



The Aquaten Solution

Aquaten develop products and systems that provide a calculable, engineered solution to Sustainable urban Drainage (SuDs), without the perceived barriers of existing water attenuation systems.

Aquaten manufacture a range of water/rainfall attenuation products to both mitigate the effects of heavy rainfall events as well as holding a band of water to maintain a reservoir for vegetation in dry weather.

We began by reviewing the perceived barriers to the implementation of water attenuation systems including living roofs which include:

- Maintenance
- Cost
- Structural issues such as weight
- Logistics
- Leakage and damage to waterproofing
- Lack of expertise and skills.

Notwithstanding the environmental issues, cost remains a key barrier which is why we've developed products that bring a real cost benefit, while attenuating interception levels of flash flood run off.

The core of all our products stems from a unique fibre that was originally developed for use in medical, food, and fire prevention industries.

AquaSAF

AquaSAF is the highly absorbent and retentive fibre blended with low absorbency but high 'wickability' fibres at the core of all of our products.

Water is transformed by becoming suspended in the SAF™ fibre matrix as a semi-solid gel. The reservoir functionality (water retention against evaporation/leakage/dripping) is afforded by the AquaSAF component.

Soil is a poor retainer of water, whereas AquaSAF provides a more consistent source for roots which initially derive moisture directly from the soil and then from the fabric. In this respect, use of AquaSAF fabrics increases water availability to root systems.

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Aquaten - Engineered Solutions for Water Attenuation

Aquateen Living Roof Plus

Aquateen Living Roof Plus is a geo-composite mesh containing AquaSAF absorbent polymer sandwiched between two layers of wickable geotextile. It is designed to reduce rainfall runoff and/or to provide a valuable reservoir for living roof plants.

Aquateen Living Roof Plus can be installed onto any roof as a standalone solution or work on flat or sloping roofs and via proprietary technology, AquaSAF, is designed to hold over 2000% of its mass in water, significantly reducing run-off.

Aquateen Living Roof Plus can be incorporated into:

- the designed build-up of a living roof system or a landscape design to support a natural and ecological urban habitat without the need for expensive irrigation systems;
- retrofitted failing living roofs where lack of water has caused plant die back.

What's more, because of its ability to hold more water, Aquateen Living Roof Plus can reduce the traditional costs of construction through reduced labour and reduced substrate requirements which ultimately reduce weight and logistics.

The essential function, to act as a water reservoir and water feeding to root systems, is based in the collective functionality of the component elements within the AquaSAF material, which is a highly absorbent and retentive fibre blended with low absorbency but high 'wickability' fibres.

This high absorbency provides two critical functions:

- Increases rainfall attenuation – reducing rainfall runoff
- Captures water to keep substrate hydrated for longer periods

Aquateen Living roof PLUS+ allows yearly rainfall attenuation to be more scientifically calculated and plays a major benefit in reducing storm water run-off off roofs

*Throughout the world wherever I have spoken at conferences or worked, storing water on green roofs is a significant issue and one that drives green roof policies in many cities/regions of the globe. Maximising the ability of a green roof or any roof for it to reduce excess storm water run off is a key factor that constantly requires new innovative solutions. Furthermore, keeping green roof substrates moist during periods of **no rainfall**, giving vegetation access to water, and reducing plant stress is a major issue for the industry.*

*The Aquateen product would appear to address some of those issues and ...I think that the product has many of the positive qualities needed to ensure that green roofs evolve in a changing climate and policy agenda. **Dusty Gedge - Green roof industry spokesperson, leading designer/consultant, and current President of the EFB European Federation of Green Roofs (and Walls).***

Aquatena Living Roof Lite

Living Roof Lite (patent pending) is an encapsulated geo-composite structure, with a blend of organic and highly absorbent polymers engineered to provide rainfall attenuation and sustainable vegetation for biodiverse living roofs designed to be used on new build, but more importantly, retrofit applications.

Throughout the world there is an abundance of existing building stock that creates a huge impermeable surface that has no value for wildlife or rainfall attenuation and creates a massive increase in the urban heat island effect.

Vegetating this stock and reducing its impact on flooding is seen as a key driver at local and government level. The current barriers are logistics, weight and perceived cost. Existing green roof systems are clumsy, inefficient, messy, heavy and costly; the disruption from logistics where cranes and large transport are required make retrofit an aspiration.

Aquatena Living Roof Lite makes retrofit a reality

Aquatena Living Roof Lite:

- is lightweight (less than 40kg per sq.m.);
- highly water efficient, significantly reducing water run-off;
- needs no mains irrigation due to its engineered root hydration system;
- encapsulated, ready to use system installed in one operation;
- can be carried onto roofs via lifts and stairs;
- easily installed with minimal training;
- can be laid onto existing and new waterproof layers;
- can be fitted around roof structures such as plant and roof panels;
- can be pre-grown product if required;
- low cost in comparison to alternative roll out and modular systems.

Aquatena Living Roof Lite is a portable, prefabricated, standalone solution designed to be simply assembled to work on flat or sloping roofs and via its proprietary technology, AquaSAF, is designed to hold over 2000% of its mass in water, significantly reducing run-off.

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Aquateen Panel

Aquateen Panel is a lightweight roofing tile containing a highly super absorptive water attenuating fibre - AquaSAF - which absorbs and holds three days of average rainfall, releasing back into the atmosphere through evapotranspiration or into the watercourse in a controlled manner.

This highly water absorptive geo-matrix can be applied to a roof (flat and pitched) and will be able to withstand degradation for 5 years minimum from: Wind; Rain; Ultra-violet light

The Aquateen Panel can be self-bonded to a wide range of roof surfaces (surfaces commonly used such as asphalt, slate, concrete and terracotta tiles, PVC, HDPE etc.)

Benefits:

The product will attain high levels of water absorption, as well as optimum evapotranspiration properties to allow the material to 're-charge' over a 3-day period in order to maximise its attenuation benefits.

We aim to retain the first three days of average rainfall volume, approximately, so it can be seen that it is a major advance in fighting the problem of urban flooding.

The product is modular thus alleviating the problems associated with fitting, i.e. weight, labour intensive, specialist skills and heavy machinery particularly when working in dense urban areas.

Aquateen Panel is much more than just a green roof and has water attenuation as its key and critical purpose. The product will work as a standalone system and/or in conjunction with a green roof build.

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