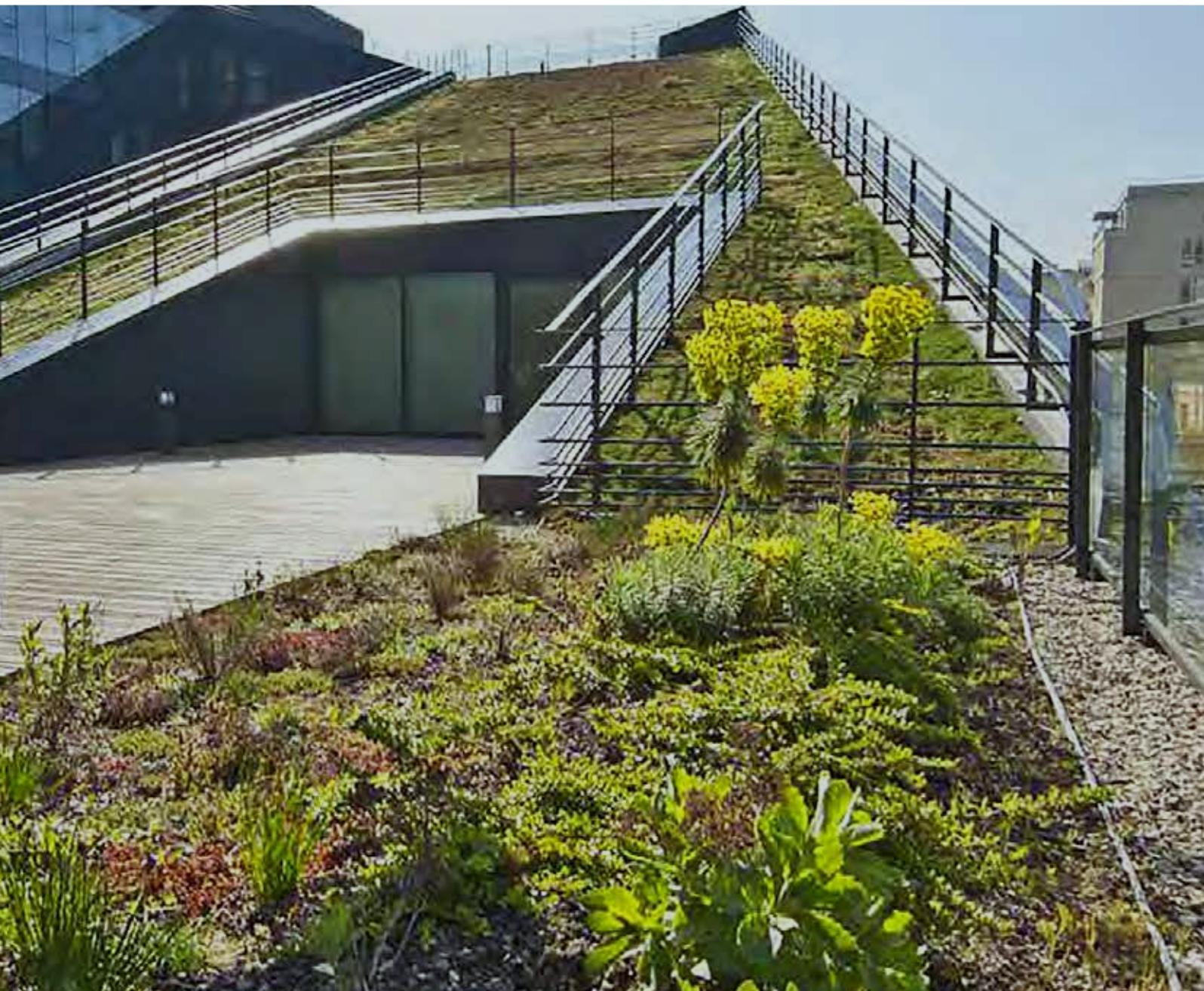


## **AQUAMODUL OASIS<sup>®</sup>**

MULTI-FUNCTIONAL SUSTAINABLE BLUE ROOF  
INNOVATION FOR SMART CITIES





## A NEW CONCEPT

Flat roofs are versatile environments with unique characteristics and have the capability to fulfil a variety of functions. Flat roofs should ideally be designed as multi-functional spaces used for amenity, leisure, biodiversity, agriculture and renewable energy generation. The roof finishes associated with these uses can now accommodate the inclusion of blue roof sustainable drainage systems through the introduction of the Aquamodul Oasis multi-functional hydroactive roof system.

Aquamodul Oasis combines four technological functions in one simple system in order to provide; rainwater retention (harvesting), natural irrigation, stormwater attenuation (Blue Roof) and multi-purpose versatile roof finishes. Once installed the roof can accommodate intensive, extensive or biodiverse (brown) living roofs, solar PV arrays, terraces and all manner of roof mounted equipment, or any combination of them all.

# AQUAMODUL OASIS® INNOVATIVE RAINWATER MANAGEMENT SYSTEM

A multi-functional hydroactive flat roofing system that regulates and uses rainwater on the roof.

## 1. RAINWATER RETENTION (HARVESTING)

A grid of interconnected and sealed Hydrostock retention cells is installed directly onto the Axter waterproofing system covering the maximum available surface area. This sealed (closed) blue roof design isolates the waterproofing system from all attenuated water, protecting it from UV and future damage, thus reducing risk and increasing durability.

### HYDROSTOCK® RETENTION CELL

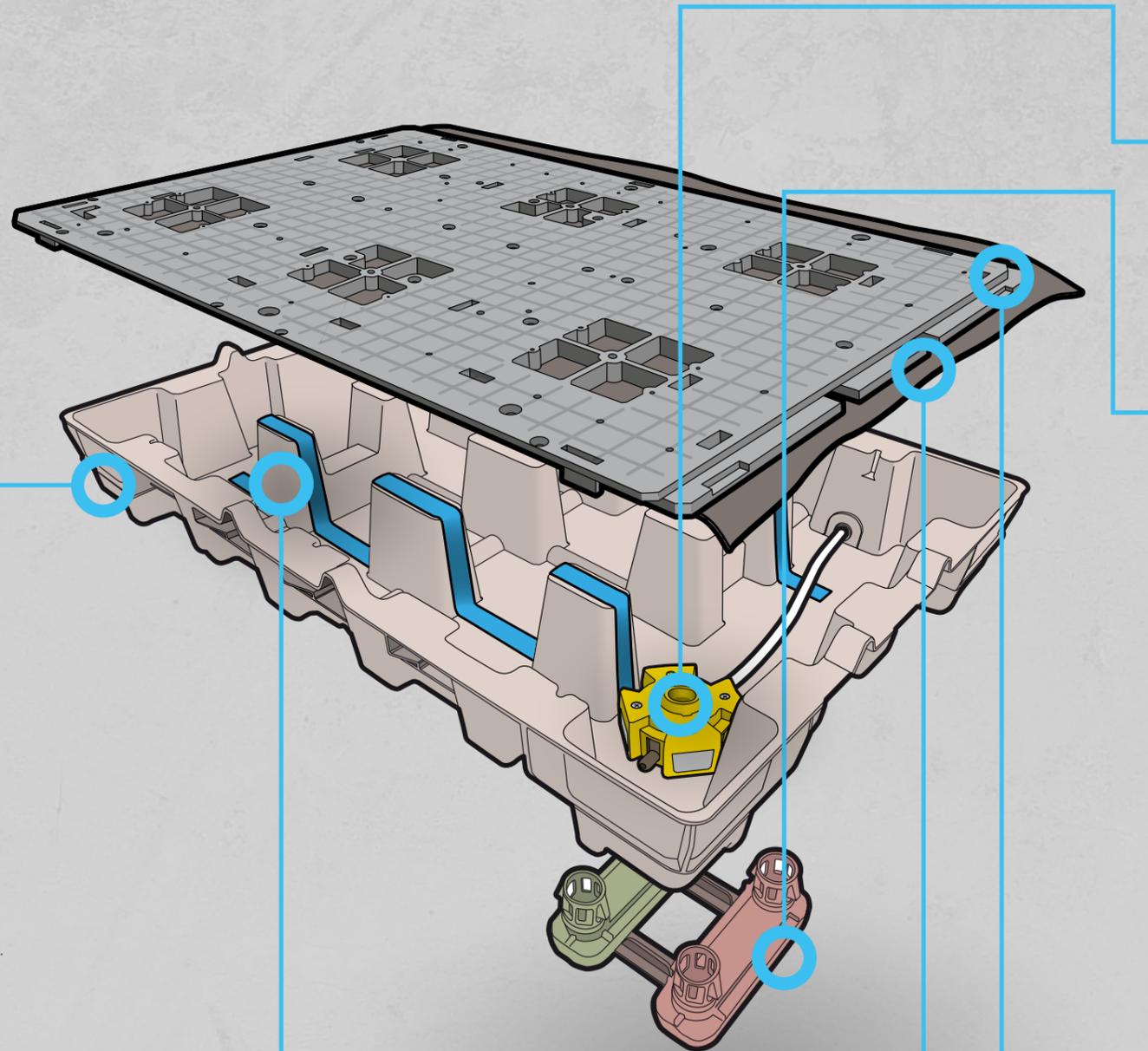
100% recycled high-density polyethene  
Water retention capacity: 50L/m<sup>2</sup>

## 2. NATURAL IRRIGATION

It is calculated that 80% of the rainwater retained within in the Aquamodul Oasis Hydrostock retention cell network will be drawn up the capillary wicks to naturally irrigate intensive, extensive or biodiverse living roof finishes installed above. This reduces site dependency on independent irrigation systems reliant upon clean drinking water, lessening the building's impact on resources and reducing costs.

### CAPILLARY WICK SYSTEM

Microfibres of rot-proof polymers are fixed to the cell and draw moisture up to the filtration layer and multi-functional plate, providing irrigation to vegetation installed above.



## 3. STORMWATER ATTENUATION

Due to its patented attenuation mechanism, stormwater can be effectively managed on the roof and discharged to rainwater outlets at the required outflow rate. Located in the attenuation cells and distributed throughout the roof, the attenuation device enables micro-discharge control of rainwater outflow off the roof and can achieve discharge rates as low as 1litre/(sec.ha). The attenuation device is equipped with a staged filtration system, delivering constant and controlled discharge unaffected by water levels within the attenuation cell. The attenuation device can be adjusted to meet the project specific attenuation / outflow rate of the site in accordance with Axter's Aquamodul Oasis blue roof system calculation.

### PATENTED OUT-FLOW CONTROL MECHANISM

The attenuation device floats within the attenuation cells and provides a constant and adjustable micro-flow attenuation combined with an integrated filtration system ensuring water quality. Evenly distributed over the entire roof, stormwater is evacuated to rainwater outlet locations through a flexible drainage pipe located within the wall of the attenuation cell.

### CONNECTORS

The attenuation cells are connected at the corner of each cell. This connection between each cell ensures units are positioned correctly and that stormwater can pass from cell to cell to the regulating cell and be discharged from the roof in a controlled way.

## 4. MULTI-FUNCTIONAL PLATFORM

The Modulo platform makes it possible to create multi-functional blue roofs, it is free draining, allowing stormwater to enter the attenuation cells, whilst providing a secure and stable structural support for a wide variety of roof finishes:

- » Complex intensive, extensive & biodiverse (brown) living roofs
- » Non-combustible terrace decking and support systems
- » Paving slabs on non-combustible support systems
- » Ballast
- » Roof equipment and safety systems
- » Photovoltaic (PV) panel arrays
- » Rooftop farms and agricultural plantations
- » Planters and terrace seating
- » Urban forestry

### MODULO PLATFORM

100% recycled polypropylene. Dimensions: 600 x 400 x 15 mm. Gridded and pre-drilled to allow secure attachment of finishes such as solar PV arrays, brackets and rails.

### RAINWATER QUALITY

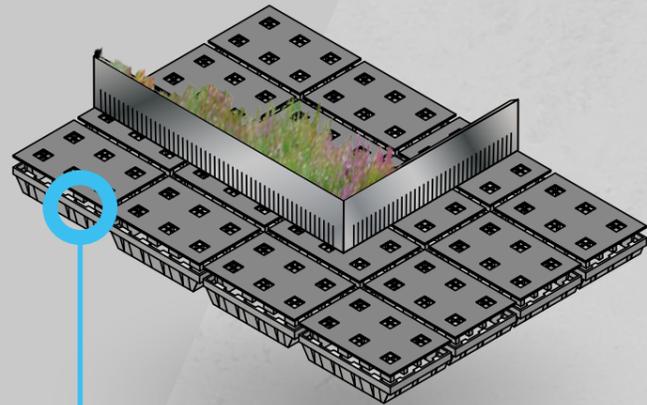
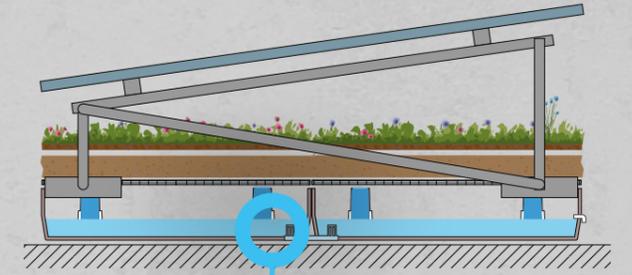
The non-woven polyester filtration fleece is a water permeable, tear-resistant material integrated into the Oasis system and located below the Modulo platform. The integrated filtration fleece prevents debris, fine particles and contaminants from entering the retention cell and the flow-control mechanism.

# INNOVATIVE MULTI-FUNCTIONAL BLUE ROOF SYSTEM

The Aquamodul Oasis system opens up endless design and usage possibilities for combining effective stormwater management with multi-functional rooftop amenity space.

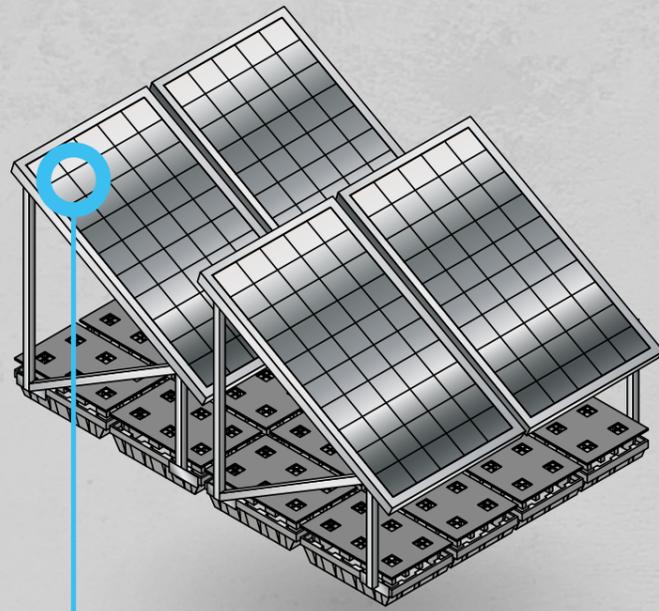
## AQUAMODUL OASIS

Blue roof system with multi-functional living, solar, terrace and safety finishes.



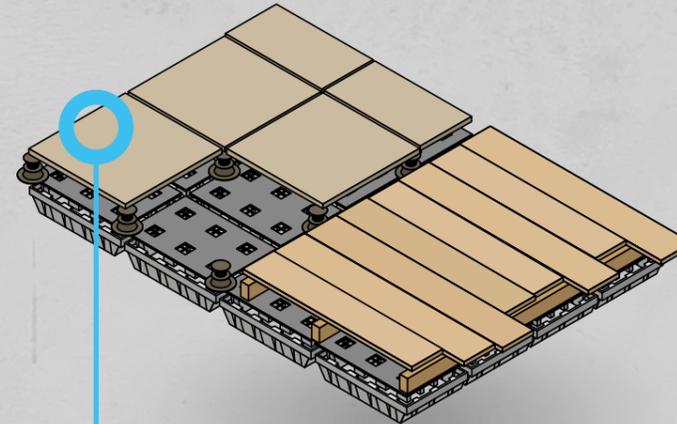
### AQUAMODUL OASIS LIVING ROOF

The ability to create extensive, intensive, biodiverse (brown) or modular living roofs, hard landscaped amenity spaces and rooftop agricultural farms.



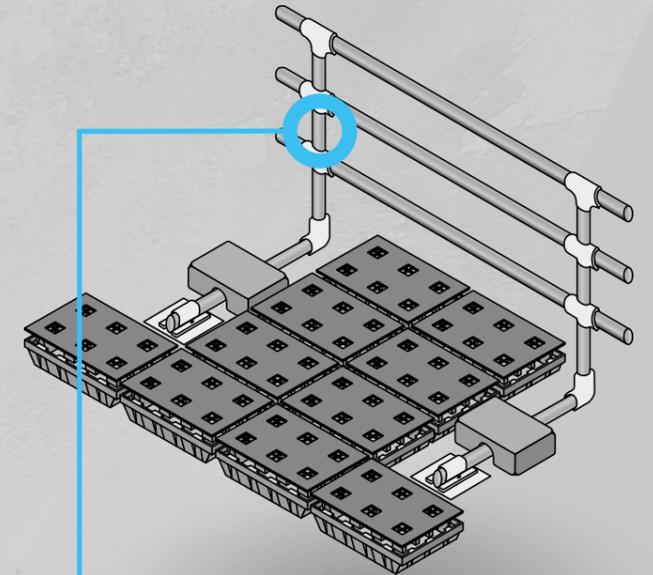
### AQUAMODUL OASIS SOLAR PV ROOF

The ability to fully integrate solar PV arrays to generate clean and efficient electricity.



### AQUAMODUL OASIS TERRACE

The ability to create complex hard landscaped pedestrian terraces and podiums with a multitude of finishes.



### AQUAMODUL OASIS SAFETY

Perimeter safety rails and edge protection as well as roof mounted equipment can easily be mounted on Aquamodul Oasis

# AQUAMODUL OASIS® TECHNICAL PERFORMANCE DATA

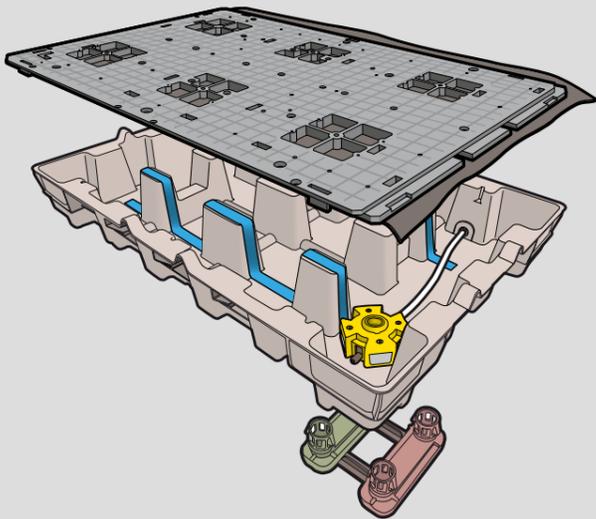
## HYDROSTOCK® AND MODULO PLATFORM

### Material:

**HDPE** recycled (RIGIDEX HD6070UA)  
Overall dimensions 600mm x 400mm x 95mm  
(sub-irrigation tray + modulo platform)

### System weight:

**0.75Kg**  
Max. water storage capacity: 50 litres/m<sup>2</sup> (1.22 gallons/sq ft)  
Weight at MWC: 58 kg/m<sup>2</sup> (11lb/sq ft)  
  
Operating temperature: - 50 ° C / + 80 ° C

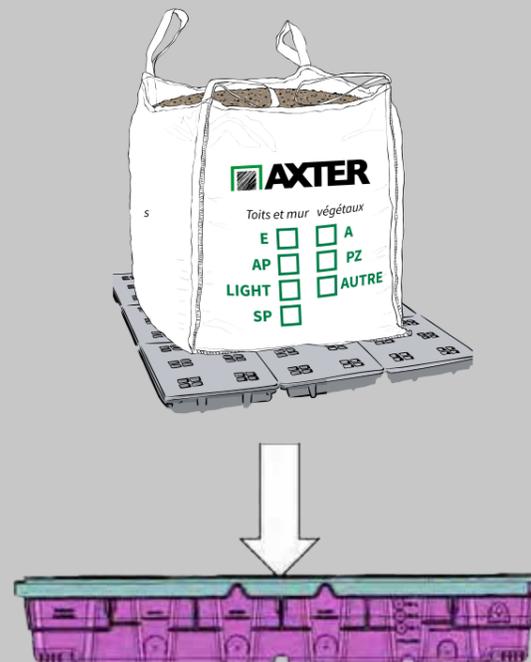


## COMPRESSIVE STRENGTH

A deformation test using a distributed load determined attenuation cell deformation occurred under an imposed load of 2.5 tons. This analysis was carried out by numerical simulation (by Arobas Technologies).

**It has been determined under test that the Hydrostock attenuation cell with Modulo platform resists a fixed load of 279lb/sq ft without deformation.**

Test carried out internally based on four cells, surface equivalent to 1m<sup>2</sup> at a the temperature of 12 ° C on a concrete slab.



## COMPLIANCE WITH STANDARDS

Aquamodul Oasis multi-functional roof systems are designed and installed in full compliance with all relevant British and European standards.

### GENERAL MAINTENANCE OF THE SYSTEM

Axter recommend a minimum of two annual maintenance visits are completed by Axter recommended maintenance contractors to ensure the stormwater management, filtration and attenuation device system is operating correctly.

Aquamodul Oasis roofs incorporating Axter living and/ or Axter solar PV roof systems must be maintained in accordance with Axter living roof and solar PV maintenance guidance.

Oasis SAFETY

Oasis SOLAR

Oasis WALK

Oasis LIVING

## WATER QUALITY

There is no water stagnation in the Aquamodul Oasis system because the stormwater recovered is either immediately used for irrigation or discharged via the attenuation device. Also, all Aquamodul Oasis configurations are filtered closed systems, ensuring attenuated water quality remains extremely high and free from risk of contamination.

Aquamodul Oasis systems have been independently monitored across all experimental sites around the world to demonstrate there is no existence or development risk of mosquito larvae within the attenuation cell.





**AQUAMODUL OASIS®  
SUSTAINABLE BLUE  
ROOF SYSTEMS**



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