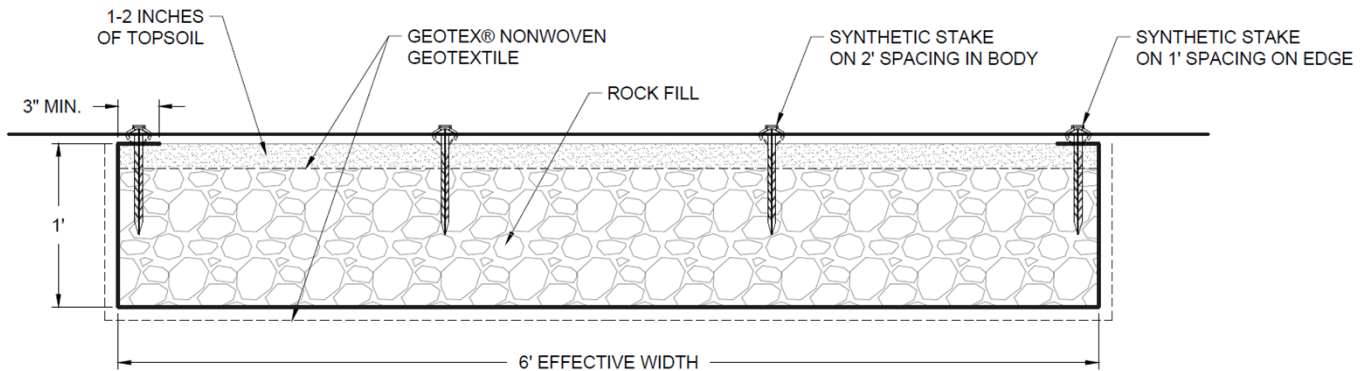




The PYRAMATTRESS® Engineered Mattress System is an erosion control solution designed to resist potential scour and erosion caused by the constant flow of water or high hydraulic stresses. The PYRAMATTRESS Engineered Mattress system consists of the following components:

- PYRAMAT® 75 High Performance Turf Reinforcement Mat (HPTRM)
- Fiber-composite internal bracing
- UV Stabilized Synthetic Stakes
- GEOTEX® Nonwoven Geotextiles

The system utilizes the durability and erosion resistance of our PYRAMAT 75 HPTRM and constructs a geosynthetic/soil/rock composite for protection of channels, slopes, and spillways. PYRAMATTRESS components are corrosion resistant and promote vegetation, allowing for an increased design life that is environmentally friendly. The expected design life of the PYRAMATTRESS Engineered Mattress is up to 75 years because of its superior UV resistance, strength, and durability.



The internal braces are engineered to integrate with PYRAMAT 75 HPTRM and provide internal structure during construction to facilitate the infilling of PYRAMATTRESS and the alignment of internal baffles. The bracing members are designed to interlace through PYRAMAT 75 HPTRM resulting in superior material connection and system performance throughout the project's design life. The synthetic stakes allow for easy and permanent connection between the HPTRM components.

The PYRAMAT 75 HPTRM component of PYRAMATTRESS is manufactured at a Propex facility with ISO 9001:2015 and 14001 certification and has property values listed below¹. Propex also performs internal Manufacturing Quality Control (MQC) tests that have been accredited by the Geosynthetic Accreditation Institute – Laboratory Accreditation Program (GAI-LAP).

PYRAMAT 75 HPTRM PROPERTIES

PROPERTY	TEST METHOD	ENGLISH	METRIC
ORIGIN OF MATERIALS			
% U.S. Manufactured		100%	
ENVIRONMENTAL IMPACT			
Carbon Footprint	GHG Protocol ISO 14064:2006 PAS 2050:2011	2.7 kg CO ₂ e/m ²	





PYRAMAT 75 HPTRM PROPERTIES

PROPERTY	TEST METHOD	ENGLISH	METRIC
PHYSICAL			
Thickness ²	ASTM D-6525	0.40 in	10.2 mm
Light Penetration (% Passing) ³	ASTM D-6567	10%	
Color	Visual	Green or Tan	
MECHANICAL			
Tensile Strength ²	ASTM D-6818	4000 x 3000 lbs/ft	58.4 x 43.8 kN/m
Elongation ²	ASTM D-6818	40 x 35 %	
Resiliency ²	ASTM D-6524	80%	
Flexibility ⁴	ASTM D-6575	0.534 in-lb	616,154 mg-cm
ENDURANCE			
UV Resistance % Retained at 3,000 hrs ⁴	ASTM D-4355	90%	
UV Resistance % Retained at 6,000 hrs ⁴	ASTM D-4355	90%	
PYRAMATTRESS HYDRAULIC PERFORMANCE			
Velocity (Vegetated) ^{4,5}	Large Scale	25 ft/sec	7.6 m/sec
Shear Stress (Vegetated) ^{4,5}	Large Scale	16 lb/ft ²	766 Pa
Velocity (Unvegetated) ^{4,6}	Large Scale	10 ft/sec	3.0 m/sec
Shear Stress (Unvegetated) ^{4,6}	Large Scale	4 lb/ft ²	192 Pa
Manning's n (Unvegetated) ^{4,7}	Calculated	0.040	

NOTES:

- The property values listed above are effective 01/10/2022 and are subject to change without notice. Values represent testing at time of manufacture.
- Minimum average roll values (MARV) are calculated as the typical minus two standard deviations. Statistically, it yields a 97.7% degree of confidence that any samples taken from quality assurance testing will exceed the value reported.
- Maximum Average Roll Value (MaxARV), calculated as the typical plus two standard deviations. Statistically, it yields a 97.7% degree of confidence that any sample taken during quality assurance testing will meet to the value reported.
- Typical Value.
- Maximum permissible velocity and shear stress has been obtained through vegetated testing programs featuring specific soil types, vegetation classes, flow conditions, and failure criteria. These conditions may not be relevant to every project nor are they replicated by other manufacturers. Please contact Propex for further information.
- Maximum permissible velocity and shear stress has been obtained through unvegetated testing with rock infill. Neither subgrade soil loss nor internal movement of rock infill was observed.
- Calculated as typical values from large-scale flexible channel lining test programs with a flow depth of 6 to 12 inches.

SYNTHETIC STAKE PROPERTIES

PROPERTY	ENGLISH	METRIC
Material	Polypropylene	
Durability	UV Stabilized	
Length	8 in.	20 cm



ENGINEERED EARTH ARMORING SOLUTIONS™

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