

# ICC-ES Evaluation Report


ESR-3457

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<p><b>DIVISION: 07 00 00—</b> <b>THERMAL AND MOISTURE PROTECTION</b></p> <p><b>Section: 07 11 00—</b> <b>Dampproofing</b></p> <p><b>Section: 07 13 00—</b> <b>Sheet Waterproofing</b></p>	<p><b>REPORT HOLDER:</b> <b>TeMa TECHNOLOGIES &amp; MATERIALS</b></p> <p><b>ADDITIONAL LISTEE:</b> <b>POWERHOUSE PRODUCTS, INC.</b></p> <p><b>PRODUCT NAMES:</b> <b>POWERDRAIN</b> <b>ISOSTUD AND POWERDRAIN</b> <b>ISOSTUD GEO P</b></p>	<p><b>EVALUATION SUBJECT:</b> <b>ISOSTUD AND ISOSTUD GEO P DAMPPROOFING AND WALL WATERPROOFING MEMBRANE SYSTEM</b></p>	
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## 1.0 EVALUATION SCOPE

### 1.1 Compliance with the following codes:

- 2015, 2012, 2009 and 2006 [International Building Code® \(IBC\)](#)
- 2015, 2012, 2009 and 2006 [International Residential Code® \(IRC\)](#)
- 2013 *Abu Dhabi International Building Code (ADIBC)*<sup>†</sup>

<sup>†</sup>The ADIBC is based on the 2009 IBC. 2009 IBC code sections referenced in this report are the same sections in the ADIBC.

### Properties evaluated:

- Foundation waterproofing
- Foundation dampproofing

### 1.2 Evaluation to the following green standards:

- 2020, 2015, 2012 and 2008 ICC 700 [National Green Building Standard™](#) (ICC 700-2020, ICC 700-2015, ICC 700-2012 and ICC 700-2008)

### Attributes verified:

- See Section 3.0

## 2.0 USES

Isostud and Isostud GeoP membrane systems are below-grade, exterior wall, sheet membrane systems used as foundation wall dampproofing materials on cast-in-place concrete, concrete masonry, insulated concrete forms (ICFs) and treated wood foundations. In those jurisdictions adopting the IRC, the membrane systems may be considered as a foundation wall waterproofing material for use in applications of low hydrostatic pressure.

## 3.0 DESCRIPTION

Isostud and Isostud GeoP membranes are high-density polyethylene (HDPE), semirigid, thermally formed sheets that are smooth on one side and “dimpled” on the other side to provide an air gap between the membrane and the wall surface. Isostud GeoP also has an attached polypropylene geotextile mat on the dimpled side. Both membranes have a compressive strength of 3370 lbs/ft<sup>2</sup> (161.4 kN/m<sup>2</sup>). The Isostud

membrane is available in 81-inch-wide (2057 mm) and 96-inch-wide (2438 mm) rolls, 50 feet (15.24 m) in length. The Isostud GeoP membrane is available in 96-inch-wide (2438 mm) rolls, 50 feet (15.24 m) in length. The membranes must be stored in areas protected from ultraviolet light.

The membrane system includes either the Isostud or Isostud GeoP membrane; T-Fasteners to help distribute the weight of the membrane and speed up installation; TeMa Profiles to prevent soil and water penetration between the wall and the membrane along any below-grade cut such as at windows, walkouts, or vertical terminations; and the TeMa Adhesive Band for seams between sheets.

The attributes of the Isostud and Isostud GeoP membranes have been verified as conforming to the provisions of ICC 700-2020 Section 602.1.2 and 11.602.1.2, ICC 700-2015 and ICC 700-2012 Sections 602.1.2 and ICC 700-2008 Section 602.11 for foundation waterproofing. Note that decisions on compliance for those areas rest with the user of this report. The user is advised of the project-specific provisions that may be contingent upon meeting specific conditions, and the verification of those conditions is outside the scope of this report. These codes or standards often provide supplemental information as guidance.

## 4.0 DESIGN AND INSTALLATION

Installation of the sheet membranes must comply with this report and the manufacturer's published installation instructions. The manufacturer's published installation instructions must be available at the jobsite at all times during installation.

Surfaces to receive the membrane must be structurally sound and free of loose mortar, fins, and metal projections. Wall ties must be removed and the tops of the footers swept. A chalk line must be made on the foundation wall at final grade in order to establish placement of the top of the membrane and the profile. Except for concrete block that must be parged, there are no primers required prior to the application of the Isostud or Isostud GeoP.

The Isostud and Isostud GeoP membrane is unrolled right to left. The top of the roll has a termination edge. The dimples on the Isostud will be facing inward towards the foundation wall. The Isostud GeoP is installed with the filter fabric facing outward. The membrane may be unrolled and cut into 10-foot (3048 mm) sections to create an easier piece with which to work.

The membrane must be mechanically fastened with fasteners approved by the report holder. T-Fasteners are installed first along the side edge of the wall to hold the membrane in place. The T-Fasteners may be placed every 12 to 15 inches sporadically along the wall and over the seams, sufficient to hold the membrane in place. Galvanized steel nails with a shank diameter of 0.125 inch (3.2 mm) and length of 1.29 inches (33 mm) are inserted into the preformed center nail holes of the female washers of the T-Fasteners and attached to the wall; the male washers of the T-Fasteners are placed over the dimples of the membrane to attach the membrane to the wall. On walls greater than 8 feet (2.4 m) in height, the bottom course must be installed first and the top course overlap onto the bottom course by at least 6 inches (152 mm). A utility knife or similar tool can be used to cut the roll to the correct height.

TeMa Profiles must be installed across the top edge of the membrane to prevent soil and water from entering between wall and membrane. The profile is placed along the top edge of the wall to overlap the top roll of dimples, and is attached with fasteners in the predrilled holes. Excess material may be cut with a utility knife or similar tool if needed.

When membrane is installed around corners, the membrane must be pressed in as tightly as possible, then the T-Fasteners are installed along the seam at 12-inch(305 mm) intervals.

At seams, the dimples must be overlapped 6 inches(152 mm) and connected either with T-Fasteners every 12 to 15 inches (305 to 381 mm) or with the TeMa Adhesive Band applied between the two layers on the flat side (not dimpled) or other critical points to create continuous coverage of the wall.

The Isostud and Isostud GeoP membranes must be installed tightly around any foundation penetrations and sealed at the entire intersection between the membrane and the penetration. The membrane must be placed flush to the penetration and the membrane cut vertically, fastening with T-Fasteners.

If repairs are needed, a patch piece large enough to overlap the surrounding areas by 6 inches (152 mm) is used. Sealant must be applied around the damaged area and the patch piece installed to interlock with adjacent dimples.

## 5.0 CONDITIONS OF USE:

The Isostud and Isostud GeoP membrane systems 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 Installation must comply with this report, the manufacturer's published installation instructions and the applicable code. In the event of a conflict between the manufacturer's published installation instructions and this report, this report governs.
- 5.2 The backfill of the foundation must be clean soil free of rocks or any other deleterious materials and placed (for jurisdictions adopting the IBC, the backfill must be placed in lifts and compacted) so as not to damage the foundation of the membrane system. The design and construction of the foundation is outside the scope of this report. For jurisdictions adopting the IRC, local backfilling requirements must be followed. Caution must be taken so as not to damage the foundation of the membrane system.
- 5.3 Isostud and Isostud GeoP membranes must be backfilled within 15 days of installation to protect the membrane from prolonged exposure to UV rays from sunlight.
- 5.4 Isostud and Isostud GeoP may be used as dampproofing under the IBC. Use of the membrane under the IBC as waterproofing is outside the scope of this report.
- 5.5 Isostud and Isostud GeoP may be used as dampproofing and wall waterproofing under the IRC.
- 5.6 The design and installation of the foundation drainage system is outside the scope of this report. The foundation drainage system must be installed in accordance with 2015, 2012 and 2009 IBC Section 1805.4 (2006 IBC Section 1807.4) or IRC Section R405, as applicable.

## 6.0 EVIDENCE SUBMITTED

Data in accordance with the [ICC-ES Acceptance Criteria for Rigid, Polyethylene, Below-grade, Dampproofing and Wall Waterproofing Material \(AC114\)](#), dated March 2012 (editorially revised September 2018).

## 7.0 IDENTIFICATION

- 7.1 Packages of the membranes as described in this report must be identified by a label bearing the manufacturer's name (TeMa Technologies & Materials) or additional listee's name (Powerhouse Products, Inc.), address, the product name (Isostud or Isostud GeoP / Powerdrain Isostud or Powerdrain Isostud GeoP) and the evaluation report number (ESR-3457).
- 7.2 The report holder's contact information is the following:

**TeMa TECHNOLOGIES & MATERIALS**  
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**31029 VITTORIO VENETO (TV)**  
**ITALY**  
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- 7.3 The Additional Listee's contact information is the following:

**POWERHOUSE PRODUCTS, INC.**  
**2468 192<sup>ND</sup> STREET, UNIT 109**  
**SURREY, BRITISH COLUMBIA V3Z 3X1**  
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