

# Product Data Sheet

## HYDROSOIL® LAWN LIVING ROOF

Living Roofs

### **Comprising a water retention and drainage layer with bonded filter fleece, top soil and high quality lawn turf**

Axter's living or green roof systems are designed to accommodate the most varied ecological and environmental requirements. The combination of long-term system performance with horticultural expertise ensures full compliance with national, local and project specific environmental biodiversity and attenuation criteria.

A living roof, as well as being an aesthetically pleasing addition to a building, offers many other advantages:

- Increased biodiversity, creating habitat for birds, bees and invertebrates.
- More usable space on the roof (for gardens, amenity, play and educational areas, for example).
- Less urban heat island effect.
- Reduced rainwater run off flow rates.
- Better air filtration.
- Increased sound insulation and thermal efficiency.

**Intensive living roofs** are principally designed for their amenity value, creating spaces that can be used for playgrounds, parks, rooftop gardens and for people to enjoy. With careful design, lawns, beds, shrubs, trees, hard surfaces and many other features can be incorporated into an intensive living roof and Axter's design expertise helps clients to be imaginative in how they use their roofs and to take an integrated approach to the specification and design of the waterproofing and landscaping options.

## Key benefits

- Ideal for elaborate roof garden designs.
- Fully accessible - playgrounds, podiums, gardens, educational and sports areas.
- Can include trees, lawns, hard paving, water features.
- Achievable on flat roofs only.
- Integrated irrigation and regular maintenance required for landscaping.

## Hydrosoil® Intensive Living Roof options:

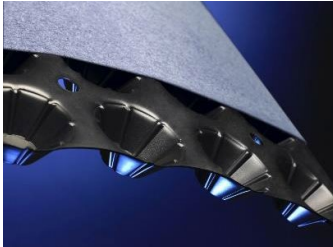
HYDROSOIL® LAWN

HYDROSOIL® INTENSIVE

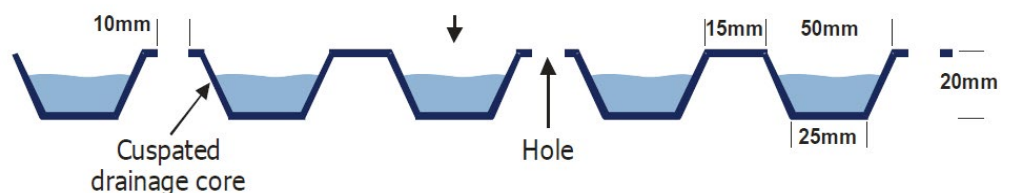
## Hydrosoil® Lawn with 250mm top soil

- Water retention and drainage layer (20mm).
- Filter layer (1mm)
- Top soil layer (250mm).
- High quality pre-grown lawn turf (1m x 2m rolls).

## Water retention and drainage layer (20mm)



High compressive strength, rigid HDPE board acting as both drainage and water retention layer, with a geotextile filter layer bonded to one side. The board is dimpled and contains high capacity dimples (height approx. 20mm) for water retention and perforations to drain surplus water. It is resistant to root penetration and to chemicals.



Drainage sheet (cuspatated, perforated)	Test Standard	Units	Value
Polymer	High Density Polyethylene		
Cuspate height		mm	20
Compressive strength	EN ISO 25619-2	kPa	115
Tensile strength (MD/CMD)	EN ISO 10319	kN/m	17
Static Puncture (CBR)	EN ISO 12236	kN	2.6
Perforations per m <sup>2</sup>			49
Perforations diameter		mm	10
Thickness @ 2kPa	EN ISO 9863-1	mm	21
Water flow through perforations	EN ISO 11058	l/(m <sup>2</sup> .s)	24
Water storage capacity		l/m <sup>2</sup>	4
Roll dimensions		m	0.97 x 50
Roll diameter (approx.)		m	1.1
Roll weight (approx.)		kg	60
<b>Geotextile</b>			
Polymer	Polypropylene		
Water permeability (V <sub>H50</sub> )	EN ISO 11058	l/(m <sup>2</sup> .s)	100
Apparent opening size	EN ISO 12956	µm	80

## Filter layer (1mm)

Fleece filter layer for use on all sedum and biodiverse living roof systems. Manufactured using UV stabilised polypropylene, it provides high tensile properties and excellent durability. Its high density and strength, resulting from re-orientation of the molecules within the fibres during manufacturing, increase its environmental resistance and mechanical properties. It is resistant to root penetration and to chemicals.

The filter layer should be covered within one month of installation.

Expected durable service life of the material is up to 50 years in soils with 4 < pH < 9 and soil temperatures < 25°C, based on a durability assessment.



Physical properties	
Composition	Non-woven geotextile made from 100% virgin polypropylene high tenacity fibres, heat treated, needle punched, containing UV inhibitor
Weight (g/m <sup>2</sup> )	123
Colour	White
Unit supplied	Rolls: Unit width (lm) 1.13 x Unit length (lm) 100
Sizes	25 litre sacks and bulk bags
Roll weight (kg)	14
Thickness @ 2kPa (mm)	0.8

Technical properties	Value	Standard
Tensile strength (kN/m) – MD/CMD	9.0 – 9.8	EN ISO 10319
Elongation at max load (%) MD/CMD	60 / 65	EN ISO 10319
CBR static puncture (kN)	1.4	EN ISO 12236
Cone drop penetration (mm)	32	EN ISO 13433
Apparent opening size (µm)	80	EN ISO 12956
Water permeability (l/m <sup>2</sup> .s)	100	EN ISO 11058
Weathering 50 Mj/m <sup>2</sup> (1 month)	>90% retained strength	EN ISO 12224

### Top Soil Layer (250mm)

Lightweight topsoil to a depth of 250mm.

### High Quality Lawn Turf

High quality pre-grown lawn turf supplied in 1m x 2m roll.

Plant mix: Standard Medallion Turf

Vegetation coverage at installation: min 90%.

Can be combined with optional hard mixed surfacing – hard landscaping, recreational areas, pedestrian access, etc.

Hydrosoil Lawn with 250mm Top Soil Layer is 343kg/m<sup>2</sup> wet.

## Design considerations

A living roof calls for a robust waterproofing system able to withstand the increased loads and suitable for the building structure.

Recommended Axter BBA / ETA certified, high performance waterproofing systems designed to fulfil this function are Cityflor, Wilotekt-Plus and Force 4000 Dalle Trafic.

Roofs are harsh environments for plants and although Axter advises the use of reservoir boards to conserve and control water flow beneath the soil, the inclusion of a 'leaky pipe' in the design will help keep the plants alive in dry periods.

Each living roof is different, so we design bespoke solutions drawing on our many waterproofing options and including in the specification the planting selections best suited to the environment to ensure all roof and surrounding area criteria are met.

The following points must be included in the living roof design:

- Roof to be capable of supporting the design load.
- Adequate provision to drain excess rainwater.
- Safe access for maintenance
- Robust and durable roof waterproofing.
- Root resistant membranes must be considered.

For further assistance with living roof design, specification, installation and maintenance, contact Axter.

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