GREEN ROOFERS

Green Roofers Ltd | 1st Floor | 2 Woodberry Grove | Finchley | London | N12 0DR

Q37 | GR - GREEN ROOF SYSTEM

NBS SPECIFICATION

Highgate - Farrans

OVERVIEW

Prepared By: **Andrew Sheldon**

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Client Details:

Company Name: **Southern Mastic**

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GUARANTEE PERIOD:

10 years with approved **Maintenance Contract**

ROOF BLOCK: A1 (Under PV's)

Slope: Flat

Drainage Layer: ***Part of the Bio Solar System***

Growing Medium: ***GRBioD*** Green Roofers Ltd engineered lightweight biodiverse green roof substrate. The material will contain a mixture of pumice, expanded clay and crushed brick amongst other ingredients such as fillers of coarse sand. It contains organic peat free compost and has a bulk dry weight of 980kg/m³. Installed to a finally settled depth of between **80-150mm (Av. 120mm)** including an allowance for 20% settlement in accordance with the GRO Code of Best Practice.

Vegetation Layer: ***GR/WildSeed*** Seed mix, containing an average of 30 sown species from certified native stock, hand sown at 4g/m² mixed with fine sand, hand sown or hydroseeding when agreed.

Dry Weight – 118kg/m2

Fully Saturated Weight – 144kg/m2

Weights does Not include any of the Bio Solar Framing system or panels

ROOF BLOCK: A1 (Around Perimeter of Roof)

Slope: Flat

Drainage Layer: ***GRD20*** nominal **20mm** rigid compression cell multi-flow drainage/water retention layer with a 105g/m² filtration layer supplied by Green Roofers Ltd.

Growing Medium: Green Roofers engineered lightweight extensive green roof substrate. The material will contain a mixture of pumice, expanded clay and crushed brick amongst other ingredients such as fillers of coarse sand. It will contain organic peat free compost and have a bulk dry weight of *936kg/m³*. Installed to a finally settled depth of **60mm** including an allowance for **20% settlement** in accordance with the GRO Code of Best Practice.

Vegetation Layer: ***GRS38*** Sedum mat, average 25mm thick pre-grown mat containing a minimum of 11 species of sedum (sourced from 38 different varieties) at 90% coverage upon delivery and harvest.

Vegetation Break: 500mm wide, Coastal 20, 20/40mm washed rounded pebble margin, free from sharp edges and contaminants

Perimeter Trim: 80mm high aluminium slotted trim, will be free-standing trim (weighed down by drainage board and growing medium). This aluminium trim serves as a separation barrier to perimeters.

Dry Weight – 71kg/m2

Fully Saturated Weight – 104kg/m2

ROOF BLOCK: A2 (Large Roof)

Slope: Flat

Drainage Layer: ***GRD20*** nominal **20mm** rigid compression cell multi-flow drainage/water retention layer with a 105g/m² filtration layer supplied by Green Roofers Ltd.

Growing Medium: ***GRBioD*** Green Roofers Ltd engineered lightweight biodiverse green roof substrate. The material will contain a mixture of pumice, expanded clay and crushed brick amongst other ingredients such as fillers of coarse sand. It contains organic peat free compost and has a bulk dry weight of 980kg/m³. Installed to a finally settled depth of between **80-150mm Av. 115mm)** including an allowance for 20% settlement in accordance with the GRO Code of Best Practice **(Bio Solar System will have a final settled depth of 120mm Growing Medium – Dry Weight 118kg/m2)**

Vegetation Layer: ***GR/WildSeed*** Seed mix, containing an average of 30 sown species from certified native stock, hand sown at 4g/m² mixed with fine sand, hand sown or hydroseeding when agreed.

Vegetation Break: 500mm wide, Coastal 20, 20/40mm washed rounded pebble margin, free from sharp edges and contaminants

Perimeter Trim: 120mm high aluminium slotted trim, will be free-standing trim (weighed down by drainage board and growing medium). This aluminium trim serves as a separation barrier to perimeters.

Av. Dry Weight – 118kg/m2

Av. Fully Saturated Weight – 152kg/m2

Weights does Not include any of the Bio Solar Framing system or panels

ROOF BLOCK: A2 – Small Roof

Slope: Flat

Drainage Layer: ***GRD20*** nominal **20mm** rigid compression cell multi-flow drainage/water retention layer with a 105g/m² filtration layer supplied by Green Roofers Ltd.

Growing Medium: Green Roofers engineered lightweight extensive green roof substrate. The material will contain a mixture of pumice, expanded clay and crushed brick amongst other ingredients such as fillers of coarse sand. It will contain organic peat free compost and have a bulk dry weight of *936kg/m³*. Installed to a finally settled depth of **60mm** including an allowance for **20% settlement** in accordance with the GRO Code of Best Practice.

Vegetation Layer: ***GRS38*** Sedum mat, average 25mm thick pre-grown mat containing a minimum of 11 species of sedum (sourced from 38 different varieties) at 90% coverage upon delivery and harvest.

Vegetation Break: 500mm wide, Coastal 20, 20/40mm washed rounded pebble margin, free from sharp edges and contaminants

Perimeter Trim: 80mm high aluminium slotted trim, will be free-standing trim (weighed down by drainage board and growing medium). This aluminium trim serves as a separation barrier to perimeters.

Dry Weight – 71kg/m2

Fully Saturated Weight – 104kg/m2

ROOF BLOCK: B

Slope: Flat

Drainage Layer: ***GRD20*** nominal **20mm** rigid compression cell multi-flow drainage/water retention layer with a 105g/m² filtration layer supplied by Green Roofers Ltd.

Growing Medium: ***GRBioD*** Green Roofers Ltd engineered lightweight biodiverse green roof substrate. The material will contain a mixture of pumice, expanded clay and

crushed brick amongst other ingredients such as fillers of coarse sand. It contains organic peat free compost and has a bulk dry weight of 980kg/m³. Installed to a finally settled depth of between **80-150mm (Av. 133mm)** including an allowance for 20% settlement in accordance with the GRO Code of Best Practice. **(Bio Solar System will have a final settled depth of 150mm Growing Medium – Dry Weight 148kg/m2)**

Vegetation Layer: ***GR/WildSeed*** Seed mix, containing an average of 30 sown species from certified native stock, hand sown at 4g/m² mixed with fine sand, hand sown or hydroseeding when agreed.

Vegetation Break: 500mm wide, Coastal 20, 20/40mm washed rounded pebble margin, free from sharp edges and contaminants

Perimeter Trim: 120mm high aluminium slotted trim, will be free-standing trim (weighed down by drainage board and growing medium). This aluminium trim serves as a separation barrier to perimeters.

Thickest Part of the System (Substrate for Bio Solar) Dry Weight – 148kg/m2

Thickest Part of the System (Substrate for Bio Solar) Fully Saturated Weight – 181kg/m2

Weights does Not include any of the Bio Solar Framing system or panels

ROOF BLOCK: D

Slope: Flat

Drainage Layer: ***GRD20*** nominal **20mm** rigid compression cell multi-flow drainage/water retention layer with a 105g/m² filtration layer supplied by Green Roofers Ltd.

Growing Medium: ***GRBioD*** Green Roofers Ltd engineered lightweight biodiverse green roof substrate. The material will contain a mixture of pumice, expanded clay and crushed brick amongst other ingredients such as fillers of coarse sand. It contains organic peat free compost and has a bulk dry weight of 980kg/m³. Installed to a finally settled depth of between **80-150mm (Av. 133mm)** including an allowance for 20% settlement in accordance with the GRO Code of Best Practice. **(Bio Solar System will have a final settled depth of 150mm Growing Medium – Dry Weight 148kg/m2)**

Vegetation Layer: ***GR/WildSeed*** Seed mix, containing an average of 30 sown species from certified native stock, hand sown at 4g/m² mixed with fine sand, hand sown or hydroseeding when agreed.

Vegetation Break: 500mm wide, Coastal 20, 20/40mm washed rounded pebble margin, free from sharp edges and contaminants

Perimeter Trim: 120mm high aluminium slotted trim, will be free-standing trim (weighed down by drainage board and growing medium). This aluminium trim serves as a separation barrier to perimeters.

Habitat Spaces:

Wood Piles: trees sawn into logs at a minimum 500mm long and 100mm diameter, stacked on top of each other to provide nesting for insects and perches for birds. Stacks will be no more than 350mm high. (areas detailed on roof plan for both roof areas A&B)

Stone Piles - Small areas of clean, assorted stone approx. 1m2 area – 60-100mm diameter mounded in random piles.

Thickest Part of the System (Substrate for Bio Solar) Dry Weight – 148kg/m2

Thickest Part of the System (Substrate for Bio Solar) Fully Saturated Weight – 181kg/m2

Weights does Not include any of the Bio Solar Framing system or panels

210. ROOF PERFORMANCE

- General: Firmly adhered, free draining and completely weather tight
- Will have limited access for annual maintenance, be low maintenance and/or self-sustaining
- All vegetation be suitable for the location and climate

May form part of the SUDs strategy within the scheme

355. MOISTURE RETENTION & DRAINAGE LAYER

- Green Roofers *GR300u* underlayer with 300g/m²
- *GRD20* rigid compression cell multi-flow drainage layer, with a 105g/m² filtration fleece
- Manufactured containing recycled plastics
- 20mm nominal thickness

- Water Storage capacity – approx 4.5 l/m2

390. BIODIVERSE GROWING MEDIUM

- Green Roofers Ltd engineered lightweight **biodiverse** green roof substrate
- Minimum of a finally settled average thickness of **115mm or 133mm** thickness subject to specific roof specification
- Detailed nominal thickness as average to allow biodiversity and for the seed mix to thrive
- A declaration that it contains no hazardous materials and comes from a peat free source
- Organic matter less than 20% - inline with GRO substrate recommendations

390a. EXTENSIVE GROWING MEDIUM

- Green Roofers ***GRLE60***, engineered lightweight extensive green roof substrate
- Minimum of finally settled thickness of **60mm** thickness for sedum mat roof
- Detailed nominal thickness as average thickness to allow biodiversity of the planting medium to thrive
- Declaration that it contains no hazardous materials and comes from a peat free source
- Organic matter less than 20% - inline with GRO substrate recommendations

400. VEGETATION

- ***GR/WildSeed*** Seed mix, containing an average of 30 sown species from certified native stock, hand sown at 4g/m2 mixed with fine sand, or hydroseeding when agreed.
- Supplied as a system by Green Roofers Ltd. Manufactured and grown from various sources

400a. VEGETATION

- ***GRS38*** **Sedum Mat**, average 25mm thick pre-grown mat containing a minimum of 11 species of sedum (sourced from 38 different varieties) at 90% coverage upon delivery and harvest

- Supplied as a system by Green Roofers Ltd. Manufactured and grown from various sources

420. STONE BALLAST / WHERE REQUIRED AS A VEGETATION BARRIER.

- Green Roofers Ltd Coastal 20 Washed, rounded aggregate graded 20/40mm free from fines and sharp angles
- Ensure that aluminium gravel guards are fitted to all outlets
- Spread evenly to a minimum depth of 50 mm

430. INSPECTION CHAMBERS

- Manufacturer: Green Roofers Ltd
    - Product reference: IC 150 Inspection Chambers
- Material: Mill Finish Aluminium
- Size: 315mm x 315mm
- Access covers: Removable Lid
- Features: Perforated base to allow drainage via channels.

It is assumed that the building owner or his advisors have satisfied themselves that the roof structure and deck are suitable to receive the dead load of the above-described system and any associated loadings.

EXECUTION

710. INSTALLATION GENERALLY

- Once waterproofing is complete, clear all surfaces of debris
- Visually inspect waterproofing and report any apparent defects or damage
- Do not use material which is detrimental to healthy plant growth
- Protect drainage outlets
- Do not store materials which may be too heavy for the anticipated roof loadings

720. ADVERSE WEATHER

- Secure all unfinished work and protect from wind uplift
- Do not install frozen materials
- Take care during a period of dry weather to ensure that any planting structure is kept sufficiently moist to all it to be worked with

770. INSTALLATION OF THE COMBINED ATTENUATION AND DRAINAGE LAYER

- Loose lay drainage board in a stagger bond fashion over the entire roof
- Keep cuts to a minimum

790. INSTALLATION OF THE SUBSTRATE

- Lay in depths not exceeding 60 or between 80-150mm subject to specific roof specification
- Gently compact layers to achieve a level area
- Thoroughly water substrate and drainage board after completing this stage to ensure retained moisture within this system

800. VEGETATION INSTALLATION

- **Wildflower Seeds**
  - Hand seeded or Hydroseeded

- **Sedum Mat**

- Lay within 36 hours of harvesting
- Do not stack on site
- Do not use excessively dry, frozen or waterlogged mats
- Stagger the blankets
- Finish the edges with whole blankets and do not roller

COMPLETION

910. INSPECTION

- Give a minimum of 3 days notice prior to handover

920. COMPLETION

- Leave area clean and tidy and free of obstacles and debris

930. DOCUMENTATION

- Growing medium declaration of analysis
- Maintenance procedures
- Roof map of planting and features

NOTES

(a) Thoroughly water the substrate for a period of 12 weeks minimum to ensure seeds reach their maximum growth potential. Water and labour to be supplied by others unless agreed with Green Roofers as part of the agreed contract.

(b) Fertilise slow release nutrient fertilizer at a rate of 25 grams per square metre.

INSTALLATION NOTES

Autumn:

Trim the roof surface to remove all dead vegetation, rake off debris and cart away

Spring:

- Inspect substrate surface and vegetation barriers; remove all unwanted grasses, weeds, saplings etc
- Any bare areas of the substrate must be re-seeded and lightly raked over, or re-planted
- Ensure that perimeters and roof outlets are free from weeds and other blockages
- Fertilise with slow release nutrient fertilizer at a rate of 25 grams per square metre

GENERAL

Provision must be made to carry out a leak test before the Green Roof System is installed. The method and responsibility for carrying out the test must be decided on and written into the tender documents.

It is assumed that the building owners/management team have satisfied themselves that the roof structure and deck are suitable to receive the dead load of the proposed green roof system both during construction and upon completion of the works.

Provision should be made to estimate the number of site visits required of the green roof contractor to enable them to complete the contract. The number of visits estimated should be entered into the tender documents in order to facilitate accurate pricing.

Although the system is designed to withstand drought conditions and is not an irrigated system, it is advisable to allow for a water point to be installed in case of extreme conditions.

The waterproofing should be taken up all upstands, protrusions etc. a minimum of 150mm above substrate level.

Ideally, a maintenance contract should be taken out with the Green Roof to ensure that the roof flourishes and performs as expected at the outset of the project. Alternatively, all tendering contractors should allow for a 2-year period of on-going maintenance to allow the roof to fully establish itself. This should be priced accordingly and should not be less than at least two visits per year to remove unwanted material and to inspect the performance and growth of the roof.

An on-going minimum annual inspection after this 2-year period will be required to ensure the continued performance and any changes to the maintenance regime.