grassconcrete

grassroof

grassroof

the environmental rooftop innovation

reaching new heights

Grass Concrete Limited is a world leader in the development and supply of 'green' construction solutions. Expert environmental engineers for over 40 years, we were committed to our environment and the creation of greenspace long before the rest.

Our history

Grass Concrete Limited is a UK based company founded upon the principles of establishing environmental awareness in construction. Since our establishment in 1970 many of our aspirations that were then 'alternative' have now become part of mainstream policy adopted by governments and planners around the world.

Barely an issue in those days the company set out to change traditional thinking towards paving technology. The company's creations have grown with that of its original product, the unique Grasscrete paving system. Alongside this original invention further paving systems were introduced as well as a range of earth retaining walls and green roofing solutions. Grassroof is just one of these innovative products.

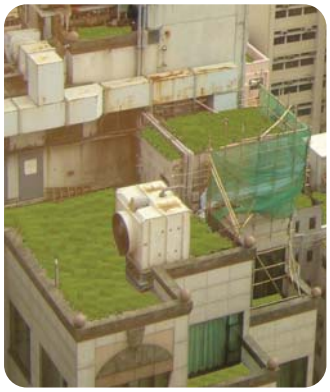
Why Grassroof?

Grassroof is a simple yet very effective green roof system that can be used for new-build or retro-fit flat roof construction. The lightweight structure can be used to good effect across a range of EXTENSIVE, SIMPLE INTENSIVE, or INTENSIVE APPLICATIONS used either as the paving layer or a drainage enabling base layer.

Why green roof?

Every building that replaces naturally draining ground with a roofed structure or hard paved external works will be tilting the balance of our natural eco-system towards increasing ecological harm. A green roof provides the opportunity to both arrest future harm and repair some of the damage already done.

Typical benefits



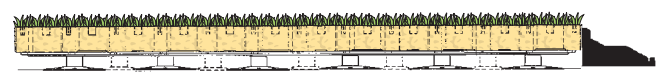
- Attenuation of surface water run-off including ultimate reduction in run off levels, reducing potential for flooding.
- Maintenance of natural levels of evapotranspiration.
- Promotion of 'green space awareness' benefits, particularly on mid-level roofs.
- Noise reduction.
- Improved thermal insulation.
- Balancing through digestion of CO2 levels rising from ground level traffic flow.
- Protection of the underlying roof membrane from weathering.

Extensive
with base void

Rainfall condition: Moderate/high
Growth: Sedum*

Depth
32mm GRF/2 unit
Void { 18mm LS1/1 leg support
3mm LSP/1 adhesive pad

GK45 Grasskerb on GKP/1 adhesive pads

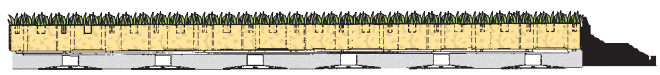


Extensive
with filter base layer

Rainfall condition: Low
Growth: Sedum/shallow rooting grasses*

Depth
32mm GRF/1 unit
Filtered waterway granular material (See table 2.0) { 18mm LS1/1 leg support
3mm LSP/1 adhesive pad

GK45 Grasskerb on GKP/1 adhesive pads



Simple intensive
with base void

Rainfall condition: Moderate/high
Growth: Sedum/shallow rooting grasses*

Depth
10mm Topsoil layer
32mm GRF/2 unit
Void { 18mm LS1/1 leg support
3mm LSP/1 adhesive pad

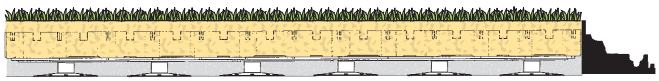
GK60 Grasskerb on GKP/1 adhesive pads

Simple intensive
with filter base layer

Rainfall condition: Low
Growth: Sedum/shallow rooting grasses*

Depth
10mm Topsoil layer
32mm GRF/1 unit
Filtered waterway granular material (See table 2.0) { 18mm LS1/1 leg support
3mm LSP/1 adhesive pad

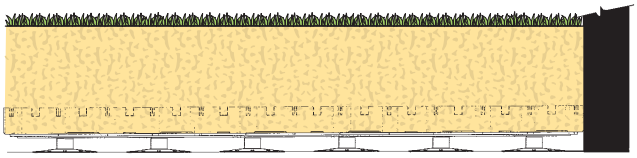
GK60 Grasskerb on GKP/1 adhesive pads



Intensive
with base void

Rainfall condition: Moderate/high
Growth: Shrubs/low rooting shrubs*

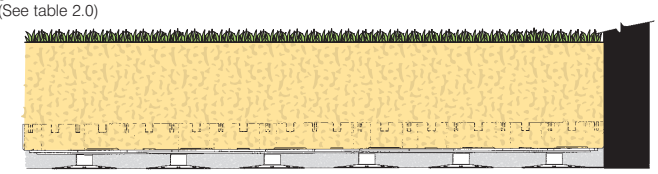
Depth
100mm + Topsoil layer
32mm GRF/2 unit
Void { 18mm LS1/1 leg support
3mm LSP/1 adhesive pad



Intensive
with filter base layer

Rainfall condition: Low
Growth: Grasses/low rooting shrubs*

Depth
100mm + Topsoil layer
32mm GRF/1 unit
Filtered waterway granular material (See table 2.0) { 18mm LS1/1 leg support
3mm LSP/1 adhesive pad



*Growth medium should be an indigenous species relevant to the local ecosystem.

Components

GRF/1 standard unit

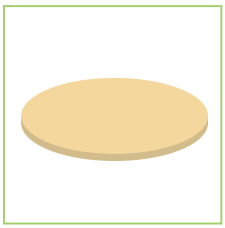
Overall dimensions:	635 x 330 x 32mm
Modular dimensions:	622 x 311 x 32mm
Number per m²:	5.17
Weight each:	0.85kg
Composition:	Recycled polypropylene
Colour:	Carbon black

GRF/2 geotextile backed unit

Overall dimensions:	635 x 330 x 32mm
Modular dimensions:	622 x 311 x 32mm
Number per m²:	5.17
Weight each:	0.87kg
Composition:	Recycled polypropylene PE/PP backing

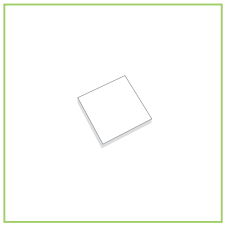
LS/1 leg support

Diameter:	75mm
Height:	18mm
Standard number per GRF unit:	11 supplied loose
Standard number per GRF m²:	56.9
Composition:	Recycled polypropylene
Colour:	Carbon black



LSP/1 adhesive pad

Diameter:	75mm
Thickness:	3mm
Standard number per GRF unit:	11(max) supplied loose
Standard unit per GRF m²:	56.9
Composition:	Butyl



LSP/2 geotextile patch for screw fix installations

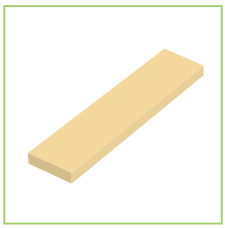
Length:	40mm
Width:	40mm
Composition:	PE/PP
Colour:	White

GK45 Grasskerb unit

Length:	1000mm
Width:	80mm
Height:	45mm
Weight:	0.39kg
Composition:	Recycled HDPE
Colour:	Carbon black

GK60 Grasskerb unit

Length:	1000mm
Width:	80mm
Height:	60mm
Weight:	0.46kg
Composition:	Recycled HDPE
Colour:	Carbon black



GKP/1 Grasskerb adhesive pad

Length:	75mm
Width:	20mm
Thickness:	5mm
Standard number per GK45/GK60 unit:	11
Composition:	Butyl

Installation specification

Type GRF/1 - standard type - filtered waterway

1. Remove dirt from the roof membrane.
2. Fix LS/1 leg supports to the underside of the GRF/1 units, (for standard installation this requires 11 per unit).
3.* Remove the protective backing from one side of the LSP/1 adhesive pad and fix to the underside of the LS/1 leg support. For locations protected from wind the LSP/1adhesive pads need only be used under outlying edge units.
4. Remove the second backing strip from the LSP/1 pads and lay the GRF/1 lightly into position. Do not press down on the unit.
5. Lay subsequent GRF/1 units to form the first row.
6. Continue with the second row, this will call for the edge of the previous row to be lifted slightly to enable the interlock to be formed and explains the need not to press down on the earlier units.
7. At the end of the day's installation period lay the final row with the exposed edge supported on a 50mm wide x 25mm deep x 500mm long batten under the edge of each unit to lift it clear of the membrane. This will enable the process to continue on the next installation day.
8. Where a base layer is to be introduced below the GRF/1 paver it should be introduced progressively. The material should be carefully filtered through the voids at the base on the GRF/1 unit until it is level with the visible base of each cell.

* For installations exposed to high wind conditions we recommend that the LS/1 leg supports are bonded to the projecting cleats of the GRF/1 units with solvent adhesive. Additionally the LS/1 leg supports should be screwed in position with zinc plated screws (minimum 3 per LS/1). Care should be taken to ensure that the heads of the screws are sealed by compressible washers to prevent seepage.

Drainage outlets should be covered either with geo-textile or a filter grid to prevent loss of fines.

Specification

Table 2.0
approximate roof load per m^2 (dry weight)

Paving			Open waterway	Filter filled waterway		
System	Cover layer	Pocket infill and covering	Clear void	100% perlite	100% vermiculite	100% pea shingle
Extensive						
GRF/1	0mm	1 : 1 soil/perlite	n/a	21.0kg	24.3kg	43.9kg
GRF/2	0mm	1 : 1 soil/perlite	17.0kg	n/a	n/a	n/a
Simple intensive						
GRF/1	10mm	1 : 1 soil/perlite	n/a	26.0kg	29.3kg	48.9kg
GRF/2	10mm	1 : 1 soil/perlite	22.0kg	n/a	n/a	n/a
Intensive						
GRF/1	100mm	1 : 1 soil/perlite	n/a	71.0kg	74.3kg	93.9kg
	200mm	1 : 1 soil/perlite	n/a	121.0kg	124.3kg	143.9kg
	300mm	1 : 1 soil/perlite	n/a	171.0kg	174.3kg	193.9kg
	400mm	1 : 1 soil/perlite	n/a	221.0kg	224.3kg	243.9kg
	500mm	1 : 1 soil/perlite	n/a	271.0kg	274.3kg	293.9kg
GRF/2	100mm	1 : 1 soil/perlite	67.0kg	n/a	n/a	n/a
	200mm	1 : 1 soil/perlite	117.0kg	n/a	n/a	n/a
	300mm	1 : 1 soil/perlite	167.0kg	n/a	n/a	n/a
	400mm	1 : 1 soil/perlite	217.0kg	n/a	n/a	n/a
	500mm	1 : 1 soil/perlite	267.0kg	n/a	n/a	n/a

Note: Extensive and Simple Intensive roofs should not be directly loaded with ladders or scaffolding.

Installation specification

Type GRF/2 - geo-textile backed open waterway type

1. Remove dirt from the roof membrane.
2. Fix LS/1 leg supports to the underside of the GRF/2 units, (for standard installation this requires 11 per unit).
3.* Remove the protective backing from one side of the LSP/1 adhesive pad and fix to the underside of the LS/1 leg support. For locations protected from wind the LSP/1 adhesive pads need only be used under outlying edge units.
4. Remove the second backing strip from the LSP/1 adhesive pads and lay the GRF/1 lightly into position. Do not press down on the unit.
5. Lay subsequent GRF/2 units to form the first row.
6. Continue with the second row, this will call for the edge of the previous row to be lifted slightly to enable the interlock to be formed and explains the need not to press down on the earlier units.
7. At the end of the day's installation period lay the final row with the exposed edge supported on a 50mm wide x 25mm deep x 500mm long batten under the edge of each unit to lift it clear of the membrane. This will enable the process to continue on the next installation day.

*For installations exposed to high wind conditions we recommend that the LS/1 leg support units are bonded to the projecting cleats of the GRF/2 units with solvent adhesive. Additionally the LS/1 Leg Supports should be screwed in position with zinc plated screws (minimum 3 per LS/1). Care should be taken to ensure that the heads of the screws are sealed by compressible washers to prevent seepage. To enable the screws to be inserted it will be necessary to puncture the geo-textile backing to the GRF/2 units. The puncture should be repaired with a cut patch of geo-textile LSP/2 that can be supplied on request.

Type GK45/GK60 - grasskerb

1. Prior to commencement of paving work mark out the perimeter positioning of the Grasskerb.
2. Peel off backing strips from GKP/1 adhesive pads and fix to the skeletal ribs on the GK45 or GK60 units.
3. Establish whether the GK45 or GK60 unit needs to be cut to form curves. This is achieved by clipping the longitudinal skeletal bar.
4. Unpeel the remaining backup strips from the GKP/1 pads and fix the GK45 or GK60 unit along the designated line.
5. Where the unit is to be laid to a curved profile it will be necessary to screw the unit in position. This can be achieved by drilling and screwing through the skeletal rib with a compressible washer under the screw head. Alternatively the pre-formed hole in the skeletal rib can be used with the hole being gap filled with mastic sealant prior to the screw being finally driven into closed position via a plate washer beneath the screw head.

Note: The GKP/1 adhesive pad will create a 5mm waterflow gap under the GK45/GK60 unit. This will enable drainage to filter through but will retain the base layer material where used. Should drainage filtration not be required the GK45 or GK60 unit should be screw fixed directly to the roof deck via a continuous bead of mastic sealant along both the main body of the unit and the longitudinal skeletal bar.

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A full range of brochures and technical guides are available upon request

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