mm x 200 mm) fully-threaded, countersunk head (FTC) screws evaluated under ESR-3178.

4.0 DESIGN AND INSTALLATION

4.1 Design:

The tabulated allowable loads shown in Table 1 are for Allowable Stress Design (ASD) and include the load duration factor, C_D, addressed in the NDS.

Tabulated allowable loads apply to beam-to-beam and beam-to-column connections formed with the beam hangers described in this report, when the glulam or sawn lumber is used under dry service conditions and where sustained temperatures are 100ºF (37.8ºC) or less. When connectors are fastened to glulam or sawn lumber that will experience sustained exposure to temperatures exceeding 100ºF (37.8ºC), the allowable loads in this report must be adjusted by the temperature factor, C_t, specified in the NDS.

Connected wood members must be analyzed for load-carrying capacity in accordance with the NDS, including Appendix E to the NDS. This must take into account effects from multiple connectors attached to different faces of each supporting column or beam, as applicable.

4.2 Installation:

The wood members must be prepared and installation of the APEX connectors must be in accordance with this evaluation report and the installation instructions under the MTC Solutions APEX Installation Guide In the event of a conflict between this report and the MTC Solutions installation instructions, this report governs.

The connector plates must be installed symmetrically about the vertical axis of the cross-section of the supported beam. On the supported beam, the connector plate must be oriented with the pocket at the top and the tongue at the bottom. On the supporting beam or column, the companion connector plate must be oriented with the pocket at the bottom and the tongue at the top. The minimum distances from the edges of the connector plates to the edge of the wood must be in accordance with the published installation instructions. The screws must be installed in accordance with the screw manufacturer's published installation instructions.

The connector plates may be recessed into one of the wood members, to conceal the hardware and to minimize the gap between the supported beam and the supporting beam or column, as shown in the MTC installation instructions. The connection is completed by lowering the supported beam until the tongue of the beam connector plate is fully seated within the pocket of the supporting connector plate.

Special inspection of offsite connector installation is required in accordance with IBC Section 1704.2.5. Special inspection of site-installed connectors and pairing of connectors is required in accordance with Section 1705.5.3 of the 2024 and 2021 IBC.

5.0 CONDITIONS OF USE:

The APEX 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 connector plates must be manufactured, identified and installed in accordance with this report and the distributor's published installation instructions. A copy of the instructions must be available at the jobsite at all times during installation.

5.2 Calculations and construction documents showing compliance with this report must be submitted to the code official. The calculations and construction documents 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 The APEX Connectors do not resist uplift loads. If uplift loads are anticipated, additional fastening of the beam, designed in accordance with the code, is needed to prevent uplift.

5.4 The APEX Connectors have only been evaluated for downward load capacity. Evaluation of resistance to other loads is outside the scope of this evaluation report but may be addressed by others in accordance with the code.

5.5 The APEX Connectors have not been evaluated for corrosion resistance and is outside the scope of this report.

5.6 Use of APEX Connectors and screws with preservative or fire-retardant treated lumber is outside the scope of this report.

5.7 The APEX Connectors are manufactured 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 Reports of single-fastener tests for aluminum to wood end grain connections in accordance with the ICC-ES Acceptance Criteria for Dowel-type Threaded Fasteners Used in Wood (AC233), dated June 2023 (editorially revised June 2024).

6.3 Engineering analysis to determine allowable loads based on AC13 and the single fastener data for the proprietary screws.

7.0 IDENTIFICATION

7.1 The ICC-ES mark of conformity, electronic labeling, or the evaluation report number (ICC-ES ESR-5466) along with the name, registered trademark, or registered logo of the report holder (MTC Solutions Inc.) must be included in the product label.

7.2 In addition, the APEX name and model designation must be included in the product label.

7.3 The report holder's contact information is the following:

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TABLE 1—APEX CONNECTORS: BEAM-TO-BEAM AND BEAM-TO-COLUMN ALLOWABLE DOWNLOADS[4]

MODEL	DIMENSIONS[1] (inches)				FASTENERS[2] (Quantity - Size)				ALLOWABLE DOWNLOADS[3] (lbf)
	T	W	H_1	H_2	Supported Beam (shear)	Supported Beam (inclined)	Supporting Beam/Column (shear)	Supporting Beam/Column (inclined)	C_D = 1.00
APEX S	2	4	$18^1/_4$	$19^1/_4$	7 – $^3/_8$" x 7 $^7/_8$"	10 – $^3/_8$" x 7 $^7/_8$"	7 – $^3/_8$" x 7 $^7/_8$"	10 – $^3/_8$" x 7 $^7/_8$"	20,850
APEX M	2	4	$20^1/_2$	$21^3/_4$	8 – $^3/_8$" x 7 $^7/_8$"	12 – $^3/_8$" x 7 $^7/_8$"	8 – $^3/_8$" x 7 $^7/_8$"	12 – $^3/_8$" x 7 $^7/_8$"	24,850
APEX L	2	6	$16^3/_4$	$17^1/_2$	14 – $^3/_8$" x 7 $^7/_8$"	15 – $^3/_8$" x 7 $^7/_8$"	14 – $^3/_8$" x 7 $^7/_8$"	15 – $^3/_8$" x 7 $^7/_8$"	31,950
APEX XL	2	6	$21^3/_8$	$22^1/_8$	16 – $^3/_8$" x 7 $^7/_8$"	18 – $^3/_8$" x 7 $^7/_8$"	16 – $^3/_8$" x 7 $^7/_8$"	18 – $^3/_8$" x 7 $^7/_8$"	39,050

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

[1]Refer to Figure 1 for definitions of hanger dimensions.
[2]Structural fasteners must be fully threaded self-tapping screws as defined in Section 3.2.3 of the report.
[3]Tabulated allowable loads apply to normal (10-year) load duration only.
[4]The assigned specific gravity of the wood, SG_{NDS}, is 0.50.

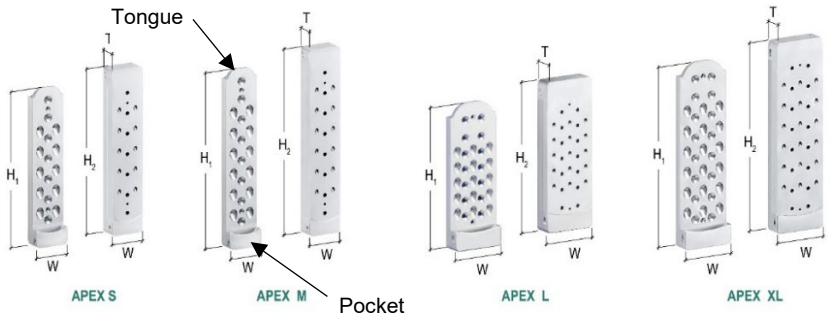

FIGURE 1—APEX CONNECTORS MODELS