

## 1. Product Name

Hydrodrain®

## 2. Product Description

### Basic Use

Hydrodrain is a composite drainage layer consisting of a three-dimensional drainage core and a filter fabric. The filter fabric is bonded to the core, preventing intrusion of the fabric into the flow channels. The fabric extends equally (approx. 2") along both long sides, beyond the core for overlap adjoining rolls. Hydrodrain is ideal anywhere a subsurface drainage course is required. Typical applications include foundation walls, trench drains, planters, plaza decks and roof assemblies.

### Advantages

- Reduces hydrostatic pressure on below-grade structures
- Enhances conventional waterproofing systems by transmitting water into a collection system before it reaches the wall substrate
- Decreases the risk of potential freeze-thaw damage to a concrete wearing surface

- Eliminates the bulk and weight of conventional aggregate type drainage media
- Materials are resistant to all known naturally occurring earth salts and minerals
- The white filter fabric (Hydrodrain 300, 302 and 1000) reduces the potential heat build up underneath the drainage layer decreasing the potential for STYROFOAM® insulation deformation.

### Limitations

- Hydrodrain is not to be used as the sole protection for Hydrotech roofing and waterproofing materials
- Hydrodrain is not to be set directly into or over Hydrotech's Monolithic Membrane 6125® without the installation of a protection course

### Composition and Materials

Hydrodrain 300, 302 and 1000 consist of a heavy duty, high density polyethylene geonet-type drainage core, containing 10% post-industrial recycled content, with a non-woven white filter fabric heat fused to the core ridges on

one or both sides.

Hydrodrain 400, 420, 700, and 990 consists of an impermeable polypropylene sheet, containing 12.5% post-industrial recycled content formed under heat and pressure to produce a high-flow dimple-type drainage core with woven or non-woven filter fabric bonded to one side.

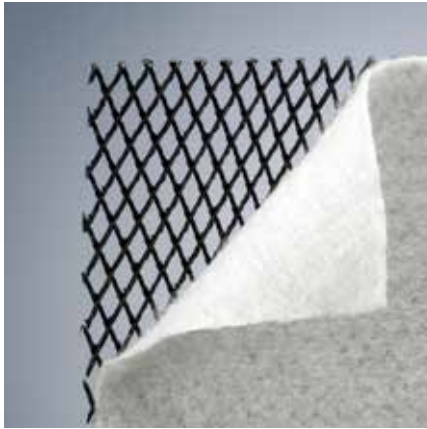
### Types

Hydrodrain 300 is a geonet-type core with non-woven white filter fabric bonded to one side. The filter fabric retains soil or sand particles as well as freshly placed concrete allowing filtered water to pass through to the drainage core. Hydrodrain 300 is primarily installed horizontally for areas subjected to heavy loading or vehicular traffic but may also be installed vertically. Hydroflex 30 or another approved protecting layer must be installed over Hydrotech's roofing and waterproofing membranes if Hydrodrain 300 is installed above.

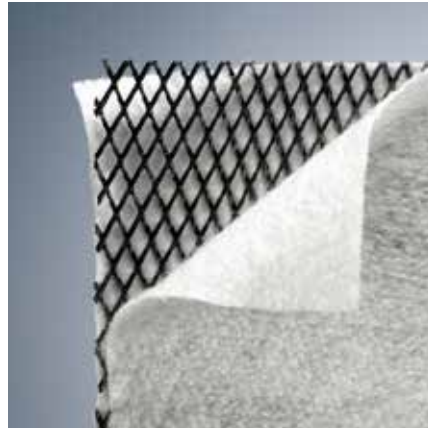
Hydrodrain 302 is identical to Hydrodrain 300 with the addition of a second layer of the non-woven white filter

## PHYSICAL PROPERTIES (Table 1)

PROPERTY	TEST METHOD	UNITS	Geonet Style			Dimple Style			
			300	302	1000	400	420	700	990
Thickness	ASTM D1777	inches (mm)	0.25 (6.35)	0.25 (6.35)	0.25 (6.35)	0.4 (10.16)	0.4 (10.16)	0.4 (10.16)	0.4 (10.16)
Compressive Strength	ASTM D1621	psf (kN/m <sup>2</sup> )	40,000 (1,915)	40,000 (1,915)	40,000 (1,915)	15,000 (718)	15,000 (718)	21,000 (1,005)	30,000 (1,436)
Core Flow @3600 psf Hydraulic gradient = 1 (per unit width)	ASTM D4716	gal/min/ft (l/min/m)	8.5 (106)	8.5 (106)	8.5 (106)	21 (261)	21 (261)	23 (286)	24 (298)
Fabric Flow	ASTM D4491	gal/min/ft <sup>2</sup> (l/min/m <sup>2</sup> )	150 (6,112)	150 (6,112)	150 (6,112)	140 (5,704)	140 (5,704)	60 (2,460)	60 (2,460)
Fabric Grab Tensile Strength	ASTM D4632	lb (kN)	95 (.423)	95 (.423)	95 (.423)	100 (0.45)	100 (0.45)	MD 370 (1.65) CD 250 (1.11)	MD 370 (1.65) CD 250 (1.11)
Fabric AOS (EOS)	ASTM D4751	U.S. Sieve (mm)	50 (0.3)	50 (0.3)	50 (0.3)	70 (0.212)	70 (0.212)	40 (0.42)	40 (0.42)
Fabric Puncture Strength	ASTM D4833* ASTM D6241	lb (kN)	55* (0.245)	55* (0.245)	55* (0.245)	250 (1.113)	250 (1.113)	850 (3.78)	850 (3.78)
Fabric UV Resistance @ 500 hours	ASTM D4355	% strength retained	70	70	70	70	70	-	-
		Roll Dimensions	4' x 75'	4' x 75'	4' x 50'	4' x 50'	4' x 50'	4' x 50'	4' x 50'
		Roll Weight	70 lbs	80 lbs	55 lbs	39 lbs	40.5 lbs	50 lbs	52 lbs



300



302



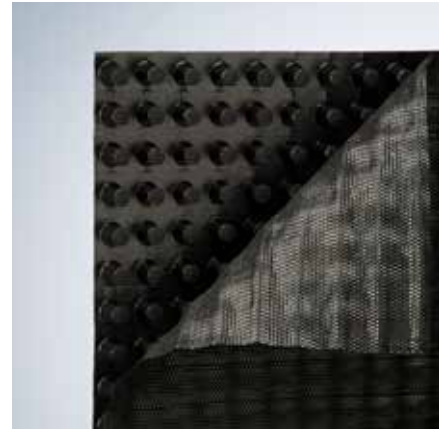
1000



400



420



700

fabric to the back side. The bottom layer of filter fabric can assist in dispersing water in flat applications and can be used in situations where drainage from both sides is required. Hydrodrain 30 or another approved protecting layer must be installed over Hydrotech's roofing and waterproofing membranes if Hydrodrain 302 is installed above.

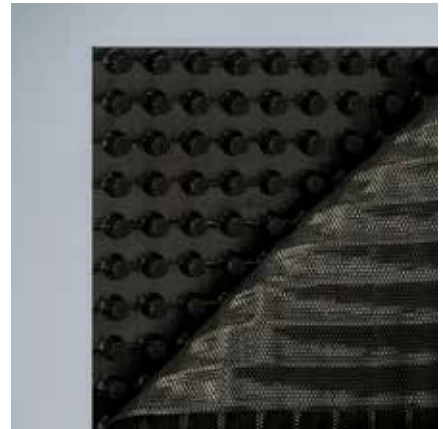
Hydrodrain 1000 is identical to Hydrodrain 300 with the addition of a layer of heavy duty fabric to the back side. The heavy duty fabric provides additional protection and cushion against the roofing/waterproofing membrane. Hydrodrain 1000 is primarily installed horizontally in roofing applications where Hydroflex 10 separation/protection sheet is installed over the MM 6125 membrane but may also be installed vertically directly over cured LM6090 and MM 7800, or VM75 membranes.

Hydrodrain 400 is a dimple-type core with non-woven filter fabric bonded to one side. The filter fabric retains soil or sand particles as well as freshly placed concrete allowing filtered water to pass through to the drainage core. Hydrodrain 400 is primarily installed vertically for moderate duty applications but may also be installed horizontally. Hydroflex 30 or another approved protecting layer must

be installed over Hydrotech's roofing and waterproofing membranes if Hydrodrain 400 is installed above. **Hydrodrain 400 may not be installed directly over STYROFOAM® insulation.**

Hydrodrain 420 is identical to Hydrodrain 400 with the addition of a polymeric laminate film to the back side. The polymeric film provides additional protection to the roofing/waterproofing membrane allowing Hydrodrain 420 to be installed directly over cured LM6090 and MM 7800, or VM75 membranes. Hydroflex 10 or 30 protection is still required when Hydrodrain 420 is to be installed over MM 6125. Hydrodrain 420 is primarily installed vertically but may also be installed horizontally. **Hydrodrain 420 may not be installed directly over STYROFOAM® insulation.**

Hydrodrain 700 is virtually identical to Hydrodrain 400 except that a woven filter fabric is bonded to one side. The filter fabric retains soil or sand particles as well as freshly placed concrete allowing filtered water to pass through the to the drainage core and provides additional compressive strength to the overall drainage composite. Hydrodrain 700 is primarily installed vertically for moderate duty applications but may also



990

be installed horizontally. Hydroflex 30 or another approved protecting layer must be installed over Hydrotech's roofing and waterproofing membranes if Hydrodrain 700 is installed above. **Hydrodrain 700 may not be installed directly over STYROFOAM® insulation.**

Hydrodrain 990 is identical to Hydrodrain 700 except that the dimpled core consists of a heavier duty polypropylene sheet that provides a higher compressive strength. The woven filter fabric bonded to one side retains soil or sand particles as well as freshly placed concrete allowing filtered water to pass through the to the drainage core.

Hydrodrain 990 is primarily installed horizontally where high compressive strength and flow are desired but may also be installed vertically. Hydroflex 30 or another approved protecting layer must be installed over Hydrotech's roofing and waterproofing membranes if Hydrodrain 990 is installed above. **Hydrodrain 990 may not be installed directly over STYROFOAM® insulation.**

#### Size/Packaging

All Hydrodrain product is shipped in rolls packaged in polyethylene bags. Refer to Table 1 for roll dimensions and weights.

### 3. Technical Data

Refer to Table 1 for typical physical properties of Hydrodrain.

### 4. Installation

#### Horizontal Installations (all types)

The waterproofing should have been installed, properly protected, and tested for leaks. The area to be covered with Hydrodrain should be swept clean of all loose debris.

Start unrolling the first roll of Hydrodrain along an edge of the area to be covered with the filter fabric facing up. The fabric overlap along the work area perimeter should be folded under the core all along the perimeter edge. (Fig. 1) If installing Hydrodrain along a sloped surface, installation should begin at the bottom of the slope, extending upslope so that a fabric overlap from the subsequent rolls upslope will shingle down over the previous roll.

Subsequent rolls of Hydrodrain should be installed so that the drain cores directly abut each other. This may necessitate peeling the fabric back off of the core on one roll of Hydrodrain to allow the fabric overlap from the adjacent roll to lay flat across the top of the adjacent core. The peeled back fabric may then be laid flat across the top of the adjacent roll. (Fig. 2) All joints and core edges must be covered/wrapped with filter fabric.

At roll ends, this may be accomplished by peeling the filter fabric back from the core of the to-be-placed roll, exposing at least 4 inches of drainage core. The core is then cut off and the end of the roll positioned so that the exposed core abuts the previous core. The excess fabric is then lapped over the previous roll of Hydrodrain. (Fig. 3)

**Installed Hydrodrain should not be left exposed for extended periods (> 30 days). If installed over STYROFOAM insulation steps**

**must be taken to reduce the chances of heat build up due to sun and ambient temperatures. Damage to STYROFOAM can occur in ambient temperatures as low as 85 - 90 degrees F. Refer to Technical Bulletin #3 for more information.**

*Notes: When necessary, additional filter fabric may be cut and used to simply cover over or wrap any exposed or open drainage core edges. This may be especially helpful in instances where the memory inherent in the geonet-type cores results in wavy edges.*

*Filter fabric overlaps may be secured over the adjacent roll of Hydrodrain as necessary with duct tape or a compatible adhesive.*

*Hydrodrain may be spot attached to the surface of protection course with double-sided tape or a compatible adhesive. Spot attachment over STYROFOAM insulation may be accomplished with double-sided tape, a compatible adhesive or staples at least 1 inch shorter than the thickness of the foam.*

#### Vertical Installations (Hydrodrain 400, 420, 700, 990, 1000)

The waterproofing should have been installed, properly protected (if necessary), and fully cured (if required).

The height of the wall or lift to be covered should be measured, adding sufficient material if necessary for overlapping the drain tile or linear collection assembly at the base of the wall. Alternatively, extra/additional filter fabric may be used to overlap the first lift of Hydrodrain at the base of the wall and warp the drain tile.

Hydrodrain should be unrolled and cut to length if necessary.

#### Total Height With One Lift

When the total height of the wall will be covered with a single lift of Hydrodrain, start by peeling the filter fabric back from the drain core at the top of the roll to expose 4 inches of the core.

*Note: the drain core should remain 6 – 12 inches below the final surface of the backfill*

Glue the fabric overlap at the top of the wall using double-stick tape, duct tape, a compatible adhesive, or stick pins depending on the surface. (Fig. 4) *Note: nails or staples are not appropriate if they will penetrate the waterproofing.*

Position the Hydrodrain down the wall, maintaining a straight and vertical installation.

At the drain tile or linear collection assembly (if installed), peel back the filter fabric from the drain core and wrap the drain tile with the fabric. The drain core can be trimmed as necessary. If no drain tile is installed, wrap the bottom edge of the core with the filter fabric overlap or additional filter fabric.

Install adjacent rolls of Hydrodrain in the same manner described above. If necessary, adhere the Hydrodrain along vertical joints making sure that the drain cores abut directly and that the filter fabric overlap completely covers the joints. Use additional filter fabric, adhered over the joints, if necessary to ensure complete coverage of the joints.

#### Total Height With Multiple Lifts

Installation of Hydrodrain in multiple lifts is essentially identical to the single lift installation described above except that the filter fabric lap is formed and adhered to the wall (or waterproofing) surface only at the very top of the installation – only with the last lift of Hydrodrain.

The top of each preceding lift of Hydrodrain must be installed so that the drain cores of adjacent lifts directly abut each other. Any filter fabric overlaps should be shingled from the upper lift down over the lower lift of Hydrodrain. (Fig. 5)

Placement of backfill should occur as soon as possible after Hydrodrain installation.

### 5. Availability and Cost

Contact your local American Hydrotech, Inc. representative of Hydrotech directly.

### 6. Guarantees

Contact American Hydrotech, Inc. for specific warranty information.

### 7. Maintenance

None required.

### 8. Technical Services

Technical support is provided by a trained network of sales representatives and Hydrotech's Technical Services Department.

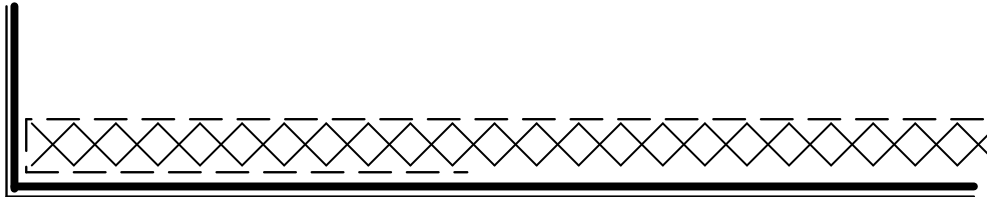


Fig. 1



Fig. 2

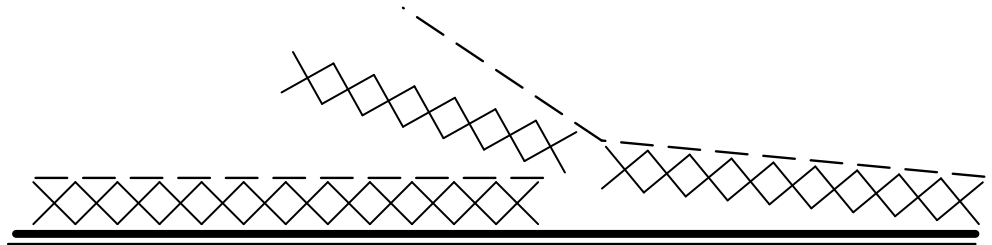


Fig. 3

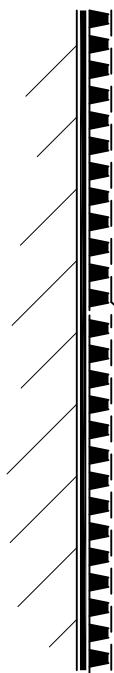


Fig. 4

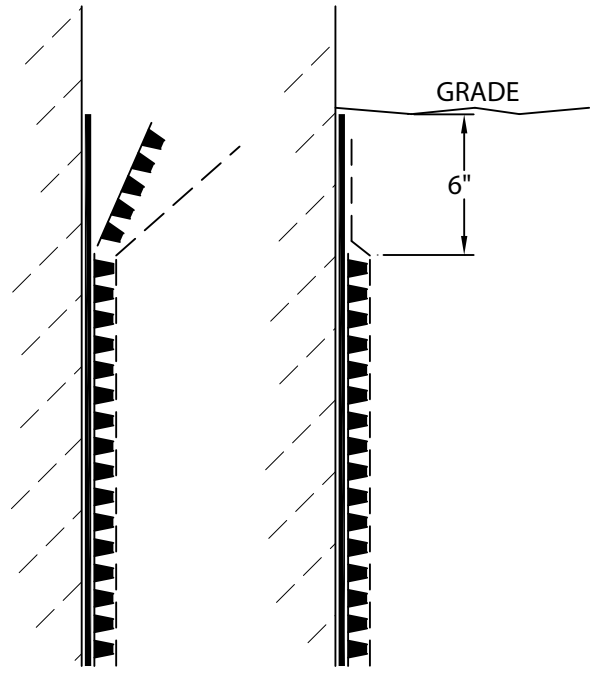


Fig. 5



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