

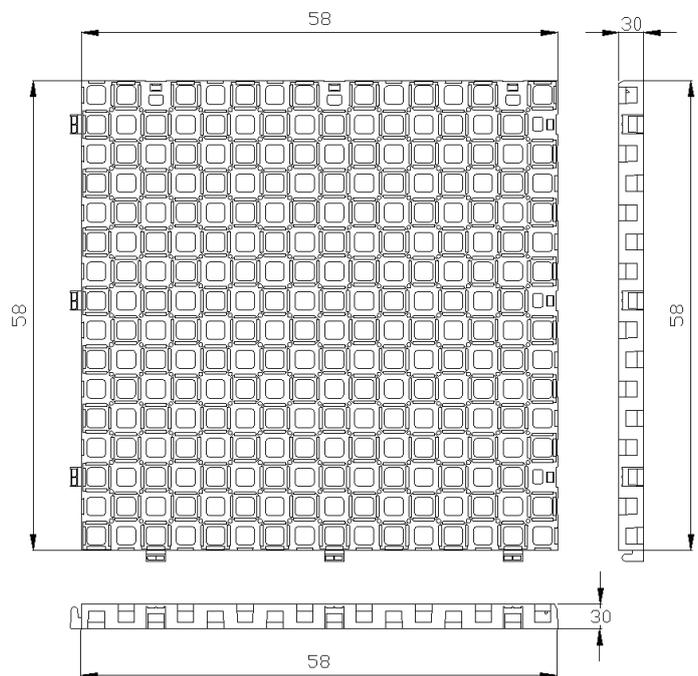
GEOCELL

1. DESCRIPTION

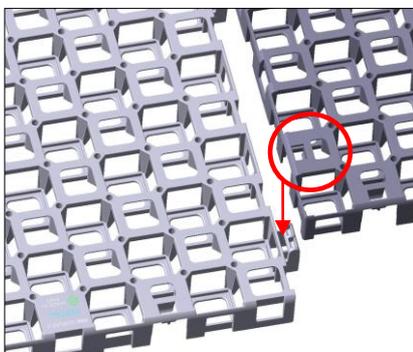
GEOCELL is a regenerated PP grid for the creation of horizontal drainage areas situated under low thickness paved or green zones.

2. TECHNICAL CHARACTERISTICS

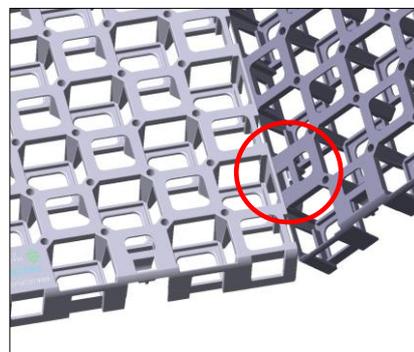
Size	cm	58x58
Thickness	cm	3
Weight	kg	0,9
Void volume	%	91
Void surface	%	64%
Accumulation capacity	l/m ²	27,6
Drainage capability	l/s/m ²	4
Breaking load	t/m ²	95
Load Class	1° cat. Road according to DIN1072	
Material	-	PP



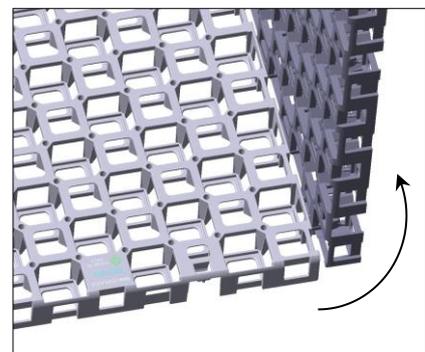
Coupling sequence



Overlapping



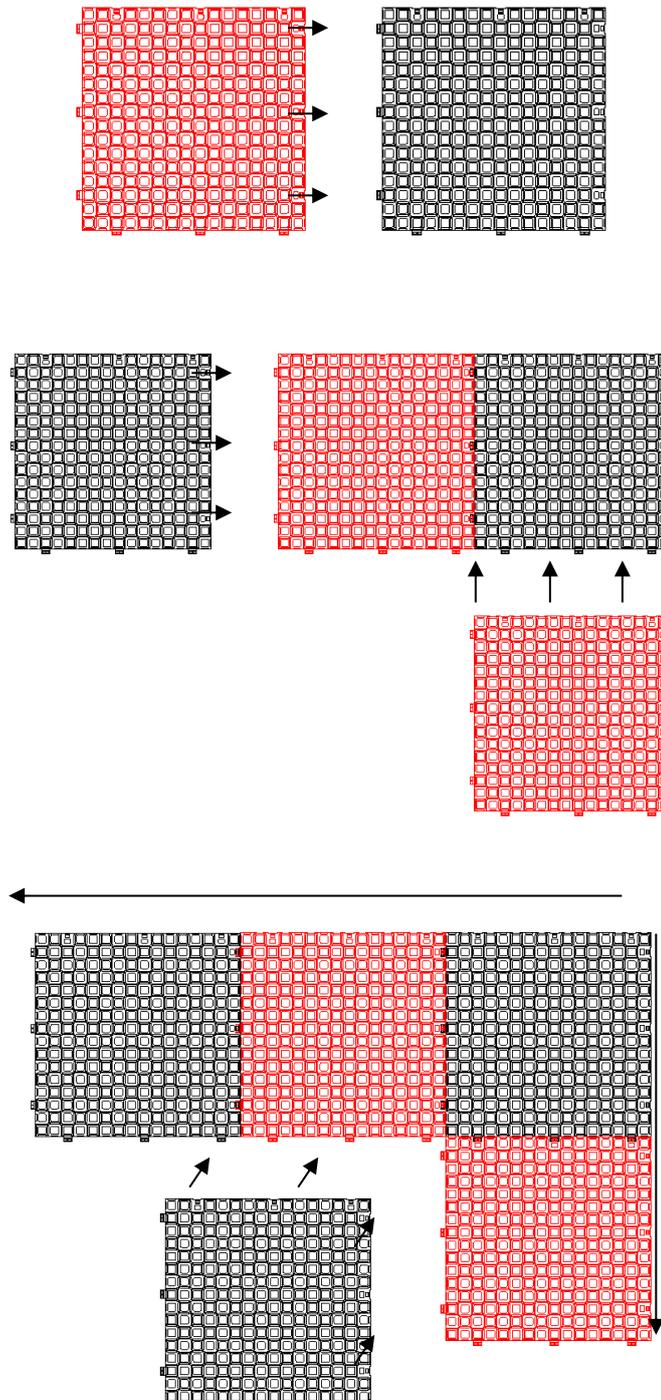
Coupling



Possible rotation up to 90°

Installation sequence

The grids are joined together through overlapping and interlocking. The recommended direction of installation is from right to left and from upwards to downwards. The grids must be oriented all in the same direction. The two lines of the male couplings needs to be installed along the inferior left side.



3. INSTALLATION STRATIGRAPHY

GEOCELL installation stratigraphy depends on the type of application.

Generally the following measures should be taken:

- A well levelled installation layer
- A needle-tufted geo-textil (recommended grammage of: 100-150 g/m²) installed on the laying area
- A needle-tufted geo-textil (recommended grammage of: 100-150 g/m²) installed on GEOCELL to guarantee the maintenance of the system's voids
- A suitable upper finishing package.

Stratigraphy for draining hardwoods pavings



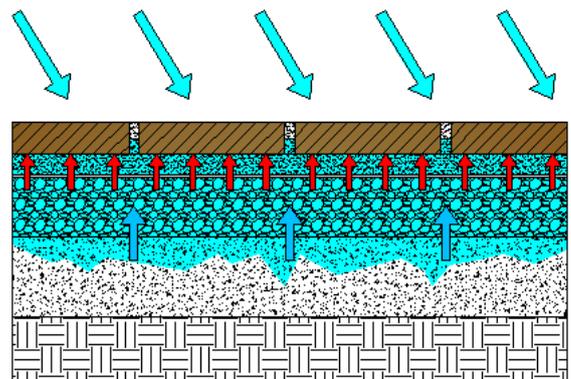
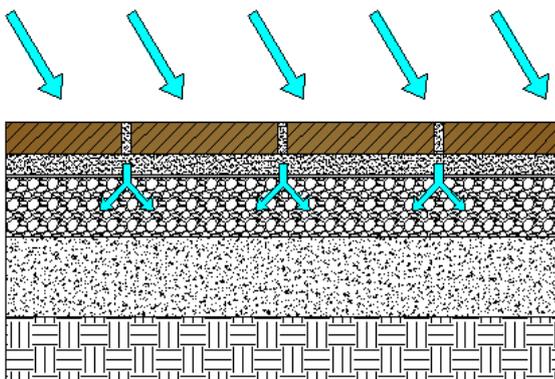
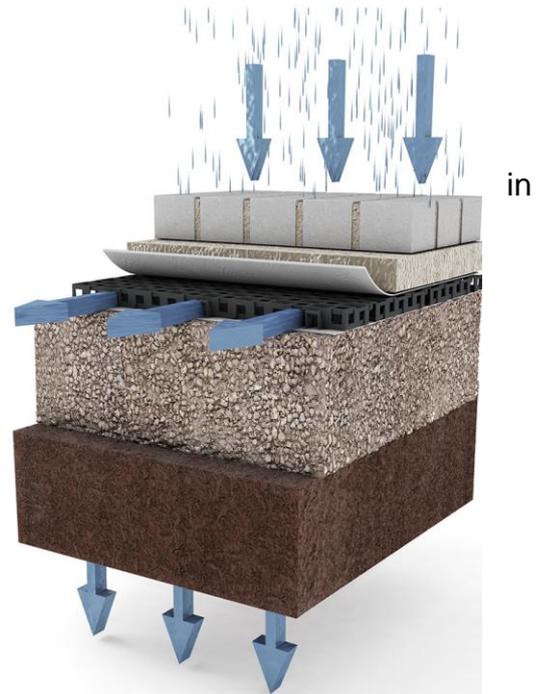
- Creation of a supporting sub-layer in tout-venant with a variable thickness according to the project needs (aproximative value: 30-40 cm), well compacted.
- Laying of the geo-textil and installation of GEOCELL
- Covering with GEOCELL and with the second layer of geo-textil
- Laying of a bedding layer made of sand 0/4 o 0/5 mm well compacted in order to install the hardwoods. Recommended thickness of 3-5 cm.
- Installation of the hardwoods and closure of the outlets with sand 0/1 o 0/2 mm. Vibration of the paving.

4. WORKING PRINCIPLE

GEOCELL creates a void of 3 cm under the surfaces with a double function:

- Collection and drainage of rainwater uniformly in the subsoil
- Direct the collected water to the disposal areas, if the soil is not permeable or the surface has a slope.

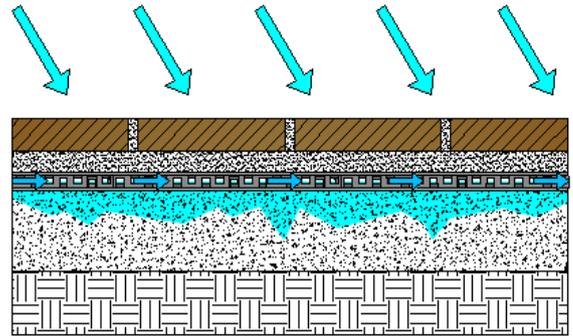
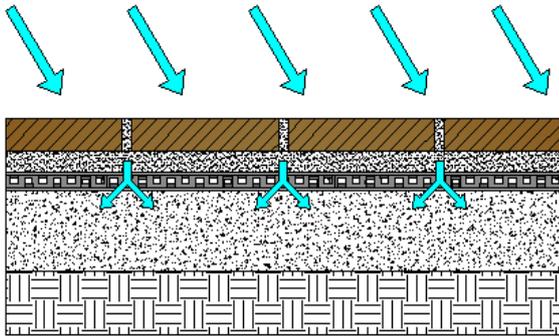
The two combined effects permit the fast and easy drainage of the surface, avoiding stagnations.



In presence of a meteorological event and with a no permeable surface, the gravel tends to progressively saturate.

Once it is completely saturated, water ascends upwards creating two main problems:

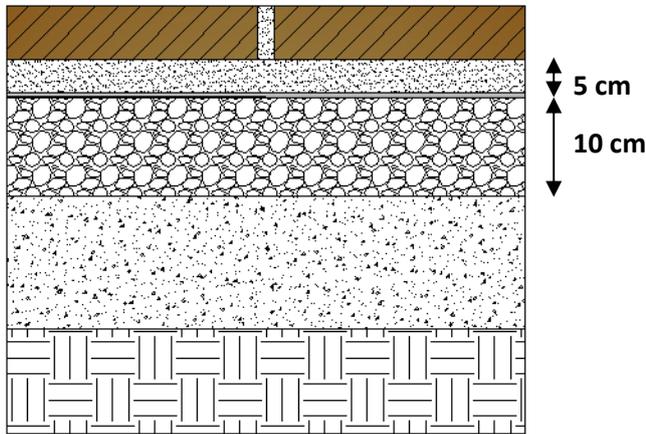
- Water flowing in the surface, because the package is not able to drain anymore
- Hydraulic compression on the paving (underlined by the red arrows in the right section). This may cause the lifting of the surface.



The use of Geocell allows a longitudinal water flowing, up to the sewer system. In this way, it prevents both the ascendance of the water towards the surface and the lifting of the hardwoods.

WITHOUT GEOCELL

Ground permeability = 10^{-7} m/s
 Inifltration capability = 10^{-7} m³/s

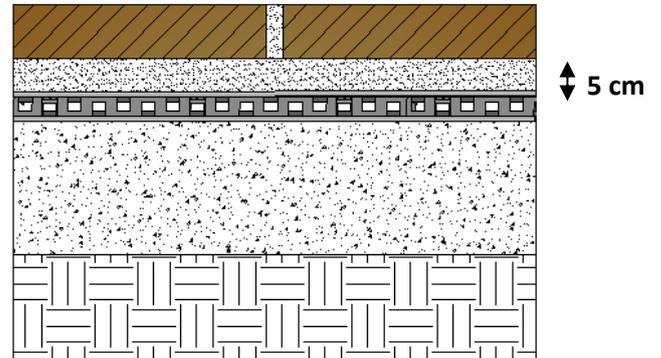


Gravel accumulation volume (10 cm) + sand (5 cm) = $0,05 \text{ m}^3/\text{m}^2 = 50 \text{ mm}$

Emptying times = $0,05 / 10^{-7} \approx 6 \text{ days}$

WITH GEOCELL

Ground permeability = 10^{-7} m/s
 Infiltration capacity = 10^{-7} m³/s
 Geocell drainage capacity = $0,004 \text{ m}^3/\text{s}$



Accumulation volume with Geocell + sand (5 cm) = $0,047 \text{ m}^3/\text{m}^2 = 47 \text{ mm}$

Emptying times = $0,05 / (0,004 + 10^{-7}) < 1 \text{ h}$

According to the accumulation volume, the stratigraphy with Geocell is capable of disposing water faster, avoiding the saturation of the installation bed.