

WE BUILD RESILIENT CITIES

CUPOLEX[®]
SOLUTIONS



EXTENSIVE or INTENSIVE GREEN ROOFS with WINDI DRAIN SYSTEM

PONTAROLO[®]
ENGINEERING



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THE SYSTEM

Roof gardens have a growing demand especially in big cities where there is a big concentration of smog and pollution. They represent an architectural and aesthetic value for the building. They contribute to clean the air from pollutant such as carbon dioxide, emitting oxigen, drain and slow down the impact of water bombs, counteract the summer overheating and mitigate the temperature, isolate in winter, return the humidity to the environment through evapo-ration.

Pontarolo Engineering is able to offer solutions for the creation of both intensive and extensive green roofs that meet every project need.



THE BENEFITS

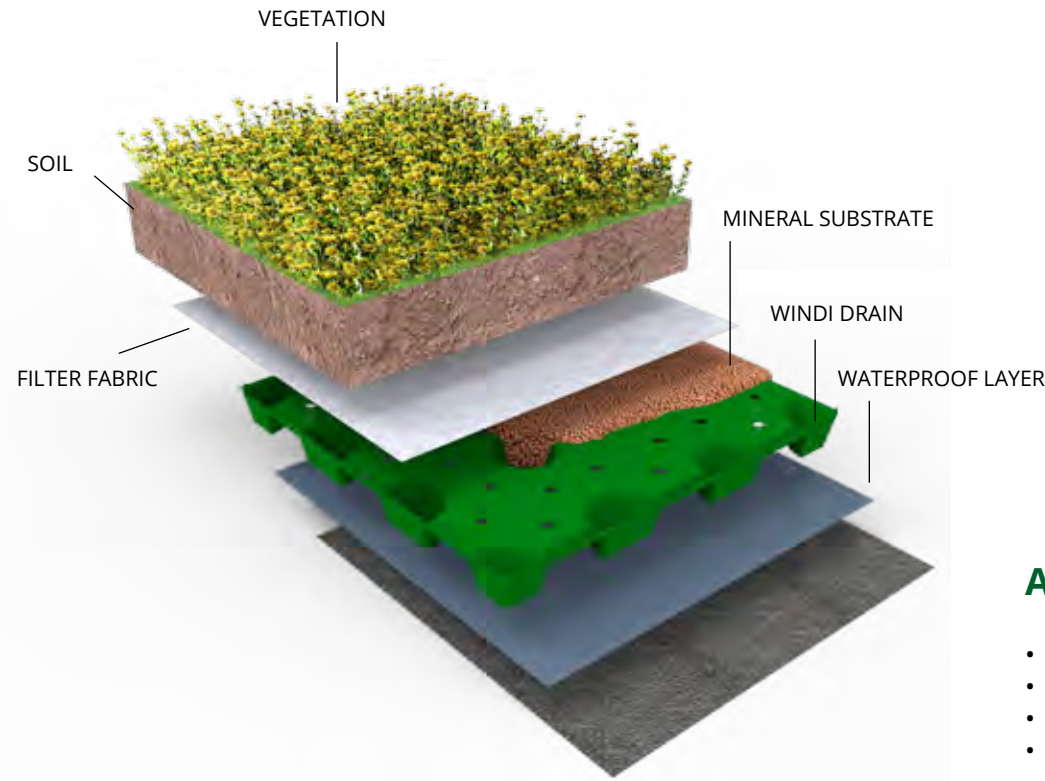
- Mitigation of the temperature inside the building during summer;
- Increased drainage surface;
- Works as thermal insulation;
- Reduction of the external temperature due to the evaporation of the absorbed water;
- Better damping of the thermal wave;
- Large thermal inertia;
- Improving quality of life;
- Improving air quality;
- Protection against noise pollution.

HOW DOES IT WORK

Windi Drain consists of lightweight panels made of regenerated plastic with retention cups and drainage holes.

This particular geometry allows the excess water to escape from the drainage holes and, at the same time, store water and favors irrigation through capillary action and evaporation within the soil / vegetation level.

The retention glasses guarantee a remarkable mechanical resistance allowing to realize, above the element, a layer of thick vegetal soil.



Applications

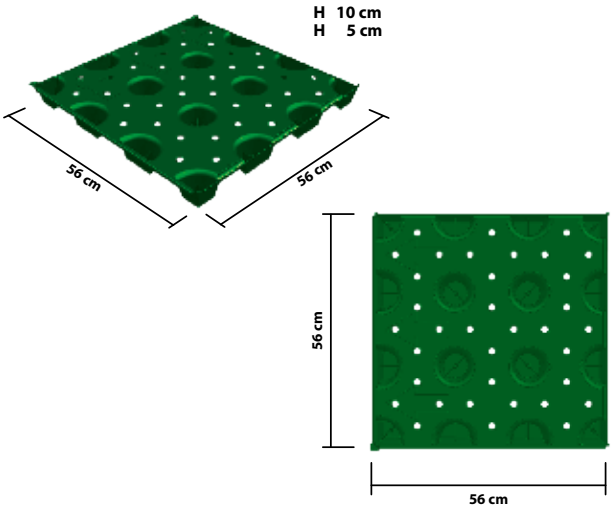
- Extensive green roofs
- Intensive green roofs
- Hanging gardens
- Planting trees above structures

THE ADVANTAGES

- Easy system installation;
- Slow down and store stormwater;
- Adaptable to any surface, even inclined;
- Easy integration with irrigation systems or rainwater reuse;
- Completely recycled plastic material.



THE ELEMENTS OF THE SYSTEM



DIMENSIONS	56 x 56 cm
HEIGHT	5 - 10 cm
WATER RETENTION CAPACITY	8 l/mq - 11,0 l/mq
MATERIAL	100% PEHD
PACKAGING	320 pz (100 mq) per pallet

INSTALLATION

- Place any anti-root layer on top of the waterproofing layer
- Lay Windi Drain elements with the installation arrow pointing upwards;
- Proceed by horizontal rows starting from left to right and from top to bottom;
- Interlock the elements correctly overlapping the edges;
- Fill the cups with expanded clay or other mineral substrate;
- Lay the filter-fabric over the clay layer;
- Fill with soil according to the project specifications: minimum 10 cm are recommended;



TECHNICAL SPECIFICATION

Supply and installation, on a preformed floor, for an extension equal to m² of roof garden composed by:

Possible supply and installation of root protection membrane

Possible supply and installation of a 200 g / m² geotextile as additional protection for the waterproofing layer

Supply and installation of Windi drain, produced by Pontarolo Engineering which is based in San Vito al Tagliamento (PN), made of recycled plastic (HDPE) resistant to chemical and organic substances:

I. Size: 56 cm X 56 cm X height 5 cm or 10 cm

II. Water storage capacity: at least 8 l / m² (Windi Drain elements h 5 cm); 11 l / m² (Windi Drain elements h 10 cm)

III. Upper holes to drain excess water

Windi Drain filling, up to cm above the top, with expanded clay, pumice, volcanic lapillus or other mineral substratum characterized by granulometry 8 - 12 mm with high water absorption power .

Laying of 200 g / m² geotextile for the separation between filling material and the substratum.

Substratum for a thickness of cm of soil prepared for intensive or extensive roof garden

Price: € / m²

TECHNICAL ASSISTANCE

Our technical office is available for assistance during design phase.

Send the project plant in .ifc, .pln, .dwg, .dxf or .pdf format to the address assistenza@pontarolo.com.

At www.pontarolo.com DWG, CAD sections and BIM objects are available for download.

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