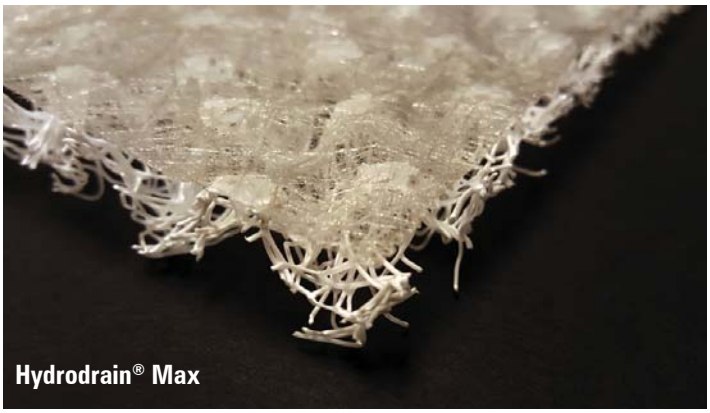
Garden Roof® Rock Wool Assembly

Rock Wool

To provide enhanced stormwater capabilites and lower assembly weights, Hydrotech offers its **Garden Roof® Rock Wool Assembly**. Originally created for its insulative qualities, rock wool has long been used in the horticulture industry for growing plants. Its ability to store a great volume of water increases the stormwater capacity of a Garden Roof while keeping the overall assembly height thinner and the assembly weight to a minimum.

Rock wool comes in several types however Hydrotech only works with needled rock wool from Knauf Insulation. Needled rock wool does not have the added binders of other rock wool products that can degrade and decrease effectiveness in a short time.

- Instagreen® Carpet
- LiteTop® Engineered Growing Media
- Rock Wool (number of layers as specified)
- Hydrodrain® Max
- Dow STYROFOAM® insulation
- Root Stop®
- Hydrotech MM6125®EV-FR Assembly
- Approved substrate



Hydrodrain® Max

Rock wool can be installed in multiple layers if needed to achieve higher stormwater capacities. In multiple layer rock wool assemblies, the subsequent layers of rock wool are positioned at 90 degrees to the layer below.

In all Rock Wool assemblies, **Hydrodrain® Max** is required to provide a proper air layer over Dow STYROFOAM® insulation or other substrates and to create an effective drainage pathway for excess water to flow to the drains below.

Consisting of entangled plastic fibers with a thin synthetic fabric cover, Hydrodrain® Max is a unique product that resists crushing in the Garden Roof® Assembly and provides air to the plant roots into the lower portions of the assembly.

LiteTop® Components

Hydrotech recommends its LiteTop® Intensive growing media in the Garden Roof® Rock Wool Assembly in order to provide the proper growing environment for the recommended InstaGreen® Carpet. By inself, Hydrotech's LiteTop® is a high performance growing media with very strong stormwater capacities. When combined with rock wool, the total assembly is very effective in storing greater amounts of stormwater. Composed of three primary ingredients — **lightweight aggregates, sand graded aggregates and compost** — LiteTop® has a long and proven history of providing the organic components and nutrients needed for optimum long-term plant growth on projects across the United States.

Hydrotech Garden Roof® Rock Wool Assembly

Project: 1600 Pennsylvania Avenue, Washington, DC
Roof Area: West Wing Roof

DDOE Green Roof Formula:

Equation 3.1 Storage Volume for Green Roofs

$$Sv = \frac{SA \times [(d \times \eta_1) + (DL \times \eta_2)]}{12}$$

where:

- Sv = storage volume (ft^3)
- SA = green roof area (ft^2)
- d = media depth (in.) (minimum 3 in.)
- η_1 = verified media maximum water retention (use 0.15 as a baseline default in the absence of verification data)
- DL = drainage layer depth (in.)
- η_2 = verified drainage layer maximum water retention (use 0.15 as a baseline default in the absence of verification data)

15,767 (SA) Green Roof Area
0.93 (n2) Rock Wool water capacity (Data from Turf Diagnostics Report)
0.51 (n1)Hydrotech Intensive LiteTop blend maximum water capacity (Data from Turf Diagnostics Report)

	Area of Green Roof (SA)	Inches of Media (d)	Maximum media water capacity	Inches of Rock Wool (DL)	Maximum Rock Wool water capacity	Cubic Feet of water storage	Gallons of water storage	Gallons per SF	%-age of baseline storage requirement
Baseline Stormwater Storage Requirement:	=					4,264	31,895	2.02	
Hydrotech 3+3 (Litetop + RW)									**Assembly Exceeds Baseline Storage**
	15,767 x	3	x 0.51	+ 3	x 0.93	= 5,676	42,457	2.69	133%
		12							
Hydrotech 3+2 (Litetop + RW)									**Assembly Exceeds Baseline Storage**
	15,767 x	3	x 0.51	+ 2	x 0.93	= 4,454	33,317	2.11	104%
		12							
Hydrotech 3+1 (Litetop + RW)									
	15,767 x	3	x 0.51	+ 1	x 0.93	= 3,232	24,177	1.53	76%
		12							
Hydrotech 5+1 (Litetop + RW)									**Assembly Exceeds Baseline Storage**
	15,767 x	5	x 0.51	+ 1	x 0.93	= 4,572	34,202	2.17	107%
		12							
Hydrotech 6+1 (Litetop + RW)									**Assembly Exceeds Baseline Storage**
	15,767 x	6	x 0.51	+ 1	x 0.93	= 5,243	39,214	2.49	123%
		12							

Stormwater Management with Rock Wool

Hydrotech works with Architects, Landscape Architects and Civil Engineers when developing stormwater management plans using the Garden Roof Assemblies. The Garden Roof® Rock Wool Assembly adds a dramatic new dimension to this aspect of green infrastructure.

Hydrotech is very familiar with the municipal codes and formulas that currently allow rock wool as a BMP element. Hydrotech regularly tests its LiteTop® growing media blends to be sure that the blends are consistently high performance components in its Garden Roof® assembly.

When working with a specific project, Hydrotech can provide a variety of assembly options to address the particular stormwater needs of the project. Most often, the Civil Engineer has determined the stormwater storage needs and the Architect / Landscape Architect has developed the roof area plan in which that stormwater needs to be stored. Hydrotech has developed software that it uses to provide the engineering and design team with a range of potential assembly options to address specific stormwater needs. The goal is to provide the optimum assembly that meets the needs of the stormwater management plan, create the proper ballasting for the roof and support the enduring, thriving vegetation that provides benefits to the Owner for years to come.

Hydrotech's Garden Roof® Rock Wool Assembly is fully warrantable; contact Hydrotech for information. Hydrotech has a full set of specifications and details available for all of its Garden Roof® assemblies.

Contact Hydrotech to discuss how the Garden Roof® Rock Wool Assembly can take your project to the next level in stormwater management.

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