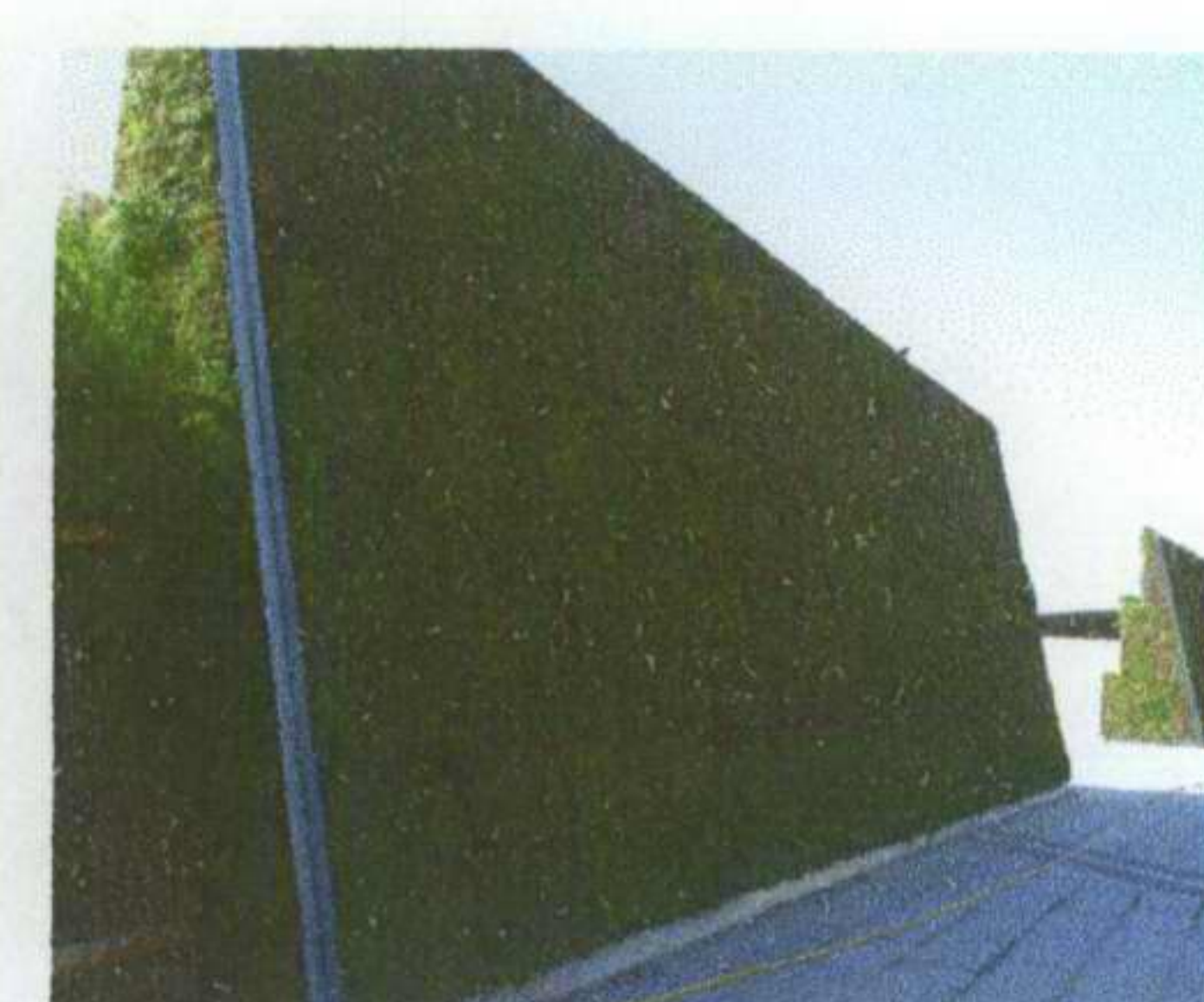
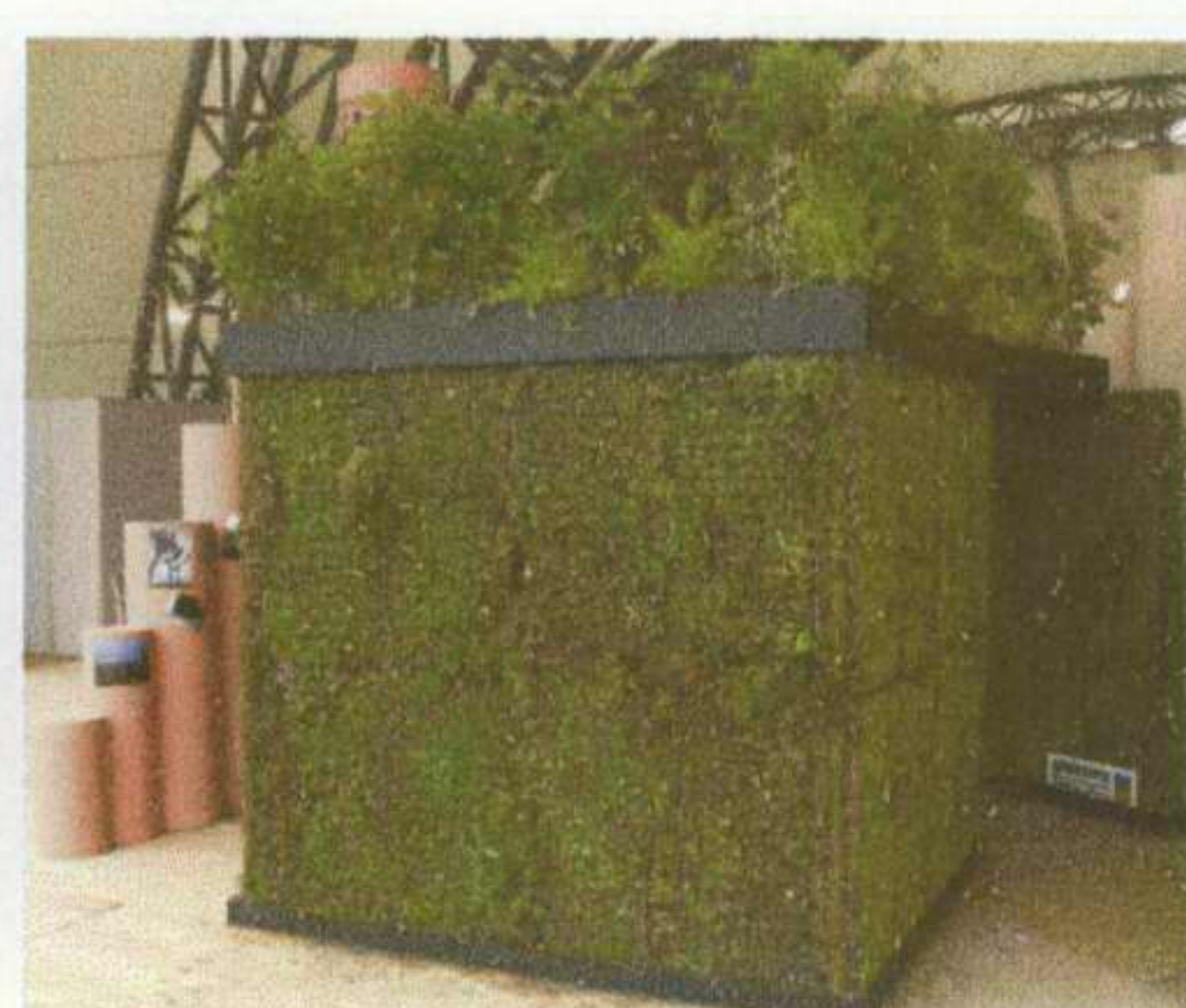


Ref Number		Job Name	West Hampstead	Wall Type	Sedum sun & shade
Date	23-1-08	Contractor	NA	Roof Type	Sedum +
Contact	Mark	Phone	0203 209 5002	Wall Area Roof Area	60m ² 40 m ²
Job Number	NA	Fax	0203 209 5003	E-mail	
				Confirmation Rebate	



GREENFIX SKY-GARDEN GREEN WALL TECHNICAL INFORMATION

Dear Mark

Attached is a basic resume of the green wall project at 151 Broadhurst Gardens, there will be a need for fixing design drawn into building construction so I suggest a further meeting as soon as possible once plans have been agreed.

Design Stage

The importance of correct installation, construction, planning and maintenance is huge. If any of these areas are incorrect, the system may fail, either structurally or visually. Greenfix Skygarden insist on planning meetings to discuss specifications and practicality of planting, fixing, installation variants and construction.

We thank you for the opportunity to quote and guarantee a professional design and consultancy service culminating in a cost effective, technically and aesthetically suited result.

CUSTOMER & SYSTEM SPECIFICATIONS

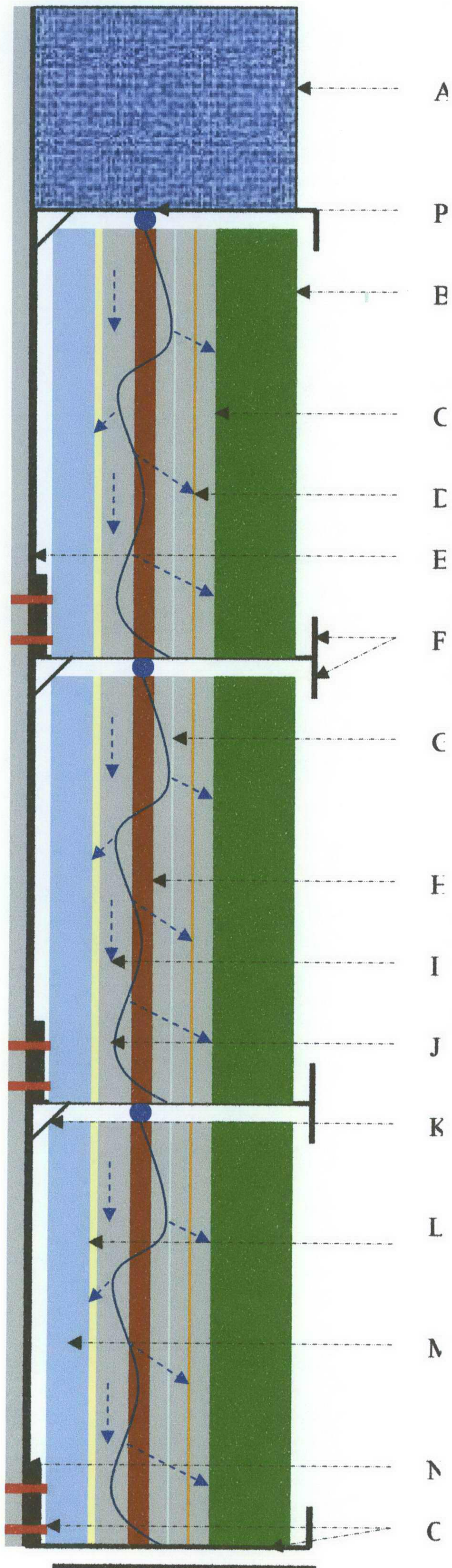
Applicable System	Waterproofing Section	Green Roof Section	Roof finish Additions
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PROJECT NAME	
Project Understanding & Requirements	To green the upper level of 3 aspects and roof of a mews house yet to be constructed. Front aspects will require low maintenance panels of Sedum for sun aspects whilst the side and rear will need shade species integration.

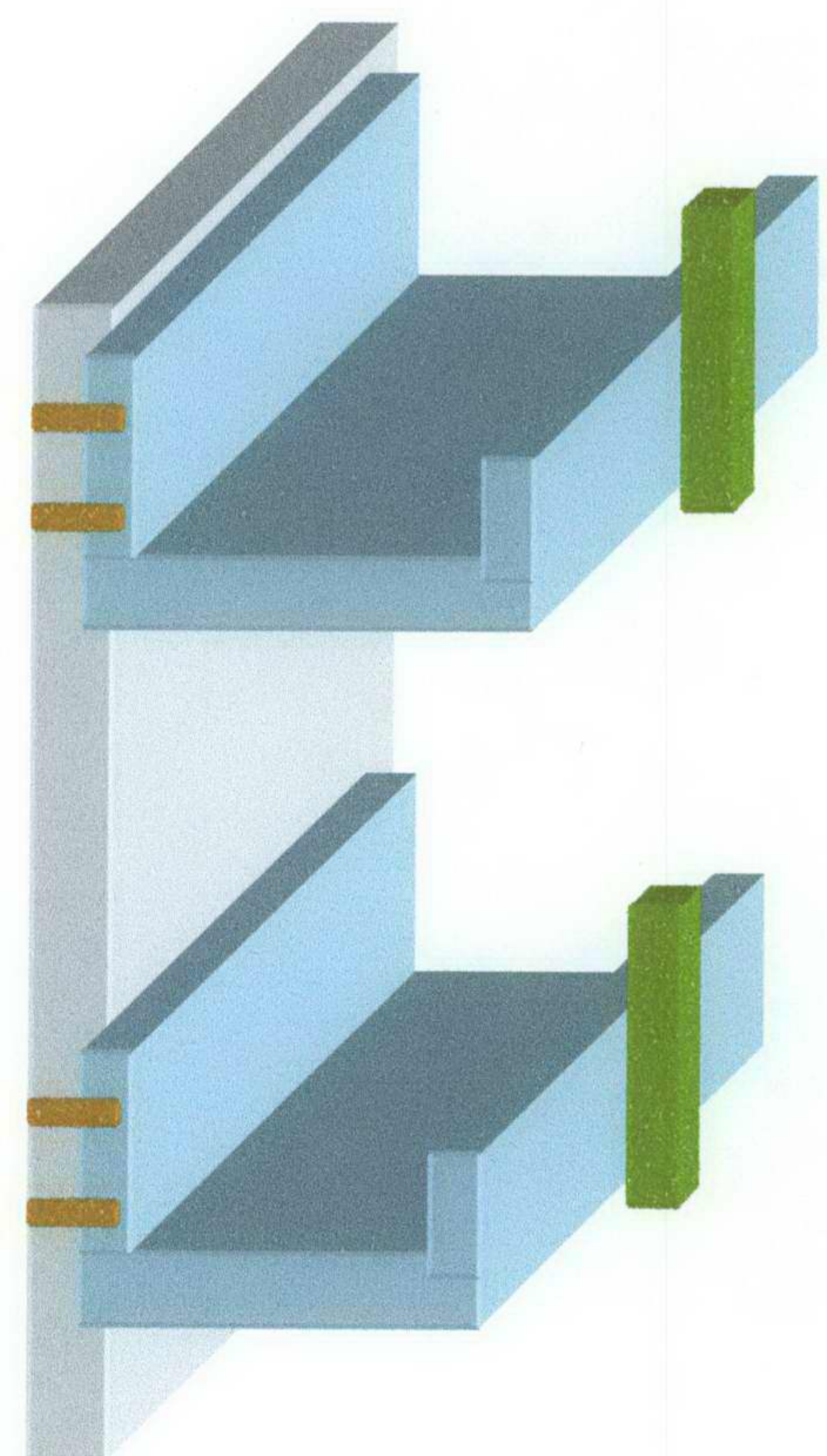
Plant Type	All plant species used are UK native and can be found naturally occurring in the London area. Full plant species use can be found at the end of this report.	
Components of build	The property will also have a sedum roof, low angled pitch suitable for flat roof system. The finish will be 8 species sedum with wildflower over seeding using London native mix. Design input on blending the wall top greening with the roof integrating with the guttering will be required.	
Rainwater harvesting	Rainwater harvesting to irrigate systems is possible and can be integrated into the irrigation system to minimize mains water requirement.	
Weights and depths	The roof system is sustainable depending on the aesthetic requirements of the location. The roof system will be edged and held in place by suitable edging detail, the system will be 110mm thick and will weigh 100kg/ m ² . The wall system will be bracket fitted, either to steel system on wall directly or using shelving detail fixed through onto steel supports. The panels used will be pre established for 6 months, are 1000mm x 600xx W x 100mm thick. The system sits 125mm from the wall and weighs 120kg/ m ² .	
Irrigation	The irrigation system is automated, uses an inline tank system to prevent backwashing and is compatible with rainwater harvesting systems. No systemic feeding is carried through the system. All feeding is done by foliar feeding during maintenance visits.	
Maintenance	Maintenance systems are mandatory for 3 years and are carried out every 4-6 weeks in accordance with customer requirements. These visits will review system performance, including irrigation and carry out feeding and remedial requirements before leaving recommendations in a full report	
Area of Roof	TBC	
WATERPROOFING SYSTEM (if any)	SG123EPDM Greenroof System	
Waterproofing Components & Costs (will vary depending on system)	SG142ET Eurotec 1200 Wall applied system Long lasting breathable, clear paint on membrane for wall treatment pre and post fixing of wall system	£32.00/m² installed
Waterproof Installation Procedure	Following wall inspection, waterproof system selected will be installed following agreement over : product specification and post installation documentation . The Greenfix appointed Contractor will install onto wall constructed by others. In addition to covering the wall area, the contractors scope of capacity is as follows. <ul style="list-style-type: none"> Waterproofing details will be cleared by Greenfix but installation will be supervised by sub contractor to agreed specifications. Any additions or changes require confirmation by Greenfix and contractor. Waterproofing system will be tested and signed off with appropriate documentation before the wall finish is applied. 	
GREEN WALL SYSTEMS	Low Maintenance Sun Panel Sedum standard system (mixed finish)	
Area	TBC	
Establishment & Prep	Under Glass for 12 weeks and hardened for 6 weeks	18 weeks
Green Wall System Components	SG010 Drainage Layer, SG216 Filter Layer, SG321 50mm split substrate layer, SGPC345 Pest control granule layer, SGF25 Slow release fertiliser SG342 Water Absorption Layer, SG001 Vegetation Mat (Sedum with Wildflower seeding @ 10gms/m ²), Sedum standard type. SG232 Bio-Nutritional Treatment (post installation,	£350.00-399.00/m² installed

	SGH462 Heron Automated 4 way split controller SGT763 In line tank with pump facility (pump not included) SGLP657 Leaky pipe system with connectors, feed lines and caps SGK424 12 month remedial maintenance package. SG32B Steel edging detail if edge planting is not suitable Additional SG834 Greenroof Moisture Sensors with wireless technology. Computer monitoring plus mobile download facility Internal Bird, Bat, Butterfly or Insect waterproofed habitat. SGP12 High Line pump for wall systems over 4m SGH38 Heron automated 12 way split controller	£125.00/each £900.00/system £40.00 each £1220.50/unit £1000.00/unit
Support System	SG350 1.8m 4mm shelf detail for direct wall fixing, galvanized. SG765 Fixing pins, resin bound SGS342 Front fixing clips SG132 Support angles with conventional wall fixings	£99.00/m ² installed
Green Wall System 2	Low maintenance, Sedum and Alpine Shade panel	£350.00-399.00/m ² installed
Green Wall System 3	Foliage panel for sun aspects	£400.00-450.00/m ² installed
Green Wall System 4	Foliage panel for shade aspects	£400.00-450.00/m ² installed
Maintenance 3 year mandatory contract.	3 year maintenance package that includes 4-6 weekly assessment visits to apply foliar feed mixes, reports indicating areas of concern and recommended activity and remedial maintenance as required. <ul style="list-style-type: none"> • Irrigation system testing • Wall monitoring assessment + report • Remedial maintenance and feeding as required • Weeding and patching detail • Full backup service 	£3000.00/annum

VERTICAL URBAN GREENING
DETAIL (horizontal support beams)



A	In Line Tank
B	Vegetation Layer
C	Substrate Layer
D	Water Absorption Layer
E	Waterproof Membrane
F	Front Swivel Securing Fixing
G	Pest Control layer
H	Capillary Wick
I	Rear Substrate
J	Water Movement
K	Under Brace Detail
L	Filter Layer
M	Drainage Layer
N	Shelving Detail
O	Resin Bonded Fittings
P	Irrigation Feed



SEDUM VERTICAL WALL PANELS	FOLIAGE VERTICAL WALL PANELS
75kg/600x1000x100mm panel saturated	75kg/600x1000x100mm panel saturated
Finishes Low maintenance sun and shade	Finishes Sun and Foliage Shade
<p>Construction Weld Mesh Panels 1000x600x100mm 5mm mesh with 50 mm aperture. Steel clips and weld joints, central steel diaphragm for added integrity. All steel fixtures and fittings are galvanized.</p> <p>Panels Comprising – SG010 Drainage Layer, SG216 Filter Layer, SG321 50mm split substrate layer, SGPC345 Pest control granule layer, SGF25 Slow release fertiliser SG342 Water Absorption Layer, SG001 Vegetation Mat (Sedum with Wildflower seeding @ 10gms/m²), Sedum standard type. SG232 Bio-Nutritional Treatment (post installation, SGH462 Heron Automated 4 way split controller SGT763 In line tank with pump facility SGLP657 Leaky pipe system with connectors, feed lines and caps SK424 12 month remedial maintenance package</p> <p>Irrigation System SGH462 Heron Automated 4 way split controller SGT763 In line tank with pump facility SGLP657 Leaky pipe system with connectors, feed lines and caps. SG834 Greenroof Moisture Sensors with wireless alarm and download facility £75.00/m² extra)</p> <p>Growing Medium (sedum sun and shade mix) – Sedum substrate, blended organic compost 20-50% dependant on plant specification, perlite, sand and water absorption granules.</p> <p>Growing Medium (Foliage sun and shade mix)</p> <p>Management Wireless monitoring of water management within wall possible but not standard. Required moisture sensors with mobile link and static computer station permanently active.</p> <p>Edging Detail Irrigation system runs within edging detail of silver aluminium or steel that encloses exposed system edges. In line water tank is positioned under the system, below ground, along side or on a nearby roof space.</p> <p>Similar edging is available for top and bottom, basal drip trays to manage run off are also available. 4 colour finishes available.</p> <p>Run Off</p>	<p>Construction Weld Mesh Panels 1000x600x100mm 5mm mesh with 50 mm aperture. Steel clips and weld joints, central steel diaphragm for added integrity. All steel fixtures and fittings are galvanized.</p> <p>Panels Comprising – SG010 Drainage Layer, SG216 Filter Layer, SG321 50mm split substrate layer, SGPC345 Pest control granule layer, SGF25 Slow release fertiliser SG342 Water Absorption Layer, SG001 Foliage plant finishes, 36 plants per panel. SG232 Bio-Nutritional Treatment (post installation, SGH462 Heron Automated 4 way split controller SGT763 In line tank with pump facility SGLP657 Leaky pipe system with connectors, feed lines and caps SK424 12 month remedial maintenance package</p> <p>Irrigation System SGH462 Heron Automated 4 way split controller SGT763 In line tank with pump facility SGLP657 Leaky pipe system with connectors, feed lines and caps. SG834 Greenroof Moisture Sensors with wireless alarm and download facility £75.00/m² extra)</p> <p>Growing Medium (sedum sun and shade mix) – Blended fern compost, high water holding capacity, fibrous and raw with water absorption layers and pest control granules.</p> <p>Growing Medium (Foliage sun and shade mix)</p> <p>Management Wireless monitoring of water management within wall possible but not standard. Required moisture sensors with mobile link and static computer station permanently active.</p> <p>Edging Detail Irrigation system runs within edging detail of silver aluminium or steel that encloses exposed system edges. In line water tank is positioned under the system, below ground, along side or on a nearby roof space.</p> <p>Similar edging is available for top and bottom, basal drip trays to manage run off are also available. 4 colour finishes available.</p> <p>Run Off</p>

<p>Very rarely will the system be fed systemically so nutrient running into ground water is minimal, calculations are also made to ensure the system uses 80%+ of its delivered water. In periods of high rainfall, run off will occur and suitable sump systems should be designed below system if run off is unacceptable.</p> <p>Construction & Delivery</p> <p>Panels are established on the company nursery, establishment visits are advised and the period from planting to delivery is 4-6 months.</p> <p>Support Detail</p> <p>4mm galvanized shelf detail, directly fitted to wall post waterproofing using twin resin bound fittings. Front lower lip and clip secure panel from top and bottom. Additional system ties are available in exposed conditions. Securing holes are grooved to allow for shelf positioning.</p> <p>Basal shelf unit is grooved and drilled at end to release water over foliage below but preventing cascade effect through panels thus minimizing run off.</p> <p>Catchment trays beneath system to manage water away to sump, drain or recirculation system.</p> <p>Frame Fixing</p> <p>Using same tray system attached directly to I beam framework which is wall mounted and bolted in place or left as a self supporting free standing screen.</p> <p>Waterproofing</p> <p>We use a fabric breathable membrane wall attached and also panel rear attached to increase waterproofing in delicate situations. Alternatively we can also use a range of paint on membranes that are applied pre fixing.</p> <p>Payments</p> <p>Because of establishment costs we require 25% of cost on order, 25% at planting time and 50% post installation.</p> <p>Establishment Period</p> <p>Most panels are produced under glass and a cost of 20p/panel/week for this establishment period is charged. Example 12 weeks = £2.40/panel.</p> <p>Installation</p> <p>25 panels per day is the teams capacity, this includes marking out, waterproofing and shelf erection.</p> <p>Post installation Maintenance Program</p> <p>2 years mandatory</p> <p>Establishment Issues</p> <p>Water management</p> <p>Feeding 2-3 times a year</p> <p>Remedial maintenance</p>	<p>Very rarely will the system be fed systemically so nutrient running into ground water is minimal, calculations are also made to ensure the system uses 80%+ of its delivered water. In periods of high rainfall, run off will occur and suitable sump systems should be designed below system if run off is unacceptable.</p> <p>Construction & Delivery</p> <p>Panels are established on the company nursery, establishment visits are advised and the period from planting to delivery is 4-6 months.</p> <p>Support Detail</p> <p>4mm galvanized shelf detail, directly fitted to wall post waterproofing using twin resin bound fittings. Front lower lip and clip secure panel from top and bottom. Additional system ties are available in exposed conditions. Securing holes are grooved to allow for shelf positioning.</p> <p>Basal shelf unit is grooved and drilled at end to release water over foliage below but preventing cascade effect through panels thus minimizing run off.</p> <p>Catchment trays beneath system to manage water away to sump, drain or recirculation system.</p> <p>Frame Fixing</p> <p>Using same tray system attached directly to I beam framework which is wall mounted and bolted in place or left as a self supporting free standing screen.</p> <p>Waterproofing</p> <p>We use a fabric breathable membrane wall attached and also panel rear attached to increase waterproofing in delicate situations. Alternatively we can also use a range of paint on membranes that are applied pre fixing.</p> <p>Payments</p> <p>Because of establishment costs we require 25% of cost on order, 25% at planting time and 50% post installation.</p> <p>Establishment Period</p> <p>Most panels are produced under glass and a cost of 20p/panel/week for this establishment period is charged. Example 12 weeks = £2.40/panel.</p> <p>Installation</p> <p>25 panels per day is the teams capacity, this includes marking out, waterproofing and shelf erection.</p> <p>Post installation Maintenance Program</p> <p>3 years mandatory</p> <p>Establishment Issues</p> <p>Water management</p> <p>Regular feeding program</p> <p>Pruning and increased maintenance</p> <p>Pest control especially on internal or courtyard shade walls – Biological control for Vine Weevil, Red Spider Mite, Aphid and Slug will need to be in place post</p>
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	installation and maintained monthly.
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Shade Tolerant Plant Range	Sun Tolerant Plant Range
Ajuga reptans 'Atropurpurea' Asplenium spp Chiastophyllum oppositifolium Sagina subulata 'Aurea' Polypodium vulgare Saxifraga stolonifera Soleirolia soleirolia Sedum hybridum	Sedum acre Sedum spurium (white/red) Sedum kamtchaticum Sedum lydium Sedum reflexum Sedum ewersii Sedum sexangulare Duchesnia indica

Timeline	
	Planning and design stage
Week 1-2	Panel Construction
Week 2-4	Panel Planting
Week 4-8	Initial Establishment Period
Week 8-16	Growth Period
Week 16-20	Final Establishment Period
Week 21	Delivery and Installation
12 months	Warranty Period
3 years	Mandatory Service Agreement

All Greenfix Sky-garden bio-diverse and sedum / turf roofs and Wall products use the highest quality, environmentally suitable products. All systems have integral water management layers that increase drought capacity by 3-4 weeks without irrigation systems. All vegetation layers guarantee 85% coverage and complete finish within 8 months and we apply a bio-nutritional treatment post installation to reduce stress and maximize roof establishment. Wireless moisture sensors are available to monitor roof performance and all roofs are covered by a warranty and maintenance contract which can be extended if required.

Greenfix supplies environmentally and ecologically suitable products, the company delivers a quality cost effective product and uses internal construction teams to install all high rise contracts. We develop bio-diverse systems to adhere to planning, Bream and SUDS regulation and will actively work with customer to develop a product that maximizes potential

Greenfix Skygarden is the only company to offer a system with integral water absorption layers to decrease roof stress in times of drought and a bio-nutritional treatment following installation to maximize establishment potential. In addition Greenfix Skygarden exclusively offers a fully integrated irrigation system with wireless monitoring sensors for moisture awareness as an optional extra.

Crane and hoist supply is contractor obligation and not allowed for within Greenfix price.

See full Terms and Conditions attached

Best wishes
Dave Austen

