

Q37 GREEN ROOFS

To be read with Preliminaries/ General conditions.

GENERAL**130 BIODIVERSE (EXTENSIVE) GREEN ROOF TO 10th FLOOR**

- Roof type: Inverted.
 - Substrate: Reinforced concrete slab to zero falls, refer to S.E's drawings/specifications.
 - Slope: 0 degrees.
- Waterproofing: Refer to J31, clause 130A.
- Thermal insulation: Refer to J31, clauses 340 & 341.
- Protection: Incorporated into Plasfeed ND 5+1.
- Moisture control layers:
 - Incorporated into Plasfeed ND 5+1
- Growing medium: IKO Biodiversity Substrate, see Q37-390.
 - Depth: 80mm + 20% settlement factor.
- Vegetation: See Q31-312.
- Accessories:
 - None

PERFORMANCE**210 GENERAL DESIGN**

- Green roof and associated features: Complete the detailed design.
- Proposals: Submit drawings, technical information, calculations and manufacturers' literature.
- Performance criteria:
 - Roof build up to meet U value of 0.18W/m²K.
 - Saturated build up does not exceed 200kgs/m² – please refer to S.E's issued drawings and specifications.
 - Green roof area as shown on the design drawings
 - Waterproof integrity must be met, please see J31-920
 - Thermal movement and wind loads to be in accordance with S.E's issued information
 - Plant species of 31 in total
 - Green roof areas to achieve eco value >6
 - Life expectancy to be advised by manufacturer
 - Irrigation- it is advisable to allow for a water point to be installed in case of extreme conditions.
 - Other features: dry sand/shingle, large boulders and dead wood
 - Green roof species and area to achieve targeted assessment for BREEAM
 - Waterproofing should be taken up all upstands, protrusions etc a minimum of 150mm above substrate level.
 - The water proofing and protection layers must always be mechanically fixed with a termination bar, placed at the top of the flashing detail. The termination bar must be fixed with the appropriate fixings at 300mm centres, bedded in non-setting mastic.
 - Post installation maintenance must take place for a period of 2 years to ensure the hand over of a flourishing green roof, this must be priced into the tender documents.
 - A delay between the installation of the waterproofing and green roof surface will necessitate additional/increased protection to the waterproofing- which may be temporary or permanent, this should be included within the tender documents.

250A CHARACTERISTIC ROOF LOADS

- The building owner/their advisors must have satisfied themselves that the roof structure and deck are suitable to receive the dead load of the proposed green roof system and landscape (if applicable) both during construction and on completion of the works.

255 MAXIMUM PERMITTED GREEN ROOF LOADS

- Dead loads:
 - Green roof layers: As loading schedule to S.E.'s design.
- Imposed loads:
 - Activity: In accordance with BS 6339-1 (UDL) - tbc by S.E.
 - Vegetation: To manufacturer advice- 0.1kN/m^2 (100kg/m^2).
 - Allowance for additional loads during construction: tbc by S.E.
- Service loads: 2kN/m^2 treated as saturated load (200kg/m^2) tbc by S.E.
- Requirement: Restrict site activities to ensure that design loads are not exceeded, or submit proposals for temporary supports.

PRODUCTS

350 DRAINAGE LAYER

- Manufacturer: IKO.
 - Product reference: Incorporated into Plasfeed ND 5+1.
- Material: High-impact polystyrene.
 - Depth: 25mm.
- Infill: N/A.

360 FILTER MEMBRANE

- Manufacturer: IKO.
 - Product reference: Incorporated into Plasfeed ND 5+1.
- Material: Thermally-strengthened polypropylene.
 - Mass: 125g/m^2 .

390 BIODIVERSE GROWING MEDIUM

- Manufacturer: IKO.
 - Product reference: Biodiversity Substrate.
- Material: Specialist blend of crushed brick and selected mineral aggregates, enriched with compost and clay soil.
- Fertiliser: As recommended by supplier.
 - Coverage: 25 gm/m^2 .
- Declaration of analysis: Submit.
 - Parameters:
 - Porosity: 63%
 - Water holding Capacity: 36%
 - Density: 1000 kg/m^3 (dry); 1400 kg/m^3 (saturated)

430 INSPECTION CHAMBERS

- Manufacturer: As supplier's recommendation.

440 VEGETATION BARRIER

- Material: Round Washed Stone.
- Depth: 50mm minimum.
- Width: 500mm approx.

EXECUTION

710 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.
- Contamination: Do not use materials detrimental to healthy plant growth.
- Storage: Do not overload.
 - Point loads: Avoid.
- Outlets: Do not block.
 - Outlet grilles: Installed.

720 ADVERSE WEATHER

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

770 DRAINAGE LAYER INSTALLATION

- Extent: Continuous over entire roof area.
- Fitting: Butt joint the boards neatly together.
- Upstands: Fit closely around penetrations and outlets.

780 FILTER MEMBRANE INSTALLATION

- Joints: Minimize.
 - Overlaps (minimum): 150mm.
- Fitting: Loose laid.
- Upstands: Extend to top of growing medium. Where necessary, cut to suit using scissors (avoid using a knife).

790 GROWING MEDIUM INSTALLATION

- Handling: Minimize handling. Deliver to roof in big bag or pump, spreading the specified depth on to filter sheet, allowing for the settlement factor of 20%.
 - Conditions: Handle in the driest condition possible. Do not handle or install when wet or frozen.
- Layers:
 - Depth (maximum): 80 mm.
 - Sequence: Gently firm each layer before spreading the next.

830 INSPECTION CHAMBER INSTALLATION

- Location: Install centrally over drain outlet.
 - Orientation: Align parallel with adjacent features.
- Bedding: to manufacturer guidance.
- Backfill: to manufacturer guidance.
- Surround: 20/40mm round washed ballast.

COMPLETION

910 INSPECTION

- Timing: Before handover.
 - Give notice (minimum): 3 days.

920 COMPLETION

- General: Leave the works in a clean, tidy condition.
- Surfaces: Clean immediately before handover.
- Outlets: Clean and clear of obstructions.
- Completed green roof: Protect from adjacent or high level working.

930 DOCUMENTATION

- Timing: Submit at handover.
- Contents:
 - Growing medium declaration of analysis.
 - Manufacturers' guarantees and warranties.
 - Procedures for maintenance of the green roof.
 - Record drawings showing the location of planting and associated features.
- Number of copies: tbc.