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### HEBEL POWER PANEL WALL SYSTEM AND HEBEL THIN-BED MORTAR

**CSI Section:**  
**03 41 00 Precast Structural Concrete**

#### 1.0 RECOGNITION

Hebel Power Panel Wall System and Hebel Thin-bed Mortar described in this report have been evaluated for use as wall panels. The strength, durability, and noncombustibility were evaluated for compliance with the following codes and regulations:

- 2018, 2015, 2012, and 2009 International Building Code® (IBC)
- 2018, 2015, 2012 and 2009 International Residential Code® (IRC)

#### 2.0 LIMITATIONS

Use of Hebel Power Panel Wall System and Hebel Thin-bed Mortar recognized in this report are subject to the following limitations:

- 2.1** Hebel Power Panels shall be manufactured, identified, and installed in accordance with this report and the applicable code. In the event of a conflict, the more restrictive governs.
- 2.2** Construction plans, details, and calculations for the Hebel Power Panel Wall System shall be approved by the building official. Calculations and details shall be prepared by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed.
- 2.3** Supporting studs and framing shall be designed in accordance with the applicable code to support design loads.
- 2.4** Use of Hebel Power Panel Wall System as a seismic lateral force-resisting system is outside the scope of this report. The use of shear values noted in Section 3.2 of this report are limited to Seismic Design Categories A and B.
- 2.5** Hebel Power Panels and Hebel Thin-bed Mortar are manufactured in Pesquería, Nuevo Leon, Mexico, under the quality control of Litecrete, S.A. de C.V.

#### 3.0 PRODUCT USE

**3.1 General:** Hebel Power Panels recognized in this report are used as structural wall panels supported by wood or steel structural supports.

**3.2 Design:** Hebel Power Panels shall be installed over wood or steel studs spaced not more than 24 inches on-center (610 mm). Framing (studs) to which the Hebel Power Panels are attached is outside the scope of this report and shall be designed in accordance with the applicable code to support the appropriate loads. The nominally 2-inch thick panels weigh approximately 6 psf (295 Pa). [Table 1](#) of this report provides maximum allowable out-of-plane (wind) loads. The maximum allowable shear load is 127 plf (183 kN/m) when using the fasteners specified in Section 3.4 of this report. When attached to studs spaced up to 24 inches on-center (610 mm), the deflection of the Hebel Power Panel is less than 1/360 at the loads specified in Table 1. Deflection of the Hebel Power Panel to studs spaced in excess of 24 inches on-center (610 mm) is outside the scope of this report.

**TABLE 1 - Allowable Out-of-Plane (Wind) Loads**

	Positive (psf)	Negative (psf)
Wood Studs	41	41
Steel Framing	64	41

SI conversions: 1 psf = 0.04788 kPa

#### 3.3 Installation:

**3.3.1 General:** Hebel Power Panels shall be installed in accordance with this report and the approved construction plans. A copy of the approved plans and this report shall be available at the job site at all times during installation.

Typical installation details are illustrated in [Figures 1](#) through [4](#) of this report. These typical details are intended for general guidance only and shall be substantiated for approval by the building official.

**3.3.2 Hebel Power Panels:** Hebel Power Panels shall be protected from moisture and abrasion by the application of an approved wall covering.

**3.4 Fasteners:** Fasteners shall be SFSintec’s #12 DEKFAST metal screws or #12 DEKFAST wood screws. Fasteners with the following specifications may be used as an alternative to SFSintec’s #12 DEKFAST screws:

- Head Diameter: ≥ 0.447 inch (11.4 mm)
- Thread Major Diameter: ≥ 0.222 inch (5.6 mm)
- Shank Diameter: ≥ 0.167 inch (4.2 mm)
- Threads Per Inch: = 13

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 IBC Section 104.11. This document shall only be reproduced in its entirety.





Material:	AISI 1018 (UNS G10180)
Bending Yield Strength:	≥ 181.5 ksi (1250 MPa)
Fastener Tensile Strength:	≥ 3,100 pounds (13.8 kN)
Fastener Shear Strength:	≥ 1,800 pounds (8 kN)

For installation to wood studs, screws shall be minimum 3¼-inches (83 mm) long with minimum 3-inch (76.2 mm) long threaded ends. Fasteners shall penetrate a minimum of 1½-inch (38 mm) into wood studs. Wood framing shall be of a species with a minimum SG of 0.50 or greater. For use with steel joists, screws shall penetrate a minimum of ¾-inch (19 mm) through steel framing. The base metal thickness of the steel framing shall be not less than 0.0329 inch (0.836 mm) and have a tensile strength (F<sub>u</sub>) of not less than 45 ksi (310 MPa). See [Table 2](#) of this report for allowable shear load per fastener.

	Shear	Pull-through	Pull-out
Wood	150	108	154 <sup>1</sup>
Steel	151	108	171

SI conversions: 1 lb = 4.448 N  
<sup>1</sup> per inch of penetration

Fasteners shall be spaced nominally 8-inches (203 mm) on-center along each stud line with edge distances as shown in [Figure 1](#) of this report.

**3.5 Miscellaneous:** Hebel Power Panels shall be installed over wood or steel studs spaced a maximum of 24-inches (610 mm) on-center. Panels shall be installed in a running bond pattern with joints staggered at least 24-inches (610 mm) when stud spacing is 24 inches (610 mm), or at least 16 inches (406 mm) when stud spacing is 16 inches (406 mm), as shown in [Figure 1](#) of this report. Panels shall be fastened to the studs with fasteners as described in Section 3.4 of this report. Joints between Hebel Power Panels shall be filled with Hebel Thin-bed Mortar prior to placement of adjacent panels.

#### 4.0 PRODUCT DESCRIPTION

**4.1 General:** Hebel Power Panels are manufactured from strength class AAC-4 autoclaved aerated concrete (AAC) complying with ASTM C1452, C1693, and C1694-17, as applicable, with factory-installed steel reinforcement. The wall panels are noncombustible. [Table 3](#) of this report contains minimum compressive strength and density requirements.

Strength Class	Minimum Compressive Strength (psi)	Nominal Dry Bulk Density (lb/ft <sup>3</sup> )
AAC-4	580	31

SI conversions: 1 psi = 0.006895 MPa, 1 lb/ft<sup>3</sup> = 16.02 kg/m<sup>3</sup>

The wall panels are 24 inches (610 mm) wide by 2 inches (51 mm) thick by 48 inches to 96 inches (1,220 to 2,440 mm) long. The panels have internal reinforcement consisting of 4 mm diameter (0.157 inch) reinforcing bars complying with ASTM C1452 and C1694-17, as applicable, with a minimum yield strength of 70 ksi (485 MPa) and a minimum tensile strength of 80 ksi (550 MPa). Longitudinal bars are spaced 9½ inches (241 mm) on-center running in the long direction and crossbar reinforcement is spaced 15 inches (380 mm) in the 48 inch (1220 mm) long panel and 13¼ inches (340 mm) in the 96 inch (2440 mm) long panel on-center running in the short (width-wise) direction. Crossbar reinforcement is welded to longitudinal reinforcement to provide mechanical anchorage.

The Hebel Power Panels have a typical moisture content at delivery of 20 to 35 percent by weight. Moisture content reduces over time and reaches equilibrium at approximately 5 percent by weight after six months to one year.

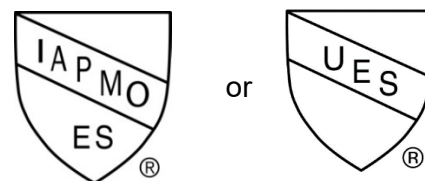
**4.2 Hebel Thin-bed Mortar:** The Hebel Thin-bed Mortar complies with ASTM C1660-18 and Section 2103.2.1 of the 2018 and 2015 IBC (Section 2103.12 of the 2012 IBC, Section 2103.11 of the 2009 IBC) and TMS 602 Article 2.1 C.1 and C.2, as applicable. The Hebel Thin-bed Mortar is dry-mixed and pre-bagged from the factory with each bag weighing 48.5 pounds (22 kg). The Hebel Thin-bed Mortar shall be used with Hebel Power Panels recognized in this report. The working life of the thin-bed mortar is four hours. When stored in unopened bags and protected from moisture, the thin-bed mortar has a one-year shelf life from the date of manufacture.

#### 5.0 IDENTIFICATION

Hebel Power Panels are identified on the pallets by labels which shall include the manufacturer's name (Litecrete, S.A. de C.V.) and/or trademark (Litecrete), brand name (Hebel), product type, strength class, and density, and the Evaluation Report Number (ER-381). A die-stamp label may also substitute for the label.

Hebel Thin-bed Mortar is identified by packaging which shall include the name Litecrete, S.A. de C.V., the brand name (Hebel), the weight, and mixing and application instructions.

Either IAPMO UES Mark of Conformity may also be used as shown below:



IAPMO UES ER-381



## 6.0 SUBSTANTIATING DATA

6.1 Data in accordance with the Acceptance Criteria for Concrete Floor, Roof and Wall Systems and Concrete Masonry Wall Systems (ICC-ES AC15), dated February 2010 (editorially revised March 2021); manufacturer's Quality Control Procedures; manufacturer's descriptive literature and installation instructions.

6.2 Reports of testing for compliance with the Standard Specification for Autoclaved Aerated Concrete (AAC) in accordance with ASTM C1693.

6.3 Reports of testing for compliance with the Standard Specification for Reinforced Autoclaved Aerated Concrete (AAC) Elements in accordance with ASTM C1694.

6.4 Reports of testing for compliance with the Standard Specification for Thin-bed Mortar for Autoclaved Aerated Concrete (AAC) Masonry in accordance with ASTM C1660.

6.5 Report of testing for noncombustible materials in accordance with ASTM E136 Behavior of Materials in a Vertical Tube Furnace at 750° C<sup>1</sup>.

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

## 7.0 REFERENCE CODE SECTIONS

The code references apply to the recognition provided in this report but may not include every code section related to the use of this product. Sections numbers that differ from the 2018 Code are shown in parenthesis.

### 7.1 International Building Code®:

- Section 104.11 - Alternative materials, design, and methods of construction and equipment.
- Section 703.5 - Noncombustibility tests.  
(2009 IBC Section 703.4)
- Section 2103.1 - Masonry units.  
(2012 and 2009 IBC Section 2103.3)
- Section 2103.2.1 - Masonry mortar.  
(2012 IBC Section 2103.12; 2009 IBC Section 2103.11)

### 7.2 International Residential Code®:

- Section R104.11 - Alternative materials, design, and methods of construction and equipment.
- Section R606.2.3 - AAC masonry.
- Section R606.2.10 - Mortar for AAC masonry.  
(2015 IRC Section R606.2.9)

## 8.0 STATEMENT OF RECOGNITION

This evaluation report describes the results of research carried out by IAPMO Uniform Evaluation Service on Hebel Power Panel Wall System and Hebel Thin-bed Mortar used as structural wall panels supported by wood or steel structural supports to assess conformance to the codes and standards shown in Section 1.0 of this report and documents the product's certification. Products are manufactured at locations noted in Section 2.5 of this report under a quality control program with periodic inspection under the supervision of IAPMO UES.

For additional information about this evaluation report please visit [www.uniform-es.org](http://www.uniform-es.org) or email us at [info@uniform-es.org](mailto:info@uniform-es.org)

