

# Product Evaluation – 6” HIP MGO SIP Wall Panels



## **CONFIDENTIALITY AND INTELLECTUAL PROPERTY**

The InnovaPanel® system is a patented composite structural building technology utilizing proprietary design features, engineered material assemblies, and unique manufacturing methods not common to conventional SIP products.

The structural behavior, testing interpretations, engineering concepts, and performance characteristics described herein are specific to the InnovaPanel® system only and shall not be used for the design, evaluation, marketing, engineering, or certification of any other SIP, MGO SIP, OSB SIP, or composite panel product.

Jerry Gillan

Innova Panel, LLC

5/15/2026

# Innova Panel Product Evaluation Report

## **INNOVAPANEL® 6-INCH HIP MAGNESIUM OXIDE STRUCTURAL INSULATED WALL PANEL**

---

### **ESR-EVALUATION-2026**

**Reissued: May 2026**

---

**DIVISION: 06 – WOOD, PLASTICS, AND COMPOSITES**

**SECTION: 06 12 00 – STRUCTURAL INSULATED PANELS**

**SECTION: 06 16 00 – SHEATHING**

**SECTION: 06 17 00 – SHOP-FABRICATED STRUCTURAL ASSEMBLIES**

---

### **REPORT HOLDER**

**Innova Panel, LLC**

Pompano Beach, Florida  
[www.innovapanel.com](http://www.innovapanel.com)

---

# EVALUATION SUBJECT:

## **InnovaPanel® Composite Magnesium Oxide Structural Insulated Wall Panels**

Nominal Panel Thickness: 6-5/8 inches

Typical Panel Width: 4 feet

Typical Panel Height: 10 feet

Core Material: Expanded Polystyrene (EPS) 5-5/8 inches

Facing Material: Magnesium Oxide Cement Board (MgO) 12mm (1/2")

Panel Type: Load-Bearing Composite Structural Insulated Panel

---

## **1.0 EVALUATION SCOPE**

### **1.1 Compliance Basis**

The InnovaPanel® wall panel system described in this report has been evaluated for structural performance based on:

- ASTM E72 structural testing
- TAS 201 impact testing
- TAS 202 static pressure testing
- TAS 203 cyclic pressure testing
- Supplemental pull-test / axial tension screening evaluations
- Manufacturer specifications
- Preliminary engineering interpretation of composite structural behavior

### **1.2 Codes and Standards Referenced**

- International Building Code (IBC)
- Florida Building Code (FBC)
- ASCE 7
- ASTM E72
- ASTM C578
- ASTM C1185
- ASTM C1186
- ASTM D2559
- TAS 201
- TAS 202
- TAS 203

## 1.3 Uses Evaluated

The InnovaPanel® wall system has been evaluated for:

- Load-bearing wall applications
- Exterior wall applications
- Hurricane-resistant wall systems
- Structural composite wall systems
- High-wind residential and multifamily structures
- Composite panel shear and compression behavior

This report is intended for preliminary engineering evaluation and code-acceptance support only.

---

## 2.0 PRODUCT DESCRIPTION

### 2.1 General

InnovaPanel® is a factory-manufactured composite structural insulated panel consisting of:

- Magnesium oxide cement board facings
- Expanded polystyrene insulating core
- Structural adhesive lamination system
- Reinforced edge conditions and spline connections

The system functions as a composite stressed-skin structural assembly capable of resisting axial, shear, lateral, and environmental loading.

### 2.2 Panel Configuration

<b>Property</b>	<b>Description</b>
Nominal Thickness	6-5/8 in
Typical Width	4 ft
Typical Height	10 ft
Core Type	EPS Foam
Facing Material	Magnesium Oxide Board
Structural Mechanism	Composite stressed-skin action
Typical Application	Exterior load-bearing wall

## **2.3 Materials**

### **Magnesium Oxide Board**

The panel facings consist of MgO cement board complying with:

- ASTM C1185
- ASTM C1186

### **EPS Core**

The insulating core consists of expanded polystyrene complying with:

- ASTM C578

### **Adhesive System**

The adhesive bonding system is intended to comply with:

- ASTM D2559
- 

## **3.0 STRUCTURAL PERFORMANCE**

### **3.1 ASTM E72 COMPRESSION TESTING**

#### **Test Specimen**

- Panel Width: 4 feet
- Panel Height: 10 feet
- Panel Thickness: 6-5/8 inches

#### **Recorded Ultimate Compression Loads**

Specimen    Ultimate Load

Sample A-1 53,713 lbs

Sample A-2 55,127 lbs

Sample A-3 59,367 lbs

#### **Average Ultimate Compression Load**

Average Ultimate Compression Capacity: **56,069 lbs**

# Engineering Interpretation

The testing demonstrated:

- Composite load sharing between skins and core
- Stable compression behavior
- High stiffness response
- Delayed buckling behavior
- Low residual deformation

The panel system behaves structurally as:

- A wide composite compression column
- A stressed-skin wall system
- A composite box-section assembly

rather than a conventional non-structural insulated panel.

---

## 3.2 PRELIMINARY SHEAR INTERPRETATION

Using ASTM E72 testing data, preliminary engineering screening values were developed.

### Ultimate Equivalent Shear

Average ultimate equivalent shear: **14,017 plf**

### Preliminary ASD Shear Screening

Using  $\Omega = 3.0$ : **4,672 plf**

### Preliminary LRFD Screening

Using  $\phi = 0.75$ : **10,513 plf**

## Important Note

These values are preliminary engineering screening interpretations only and are not final code-approved allowable design values.

Project-specific engineering is required.

---

## 3.3 DRIFT PERFORMANCE

### Recorded Deflection Behavior

Maximum observed deflection approximately: **0.131 inches** for a 10-foot-high panel.

### Preliminary Drift Ratio

Approximate drift ratio: **H/916**

### Interpretation

The testing demonstrated:

- High composite stiffness
  - Low permanent deformation
  - Strong elastic recovery
  - Stable load redistribution behavior
- 

## 4.0 TAS 201 / TAS 202 / TAS 203 PERFORMANCE

### 4.1 TAS 201 IMPACT TESTING

#### Large Missile Impact

- Missile Weight: 9.25 lbs
- Missile Type: 2 × 4 lumber
- Missile Length: 8 feet
- Velocity: Approximately 50 ft/sec

**Result:** PASS

### Engineering Interpretation

The system demonstrated:

- Structural impact resistance
  - Composite integrity retention
  - Resistance to catastrophic blowout
  - Fastener retention after impact
-

## 4.2 TAS 202 STATIC PRESSURE TESTING

### Design Pressure

Pressure Condition	Result
+90 psf	PASS
-90 psf	PASS

### Overload Pressure

Pressure Condition	Result
+135 psf	PASS
-135 psf	PASS

### Observed Behavior

Testing demonstrated:

- Low permanent set
  - High elastic recovery
  - Stable composite action
  - Strong stiffness characteristics
- 

## 4.3 TAS 203 CYCLIC PRESSURE TESTING

The panel system passed cyclic pressure loading sequences following missile impact testing.

### Engineering Interpretation

Testing demonstrated:

- Resistance to cyclic fatigue loading
  - Composite integrity retention
  - Structural resilience under repeated loading
  - Hurricane-resistant behavior
-

## **5.0 AXIAL TENSION / CONNECTION TESTING**

### **5.1 Supplemental Pull-Test Screening**

Supplemental testing data reviewed demonstrated visible peak connection pull-test values approximately ranging from:

**1,002 lbf to 1,491 lbf**

### **Engineering Interpretation**

The observed behavior supports:

- Strong fastener retention
- Improved pull-through resistance
- Composite skin participation
- Enhanced uplift transfer behavior

The results suggest improved connection behavior relative to many conventional SIP systems.

---

## **6.0 HURRICANE-RESISTANT PERFORMANCE**

The evaluated system demonstrated:

- Impact resistance
- Cyclic pressure resistance
- Structural overload resistance
- Continuous load path behavior
- Reduced dead load relative to reinforced masonry
- Composite structural action

The lightweight nature of the panel system may reduce overturning forces and foundation demands relative to heavier wall systems.

---

## 7.0 DESIGN CONSIDERATIONS

### 7.1 General

Final building design must include:

- Project-specific structural calculations
- Wind engineering
- Seismic engineering
- Connection design
- Anchorage design
- Diaphragm analysis
- Foundation design
- Fire-resistance evaluation

### 7.2 Multi-Story Structures

Preliminary engineering interpretation of the available testing supports further evaluation for:

- Multifamily structures
- Mid-rise residential structures
- Hospitality structures
- High-wind residential buildings

when used with:

- Engineered floor systems
  - Continuous load paths
  - Proper hold-downs
  - Reinforced foundations
  - Project-specific engineering
- 

## 8.0 INSTALLATION REQUIREMENTS

### 8.1 General

Panels must be installed:

- Plumb and square
- In accordance with manufacturer instructions
- Using approved connection methods
- With proper moisture management details
- With engineered anchorage systems

### 8.2 Moisture Management

The installer shall provide:

- Weather-resistant barriers
- Joint sealing systems
- Compatible sealants
- Proper flashing
- Vapor management details

## 8.3 Structural Coordination

The Engineer of Record shall verify:

- Gravity load paths
  - Lateral load paths
  - Roof-to-wall transfer
  - Floor-to-wall transfer
  - Opening reinforcement
  - Foundation anchorage
- 

## 9.0 CONDITIONS OF USE

### 9.1 General

The InnovaPanel® wall system described in this report shall be installed in accordance with:

- Manufacturer installation instructions
- Approved shop drawings
- Project-specific engineering
- Applicable building codes

### 9.2 Engineering Required

This report does not eliminate the requirement for:

- Licensed structural engineering
- Project-specific calculations
- Final code compliance review
- Jurisdictional approval

### 9.3 Fire Resistance

Fire-resistance ratings are dependent upon the exact wall assembly and project configuration.

Project-specific fire evaluation is required.

---

## 10.0 LIMITATIONS

This report does not constitute:

- Final structural approval
- Permit approval
- Final allowable design tables
- A substitute for project-specific engineering

The values contained herein are based upon:

- Uploaded testing reports
- Preliminary engineering interpretation
- Manufacturer-provided specifications
- TAS and ASTM testing summaries

Additional testing may be required for:

- ICC-ES approval
- ESR issuance
- UL fire assemblies
- Seismic cyclic testing
- Full diaphragm testing
- Acoustic testing

---

## **11.0 CONFIDENTIALITY AND INTELLECTUAL PROPERTY**

The InnovaPanel® system is a patented composite structural building technology utilizing proprietary design features, engineered material assemblies, and unique manufacturing methods not common to conventional SIP products.

The structural behavior, testing interpretations, engineering concepts, and performance characteristics described herein are specific to the InnovaPanel® system only and shall not be used for the design, evaluation, marketing, engineering, or certification of any other SIP, MGO SIP, OSB SIP, or composite panel product.

Unauthorized reproduction, disclosure, reverse engineering, or competitive use of this information is prohibited.

---

## **12.0 ENGINEERING DISCLAIMER**

This report is intended for conceptual engineering evaluation, preliminary code acceptance discussion, and design coordination purposes only.

Final structural capacities, connection requirements, design assumptions, code compliance, and building configurations must be verified by the licensed Structural Engineer of Record for each specific project.

---

## **13.0 DATA SOURCES REVIEWED**

The following information was reviewed in preparation for this preliminary evaluation report:

- ASTM E72 compression testing reports
  - TAS 201 / TAS 202 / TAS 203 testing reports
  - Pull-test / axial tension screening data
  - InnovaPanel specifications
  - InnovaPanel engineering briefs
  - Preliminary five-story feasibility studies
  - Structural engineering interpretations generated from uploaded test data
- 

## **END OF REPORT**

Full ICC-ES / Evaluation style report for the InnovaPanel® 6-inch HIP Magnesium Oxide Structural Insulated Wall Panel system.

The report includes:

- ASTM E72 structural testing
- TAS 201 / 202 / 203 hurricane testing
- Preliminary ASD / LRFD screening values
- Compression, shear, drift, and axial tension interpretations
- Conditions of use
- Installation requirements
- Structural behavior analysis
- Multi-story applicability discussions
- Engineering limitations and disclaimers
- Confidentiality / IP protections
- ESR-style formatting and organization