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# ICC-ES Evaluation Report

# ESR-4177

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Issued 07/2018  
This report is subject to renewal 07/2019.

**DIVISION: 10 00 00—SPECIALITIES**

**SECTION: 10 22 00—PARTITIONS**

**REPORT HOLDER:**

**MACH WALL, LLC**

**EVALUATION SUBJECT:**

**MACH WALL VERTICAL WALL PANELS**



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## 1.0 EVALUATION SCOPE

**Compliance with the following codes:**

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

**Properties evaluated:**

- Structural
- Thermal Barrier

## 2.0 USES

The Mach Wall Vertical Wall Panels are floor-to-ceiling, non-load bearing, combustible interior wall partition systems for use in buildings where combustible partitions are permitted.

## 3.0 DESCRIPTION

### 3.1 General:

The wall panels are factory-assembled sandwich panels consisting of gypsum wallboard facings with an expanded polystyrene (EPS) foam plastic core material. The panels are 48 inches (1219.2 mm) wide by 96 inches (2438.4 mm) in length and have an overall finished thickness of  $4\frac{5}{8}$  inches (117.4 mm). See Figure 1 for more details.

The wall panels, when installed in accordance with this report and the Mach Wall, LLC installation instructions, have adequate strength to resist the 5 pounds-per-square foot ( $0.24 \text{ kN/m}^2$ ) transverse load requirement specified in 2018 IBC Section 1607.15 (2015 and 2012 IBC Section 1607.14). When the wall panels are installed under the IRC, an engineered design is required in accordance with IRC Section R301.1.3.

### 3.2 Materials:

**3.2.1 Expanded Polystyrene:** Each core consists of two (2)  $1\frac{13}{16}$ -inches-thick (46.04 mm) corrugated (one face only) boards factory-adhered perpendicular to each other

on the corrugated face and forms the overall core thickness of  $3\frac{7}{8}$  inches (92.08 mm). The core material is a nominal 1.0 pound-per-cubic-foot ( $16 \text{ kg/m}^3$ ), Type I, expanded polystyrene foam plastic board complying with ASTM C578. Each board is supplied by the manufacturer identified in the approved quality control documentation. The foam plastic core has a flame-spread index not exceeding 25, and a smoke-developed index not exceeding 450 when tested in accordance with ASTM E84.

**3.2.2 Facings:** The facing material (factory-applied) of the panels is  $\frac{1}{2}$ -inch thick (12.7 mm) gypsum wallboard complying with ASTM C1396, and is supplied by the manufacturer identified in the approved quality control documentation.

**3.2.3 Adhesive:** The adhesive used to factory-laminate the foam plastic core material is perpendicular to each other on the corrugated face to form the overall panel core; and the facing material to both faces of the panel core complies with Type II, Class 2 performance requirements set forth in the ICC-ES Acceptance Criteria for Sandwich Panel Adhesives (AC05), and as described in the approved quality control documentation.

**3.2.4 Splines and Track:** Splines used to attach adjacent wall panels must be minimum 20 gage galvanized steel, and top and bottom tracks used to connect the top and bottom of the wall panel to the supporting structure must be a minimum 25 gage galvanized steel. The splines and track must be designed by a registered design professional.

## 4.0 INSTALLATION

**4.1 General:** Top and bottom track for the Mach Wall Vertical Wall Panels must be designed by a registered design professional, and mechanically attached to ceilings and floors to the satisfaction of the code official. Structural analysis to determine adequacy of the ceiling grid to support the lateral load imposed by the wall panels must be in accordance with Section 13.5 of ASCE 7 (as referenced in Section 1613 of the applicable IBC) and must be provided to the code official.

**4.1.1 Thermal Barrier Requirements for Mach Wall Vertical Wall Panels (NFPA 286 with the acceptance criteria of 2018 IBC Section 803.1.1.1 [2015 and 2012 IBC Section 803.1.2.1]):** The wall panels must be joined together with 20 gage galvanized steel splines that are placed in the panel's routed edges and fastened in place using  $1\frac{1}{4}$  inches (31.7 mm) long fine thread drywall screws spaced 24 inches (609.6 mm) on center and  $\frac{3}{4}$ -inch (19.05 mm) from the edge of the panel. All wallboard joints on the

panels must be taped with joint tape and compound and screw heads are covered with joint compound in accordance with ASTM C840 or GA-216. Twenty-five gage galvanized steel track must be used to secure the top and bottom of the wall panels into the routed edges after splines are installed. The track is fastened to the panels using 1¼ inches (31.7 mm) long fine thread drywall screws spaced 16 inches (406.4 mm) on center.

## 5.0 CONDITIONS OF USE

The Mach Wall Vertical Wall Panels 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 wall panels are fabricated, identified, and erected in accordance with this report and the manufacturer's published installation instructions.
- 5.2 The maximum partition height is 96 inches (2438.4 mm).
- 5.3 The wall panel installation must be limited to interior non-load bearing applications.
- 5.4 Use of the panels to support furniture loads, and incorporation of door components or electrical wiring, have not been evaluated and are beyond the scope of this evaluation report.
- 5.5 Adequacy of the ceiling grids to resist lateral loads imposed by the Mach Wall Vertical Wall Panels must be justified to the code official, when the ceiling system is used to support the partition system.
- 5.6 Connectors used to connect the partition system to the supporting members must be shown or defined in the drawings or specifications and approved by the code official.

- 5.7 Calculations to justify the use of the ceiling grid and connections described in Section 5.5 and 5.6 of this report must be submitted at the time of permit application. The calculations and/or details submitted must be prepared by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed.

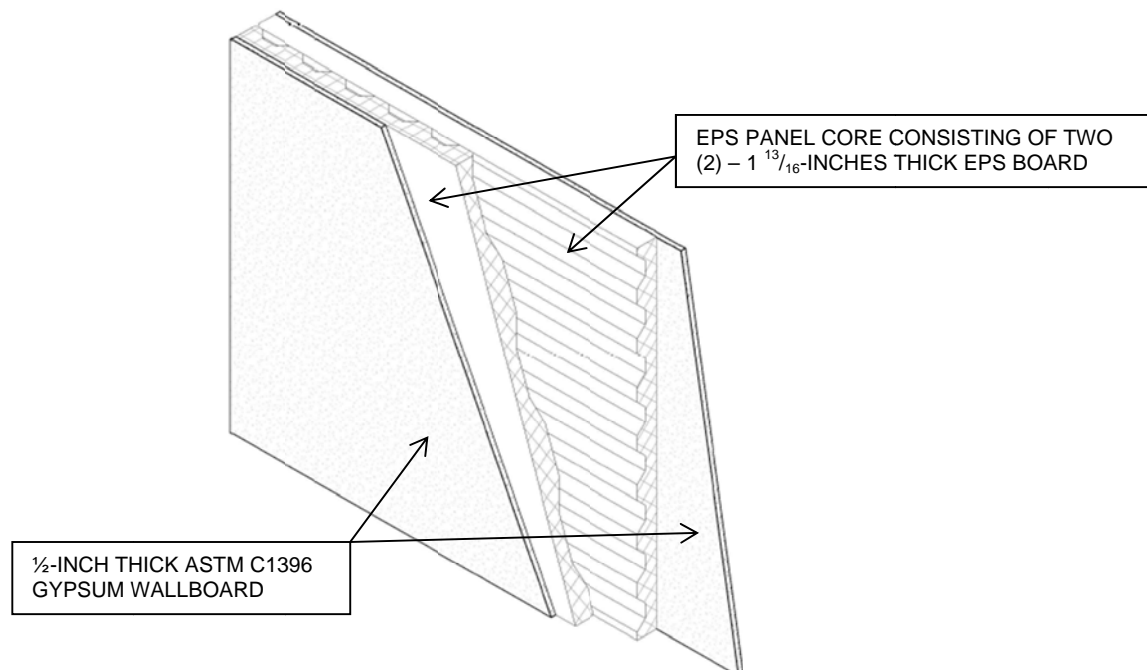
## 6.0 EVIDENCE SUBMITTED

- 6.1 Data and reports of test in accordance with the ICC-ES Acceptance Criteria for Sandwich Panels (AC04), dated February 2012 (editorially revised May 2018).
- 6.2 Report of room corner test in accordance with NFPA 286.

## 7.0 IDENTIFICATION

- 7.1 Each Mach Wall Vertical Wall Panel is identified by a label that includes the product panel number, the name and address of the manufacturer (Mach Wall, LLC.), and the evaluation report number (ESR-4177).
- 7.2 The report holder's contact information is the following:

**MACH WALL, LLC.**  
**2272 MONTAUK HIGHWAY**  
**BRIDGEHAMPTON, NEW YORK 11932**  
**(631) 204-5590**  
[www.machwall.com](http://www.machwall.com)



**FIGURE 1—MACH WALL VERTICAL WALL PANEL**