THERMAFLO™

HYDROTECH®

Tech Data

1. Product Name
ThermaFlo™

2. Product Description
ThermaFlo combines the excellent thermal protection of STYROFOAM® insulation with efficient drainage and top-notch protection – all in a single product. This multi-purpose product is particularly well-suited to below grade vertical walls.

Basic Use
ThermaFlo is an insulating drainage board with a base of STYROFOAM® insulation that has closely spaced vertical and horizontal channels to promote the drainage of water. A polymeric filtration fabric then covers the foam, to prevent soil accumulation in the drainage channels.

Advantages
- High compressive strength can withstand the pressure imposed by soil over time, while simultaneously maintaining high drainage rates.
- Drainage channels are protected from soil particle entry and clogging due to overlapping filtration fabric at all edges.
- Economical, fast, straightforward installation.
- Costs are lowered due to the drainage channels within the foam, which reduce the amount of costly aggregates needed for backfilling vertical walls.

Limitations
- To support the performance of all system components, ThermaFlo should be installed only after Hydrotech LM6090™ or MM7800® foundation waterproofing has fully cured. MM6125® waterproofing should be tacky at the time of ThermaFlo installation.
- ThermaFlo should be shielded from contact with petroleum solvents and fuels.
- Panels are intended for covered applications, and should not be exposed to sunlight for prolonged periods, which may cause UV degradation.

Composition and Materials
ThermaFlo panels are 2 ft. x 8 ft. Dow STYROFOAM® extruded polystyrene foam insulation with horizontal and vertical drainage channels on one side, covered by spunbonded polyester fabric. Tongue and groove edges along all sides allow each board to be interlocked during installation, creating a continuous thermal and drainage barrier.

Types
Available in three types, ThermaFlo is selected according to the anticipated amount of pressure exerted by the soil or backfill and by the desired thermal value.

Type 750 has a compressive strength of 3600psf, and an R-Value of 10.6 (2.25 inch thickness).

Type 1250 carries a higher compressive strength of 5760psf, and an R-Value of 10.6 (2.25 inch thickness).

Type 1750 has the highest compressive strength of 8640psf, and an R-Value of 10.6 (2.25 inch thickness).

PHYSICAL PROPERTIES

Property	Typical Value			Test Method
	TYPE 750	TYPE 1250	TYPE 1750	
Thickness (inches)	2.25 in	2.25 in	2.25 in	
R–Value	2.25in=10.6	2.25in=10.6	2.25in=10.6	
Compressive Strength*	25 psi 3600 psf	40 psi 5760 psf	60 psf 8640 psf	ASTM D1621
Flow Rate**:gpm/ft	9.5	12	12	ASTM D4716

* A 3:1 design factor is recommended to prevent compressive creep.
** Flow rate at 500 lb./sf

Container / Coverage
ThermaFlo™ panels are gathered in bundles that are then wrapped in plastic film. Each bundle of panels weighs approximately 45 pounds and contains 7 panels.

Accessories
- Below grade vertical applications - a mastic adhesive compatible with ThermaFlo and Hydrotech waterproofing may be applied to the back side of the panels (the foam side) to adhere ThermaFlo to the waterproofing until the backfill is in place.
- Adhesive or staples- to attach overlapping fabric of adjacent panels.
- J- or Z-channel, sheathing tape, or soil fabric - to seal the top or outer edge panel, which prevents soil and debris entry.
- Counter-flashing - pre-painted aluminum, vinyl, pressure-treated wood or latex coating to protect above grade installations from UV exposure.

3. Technical Data
The physical properties of ThermaFlo can be found in the Table 1 (on the first page).

4. Installation
Please contact Hydrotech for more detailed information on installation methods and appropriate securement systems.

Surface Preparation
Surface directly under ThermaFlo should be smooth and free of coarse aggregates. Debris should be cleared from footings.

As ThermaFlo is not intended as a finished surface, installation should coincide with that of the backfill. If coordination is not feasible, ThermaFlo should be temporarily covered and backfilled as soon as possible.

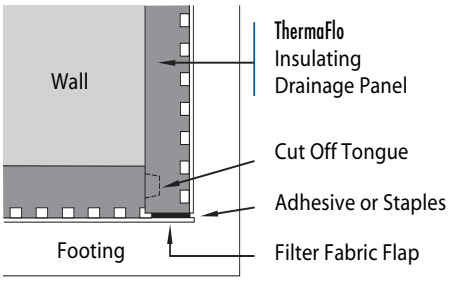
Vertical Wall Applications
For MM6125 applications, ThermaFlo may be installed directly onto the membrane while it is still tacky. For VM75™ waterproofing applications, ThermaFlo can be directly installed; an adhesive can be applied in six evenly spaced daubs, provided the adhesive is fully compatible. For LM6090™ and MM7800® waterproofing applications, ThermaFlo may be installed directly over the fully cured membrane, partially adhered with compatible adhesives, as described for VM75 jobs.

Install the first panel vertically or horizontally with the long edge flush with a corner and the fabric (over)flap on the right. The horizontal fabric flap must be at the bottom of the panel, positioned to prevent backfill from entering the drainage channels in the foam.

Align the tongue of the second panel into the groove of the first, to create tight joints. On the 8 ft. edge, the fabric should overlap with the fabric of the first panel, and stapled or secured with a compatible adhesive, to hold flaps together until the backfill is in place.

Continue installation in this manner until a corner is reached. It may be necessary to remove the tongue at the corner. Once cut and installed, use adhesive to secure the fabric of the corner piece. Additional fabric pieces may be needed to seal all gaps at the corner edge.

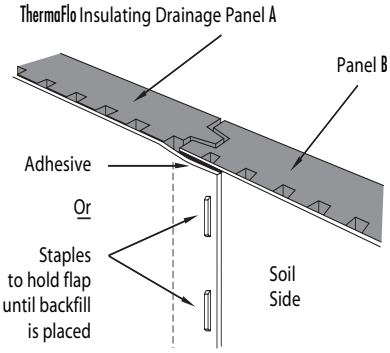
Corner Detail



Note: Not drawn to scale.
Not to be construed as complete.

Multiple Tier Installations
When multiple tiers of ThermaFlo are used, installation procedure of all tiers should mimic that of the first tier.
The tongue and groove edges on all horizontal and vertical sides should be interlocked, with joints consistently tight through all tiers, and the fabric flaps of all upper panels overlapping, and securely adjoined to flaps of lower panels with adhesive or staples.

Fabric Overlap at Panel Joint



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Top Edge Finishing
If the top edges of the panels are below grade, they should be sealed off to prevent soil and debris entry, using a J- or Z- channel, sheathing tape or soil fabric.

Above Grade Installation
If ThermaFlo panels extend above grade, all exposed areas of panels must be completely covered, to prevent UV degradation and physical damage.

Mecahnically attached protection must be used. Options include prepainted aluminum, vinyl, pressure-treated wood or latex coating.

Completing the Drainage System
The water drained through ThermaFlo's channels must be carried away with a conventional subsurface tile and gravel bed drainage system, or to subsurface drains installed at the waterproofing level. Methods of connection with the drainage system vary. One option is to wrap the drainage pipe and gravel in filter fabric. In this case, the gravel extends above the bottom edge of the panel. This method insures a connection between the panels and subsurface drainage system.

ThermaFlo™ should be covered with backfill as soon as possible. The gradeline should slope away from the wall to minimize the possibility of surface water overloading the drainage system.

Special Installation Considerations
Freeze Thaw Cycling
In climates that experience freeze-thaw, the addition of a ventilating drainage system is recommended in split-slab construction. Research has shown that in cold winter conditions a thin film of water may slowly form on the underside of the concrete. That water will likely be absorbed into the concrete, and, during freeze-thaw cycling, can ultimately cause the underside of the concrete to spall and deteriorate. As these climatic conditions also may place severe driving forces on the insulation within ThermaFlo, limited moisture pick-up is possible over time.

As a result, a proactive design for cold climates includes drainage and ventilation between the ThermaFlo and backfill layers.

ThermaFlo appliciatons in areas not subject to freeze-thaw cycling or very low temperatures do not require a ventilating drainage system.

Additional Insulation
The highest thermal value of ThermaFlo is 10.6, at a board thickness of 2.25 inches. When more insulation is needed, two additional foam layers may be added under the ThermaFlo. The under layers of foam can be regular, unchanneled extruded polystyrene. However, those extruded polystyrene insulation layers should be as thick and strong (in compressive strength) as the ThermaFlo. Hence, under Types 750 and 1250 ThermaFlo, 40spi board should be used, and under Type 1750 ThermaFlo, 60psi insulation should be used.

Design Considerations
As STYROFOAM® is a visco-elastic material, recommended loads should be applied to the strength of the foams. Following these recommendations, which include a 3:1 factor for static loads and a 5:1 factor for dynamic loads, will aid in preventing long-term compressive creep.

Application Surface Irregularities
Please note that major irregularities in the vertical wall surface will telegraph up through the ThermaFlo layer, causing slight offsetting at panel joints.

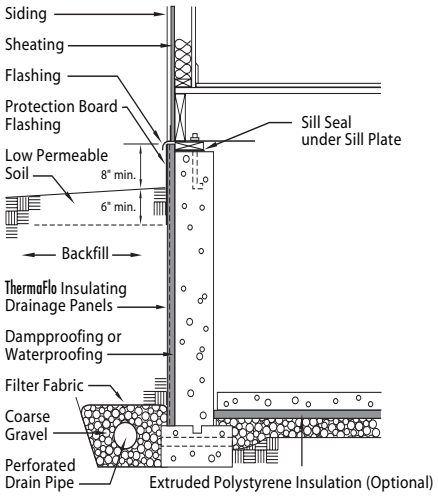
5. Availability and Cost
ThermaFlo is readily available through Hydrotech Sales Representatives worldwide.

6. Guarantees
When ThermaFlo is used in conjunction with Hydrotech waterproofing membranes, American Hydrotech, Inc. offers a single source warranty for the entire assembly. Contact a Hydrotech representative for specific warranty information.

7. Maintenance
Properly installed, ThermaFlo requires no maintenance. As a condition of the Hydrotech warranty, inspection must be performed at the time of installation.

8. Technical Services
Technical support is provided by a trained network of sales representatives and a Technical Service Department.

Typical Panel Installation
Connection at Footing Drain



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