Permavoid Capillary Cone

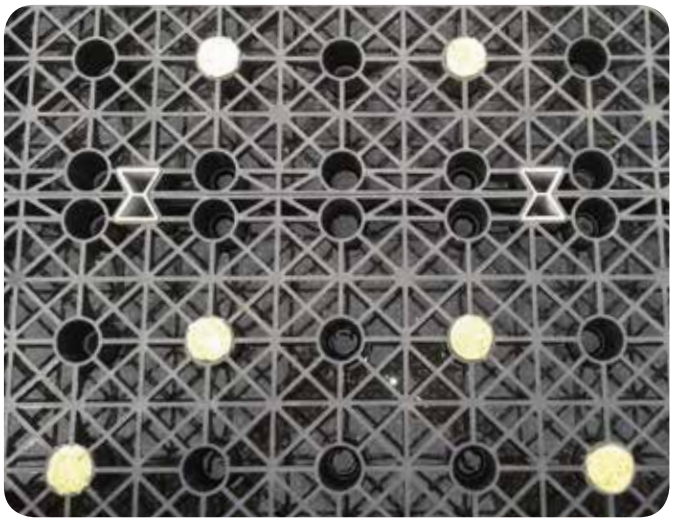
Data Sheet

Product Code: PVPP85CC4

The Permavoid capillary cell is a shallow, load-bearing, modular geocellular unit with an integral wicking media. The units' high void ratio allows a significant volume of stormwater to be stored within the system, which then may be used for irrigation. The stored water is transported up through the cell via absorbent capillary cones using capillary action.

The Permavoid capillary cells are used in combination with a high performance Geotextile that, upon receiving the stormwater from the cell via the capillary cones, transports the stormwater laterally across its surface area.

The configuration of four capillary cones per unit is ideal for applications such as under sports fields and arenas.



Key Benefits

- Provides a consistent, high strength raft to support the rooftop garden surface loading and associated maintenance traffic
- 92% void ratio of the Permavoid Capillary cells allows for the collection of a reservoir of stormwater within the system
- Integral wicking media with configurable layout
- Enables plants with medium water demands to be installed on rooftops with slender soil cover. This reduces the loading on roofs associated with deeper soil cover, and minimises evaporation and over-spraying losses associated with over ground irrigation systems
- Passive irrigation maintains the soil moisture content at between 15% and 45% by volume, ensuring plants have the correct amount of soil moisture to promote growth and prevent wilting
- The hydrophilic geotextile, installed above the irrigation system, allows the wicked stormwater to spread across a large surface area
- Provides an undersoil drainage system that can be incorporated into a sustainable stormwater management system
- 100% recyclable

Applications

The Permavoid capillary system uses passive irrigation to effectively replenish soil moisture content at shallow depths, in a variety of applications. Passive irrigation uses an inert porous medium to transport water and oxygen to the roots and surrounding soil, which boosts the amount of water held in the soil in dry periods. This enables the soil to maintain a consistent nutrient content for longer and maintains the correct amount of soil moisture to promote growth.

This allows engineers to design load-bearing systems in urban settings that not only mimic nature, but can also be incorporated into a sustainable stormwater management system. The system is simply installed beneath the area needing irrigation and works in conjunction with the capillary geotextile to irrigate greenery, sports fields, planting installed on roofs or podium decks and urban green corridors.

Performance

The structural load bearing capacity of the Permavoid units meets the minimum recommended values detailed in BS 7533-13:2009 'Pavements constructed with clay, natural stone or concrete pavers. Part 13: Guide for the design of permeable pavements constructed with concrete paving blocks and flags, natural stone slabs and setts and clay pavers'. The system's structural design life expectancy for lightly loaded areas such as car parks, a design life of 50 years is achievable. For areas with prolonged HGV loading a typical design life may be 25 years, dependent on the design on the design of the pavement surfacing and structural layers over the tank.

Installation Standard

All calculations for Permavoid units should be based upon site-specific load cases, pavement construction types and thickness, soil cover and ground conditions; therefore, the system suitability must be assessed for each project.

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ELEMENT	VALUE
PHYSICAL PROPERTIES	
Weight per unit	2.5kg
Length	708mm
Width	354mm
Depth	150mm
SHORT TERM COMPRESSIVE STRENGTH	
Vertical	715kN/m²
Lateral	156kN/m²
SHORT TERM DEFLECTION	
Vertical	1mm per 126kN/m²
Lateral	1mm per 15kN/m²
TENSILE STRENGTH	
Of a single joint	42.4kN/m²
Of a single joint at (1% secant modulus)	18.8kN/m²
Bending resistance of unit	0.71kN/m
Bending resistance of single joint	0.16kN/m
Volumetric void ratio	92%
Average effective perforated Surface area	52%
OTHER PROPERTIES	
Capillary Cones spacing	4 no. per cell to provide optimal distribution of water
Storage capacity	19.5 litre storage capacity is enough to maintain soil moisture content of up to >15% for extended periods of time

Technical Support

Detailed guidance and assistance is available.
For further information, please contact our Technical Team on **+44 (0)1509 615 100** or email: **civils@polypipe.com**

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