Singular Green

GREEN
ROOF
TECHNICAL INFORMATION

01

GREEN ROOFS SINGULARGREEN

Our green roof systems offer multiple possibilities for the integration of vegetation, from large-capacity cistern roofs, which optimise the use of water and the energy performance of the building, to ultra-light systems that allow the landscaping of any type of roof.

The implementation of green roofs is not only justified from an ecological or landscape point of view, but also from an economic point of view, as it prolongs the useful life of the waterproofing membrane and boosts energy savings in the building.

Our green roof systems

RIZOMA

CANTIR

CIKLA

Energy **SAVING**

Improved **THERMAL AND ACOUSTIC** insulation

Prolonging the **SERVICE LIFE OF THE ROOF**

Better use of **URBAN SPACES**

Better **AIR QUALITY**

Increased **BIODIVERSITY**

RAINWATER use

Valladolid, 2021

Madrid, 2018

02

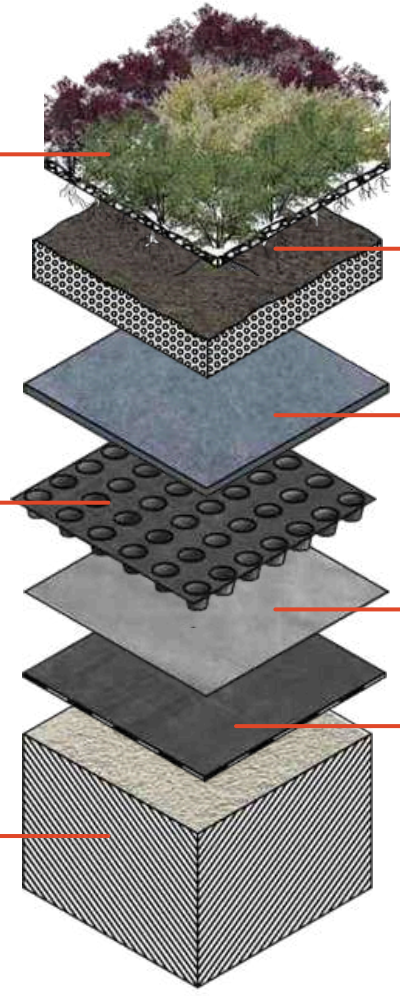
GENERIC COMPOSITION OF A GREEN ROOF

VEGETATION
Finishing layer with the possibility of containing different

RETENTION LAYER
A layer intended to store part of the water from the roof..

DRAINAGE LAYER
Layer that creates an air chamber through which water is evacuated from the roof..

SUPPORTING LAYER
Layer or set of layers on which the vegetation cover rests.



SUBSTRATE
Support layer of the vegetation where the work of the roots takes place.

ABSORBENT LAYER
Layer formed by materials that retain water and release it slowly.

FILTER LAYER
A layer that prevents the loss of fine particles.

ANTI-PUNCTURE AND SEPARATING LAYER
Layer that protects the waterproofing from damage. Can also be laid under the waterproofing.

WATERPROOF FILM
A layer that prevents the penetration of water into the substrate.

03

GREEN ROOF
RIZOMA

The Rizoma system is a very light and thin non-trafficable vegetation cover, which can be laid on flat or sloping surfaces due to the adherence of the substrate to the lower layers of the system itself.

The Rizoma system uses the latest technology in synthetic substrates, which perform the functions of a retaining, draining and substrate layer, with a thickness of only 4 cm.

On top of the substrate, species of your choice are placed, whether they are of the Sedum genus or grass sods, aromatic plants or succulent plants, obtaining a total thickness of 7 cm.

If the plant finish requires it, an underground drip irrigation system is included.

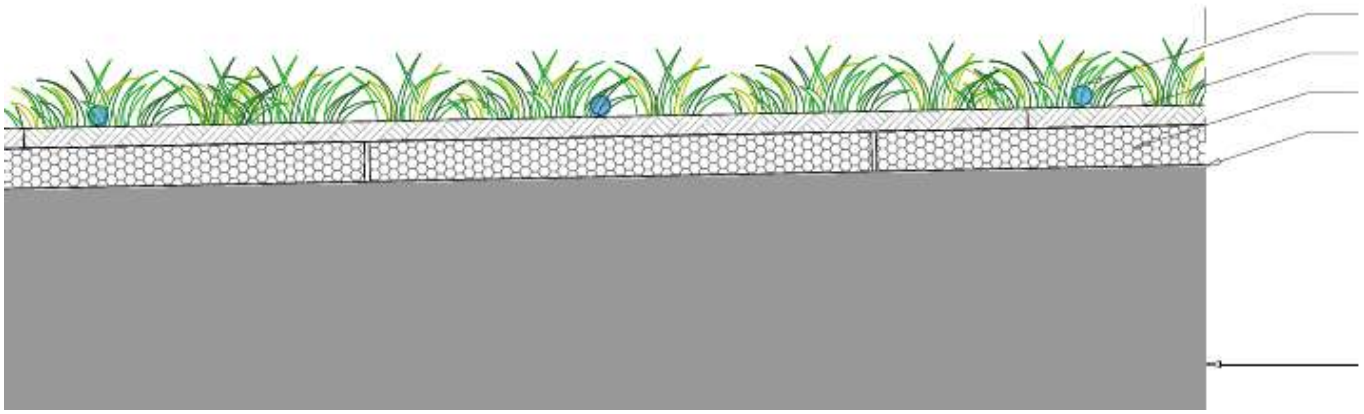
Granada, 2018

Valladolid 2021

03.1

RIZOMA

GENERIC CONSTRUCTION DETAIL



DETAIL
GENERIC CONSTRUCTION
DWG

DETAIL
GENERIC CONSTRUCTION
PDF

03.2

RIZOMA
TYPES OF VEGETATION

SEDUM (LOW MAINTENANCE)

SUCCULENTS

AROMATIC

TYPE OF VEGETATION	Sedum species	Selected species of succulents	Selected aromatic species
PLANTING SYSTEM	sod or seeded	Plantación 25 plantas/m2	Plantación 25 plantas/m2
TYPE OF SUBSTRATE	SG-L25	SG-L40	SG-L40
THICKNESS OF SUBSTRATE	5 cm.	7 cm.	7 cm.
CLIMATE TYPE	Dry	Tropical (or dry climate with irrigation))	Tropical (or dry climate with irrigation)

Green Roof Barcelona 2022

03.3

RIZOMA

SPECIFICATIONS TECHNICAL

WEIGHT IN SATURATION: 46 kg/m² + vegetation

WATER STORAGE: 30 l/m²

SLOPE:
1-5%. 5-100% with polyurethane membrane waterproofing.

DRAINAGE CAPACITY: ISO 12958 600 l/min/m

COMPRESSIVE STRENGTH:
UNE-EN 826:2013 > 10 kPa (at 10% deformation).

Ultralight
system

Latest technology in
synthetic substrates

Suitable for
flat and pitched roofs

Low
thickness systems

Green Roof Granada, 2018

Green Roof Madrid, 2021

03.4

TECHNICAL DOCUMENTATION

APPLICABLE REGULATIONS

- CTE. DB HS Health and Safety.
- CTE. DB SI Fire Safety.
- NTE-QAA. Roofs: Roof gardens.
- NTJ 11C Green roofs

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SPECIFICATIONS

Valladolid vegetable shelter, 2021

04

CUBIERTA VEGETAL CANTIR

Green Roof Gandia, Valencia, 2017

The Cántir green roof system stands out for being the simplest and most versatile. It is a walkable flat roof, of the extensive landscaped type that incorporates a drip irrigation system that allows for multiple options of plant finishes, from low height options such as grass or succulents to shrubs and trees.

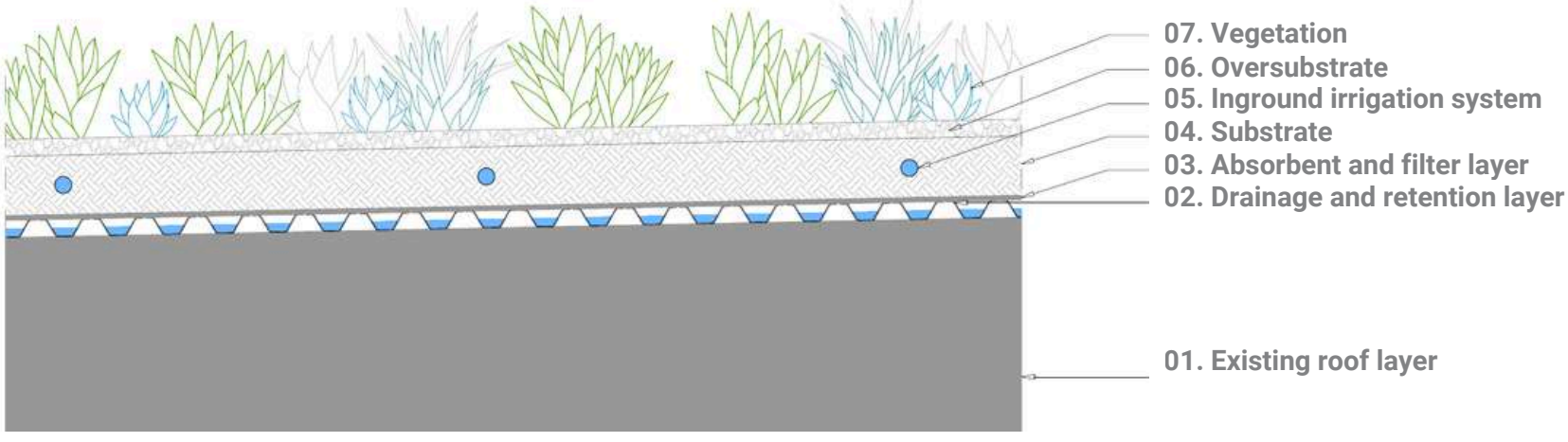
It is a lightweight and easy to install system, whose main objective is to cool the building in the warmer months and optimise insulation in winter.

The main advantage of the Cántir system is its high water retention capacity, as it combines the cistern irrigation system with the highly absorbent substrate.

04.1

CANTIR

DETAIL GENERIC CONSTRUCTION



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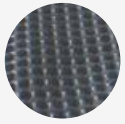
04.2

CANTIR

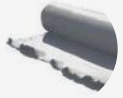
COMPOSITION TYPE OF SYSTEM

DRAINAGE AND RETENTION LAYER



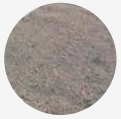
SG-LN20
Nodular high-density polyethylene drainage sheet, 2 cm high.

ABSORBENT AND FILTERING LAYER



SG-G500
Non-woven geotextile made of recycled polyester and recycled polypropylene fibres, mechanically bonded by a needlepunching process, thickness 4.17 mm and grammage 500 gr/m².

SUBSTRATE



Consult type in the SUBSYSTEMS AND TYPES OF VEGETATION section.
Mixture of organic components (topsoil, peat...) and granular mineral components. Type and thickness depending on the topsoil finish.

IRRIGATION SYSTEM

SINTEGRATED DRIPPER SYSTEM
Underground irrigation system consisting of Ø16 mm. pipes, made of low density polyethylene, with integrated drippers at 33 or 55 cm.

04.3

VEGETATION TYPES

GRASS

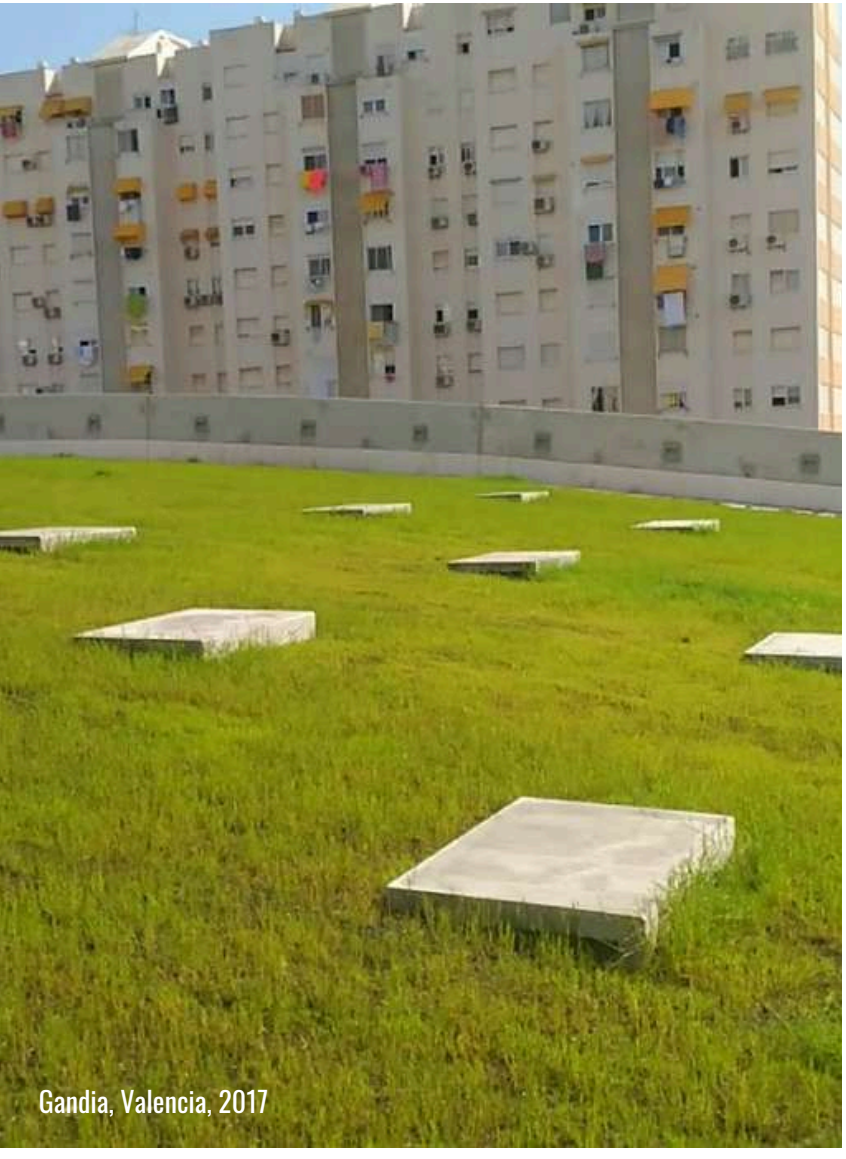
PLANTS

VEGETABLE GARDEN

	GRASS	PLANTS	VEGETABLE GARDEN
TYPE OF VEGETATION	Cespitose species	Grass species	Species of perennials and shrubs and vegetable garden
PLANTING SYSTEM	Sod or seeded	Sod or seeded	Transplantation
TYPE OF SUBSTRATE	SG-CP type mixture	SG-GR Type mixture	SG-VS type mixture
THICKNESS OF SUBSTRATE	10 cm. + additional 2 cm layer of river sand.	15 cm. + additional 2 cm layer of river sand.	25 cm.
CLIMATE TYPE	Tropical (or dry climate with irrigation)	Adapts to all types of climate, depending on plant selection	Adapts to all types of climate, depending on plant selection

04.4

CANTIR
SPECIFICATIONS TECHNICAL



Gandia, Valencia, 2017

WEIGHT AT SATURATION: From 120 to 550 kg/m²

WATER STORAGE: 6 l/m²

SLOPE: 1-5%

DRAINAGE CAPACITY: according to ISO 12958: 10 l/(mxs)

COMPRESSION STRENGTH: 150 kn/m²

DURABILITY: lifetime warranty

Versatile
system

Drip
irrigation

Extensive
vegetation options

Gandia, Valencia, 2017

Finestrat, 2020

04.5

CANTIR

TECHNICAL DOCUMENTATION

APPLICABLE REGULATIONS

- CTE. DB HS Health and Safety.
- CTE. DB SI Fire Safety.
- NTE-QAA. Roofs: Roof gardens.
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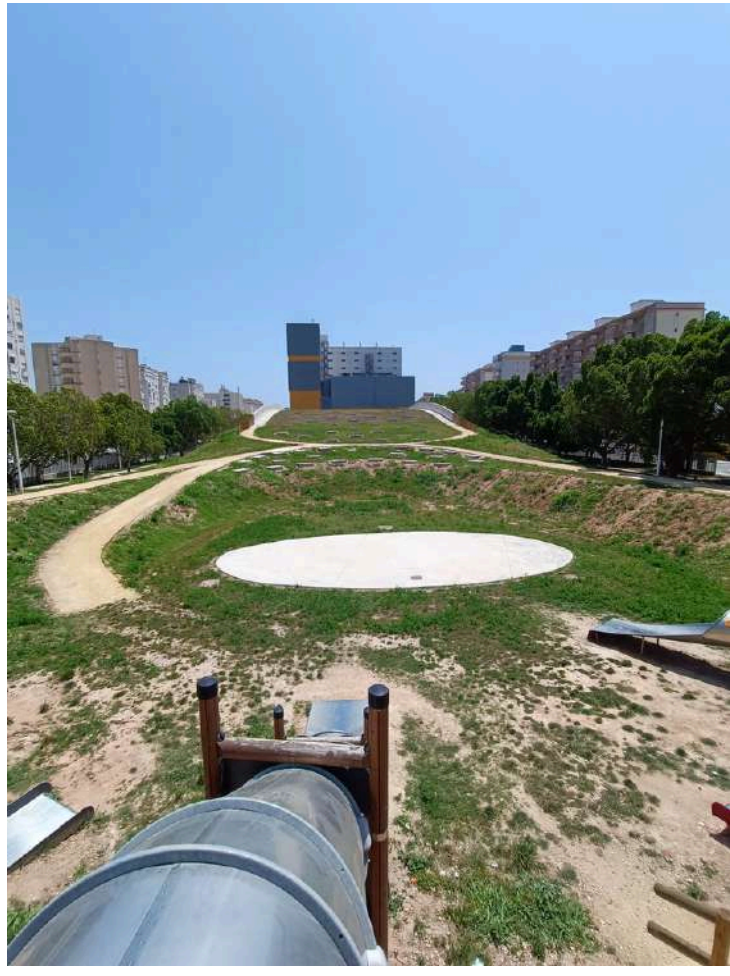
FIRE RESISTANCE

UNE-EN 13823:2012 +A1:2016
During the test, no sudden flames appear, no smoke from the sample that does not enter the collector is seen, and there is no distortion or collapse of the sample. No flaming droplets fall.

UNE-EN ISO 11925-2:2011
White, grey, scarce, and light smoke is observed. There is no persistent combustion or ignition points after the test. The samples are carbonized in the area of flame application.

SPECIFICATIONS



Gandía, Valencia 2017

05

GREEN ROOF
CIKLA

Green roof Molina del Segura, 2022

The Cikla system is the only green roof that uses the plot's own soil as substrate, which makes it a more sustainable green roof as it generates less waste.

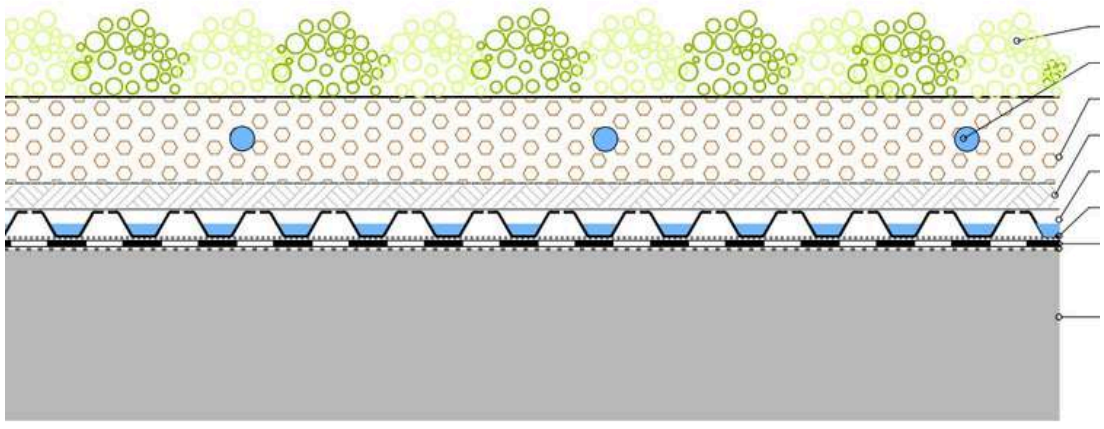
The Cikla system uses a retentive, absorbent and draining bottom layer, 2.5 cm thick, by using the SG-L25 substrate, specific for green roofs.

The species recommended in this green roof system are native plants, as they are the best adapted, so the final thickness of the substrate depends on the selected vegetation.

05.1

CIKLA

DETAIL GENERIC CONSTRUCTION



07. Native vegetation
06. Irrigation system SG-R16
05. Local soil substrate
04. Absorbent and filtering layer SG-L25
03. SG-LN20 separating, denesting and retaining layer
02. Waterproofing
01. Existing roof layer

DETAIL
GENERIC CONSTRUCTION
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DETAIL
GENERIC CONSTRUCTION
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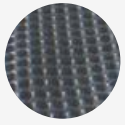
05.2

CIKLA

COMPOSITION TYPE OF SYSTEM

SEPARATING, DRAINING AND RETAINING LAYER

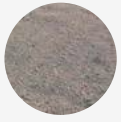


SG-LN20
Nodular high-density polyethylene drainage sheet 2 cm high

ABSORBENT AND FILTERING LAYER

SG-L25
Type and thickness depending on the plant finish. Recommended minimum thickness 50mm.

SUBSTRATE



LOCAL SOIL SUBSTRATE
Type and thickness depending on the topsoil finish of at least 50 mm.

IRRIGATION SYSTEM

SG-R16 INTEGRATED DRIPPER SYSTEM
Underground irrigation system consisting of Ø16 mm. pipes, made of low density polyethylene, with integrated drippers.

05.3

CIKLA
VEGETATION TYPES

AUTOCHTHONOUS VEGETATION

TYPE OF VEGETATION	Native species selected by SingularGreen specialists.
PLANTING SYSTEM	By transplanting or seeding.
TYPE OF SUBSTRATE	Own land
THICKNESS OF SUBSTRATE	From 5 cm depending on the vegetation.
CLIMATE TYPE	It adapts to all types of climate, depending on plant selection.

05.4

CIKLA

TECHNICAL DOCUMENTATION

APPLICABLE REGULATIONS

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SPECIFICATIONS

Sustainable
system

Latest technology in
green roofs

Adapts to flat surfaces with
minimal slope

Santa Pola, Alicante, 2020

06

WHO ARE WE?

At SingularGreen, we specialize in providing cities with green spaces through Nature-Based Solutions and the integration of architecture and vegetation, with the aim of improving the quality of life for those who inhabit them.

That's why we don't just design, we take action by creating all kinds of unique landscaping projects.

Innovation is in our DNA, and our R&D department has been conducting constant research for over 15 years to develop our own technology, adapting to each environment.

At SingularGreen, we are passionate about what we do, and we are characterized by creating creative solutions for your project, offering comprehensive advice, execution, and maintenance services, always adapting to your needs.

SingularGreen: Creative Solutions Based on Nature.

Singular Green

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ISO 9001:2015 CERTIFICACIÓN

ISO 14001:2015 CERTIFICACIÓN

ISO 45001:2015 CERTIFICACIÓN

PYME INNOVADORA