

GeoTech Insulated Drainage Panel

1. PRODUCT NAME

GeoTech Insulated Drainage Panel

2. MANUFACTURER

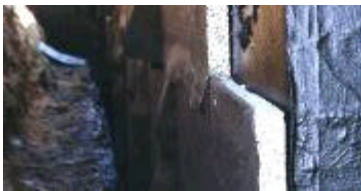
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3. PRODUCT DESCRIPTION

Basic Use: GeoTech Insulated Drainage Panel provides a unique and dynamic concept for the reduction of hydrostatic pressure in below-grade structures. The factory fabricated rigid boards are lightweight and water permeable, providing rapid drainage of ground water to the perimeter drainage system and away from any subterranean foundation, wall, or roof system. They also permit drainage in highway or landscaping retaining walls, as well as landscape planters. In addition to reducing hydrostatic pressure, they protect the waterproofing membrane and structure during backfill operations as well as provide insulation value. GeoTech Drainage Panels can function as a compressible inclusion as well. The panels have the ability to reduce earth pressure on below grade walls by deforming to absorb lateral loads.

Limitations: To function as in-



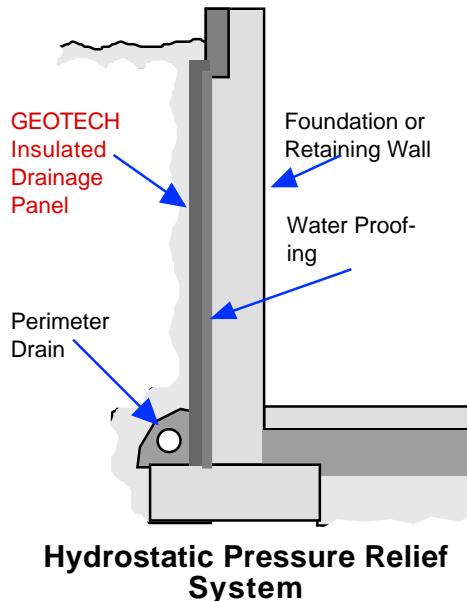
tended, GeoTech products must be used in conjunction with a perimeter hydrostatic pressure relief system. They should not be installed under surfaces subject to heavy point loading and should not be exposed to petroleum solvents, fuels, or uncured solvent-based waterproofing or damp-proofing material. Waterproofing membranes should be adequately cured so as not to interfere with subsequent adhesion of GeoTech

insulated drainage panel.

EPS materials (including GeoTech Drainage panels) should be considered combustible when directly exposed to flame. They should not be installed or stored near an open flame or other source of ignition.

Composition and Materials:

GeoTech insulated drainage panels are composed of expanded polystyrene (EPS) beads averaging 3/8" diameter, with not more than 10% being 1/8" diameter or less. The EPS beads are then bound together with a water proof adhesive binder and molded into blocks. The blocks are then cut into panels of various thicknesses. These plain boards are laminated with a filter fabric to become GeoTech Insulated Drainage Panel. Geo-



tech Drainage Panels can utilize any geotextile required by the Geotechnical Engineer to meet specific site soil conditions. No other drainage geocomposite offers this important flexibility. The standard fabric used is WEBTEC #4 (800 438 0027)

Sizes: Standard board size is 48" x 48". Available in thicknesses from 1.5" to 24" as required by flow of ground water, soil conditions, and depth of structure.

Applicable Standards: GeoTech insulated drainage panels have been tested per ASTM D-2434 for coefficient of permeability, and ASTM D-4716 for transmissivity. Thermal properties have been determined according to ASTM C-518.

4. TECHNICAL DATA

Density/Weight: 2.0 pcf nominal.

Coefficient of Permeability: 2.0 cm/sec (ASTM D-4716 for 4" sheet @ 15psf pressure)

Thermal conductivity: K=.285 (dry) @ 75° (ASTM C518)

Thermal resistance: R= 3.5 (dry) @ 75° (per inch of thickness- uncompressed).

Compression Strength: GeoTech Drainage Panels have been extensively tested for both rapid loading conditions as well as sustained loading, in accordance with ASTM D1621. These results are compiled for strains up to 50% in **Chart 1**, found on the last page.

Stability: GeoTech insulated drainage panels are permanently resistant to moisture, including total immersion, and are unaffected by normal acidic or alkalinic soil conditions.

To Select the Proper Thickness

When designing a hydrostatic pressure relief system with GeoTech's Insulated Drainage Panels, it is important to consider two unique aspects of this product:

- The Transmissivity (or permeability) is determined by the thickness of the sheet.
- When buried, the material will compress, which will affect the Transmissivity.

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Figure 1 illustrates the relationship between the soil permeability, and the change in water table height caused by a hydrostatic pressure relief system (modeled as an “infinite slot”), and the expected flow.

The lateral pressure against a wall will be a function of the soil type and will be proportional to the depth of the foundation. In some cases, it is prudent to specify thicker sheets of Drainage Panel to account for the compression they experience as a result of the higher lateral forces present at the bottom of the wall.

Chart 1 on the following page provides the relationship between soil pressure, Drainage Panel Strain, and Transmissivity for a 1.5”, 4”, and 6” thick sheet of the material under sustained loads. These graphs have been corrected for creep and the values may be considered the long-term, steady state values.

Illustration of Utilizing Design

Graph

(The following discussion refers to **Chart 1** on the following page)

A. The lateral force at the bottom of a basement wall is predicted to be approximately 700 psf, shown as point “A” on the chart. This corresponds to the “at rest” pressure conditions of a cohesionless soil with a density of 140 pcf at a depth of 10 feet.

B. This pressure will result in compression of the Drainage panel of approximately 21%, shown as point “B” on the chart. To determine the transmissivity for a given thickness of the Drainage panel material, refer to the three dashed lines, which correspond to thicknesses of 1.5”, 4”, and 6”. In this case, a 4” piece will have a transmissivity of 6 gpm/ft (point “C”). The actual thickness required would be dependent upon the results of the soil analysis following the method described in **Figure 1**.

5. INSTALLATION

Methods: For foundations, retaining walls, or roofs below grade, attach Drainage Panels to the structure, after installation of the waterproofing system. Place three dabs of GeoTech DB784 adhesive on the board surface evenly spaced across the top of the panel approximately 12” down from the top edge and press onto vertical wall. For the Drainage Panel, filter fabric face is placed towards the earth. Installation should begin at the perimeter drain.

For walls placed directly against sheeting or shoring, Drainage Panel must be secured by mechanical fastening and/or adhesive prior to placement of concrete or masonry. A polyethylene separator sheet should also be installed, thus blocking the migration of concrete into the Drainage panel. Sleeves (4” min.) must be provided through the foundation wall beneath the floor slab to provide through-drainage to the interior hydrostatic pressure relief system.

For planter boxes, etc., apply Drainage Panel to bottom and/or side surfaces with sufficient GeoTech adhesive to prevent dislodging during placement of earth. Ensure that filter fabric side faces the soil.

Adhesives specified other than GeoTech products should be checked for compatibility with Drainage Panel.

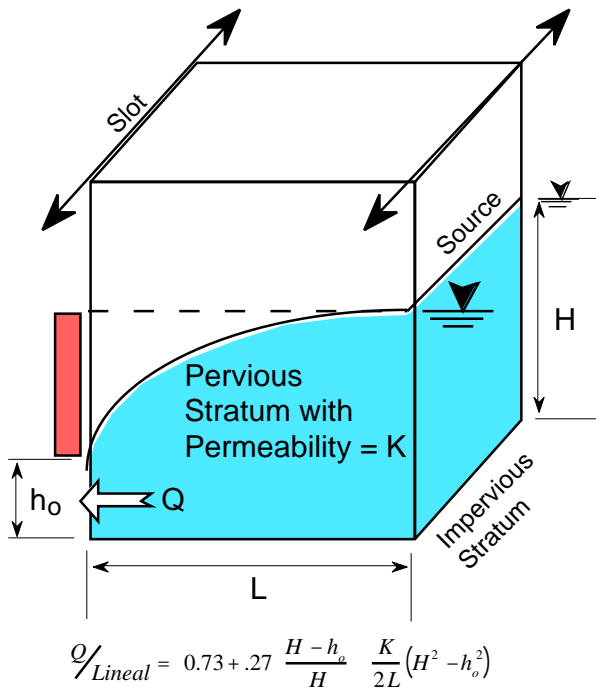
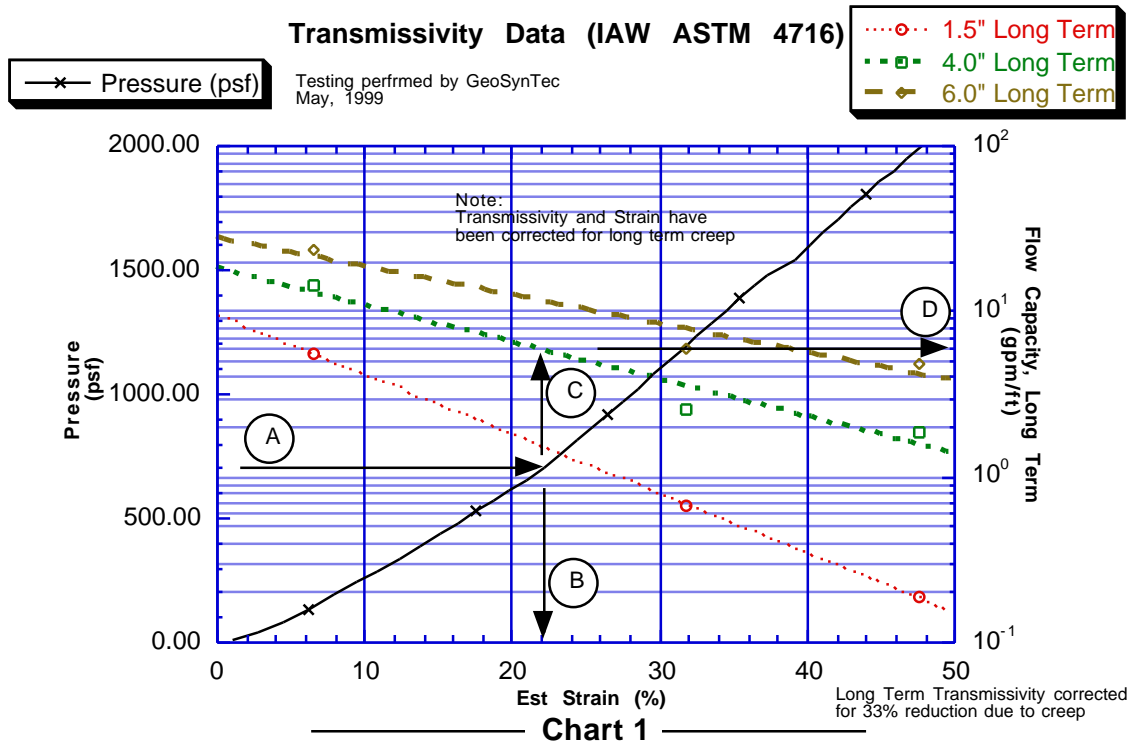


Figure 1

GeoTech Insulated Drainage Panel



6. AVAILABILITY AND COST

Availability: GeoTech insulated drainage panels are available nationally. Contact:

Insulated Building Systems
326 McGhee Road,
Winchester VA 22603,
(703) 759 0300 or (540) 662 2239.

Cost: Material costs vary depending on thickness and, if necessary, the type of geotextile laminate applied. Considering the fact that GeoTech Insulated Drainage Panels replace expensive backfills and protection board as well as the excess labor, hauling, and time associated with these, the in-place costs of GeoTech products are usually much less than multi-layer systems. Also, the insulation value derived from the product (R-3.5 per inch of thickness-dry) actually offers a return on investment year after year over the life of a below grade habitual space.

7. WARRANTY

GeoTech Systems Corporation warrants for a period of 5 years that the Drainage Panel will be free of manufacturing defects. The company will, at its option,

either replace any material proven to be defective or refund the purchase price of the material. GeoTech Systems Corporation does not assume any other liability, direct or indirect, nor any consequential damages.

THE ABOVE WARRANTY IS OFFERED IN LIEU OF ALL OTHERS, IMPLIED OR EXPRESSED, AND MAY BE MODIFIED OR EXTENDED ONLY IN WRITING BY CORPORATE OFFICERS OF THE COMPANY.

8. MAINTENANCE

GeoTech Insulated Drainage Panel requires no maintenance once installed.

9. TECHNICAL SERVICES

Complete technical services are available from GeoTech Systems Corporation and its licensed manufacturers or distributors. Services include assistance during the design and specification stages. Sales representatives can also work with the contractor through the initial stages of application to assure proper installation.

Notice: The information contained herein is, to the best of GeoTech's knowledge, accurate and reliable as of June 1999. Freedom from patents of GeoTech or others is not to be inferred. For any information that may have been developed subsequent to June 1999, consult the nearest GeoTech sales office.

