






XPS Flat Roofing

Green Roofs - Technical Data Sheet

Sundolitt XPS is ideally suited for Green Roof applications. With its extremely low water absorption and high strength it can be used within intensive and extensive roofs.

Using XPS within a green roof provides extra cooling during hot summer months and significantly reduced heat loss in the winter

XPS Benefits

-  High compressive strengths up to 700 kPa
-  Excellent thermal insulating properties
-  Resistant to freeze/thaw
-  Flame Retardant available
-  ODP = 0 GWP = <5
-  Rated A in BRE Green Guide
-  Fully Recyclable

Green Roof Types

Extensive green roofs with sedum provide low maintenance solutions. With the use of water retention layers below the growing medium sedum is self sufficient and will thrive unattended.

Intensive roofs can have any planting designs, using grass lawns, shrubs and trees a city landscape can be transformed into a verdant parkland. This type of green roof can also be planted to attract wildlife, creating a natural haven in urban areas.



Why Green Roof?

There are many benefits from specifying an insulated green roof, environmental, societal and financial.

Indoor temperatures are regulated reducing the use of mechanical cooling and heating. This lowers the running cost of the building and lowers carbon emissions during use.

Planting improves air quality and will absorb up to 30% of environmental noise pollution improving comfort levels.

Stormwater runoff is controlled, reducing the burden on sewer systems, with a reduction of water flow between 70 – 95%.

Green roofs also help mitigate the Urban Heat Island Effect. As the plants evaporate moisture into the air the building surface temperature is reduced.

Biodiversity can be encouraged in cities by creating a natural habitat to attract wildlife and insects. Assisting a wider spread of species across the urban landscape.

Longevity

Using XPS below green roof planting helps to protect the weatherproofing from mechanical damage during installation and maintenance.

XPS also insulates against extremes of temperature. Reducing wear on the weatherproofing from expansion and contraction increases its lifespan.

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Design Considerations

Green roofs consist of a number of layers and their use will depend on the type of planting or hard landscaping to be installed.

The **Waterproofing Membrane** is first placed over the deck. The deck should be clear of debris and loose chippings, dry and frost free when installing this membrane.

For intensive planting a **Root Barrier** must be placed over the water proofing membrane as protection against root damage.

The **XPS Insulation Board** is then loose laid over the roof area with the board over-laps tightly butted together.

The next layer required is the **Water Control Layer** this reduces water flow below the insulation and improves thermal performance of the system.

For planted areas a **Water Retention Layer** which may also be a root barrier should be installed. This ensures good plant growth and low maintenance of Sedum roofs.

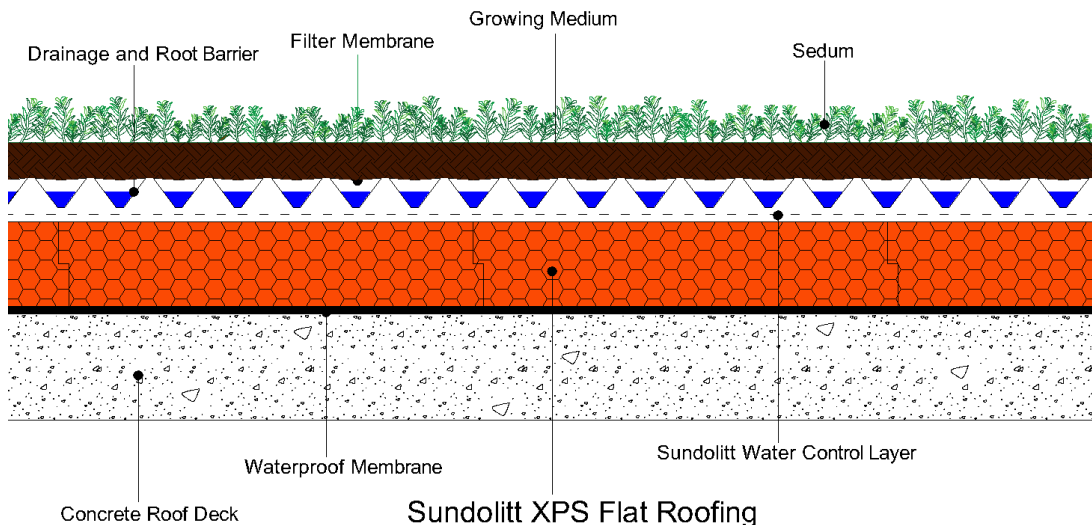
Where soil or other growing medium is used for planting a **Filter Membrane** should be used to hold the soil in place.



Planting Over Sundolitt XPS

The soil or growing medium is placed over the Filter Membrane ready for planting and landscaping. The depth of soil will depend on the plants used.

Guideline Minimum Depth of Soil	
Sedum and low growing succulents	50 - 150 mm
Wild grasses and herbaceous perennials	150 mm
Small shrubs (<1.5m tall) and lawn turf	200 mm
Shrubs up to 3m tall	300 mm
Larger bushes up to 6m tall	400 mm
Small trees around 10m tall	600 mm



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Thermal Performance

The excellent thermal properties of XPS provide insulation with minimum thickness to meet Building Regulation requirements.

Thermal Resistance Values (m ² K/W)				
Thickness (mm)	XPS200	XPS300	XPS500	XPS700
30	0.909	0.909		
40	1.212	1.212		
50	1.515	1.515	1.471	1.471
60	1.765	1.765	1.765	1.765
75	2.206	2.206		
80	2.353	2.353	2.353	2.353
100	2.778	2.778	2.778	2.778
120	3.077	3.077	3.077	3.077
130	3.333	3.333	3.333	3.333
140	3.590	3.590	3.590	3.590
150	3.846	3.846	3.846	3.846
160	4.103	4.103	4.103	4.103

To ensure optimum performance the boards can be supplied with ship-lapped edges which overlap and reduce cold bridging. Multiple layers may also be installed cross-laid to reduce the risks associated with board joints.

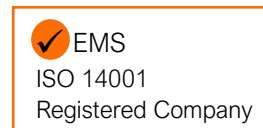
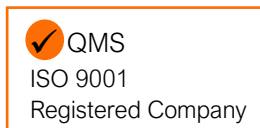
To further enhance the thermal performance a water control layer is placed over the insulation boards. This reduces the water flow below the insulation which can have a cooling effect on the roof deck.



Standard Sizes Available		
Dimensions (mm)	Length	Width
Rebated Edge	2385	585
Square Edge	2400	600
Thickness	30, 40, 50, 60, 75, 80, 100, 120, 130, 140, 150 and 160mm	

Accreditation

Sundolitt XPS Roofing is manufactured in accordance with BS EN ISO 13164.



EPD Certificate – nepd-396-274-EN – demonstrates the excellent environmental performance of Sundolitt XPS which has emissions of 0.0073 kg CO₂ calculated in accordance with ISO 14025.

Sundolitt XPS Roofing - Physical Properties

	XPS200	XPS300	XPS500	XPS700
Design Load at 2% nominal Compression (kPa)	90	140	225	250
Compressive Strength at 10% nominal Compression (kPa)	200	300	500	700
Thermal Conductivity (W/mK) at 50mm thickness	0.033	0.033	0.034	0.034

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