

# CAPILLARY DRAINAGE MAT

*Capillary Drainage Mat* is a thermally-bonded laminate of three geotextiles. The top layer is a separation fabric with inter-fiber spaces carefully controlled to retain green roof planting media while allowing unrestricted root penetration and water drainage. The middle layer is a coarse-fiber mat with large inter-fiber spaces that provide controlled lateral water flow. The bottom layer is a capillary mat with exceptional water storage capacity that can wick water vertically in excess of 6.5". This composite also provides extraordinary mechanical strength and puncture resistance.



Capillary Drainage Mat is optimized for sloped green roofs that require high water retention and limited drainage. Its dense structure assures that it will retain its hydraulic properties under long-term loading. All rolls are electrically scanned for metal debris.

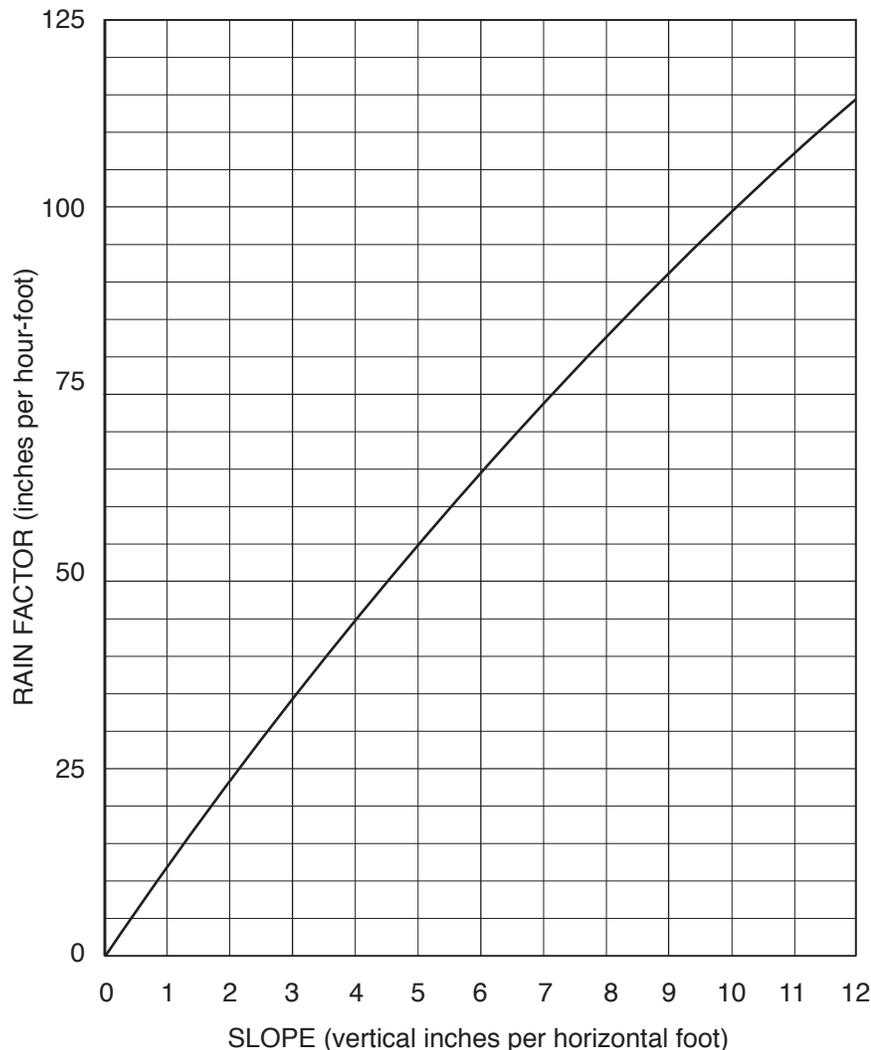
## PHYSICAL CHARACTERISTICS

Property	Test Method	US	Metric
Dry Weight (typical)	ASTM D5261	50 oz/yd <sup>2</sup>	1700 g/m <sup>2</sup>
Thickness (typical)	ASTM D5729	7/16 in	11 mm
Water Retention (marv)	ASTM E2398	0.23 gal/ft <sup>2</sup>	9.2 l/m <sup>2</sup>
Saturated Density (marv)	ASTM E2398	2.2 lb/ft <sup>2</sup>	10.9 kg/m <sup>2</sup>
Capillary Rise (typical, after 24 hours)	conductivity probe	6 in	155 mm
Static Puncture CBR (marv)	ASTM D6241	> 2250 lb	> 10,000 N
Pin Puncture (marv)	ASTM D4833	290 lb	1300 N
Elongation (marv)	ASTM D4632	55%	55%
Grab Tensile (marv)	ASTM D4632	850 lb	3800 N
Trapezoidal Tear (marv)	ASTM D4533	310 lb	1400 N
Flow Rate, i = 0.02 (250 psf = 12 kpa)	ASTM D4716	0.03 gal/min/ft	0.4 l/min/m
Flow Rate, i = 0.05 (250 psf = 12 kpa)	ASTM D4716	0.08 gal/min/ft	1.0 l/min/m
Flow Rate, i = 0.10 (250 psf = 12 kpa)	ASTM D4716	0.15 gal/min/ft	2.0 l/min/m
Flow Rate, i = 0.25 (250 psf = 12 kpa)	ASTM D4716	0.36 gal/min/ft	4.8 l/min/m
Flow Rate, i = 0.33 (250 psf = 12 kpa)	ASTM D4716	0.47 gal/min/ft	5.8 l/min/m
Flow Rate, i = 0.50 (250 psf = 12 kpa)	ASTM D4716	0.68 gal/min/ft	8.4 l/min/m
Flow Rate, i = 0.75 (250 psf = 12 kpa)	ASTM D4716	0.96 gal/min/ft	11.9 l/min/m
Flow Rate, i = 1.00 (250 psf = 12 kpa)	ASTM D4716	1.20 gal/min/ft	15.7 l/min/m
Roll Dimensions (typical)	-	6 ft x 33.3 ft	1.8 m x 10.2 m
Roll Surface Area (typical)	-	200 ft <sup>2</sup>	18.6 m <sup>2</sup>
Roll Weight (typical)	-	70 lb	32 kg

(marv = minimum average roll value; allow 10-15% additional material for overlaps)

## HYDRAULIC FLOW CHARACTERISTICS

The following chart can be used to determine the drainage capacity of CT Capillary Drainage Mat. The roof slope is used to determine the “rain factor” which is the rain intensity measured in inches per hour that can flow through a one-foot wide section of CT Capillary Drainage Mat. Dividing this number by the length of the roof slope yields the rain intensity falling on each square foot of roof that can flow through the mat. For example, if the roof slope is 3:12 the rain factor is slightly less than 35 inches per hour-foot, so if the length along the roof slope measures 25 feet, the mat can effectively drain  $35/25 = 1.4$  inches per hour. This flow rate is very conservative because it is measured at a compression of 250 lb/sf, roughly ten times the weight of a typical sloped green roof, and it does not account for the substantial water holding capacity of the planting media and capillary mat.



## INSTALLATION

Since CT Capillary Drainage Mat becomes very heavy when saturated with water, all rolls are shipped individually wrapped in waterproof plastic bags. Store the rolls in a dry location or under a waterproof tarp.

Unroll CT Capillary Drainage Mat in the direction of water flow; then cut with a heavy-duty shears or a utility knife. Optimally, a single sheet of mat should run from the high side of the roof to the low side of the roof. If more than one sheet must be used in this direction, overlap the upper sheet over the lower sheet approximately six inches. Adjacent sheets of mat should also be lapped approximately six inches. Spray with water to prevent uplift during windy conditions. When required, the *CT Mesh and Cleat Slope Stabilization System* should be laid over the mat with drip irrigation tubing tied to the mesh.