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EFP MPC WOOD FLOOR TRUSS

CSI Section:
06 17 53 – Shop-Fabricated Wood Trusses

1.0 RECOGNITION

The Equivalent Fire Protected Metal Plate Connected Wood Floor Truss, herein referred to as an EFP Truss, recognized in this report, has been evaluated for fire protection of floors. In accordance with Exception 4 of 2024, 2021, 2018, and 2015 IRC Section R302.13, and 2012 IRC Section R501.3, the trusses were evaluated for equivalent fire performance to 2-inch-by-10-inch nominal dimension lumber. The fire protection properties of the EFP Truss comply with the intent of the provisions of the following code editions:

- 2024, 2021, 2018, 2015, and 2012 International Residential Code® (IRC)

2.0 LIMITATIONS

Use of an EFP Truss recognized in this report is subject to the following limitations:

2.1 The EFP Truss has only been evaluated for the fire-protection requirements noted in Section 1.0. The truss assemblies shall be limited to 92 percent of the Allowable Stress Design (ASD) design capacity for fire-protection equivalency. All other IRC requirements shall be evaluated by an *approved* evaluation service and subject to approval of the *building official*.

2.2. Selection of an EFP Truss for structural loading shall be performed by a *registered design professional*. The *registered design professional* shall prepare structural calculations and provide sealed engineered *truss design drawings* for each distinct EFP Truss configuration used on a project.

2.3 EFP Truss design, bracing, and *truss design drawings* shall comply with 2024 IRC Section R502.12 or 2021, 2018, 2015, and 2012 IRC Section R502.11, as applicable. The truss design drawings shall be submitted to the *building official* and *approved* prior to installation.

2.4 Each EFP Truss shall be manufactured in a truss manufacturing facility operating under a documented in-plant quality assurance program that meets the requirements of ANSI/TPI 1, and at a minimum, one (1) EFP Truss shall be inspected for each EFP Truss job manufactured. The in-plant quality assurance program shall be verified and monitored through ongoing third-party inspections by an approved inspection agency.

2.5 Metal Connector Plates shall be recognized as complying with ANSI/TPI 1 in an evaluation report issued by an approved and accredited certification agency.

3.0 PRODUCT USE

3.1 Design: The EFP Truss shall be designed and manufactured in accordance with ANSI/TPI 1 National Design Standard for Metal Plate Connected Wood Truss Construction (ANSI/TPI 1-2022), 2024 IRC Section R502.12 or 2021, 2018, 2015, and 2012 IRC Section R502.11, this Evaluation Report, and all additional requirements, limitations, and notes specified on the sealed engineered *truss design drawings*, as determined by the truss designer.

3.1.1 Fire Protection of Floors: The minimum 9¹/₄-inch (235 mm) deep trusses at a maximum spacing of 24 inches (610 mm) demonstrate equivalent fire performance to 2-inch by 10-inch nominal dimension solid sawn lumber and are recognized for installation without the prescribed gypsum wallboard or wood structural panel membrane, as permitted in Exception 4 of 2024, 2021, 2018, and 2015 IRC Section R302.13, and 2012 IRC Section R501.3, when installed as described in this report.

3.2 Installation: Installation of the EFP Truss shall be in accordance with the sealed engineered *truss design drawing*, this evaluation report, and the applicable provisions of the IRC. Plate embedment gaps shall be no greater than 1¹/₃₂ inch (0.8 mm) as determined by ANSI/TPI 1. Where there is a conflict between these documents, the most restrictive provisions shall govern. Strongbacks as specified in SBCA BCSI-2025 shall be installed at a maximum spacing of 10 feet (3048 mm) on center throughout the truss span. The sealed engineered EFP Truss *truss design drawing*, and this report shall be available at the job site during construction for use by installers and for quality assurance. Job site inspections by the building official shall be conducted in accordance with IRC Section R109.

The product described in this Uniform Evaluation Service (UES) Report has been evaluated as an alternative material, design or method of construction in order to satisfy and comply with the intent of the provision of the code, as noted in this report, and for at least equivalence to that prescribed in the code in quality, strength, effectiveness, fire resistance, durability and safety, as applicable, in accordance with Section 104.2.3 of the 2024 IBC and Section 104.11 of previous editions. This document shall only be reproduced in its entirety.

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4.0 PRODUCT DESCRIPTION

4.1 General: The EFP Truss is a prefabricated open-web floor joist constructed of solid-sawn wood chords and web members. Web members are connected to chords by pressing metal connector plates into the sides of the wood members so that the teeth are fully embedded in the wood members. The EFP Truss shall have a minimum overall depth of 9¹/₄ inches (235 mm). The maximum chord panel length shall be 30 inches (762 mm).

4.1.1 Chords and Webs: The top and bottom chords and the webs shall consist of nominal 2x4 lumber. The species and grade shall conform to TPI 1 and be as specified on the sealed engineered EFP Truss *truss design drawing* with chord and web members not less than No. 2 grade. Double vertical web members shall be provided at a maximum spacing of 10 feet (3048 mm) on center throughout the truss span and at each side of any open chase. Open chases shall be limited to the middle third of the EFP Truss span.

4.1.2 Metal Connector Plates: The metal connector plates shall be manufactured per ANSI/TPI 1 and specified on the sealed engineered EFP Truss *truss design drawing*. Connector plates shall be sized based on a 20 percent Fabrication Tolerance, with a corresponding Quality Control Factor, C_q of 0.80, as defined in ANSI/TPI 1. Connector plates shall be manufactured from galvanized steel having a minimum total thickness of 0.0356 inches (0.904 mm) and shall have a minimum tooth length of 0.375 inches (9.5 mm). Plates shall have a minimum tensile efficiency of 0.499 at 0 degrees and a minimum tensile strength of 873 pli (152.9 kN/m) per pair of plates at 0 degrees. All connector plates shall have minimum dimensions of 3 inches (76.2 mm) in width and 3 inches (76.2 mm) in length, with the exception of plates on end verticals with ribbon boards.

5.0 IDENTIFICATION

5.1 Each EFP Truss shall be uniquely identified by a *truss design drawing* sealed by a *Registered Design Professional (RDP)*. A sealed engineered *truss design drawing* shall be issued for every distinct EFP Truss configuration for each project.

5.2 In addition to all information required per ANSI/TPI 1, the EFP Truss *truss design drawing* shall also include:

1. Identification as an EFP Truss design
2. Reference to this IAPMO UES (IAPMO UES ER-0999) Evaluation Report and state compliance with all conditions and limitations herein.
3. A note stating that the EFP Truss has been designed using total loads increased by 8 percent above the specified design loads.

5.3 Each EFP Truss shall be identified with a marking, or affixed label or tag that coordinates the truss with the truss's unique truss design drawing and identifies the truss as an EFP Truss. Identification shall be readily visible to the installer, builder, owner, and building official during installation and once installed.

6.0 SUBSTANTIATING DATA

6.1 Report of Fire-resistance testing in accordance with ASTM D8391-22e1.

6.2 Data in accordance with Section 6.2.3 (Fire Resistance) of EC017-2014, Evaluation Criteria for Field-Applied Fire Protective Coatings, Editorially Revised April 2025.

6.3 Technical Assessment of Fire Performance.

6.4 Test reports are from laboratories in compliance with ISO/IEC 17025.

7.0 STATEMENT OF RECOGNITION

This evaluation report describes the results of research completed by IAPMO Uniform Evaluation Service on Equivalent Fire Protected Metal Plate Connected Wood Floor Truss (EFP Truss) to assess their conformance to the codes shown in Section 1.0 of this report.

For additional information about this evaluation report please visit www.uniform-es.org or email us at info@uniform-es.org



FIGURE 1 – EFP MPC Wood Truss

