## Garden Roof<sup>®</sup> Rock Mineral Wool Assembly





**Rock Mineral Wool** 



To provide enhanced stormwater capabilities and lower assembly weights, Hydrotech offers its **Garden Roof**<sup>®</sup> **Rock Mineral Wool Assembly**. Originally created for its insulative qualities, rock mineral 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 mineral wool is a lightweight horticultural grade material made of long rock mineral wool fibers specially needled to form a compact and dimensionally stable felt. The product is made from virgin rock mineral fibers with no binders and has excellent water retention capacities.

- Instagreen<sup>®</sup> Carpet
- LiteTop® Intensive Engineered Growing Media
- Rock Mineral Wool (number of layers as specified)
- Hydrodrain<sup>®</sup> Max
- DuPont<sup>™</sup> Styrofoam<sup>™</sup> Brand Insulation
   Root Stop<sup>®</sup>
- Hydrotech MM6125® FR Assembly
- Approved substrate



LiteTop<sup>®</sup> Components

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

In all rock mineral wool assemblies, **Hydrodrain<sup>®</sup> Max** is required to provide a proper air layer over DuPont<sup>™</sup> Styrofoam<sup>™</sup> Brand 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 light fabric backing, Hydrodrain<sup>®</sup> Max is a unique product that resists crushing in the Garden Roof<sup>®</sup> Assembly and provides air to the plant roots into the lower portions of the assembly.

Hydrotech recommends its LiteTop<sup>®</sup> Intensive growing media in the Garden Roof<sup>®</sup> Rock Mineral Wool Assembly in order to provide the proper growing environment for the recommended InstaGreen<sup>®</sup> Carpet. Hydrotech's LiteTop<sup>®</sup> is a high performance growing media with very strong stormwater capacities. When combined with rock mineral wool, the total assembly is very effective in storing greater amounts of stormwater. Composed of three primary ingredients — **lightweight aggregates, sand, and compost** — LiteTop<sup>®</sup> 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.

TECH							
	Hydrote	ech Ga	rden R	oof® Ro	ck Woo	l Ass	embly
1600 P	ennsvlva	nia Ave	nue. Was	shinaton, I	DC		5
West Wi	ng Roof		,				
of Formula:	Equation	13.1 Storage V	olume for Green	Roofs			
			$Sv = \frac{1}{2}$	$d \times [(d \times \eta_1) + (DL)]$	< η <sub>2</sub> )]		
	where:			12			
	S	v = stor	age volume (ft <sup>3</sup> )				
	5	iA = gree ∕ = med	en roof area (ft <sup>2</sup> ) lia depth (in.) (m	nimum 3 in.)			
	7	η = veri abse	fied media maxir ence of verification	num water retentio on data)	n (use 0.15 as a b	oaseline defa	ult in the
	L	DL = drai	nage layer depth fied drainage lay	(in.) er maximum water	retention (use 0.	15 as a base	ine
		defa	ult in the absenc	e of verification dat	a)		
Green Roof A Rock Wool w Hydrotech Inte	Area ater capacity (Dat ensive LiteTop ble	a from Turf Dia nd maximum v	agnostics Report vater capacity (D	ata from Turf Diagn	ostics Report)		
			Maximur	n			%-age of
Inches of	Maximum media water	Inches o Rock Wo	f Rock Wo ol water	ol Cubic Feet of water	Gallons of water	Gallons	baseline storage
Media (d)	capacity	(DL)	capacity	storage	storage	per SF	requirement
		nage Re	quiremen	t: = 4,264	31,895	2.02	
n 3+3 (Li <mark>3</mark>	tetop + RV × 0.51	N)  + <mark>3</mark>	quiremen x 0.93	t: = 4,264 Assembly E = 5,676	31,895	2.02 Baseline 2.69	e Storage
n 3+3 (Li <mark>3</mark>	tetop + RV × 0.51 12	N)  + <mark>3</mark>	quiremen x 0.93	t: = 4,264	31,895 xceeds E	2.02 Baseline 2.69	e Storage 133%
n 3+3 (Li <u>3</u> n 3+2 (Li	itetop + RV × 0.51 12 itetop + RV	W)  + <mark>3</mark>  )	quiremen × 0.93	t: = 4,264 Assembly E = 5,676 Assembly E	31,895 xceeds E 42,457 xceeds E	2.02 aseline 2.69 aseline	e Storage 133% e Storage
n 3+3 (Li 3 n 3+2 (Li 3	tetop + RV × 0.51 12 tetop + RV × 0.51	Nage Re V) ]+ <mark>3</mark> V) ]+ <mark>2</mark>	quiremen / × 0.93 / × 0.93	t: = 4,264 Assembly E = 5,676 Assembly E = 4,454	31,895 xceeds E 42,457 xceeds E 33,317	2.02 aseline aseline 2.11	e Storage 133% e Storage 104%
n 3+3 (Li 3 n 3+2 (Li 3	itetop + RV x 0.51 12 itetop + RV x 0.51 12	W)  + <mark>3</mark>  + <mark>3</mark>  + <mark>2</mark>	quiremen / x 0.93 / x 0.93	t: = 4,264 Assembly E = 5,676 Assembly E = 4,454	31,895 xceeds E 42,457 xceeds E 33,317	2.02 Caseline Caseline Caseline Caseline	Storage 133% Storage 104%
n 3+3 (Li 3 n 3+2 (Li 3 n 3+1 (Li	tetop + RV × 0.51 12 tetop + RV × 0.51 12 12 tetop + RV	N)  + 3  + 2  + 2 N)	x 0.93	t: = 4,264 Assembly E = 5,676 Assembly E = 4,454	31,895	2.02 aseline 2.69 aseline 2.11	e Storage 133% e Storage 104%
n 3+3 (Li 3 n 3+2 (Li 3 n 3+1 (Li 3	tetop + RV × 0.51 12 tetop + RV × 0.51 12 tetop + RV × 0.51 × 0.51	N)  + <u>3</u> N)  + <u>2</u> N)	<pre>quiremen / x 0.93 / x 0.93 / x 0.93 / x 0.93</pre>	t: = 4,264 Assembly E = 5,676 Assembly E = 4,454 = 3,232	31,895 ixceeds E 42,457 ixceeds E 33,317 24,177	2.02 aseline 2.69 2.11 2.11	<ul> <li>Storage</li> <li>133%</li> <li>Storage</li> <li>104%</li> <li>76%</li> </ul>
n 3+3 (Li 3 n 3+2 (Li 3 n 3+1 (Li 3	tetop + RV × 0.51 12 tetop + RV × 0.51 12 tetop + RV × 0.51 12 tetop + RV × 0.51 12 12 12 12 12 12 12 12 12 1	N)  + 3 N)  + 2 N)  + 1	quiremen x 0.93 x 0.93 x 0.93 x 0.93	t: = 4,264 Assembly E = 5,676 Assembly E = 4,454 = 3,232	31,895         xceeds E         42,457         xceeds E         33,317         24,177	2.02 2.69 2.69 2.11 1.53	<ul> <li>Storage</li> <li>133%</li> <li>Storage</li> <li>Storage</li> <li>104%</li> <li>76%</li> </ul>
n 3+3 (Li 3 n 3+2 (Li 3 n 3+1 (Li 3 n 5+1 (Li	tetop + RV x 0.51 12 tetop + RV x 0.51 12 tetop + RV x 0.51 12 tetop + RV x 12 tetop + RV x 12 12 12 12 12 12 12 12 12 12	N)  + <u>3</u> N)  + <u>2</u> N)  + <u>1</u> N)	4 viremen	t: =       4,264         Assembly E       =         =       5,676         Assembly E       =         =       4,454         =       3,232         Assembly E       Assembly E	xceeds E 42,457 xceeds E 33,317 24,177	2.02 2.69 2.69 2.11 1.53	e Storage 133% e Storage 104% 76% e Storage
n 3+3 (Li 3 n 3+2 (Li 3 n 3+1 (Li 3 n 5+1 (Li 5	tetop + RV × 0.51 12 tetop + RV × 0.51 12 tetop + RV × 0.51 12 tetop + RV × 0.51	N)  + <u>3</u> N)  + <u>2</u> N)  + <u>1</u> N)	quiremen x 0.93 x 0.93 x 0.93 x 0.93 x 0.93	t: = 4,264 Assembly E = 5,676 Assembly E = 4,454 = 3,232 Assembly E = 4,572	31,895         xcceds E         42,457         xcceds E         33,317         24,177         xcceds E         34,202	2.02 aseline 2.69 2.11 1.53 aseline 2.17	<ul> <li>Storage</li> <li>133%</li> <li>Storage</li> <li>104%</li> <li>76%</li> <li>Storage</li> <li>107%</li> </ul>
n 3+3 (Li 3 n 3+2 (Li 3 n 3+1 (Li 3 n 5+1 (Li 5	tetop + RV × 0.51 12 tetop + RV × 0.51 12 tetop + RV × 0.51 12 tetop + RV × 0.51 12 12 12 12 12 12 12 12 12 1	N)  + 3 N)  + 2 N)  + 1 N)  + 1	<pre>quiremen</pre>	t: = 4,264 <b>Assembly E</b> = 5,676 <b>Assembly E</b> = 4,454 = 3,232 <b>Assembly E</b> = 4,572	31,895         Exceeds E         42,457         Exceeds E         33,317         24,177         Exceeds E         Sxceeds E         34,202	2.02 aseline 2.69 2.11 1.53 aseline 2.17	<ul> <li>Storage</li> <li>133%</li> <li>Storage</li> <li>104%</li> <li>76%</li> <li>Storage</li> <li>107%</li> </ul>
n 3+3 (Li 3 n 3+2 (Li 3 n 3+1 (Li 3 n 5+1 (Li 5 n 6+1 (Li	tetop + RV × 0.51 12 tetop + RV	N)  + 3 N)  + 2 N)  + 1 N)  + 1 N)	x 0.93 x 0.93 x 0.93 x 0.93 x 0.93	t: = 4,264 Assembly E = 5,676 Assembly E = 4,454 = 3,232 Assembly E = 4,572 Assembly E	31,895         ixceeds E	2.02 aseline 2.69 2.11 1.53 aseline 2.17 aseline	<ul> <li>Storage</li> <li>133%</li> <li>Storage</li> <li>104%</li> <li>76%</li> <li>Storage</li> <li>107%</li> <li>Storage</li> </ul>
	ITECH IMPANY 1600 P West Wi of Formula: Green Roof / Rock Wool w Hydrotech Inte Inches of Media (d)	MARNY Hydrote 1600 Pennsylva West Wing Roof of Formula:	MPANY Hydrotech Ga 1600 Pennsylvania Ave West Wing Roof of Formula: Equation 3.1 Storage W where: SV = stor SV = stor SV = stor SV = stor SV = stor A = gree d = meet d = me	Hydrotech Garden Red MPANY Hydrotech Garden Red 1600 Pennsylvania Avenue, Wass West Wing Roof of Formula: Equation 3.1 Storage Volume for Green $S_V = \frac{1}{2}$ where: $S_V = \frac{1}{2}$ storage volume ( $n^2$ ) $S_A = \frac{1}{2}$ green roof area ( $n^2$ ) $S_A = \frac{1}{2}$ green roo	Hydrotech Garden Roof® Roo MPANY Hydrotech Garden Roof® Roo 1600 Pennsylvania Avenue, Washington, I West Wing Roof of Formula: Euleration 3.1 Storage Volume for Green Roofs Sv = $\frac{St \times [d(x, \eta, t) + (DL)]}{12}$ where: Sv = storage volume (t <sup>1</sup> ) SA = green reof area (t <sup>2</sup> ) d = molia deph (in) (minimum 3 in) $\eta_{i}$ = verified media maximum vater relation $\eta_{i}$ = verified media maximum vater relation data DL = verified datinage layer maximum water default in the absence of verification data Green Roof Area Rock Wool vater capacity (Data from Tur Diagnostics Report) Hydrolech Intensive Liefop blend maximum water goder (DL) Cubic Feet Maximum Inches of Rock Wool vater Maximum Inches of Rock Wool Cubic Feet Media (d) media water Rock Wool vater	Hydrotech Garden Roof® Rock Woo 1600 Pennsylvania Avenue, Washington, DC West Wing Roof of Formula: $E_{uation 3.1 Storage Volume for Green Roofs}$ $S_{V} = \frac{SA \times \{d' = T_{A}\} + \{DI \times T_{A}\} \}}{12}$ where: $S_{V} = storage volume (f^{1})$ $M = green roof area (f^{2})$ $DI = drainage layer depth (in.)$ $DI = drainage layer depth (in.)$ $Tortech Intensive Life Top blend maximum water creation (use 0.15 as a top default in the absence of verification data) Green Roof Area Rock Wool vater capacity (Data from Turf Diagnostics Report) Hydrotech Intensive Life Top blend maximum water capacity (Data from Turf Diagnostics Report) Hydrotech Intensive Life Top blend maximum water capacity (Data from Turf Diagnostics Report) Maximum inches of Rock Wool Rock Wool Cubic Feet Gallons of Maximum inches of Rock Wool Rock Wool Cubic Feet Gallons of Cubic Feet Gallons of Cubic Feet Gallons of Cubic Feet Storage$	Hydrotech Garden Roof® Rock Wool Ass Hydrotech Garden Roof® Rock Wool Ass 1600 Pennsylvania Avenue, Washington, DC West Wing Roof of Formula: Equation 3.1 Storage Volume for Green Roofs $S_{V} = \frac{SA - \left[ (d - r_{h}) + (DL \cdot r_{h}) \right]}{12}$ where: Sv = storage volume (ft <sup>1</sup> ) M = green neof area (ft <sup>2</sup> ) M = green roof area (ft <sup>2</sup> ) M = green maximum water retention (use 0.15 as a baseline defa d = areas period (ft) M = green maximum water retention (use 0.15 as a baseline defa default in the absence of verification data) Green Roof Area Rock Wool vater capacity (Otah from Turf Diagnostics Report) Hydrotech Intensive LieTop blend maximum water protection (use 0.15 as a baseline default in the absence of verification data) Green Roof Area Rock Wool vater capacity (Otah from Turf Diagnostics Report) Hototech Intensive LieTop blend maximum water protection (use 0.15 as a baseline default in the absence of verification data) Inches of Maximum Inches of Rock Wool Cubic Feet Gallons of Maximum Rock Wool Cubic Feet Gallons of storage per SF

## Stormwater Management with Rock Mineral Wool

Hydrotech works with Architects, Landscape Architects and Civil Engineers when developing stormwater management plans using the Garden Roof<sup>®</sup> Assemblies. The Garden Roof<sup>®</sup> Rock Mineral 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 mineral wool as a BMP element. Hydrotech regularly tests its LiteTop<sup>®</sup> growing media blends to ensure that the blends are consistently high performance components in its Garden Roof<sup>®</sup> assembly.

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. Hydrotech works with the civil engineer on stormwater storage needs and provides calculations based on these requirements. 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<sup>®</sup> Rock Mineral 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<sup>®</sup> assemblies.

Contact Hydrotech to discuss how the Garden Roof<sup>®</sup> Rock Mineral Wool Assembly will take your project to the next level in stormwater management.





A SIKA COMPANY © 2024 AMERICAN HYDROTECH, INC. American Hydrotech, Inc. 401 N. Michigan Ave, Chicago, Illinois 60611 800.877.6125; 312.337.4998 www.hydrotechusa.com

The information given is based on data and knowledge considered to be true and correct and is offered for the user's consideration, investigation and verification. The information is subject to change without notice. The determination of suitability and fitness of the products and the application described herein for a particular purpose is the sole responsibility of the user. Please read all statements, recommendations and suggestions in conjunction with the conditions of sale which apply to all goods sold by American Hydrotech, Inc. for the United States and abroad, or Hydrotech Membrane Corporation for Canada, including the exyres disclaimer by each company of the implied warranties of merchantability or fitness for a particular purpose. Nothing stated herein is intended to infringe on any patent or copyright.