

Product Evaluation

FR46 | 0821

Engineering Services Program

The following product has been evaluated for compliance with the wind loads specified in the International Residential Code (IRC) and the International Building Code (IBC).

This product evaluation is not an endorsement of this product or a recommendation that this product be used. The Texas Department of Insurance has not authorized the use of any information contained in the product evaluation for advertising, or other commercial or promotional purpose.

This product evaluation is intended for use by those individuals who are following the design wind load criteria in Chapter 3 of the IRC and Section 1609 of the IBC. The design loads determined for the building or structure shall not exceed the design load rating specified for the products shown in the limitations section of this product evaluation. This product evaluation does not relieve a Texas licensed engineer of his responsibilities as outlined in the Texas Insurance Code, the Texas Administrative Code, and the Texas Engineering Practice Act.

For more information, contact TDI Engineering Services Program at (800) 248-6032.

Evaluation ID: FR-46

Effective Date: August 1, 2021

Re-evaluation Date: August 2025

Product Name: HercuTech 8" Composite Wall Panel System

Manufacturer: HercuTech Inc.
1720 W. 10th Street
Suite 101
Tempe, AZ 85281
(480) 284-4535

General Description:

HercuTech 8" Composite Wall Panel System is an Expanded Polystyrene (EPS) or 'Neopor' rigid foam insulation board formed concrete-filled reinforced composite wall system. The composite wall is designed to be an exterior or interior load bearing or non-load bearing wall. Panel construction consists of panelized concrete composite panels. EPS or 'Neopor' rigid foam insulation board is used as formwork for the concrete during the pour and insulation after the concrete is set. Each HercuTech panel has a tongue on one side and a groove on the other. The HercuTech also has a bond beam and a grade (base) beam. HercuTech patented Shear Strip™ type vertical reinforcement, and part of the Shear Strip™, is embedded into the concrete studs and acts as external vertical reinforcement. The bond beam is reinforced using conventional reinforcing. The system components are as follows:

Description	Overall Dimension (inches)	Material	Component Specifications
Shear Strip™	1.90625 x 2.5 x 0.0276	24-gauge G90 galvanized steel	HercuTech®
Standard Top Cap (no holes)	2.60 x 1.50 x 0.0276	24-gauge G90 galvanized steel	HercuTech®
Rebar Hanger	1.875 x 1.25 x 0.09375	plastic	HercuTech®
Standard Bottom/Base Track	8.00 x 1.50 x 0.0276	24-gauge G90 galvanized steel	HercuTech®
Reinforcing Fiberglass Mesh	48" x 0.020" thick x height of wall	Fiberglass	HercuTech®
Gypsum Board (by others)	48" x 0.050" thick x height of wall	Gypsum	ASTM C1396
Rebar/deformed	(1) #4 (length of wall)	Steel	ASTM A615 Grade 60
J-Bolts	1/2"-13" x 6"	Galvanized Steel	ASTM F1554 Grade 36

Product Identification: The EPS wall panels will have a label affixed to each panel. The label must include the manufacturer's name, manufacturing product code, and the allowable design pressure rating.

Exterior Coating Options:

1. Vertical Shear Strips covered with 90mm sheathing tape. Panels covered with polyester laminating film
2. 1/4" thick stucco consisting of:
 - a. 1/8" base coat
 - b. Fiberglass mesh
 - c. 1/8" layer of 'MasterSeal 584'
 - d. 1/16" topcoat
 - e. Waterproof coating
3. 3/16" thick top finish with glass fiber fabric mesh in 1/8" thick basecoat

Limitations:**Design Pressures:**

Nominal Panel Size	Panel Type	Allowable Design Pressure
48" wide x 108" long x 8-1/2" deep	Wall	±86.0 psf
48" wide x 114" long x 8-1/2" deep	Wall	±72.5 psf
48" wide x 120" long x 8-1/2" deep	Wall	±61.7 psf
48" wide x 132" long x 8-1/2" deep	Wall	±55.0 psf

- Notes:**
1. Expanded Polystyrene (EPS) foam density = 1.11 lb./ft³.
 2. Minimum concrete compressive strength 4,000 psi.
 3. 'Neopor' rigid foam insulation board density = 1.35 lb./ft³
 4. Concrete studs at 12" o.c.

Design Pressures:

Nominal Panel Size	Panel Type	Allowable Design Pressure
48" wide x 108" long x 8-1/2" deep	Wall	±110.0 psf
48" wide x 114" long x 8-1/2" deep	Wall	±92.7 psf
48" wide x 120" long x 8-1/2" deep	Wall	±78.9 psf
48" wide x 132" long x 8-1/2" deep	Wall	±58.6 psf
48" wide x 144" long x 8-1/2" deep	Wall	±50.0 psf

- Notes:**
1. Expanded Polystyrene (EPS) foam density = 1.11 lb./ft³.
 2. Minimum concrete compressive strength 5,270 psi.
 3. 'Neopor' rigid foam insulation board density = 1.35 lb./ft³
 4. Concrete studs at 8" o.c.

Design Pressures:

Nominal Panel Size	Panel Type	Allowable Design Pressure
48" wide x 144" long x 8-1/2" deep	Wall	±50.0 psf

- Notes:**
1. Expanded Polystyrene (EPS) foam density = 1.11 lb./ft³.
 2. Minimum concrete compressive strength 5,270 psi.
 3. 'Neopor' rigid foam insulation board density = 1.35 lb./ft³
 4. Concrete studs at 12" o.c.

Maximum Shear Parallel to Wall Panel:

Wall Height	Shear
Up to 9'-0"	180 plf
Up to 12'-0"	180 plf

Maximum Axial Compression and Tension:

Wall Height	Concrete Studs	Axial Compression	Axial Load Capacity
Up to 9'-0"	12" o.c.	9645 plf	9495 plf
Up to 11'-0"	8" o.c.	7725 plf	5895 plf

Installation:

General: The HercuTech Composite Wall System must be fabricated, identified, and erected in accordance with this evaluation report, the approved construction documents, and the applicable building codes. In the event of a conflict between the manufacturer's published installation instructions and this evaluation report, this evaluation report controls. Approved construction documents must always be available on the jobsite during installation.

Structures built using the HercuTech Composite Wall System must be designed by a Texas licensed professional engineer. The HercuTech Composite Wall System must be designed in accordance with Chapter 19 of the IBC and ACI 318. Design drawings must include complete instructions for the connection and installation of the HercuTech Composite Wall System. The design drawings must be sealed and dated by a Texas licensed professional engineer. The design drawings must reference the appropriate edition of the wind load standard (ASCE 7) used based on the current building specifications adopted by the TDI. The basic wind speed and the Exposure Category used for the design must also be referenced.

To assist in the design and construction of the HercuTech Composite Wall System, refer to the HercuTech design drawings.

HercuTech Design Drawings: Install the walls panels as specified on the following HercuTech design drawing: 'HercuWall 8" Composite Wall System;' drawing number 19-43T; sheets 1 thru 4 of 4; dated May 15, 2019; Revision B, dated May 11, 2021; signed and sealed by Jalal Farooq, P.E. on May 21, 2021.

Design loads: Design wind loads for the HercuTech Composite Wall System must be determined using the wind load requirements for the structure as specified in the building specifications adopted by the TDI.

Foundation: The foundation is part of the structure and must be part of the design of the structure. If the foundation is not designed by the engineer responsible for the design of the HercuTech Composite Wall System, then the design plans must indicate such. As a minimum, the design plans must indicate how the HercuTech Composite Wall System is to be anchored to the foundation. If the foundation is included as part of the design, then the design plans must include all details and specifications related to the design of the foundation to resist the specified wind loads and must indicate how the structure is to be anchored to the foundation.

Roof Framing: The roof framing is a part of the structure and must be considered part of the design of the structure. The design plans must include the roof framing layout and indicate how the roofing framing is to be anchored to the HercuTech Composite Wall System.

Roof Coverings: The design plans must indicate the requirements for the roof coverings. The roof coverings must comply with the building specifications adopted by the TDI. For roof coverings other than asphalt shingles, the design plans must specify the design pressure

requirements for the roof covering. The roof covering must be installed as required to resist wind pressure.

Exterior Wall Coverings: Exterior wall coverings must be installed as required to resist wind pressure. Products must comply with the building specifications adopted by the TDI. The design plans must specify the design pressure requirements for the exterior wall covering.

Windows, Doors, Garage Doors and Skylights: Products must be installed as specified in evaluation reports to resist wind pressure. Products must comply with the building specifications adopted by the TDI. The design plans must specify the design pressure requirements for these products. The design plans must indicate if the products are required to be windborne debris resistant. Windborne debris resistant products must be installed as specified in the evaluation reports to resist wind pressure and windborne debris.

Shutters: The design plans must indicate if shutters are required. Products must be installed as specified in the evaluation reports or the building specifications adopted by the TDI as required to resist wind pressure and windborne debris. Products must comply with the building specification adopted by the TDI. The design plans must specify the design pressures requirement for the shutters.

Note: Design drawings for the project sealed by the Texas licensed engineer, the manufacturer's installation instructions, and a copy the approved drawings referenced in this evaluation report must be available on the job site during installation. Use corrosion resistant fasteners as specified in the IRC and the IBC.