Material and Performance Specification Sheet

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P550 Turf Reinforcement Mat

The composite turf reinforcement mat (C-TRM) shall be a machine-produced mat of 100% UV stabilized polypropylene fiber matrix incorporated into a permanent three-dimensional turf reinforcement matting. The matrix shall be evenly distributed across the entire width of the matting and stitch bonded between the bottom and middle ultra heavy duty UV stabilized nettings with 0.50 x 0.50 inch (1.27 x 1.27 cm) openings and then covered by an ultra heavy duty UV stabilized nettings with 0.50 x 0.50 inch (1.27 x 1.27 cm) openings. The middle, dramatically corrugated (crimped) netting shall form prominent closely spaced ridges across the entire width of the mat. The three nettings shall be stitched together on 1.50 inch (3.81cm) centers with UV stabilized polypropylene thread to form a permanent three-dimensional turf reinforcement matting.

The P550 shall meet requirements established by the Erosion Control Technology Council (ECTC) Specification and the US Department of Transportation, Federal Highway Administration's (FHWA) *Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects, FP-03 Section 713.18 as a Type 5A, B, and C Permanent Turf Reinforcement Mat.*

Installation staple patterns shall be clearly marked on the turf reinforcement matting with environmentally safe paint. All mats shall be manufactured with a colored thread stitched along both outer edges (approximately 2-5 inches [5-12.5 cm] from the edge) as an overlap guide for adjacent mats.

Material Content		
Matrix	100% Polypropylene Fibers, UV stabilized	0.5 lbs/yd^2 (0.27 kg/m^2)
Nettings	Top and Bottom, UV stabilized Polypropylene	24 lb/1000 ft^2 (11.7 kg/100 m^2)
	Middle, corrugated UV stabilized Polypropylene	24 lb/1000 ft^2 (11.7 kg/100 m^2)
Thread	Polypropylene, UV stabilized	

P550 is available in the following roll sizes:

Width	6.5 ft (2.0 m)
Length	55.5 ft (16.9 m)
Weight ± 10%	52 lbs (23.59 kg)
Area	40.0 yd^2 (33.4 m^2)

Index Value Properties:

Property	Test Method	Typical
Thickness	ASTM D6525	0.76 in (19.3 mm)
Resiliency	ASTM 6524	95%
Density	ASTM D792	0.53 oz/in^3 (0.913 g/cm^3)
Mass/Unit Area	ASTM 6566	21.45 oz/yd^2 (728 g/m^2)
Porosity	ECTC Guidelines	96%
Open Volume/Unit Area	ECTC Guidelines	122,906 in^3/yd^2
Stiffness	ASTM D1388	366.3 oz-in
Light Penetration	ECTC Guidelines	16%
UV Stability	ASTM D4355 – 1000 hrs	100%
Tensile Strength –MD	ASTM D6818	763 lbs/ft (11.15 kN/m)
Elongation – MD	ASTM D6818	10%
Tensile Strength – TD	ASTM D6818	1134 lbs/ft (16.55 kN/m)
Elongation – TD	ASTM D6818	11%

Bench Scale Testing* (NTPEP):

Test Method	Parameters	Results
ECTC Method 2 Rainfall	50 mm (2 in)/hr for 30 min	SLR** = 10.79
	100mm (4 in)/hr for 30 min	SLR** = 9.98
	150 mm (6 in)/hr for 30 min	SLR** = 9.53
ECTC Method 3 Shear Resistance	**Shear at 0.50 inch soil loss**	**5.1 lbs/ft^2**
ECTC Method 4 Germination	Top Soil, Fescue, 21 day incubation	354% improvement of biomass

* Bench Scale tests should not be used for design purposes

** Soil Loss Ratio = Soil loss with Bare Soil/Soil Loss with RECP (soil loss is based on regression analysis)

Performance Design Values:

Maximum Permissible Shear Stress		
	Short Duration	Long Duration
Phase 1 Unvegetated	4.0 lbs/ft^2 (191 Pa)	3.25 lbs/ft^2 (156 Pa)
Phase 2 Partially Veg.	12.0 lbs/ft^2 (576 Pa)	12.0 lbs/ft^2 (576 Pa)
Phase 3 Fully Veg.	14.0 lbs/ft^2 (672 Pa)	12.0 lbs/ft^2 (576 Pa)
Velocity Unveg	12.5 ft/s (3.8 m/s)	
Velocity Veg.	25 ft/s (7.6 m/s)	

Slope Design Data: C Factors			
	Slope Gradients (S)		
Slope Length (L)	≤ 3:1	3:1 – 2:1	≥ 2:1
≤ 20 ft (6 m)	0.00045	0.0145	0.0425
20-50 ft	0.0173	0.0305	0.0495
≥ 50 ft (15.2 m)	0.0345	0.0465	0.0565

Roughness Coefficients- Unveg.	
Flow Depth	Manning's n
≤ 0.50 ft (0.15 m)	0.041
0.50 – 2.0 ft	0.040 – 0.014
≥ 2.0 ft (0.60 m)	0.013

Product Participant of: QDOR Performance Verified

Updated 3/09