



Q37 – Bedford Hotel

EGR SEDUM BLANKET GREEN ROOF

Drainage Layer

- Manufacturer: Eco Green Roofs Ltd Unit 3 Rays Farm Barns, Ingatestone, Essex CM4 9EH Tel: 0800 6347035 Web: [www.ecogreenroofs.co.uk](http://www.ecogreenroofs.co.uk)
- Material: Thermoformed recycled polypropylene
  - Depth: 15mm
  - Retention Volume: 4.3 L/m<sup>2</sup>
  - Horizontal Flow Rate: 1.25 L/s/m<sup>2</sup>
  - Vertical Flow Rate: 8 L/s/m<sup>2</sup>
  - Compressive Strength: 150kPa
- Infill: Not required

Filter Membrane

- Manufacturer: Eco Green Roofs Ltd Unit 3 Rays Farm Barns, Ingatestone, Essex CM4 9EH Tel: 0800 6347035 Web: [www.ecogreenroofs.co.uk](http://www.ecogreenroofs.co.uk)
- Material: Thermally strengthened non-woven polypropylene
  - Mass: 0.120 kg/m<sup>2</sup>
  - Thickness: 2mm

Extensive Sedum Growing Medium

- Manufacturer: Eco Green Roofs Ltd Unit 3 Rays Farm Barns, Ingatestone, Essex CM4 9EH Tel: 0800 6347035 Web: [www.ecogreenroofs.co.uk](http://www.ecogreenroofs.co.uk)
- Material: Lightweight crushed brick & expanded clay substrate. Inorganic and organic growing medium consisting of crushed brick, expanded clay and organic matter of composted bark fines
  - Depth: 50mm



- Declaration of analysis: Submit.
  - Porosity: 63%
  - Water Holding Capacity: 25-30%
  - Bulk Density DIN EN 1097-3: 1 T/m<sup>3</sup>
  - Density at Max Water Holding Capacity: 1.25 T/m<sup>3</sup>
  - PH Value: 7.0 – 8.0

#### Vegetation

- Manufacturer: Eco Green Roofs Ltd Unit 3 Rays Farm Barns, Ingatestone, Essex CM4 9EH Tel: 0800 6347035 Web: [www.ecogreenroofs.co.uk](http://www.ecogreenroofs.co.uk)
- Planting Mix: Various sedum species on a pre-established blanket; see Eco Green Roofs Ltd 'Sedum Blanket Species' planting list for details
- Vegetation Coverage: 90% minimum

#### Edge Retaining/Separating Profile

- Manufacturer: Eco Green Roofs Ltd Unit 3 Rays Farm Barns, Ingatestone, Essex CM4 9EH Tel: 0800 6347035 Web: [www.ecogreenroofs.co.uk](http://www.ecogreenroofs.co.uk)
- Material: Aluminium
  - Description/Profile: Slotted; 3m length
  - Height: 75mm (subject to system build-up/depth)

#### Inspection/Access Chambers

- Manufacturer: Eco Green Roofs Ltd Unit 3 Rays Farm Barns, Ingatestone, Essex CM4 9EH Tel: 0800 6347035 Web: [www.ecogreenroofs.co.uk](http://www.ecogreenroofs.co.uk)
- Material: Plastic coated steel
  - Dimensions: 250x250mm
  - Height: 80mm
  - Colour: Black
- Access Covers: Black, plastic coated steel with handle
- Features: 300x 300mm flange attached for stability and to lap filter sheet

#### Vegetation Barrier

- Material: Rounded washed pebbles (20-40mm)
  - Depth: 50mm (subject to system build-up/depth)
  - Width: 300mm minimum



## Execution

### Installation Generally

- Preparation: Clear all surfaces of debris
- Timing: After certification of waterproof membrane integrity
- Surface condition: Visually inspect waterproof membrane, report any damage
- Faults in waterproof membrane: Report prior to commencement of works
- Contamination: Do not use materials detrimental to healthy growth of plants
- Storage: Do not overload – point loads avoid
- Outlets: Do not block
- Outlet grilles: Installed

### Adverse Weather

- Unfinished work: Secure for damage and wind uplift
- Conditions: Do not install or work with frozen materials

### Moisture Retention/Protection Mat Installation

- Extent: Loose lay continuously over entire roof area
- Joints: Minimize.
  - Overlaps (Minimum):150mm
- Upstands: Eco Green Roofs Ltd fleece to fit closely around penetrations and outlets

### Drainage Layer Installation

- Extent: Loose lay continuously over entire roof area
- Fitting: Close butt-joint boards or rolls; staggering joints if applicable
- Upstands: Cut to fit 300mm from penetrations and outlets, using a heavy duty knife or smooth-toothed saw

### Filter Membrane Installation

- Extent: Loose lay continuously over entire roof area
- Fitting: Loose laid (bonded to drainage board)
- Joints: Minimize
  - Overlaps (minimum): 150mm overlap excess on drainage roll



### Growing Medium Installation

- Handling: Minimize handling. Deliver to roof in small sacks, bulk bag or pump, spreading the specified depth on to filter sheet, allowing for a settlement factor of 20%
- Conditions: Handle in the driest condition possible. Do not handle or install when wet or frozen
- Layers:
  - Depth (Max): 50mm
  - Sequence: Gently firm each layer before spreading the next. Rake smooth and flat

### Vegetation Installation

- Handling Blankets
  - Extent: Continuous over area to be planted
  - Timing: Not to be installed if temperature is below 0°C
  - Storage: Must be stored in a cool and shaded area; not to be stacked vertically or excessively
- Application
  - Sedum blankets to be installed within 48 hours of delivery. Roll out already grown blankets. Irrigate to saturation.
  - Watering: Thoroughly, after laying and account for climatic variation and seasonality

### Edge Retaining Profile Installation

- Cutting: Neat, accurate and without spalling
  - Junctions: vertical, secured using proprietary connectors
- Position: True to line and level. Smooth continuous lines
- Fixing: Loose laid onto fleece, ballasted by weight on foot plate, or secured to waterproof membrane using proprietary fixing system
- Suitable for pitched roofs of 5 degrees or less

### Inspection Chamber Installation

- Location: Install centrally over rainwater outlet
  - Orientation: Align parallel with adjacent features
  - Bedding: Position flanges on to crowns of drainage layer
  - Backfill: Ballast flanges with pebbles
- Surround: 300mm diameter circle/square of 20-40 rounded pebbles



## COMPLETION

### Inspection

- Timing: Prior to handover
  - Notice period (minimum): 3 working days

### Completion

- General: Leave the works in a clean and tidy condition
- Surfaces: Clean immediately prior to handover
- Outlets: Clean and clear of any obstructions
- Completed green roofs: Protect from adjacent or high level working as best as possible

### Documentation

- Timing: Submit at handover
- Contents:
  - Growing Medium declaration of analysis
  - Manufacturer's guarantees and warranties
  - Maintenance Procedures
  - Record Drawings showing the location of planting and associated features
- Number of copies: 1



## Green Roofs Maintenance Procedure Based on 2-4 visits per Annum

This set of procedures is a guide outlining the minimum maintenance measures required to keep a green roof in its designed state.

An Eco Green Roofs Ltd system is designed to meet specific client requirements for any project and will provide a long-term solution with varying habitats at roof level. With some basic maintenance, the roof will continue to deliver the intended environmental benefits.

Most living roofs contain a plant community with a variety of native species to meet local planning and building code requirements. However, some roofs can also be designed to meet aesthetic design criteria.

### General Maintenance

The plant selection on each project includes a species mix which will provide a balanced plant community on the roof. This will require basic maintenance to ensure a sustainable system for the long term.

Living roof maintenance is best carried out twice to four times annually, during springtime and in late autumn, or as required. Monitoring/controlling the effect of leaf litter to the vegetation is important; this can be deemed to be beneficial to biodiversity, but may need to be removed if this begins to affect plant life.

The following procedures should be carried out to ensure the roof is well maintained. Failure to provide maintenance may result in the invalidation of guarantee(s).

Note: - specifically-designed living roof areas should be disturbed as little as possible whilst maintenance is carried out. This is to try not to upset any microhabitats which may have colonised on the roof.

### Preliminary Maintenance:

- Ensure safe access can be gained to the roof and that all relevant health and safety procedures are followed at all times.
- Eco Green Roofs Ltd recommends the removal of leaf litter which has fallen from any surrounding trees, particularly during spring and autumn. This is to prevent the leaves from smothering the vegetation.
- To remove excess bio-mass, trim any dead vegetation. This should be subsequently removed and disposed of at ground level.
- Check all trims are fixed securely.
- Ensure any new items of plant or machinery have a necessary fire break between them and the vegetation.
- Should there be any damage to the vegetation or green roof system generally, Eco Green Roofs Ltd should be contacted immediately.



- Ensure all outlets are unblocked and the roof is able to drain freely. This is of particular importance since 'waterlogging' can be as damaging to a wildflower sward as drought. Drainage outlets should be inspected regularly to ensure drainage outlets are working as designed. This will help keep the roof moist but not waterlogged.

#### Maintenance on the Vegetation and Green Roof System

- Removal of any unwanted vegetation that may have encroached the drainage outlets, walkways or Firebreaks.
- If any movement or settlements to the fire/vegetation break has occurred, these areas should be topped up with more pebbles.
- Remove any tree saplings.
- Green roofs are generally left to grow naturally, taking their own course. If there are certain plant types that are un-desirable, these can also be removed.
- Fertiliser can be added as a last resort if plants are looking distressed.
- We would suggest the removal of invasive plant types, including but not limited to tree saplings, nettles, wild grasses, thistles and buddleia.
- If the vegetation grows in excess of 250-300mm we recommend this should be trimmed back to 75-100mm. High growth suggests a high nutrient level present in the substrate; although this is blended to be low-nutrient or to stop such growth, this must be monitored to keep the biodiversity high (cuttings should be bagged up and removed from the roof to prevent the release of nutrients back into the substrates).
- Although irrigation is not needed regularly, a water point should be present at roof level. During particularly dry periods, watering the system may be necessary to avoid drought stress.

\* These guidelines should be used for reference only. Eco Green Roofs Ltd will not accept any responsibility for a roof which is not under a maintenance contract with Eco Green Roofs Ltd.

# GREEN ROOF DETAIL

# GRN-WC-01

**PROJECT:**

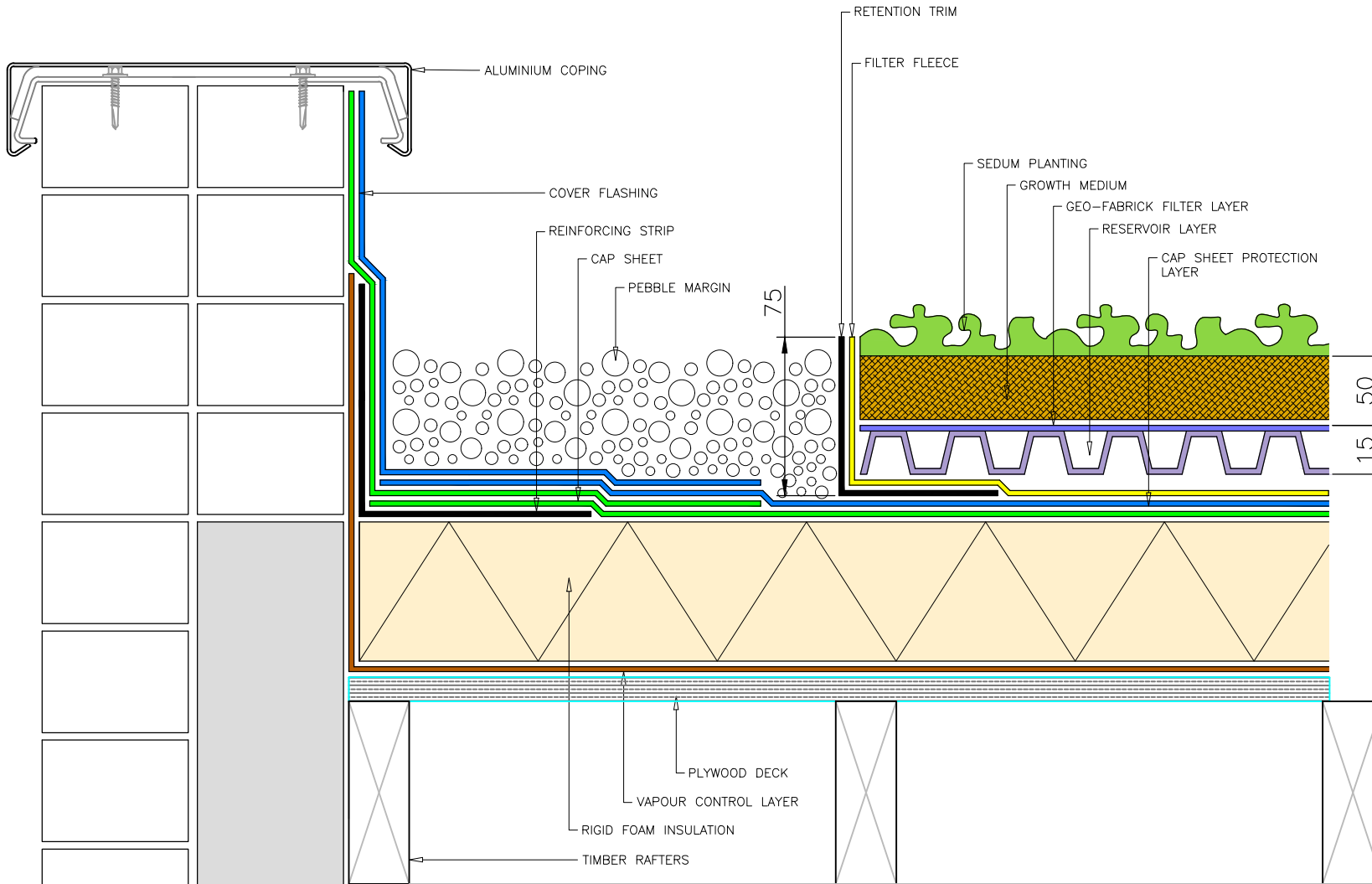
Green Roofing Specimen Detail Drawing

ISSUE	DATE	CHECK
WEB 1	01.05.10	MJJ

**NOTES:**

Any venting or partially bonded layer is not shown on drawings for clarity reasons.

NOT TO SCALE







### SEDUM ACRE AUREUM

This mat-forming Sedum is composed of tiny bright green leaves on short, ascending stems. It spreads itself, making it ideal for rush, bright coverage on a green roof. Its leaves are bright green with yellow young growth and there are starry yellow flowers in late spring and summer that come at the tips of the stalks.

Height	100mm	Hardiness	Fully Hardy
Spread	250mm	Conditions	Sun / Rain



### SEDUM ALBUM CORAL CARPET

Coral Carpet is a mat-forming, evergreen Sedum with small, fleshy, red flushed leaves come alive in late spring to early summer with pink-tinted, white star-shaped flowers. Coral Carpet foliage is Green, Flushed red in All seasons. The use of this in our Sedum Blanket means vibrant and full colour all year round.

Height	50mm	Hardiness	Fully Hardy
Spread	250mm	Conditions	Sun / Rain



### SEDUM ALBUM ATHOUM

The species is green foliaged, with starry white or pink blooms held on wiry stems. Sedum album needs little water once established. This is the base Sedum for our Blankets

Height	50mm	Hardiness	Fully Hardy
Spread	300mm	Conditions	Sun / Rain



### SEDUM ALBUM MINI

The fact that this plant was originally found in the Faro Isles should tell you something about its hardiness, and also explains why it's so diminutive and tiny. Don't let its small size and dainty appearance fool you - this is one tough little plant. It displays all the same characteristics as Athomb.

Height	50mm	Hardiness	Fully Hardy
Spread	100mm	Conditions	Sun / Rain



### SEDUM HISPANICUM

A very low, mat forming Sedum with tiny silver-blue leaves. Starry pink to white flowers. Enjoys poor, well drained growing medium so ideally suited to live in our green roof substrate. Blooms in June. Evergreen therefore maintains its colour throughout winter.

Height	50mm	Hardiness	Fully Hardy
Spread	100mm	Conditions	Sun / Rain



### SEDUM SUMMER GLORY

Lovely dense carpets of dark green foliage topped with vivid coral red flowers make this Sedum a highlight of the Green Roof. Specially propagated each year in our Nursery for the Blankets, it bears fleshy rounded leaves that take on reddish tints in winter. The flat terminal clusters of funnel shaped flowers appear through summer attracting bumblebees and butterflies. Adding the bio diversity element to our Blankets.

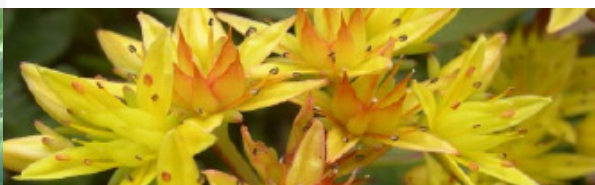
Height	200mm	Hardiness	Fully Hardy
Spread	300mm	Conditions	Sun / Rain



### SEDUM REFLEXUM

The low-growing evergreen, spruce-like, succulent foliage stands out beautifully in our Sedum Blankets. Yellow flowers appear in July right through until mid October. To Get this variety to reach maturity in time for sale we propagate Reflexum in plug form in our nursery and insert

Height	250mm	Hardiness	Fully Hardy
Spread	200mm	Conditions	Sun / Rain



### SEDUM WEIHENSTEPHANER GOLD

Weihenstephaner Gold is a low-growing sedum that spreads to form an attractive ground cover for green roofs. Flowers appear on reddish stems rising above the thick, triangular, succulent green leaves. The leaves turn purple in Autumn and into Winter, contrasting beautifully against the greens and blues. The clusters of star-shaped, yellow-tinted, bronzeorange flowers are very attractive to butterflies and bees. An excellent selection for sites requiring extra bio diversity.

Height	150mm	Hardiness	Fully Hardy
Spread	100mm	Conditions	Sun / Rain



### SEDUM VOODOO

A contrasting species with succulent leaves rising from a low growing mat. Leaves are rich deep red with a glossy appearance and held on succulent stems. This Sedum was also selected for use in our Blankets because it's flowers are rich red, long lasting and borne in early autumn. Helping us achieve 8 months of flowering over our Blankets

Height	100mm	Hardiness	Fully Hardy
Spread	300mm	Conditions	Sun / Rain