Ss_45_40_47_28
Extensive green roof systems UNCHANGED

Systems

Ss_45_40_47_28 Extensive green roof systems

1. Description: Extensive Green Roof to Data Centre and Visitor Reception Centre.
   To be read in conjunction with:
   - Ss_30_40_30_72 Reinforced bitumen membrane warm roof covering systems Type A and
   - Ss_30_40_30_72 Reinforced bitumen membrane warm roof covering systems Type B
2. System performance: Performance criteria: FM Global 1-35 and FLL Guidelines.
   Green roof and associated features: Complete the detailed design.
   Proposals: Submit drawings, technical information, calculations and manufacturers' literature.
   - 2.1. Dead loads: Green roof layers: 125Kg/m2 combined saturated weight.
   - 2.2. Imposed loads:
     - 2.2.1. Activity: Pedestrian maintenance access.
     - 2.2.2. Vegetation: VegetationIncorporated in combined saturated weight.
     - 2.2.3. Allowance for additional loads during construction: Subject to structural engineers review.
   - 2.3. Service loads: Subject to structural engineer’s review.
   - 2.4. Requirement: Restrict site activities to ensure that design loads are not exceeded, or submit proposals for temporary supports.
3. System manufacturer: Moy Materials Ltd
4. Roof Type:: Moy FM Global and FLL Compliant Extensive Green Roof System.
   - 4.1. Substrate: Deck in accordance with the design of the project structural engineer.
   - 4.2. Slope: Minimum Slope – Tapered Insulation 1 in 6 falls.
5. Waterproofing:: Moy Paraflex warm roof system in accordance with Ss_30_40_30_72.
6. Thermal Insulation:: Moy PIR Core “Paratherm” range, tapered 1 in 60, in accordance with Ss_30_40_30_72.
7. Protection
   - 7.1. Protection layer: Moy Diadem VLU 300 Protection and Water Retention fleece.
     - 7.1.1. Manufacturer: Diadem / Moy Materials.
     - 7.1.2. Product reference: VLU300 Protection & Water Retention fleece.
     - 7.1.3. Material: Mechanically hardened and thermally treated polypropylene fleece layer.
     - 7.1.4. Thickness: 3mm.
   - 7.2. Root barrier: Paraflex ARD/S (FM) anti root waterproofing membrane.
     - 7.2.1. Manufacturer: Imper Italia / Moy.
     - 7.2.2. Product reference: Paraflex ARD/S.
     - 7.2.3. Material: FM Approved modified bitumen waterproofing membrane.
     - 7.2.4. Thickness: 4mm.
8. Moisture control
   - 8.1. Drainage layer: Moy Diadem DE25 H Drainage & Reservoir Board
     - 8.1.1. Manufacturer: Diadem / Moy Materials.
     - 8.1.2. Product reference: Diadem DE25 H Drainage & Reservoir Board.
     - 8.1.3. Material: Recycled Polystyrene.
     - 8.1.4. Depth: 25mm.

8.1.5. Infill: May be infilled with suitable stone chipping where a load from roof mounted plant or equipment is proposed. Seek manufacturer's advice.

8.2. Filter membrane: Moy Diadem VLF150 Filtration Fleece.

8.2.1. Manufacturer: Diadem / Moy Materials.

8.2.2. Product reference: VLF150 Filtration Fleece.

8.2.3. Material: Mechanically hardened and thermally treated polypropylene fleece layer.

8.2.4. Mass: 150 grammes / M2.

8.3. Moisture retention mat: Moy Diadem VLU300 Fleece.

8.3.1. Manufacturer: Diadem / Moy Materials.

8.3.2. Product reference: VLU300 Protection & Water Retention fleece.

8.3.3. Material: Mechanically hardened and thermally treated polypropylene fleece layer.

8.3.4. Capacity: 2 litres / M2.

9. Planting systems

9.1. Planting medium: Moy Extensive Green Roof growing media at Min 80mm depth (inclusive of blanket thickness) after consolidation and settlement.

9.2. Vegetation blanket: Moy pre cultivated Biodiversity Sedum Mix species blanket.

9.2.1. Manufacturer: Moy Materials.

9.2.2. Product reference: Biodiversity Sedum Mix blanket.

9.2.3. Planting mix: Includes Sedum album coral carpet, Sedum album minor, Sedum lydium, Sedum lydium glaucum, Sedum Sexangulare, Sedum Acre.

9.2.4. Thickness: Nominal 25mm.

9.2.5. Vegetation coverage: Minimum 85%.

9.3. Vegetation barrier: To comply with FM Global 1-35.

9.3.1. Material: Rounded washed stone pebble per ASTM D448 diameter 25 – 50mm.

9.3.2. Depth: 76mm minimum.

9.3.3. Width: Per requirements of FM Global 1-35 (not less than 900mm where parapets of 760mm or greater are provided). Create 4.0m wide gravel subdivision of larger vegetated areas to sections not exceeding 1,450 M2, with no dimension exceeding 39m.

10. Accessories:

10.1. Inspection chambers: Diadem / Moy Materials inspection chambers for rainwater outlet positions type KSE (vertical spigot) or KSA (horizontal spigot).

10.1.1. Product reference: KSA (Horizontal Spigot).

10.1.2. Material: Polypropylene to Colour RAL 7032.

10.1.3. Size: 300 x 300mm.

10.1.4. Depth: 150mm (Extension elements available).

10.1.5. Access covers: Lockable Lid with water drainage opening.

10.1.6. Features: UV Stabilised. Pre scored knock outs for drainage pipes and other services.

10.2. Safety systems: Moy Diasafe EN795:2012 non penetrating safety system to project specific design calculation.

10.3. Solar PV panels supporting frames: Moy Diasolar non penetrating PV Solar Panel supporting system, to project specific design calculation.

10.3.1. Dimensions: -198 x 97 x 6 cm Weight per unit: 12 kg, weight without load, without PV-module

10.3.2. Filling volume: 43 litres/plate

10.3.3. Compressive strength empty: 25 KN/m2

10.3.4. Compressive strength filled: 70 kN/m2

10.3.5. Water flow capacity: i = 0.02 (= 2 % slop) 0.6 l/(m*s)

10.3.6. Material: Aluminium, stainless steel and HDPE

10.3.7. Inclination of standard module: 15° (optional 10°or 20°)

10.3.8. Roof connection: Ballast / No structural roof connection

10.3.9. Calculated ballast: -Central roof area: approx. 65 kg/m2.
-Roof corners: approx. 160 kg/m2.

10.3.10. Roof inclination: Maximum 1.5°

11. Edge restraints: Moy Aluminium gravel board.

11.1. Manufacturer: Diadem / Moy Materials.

11.2. Product reference: Moy KLS AL Perforated Gravel Board.

11.3. Material: Aluminium.

11.4. Height: 150 / 200mm.

12. Execution: Ac_85_70_40/605 Installation of living roofs generally;
Ac_85_70_40/671 Installing protection layers;
Ss_45_40_47/673 Installing moisture control layers
Ss_45_40_47/680 Installing growing substrate Type A;
Ss_45_40_47/710 Installing edge
retaining profile;
Ss_45_40_47/715 Installing inspection chambers Type A

12.1. Installation generally:

12.1.1. Preparation: Clear all surfaces of debris.

12.1.2. Timing: After certification of waterproof membrane integrity.

12.1.3. Surface condition: Visually inspect waterproof membrane, report any damage.

12.1.4. Faults in waterproof membrane: Report.

12.1.5. Contamination: Do not use materials detrimental to healthy plant growth.

12.1.6. Storage: Do not overload.

12.1.7. Point loads: Avoid.

12.1.8. Outlets: Do not block.

12.1.9. Outlet grilles: Installed.

12.2. Adverse weather:

12.2.1. Unfinished work: Secure from damage and wind uplift.

12.2.2. Conditions: Do not install or work with frozen materials.

12.3. Protection layer installation:

12.3.1. Joints: Minimize.
Overlaps (minimum): 150mm.

12.3.2. Upstands: Extend to top of growing medium.

12.4. Moisture retention mat installation:

12.4.1. Joints: Minimize.
Overlaps (minimum): 150mm.

12.4.2. Upstands: Fit closely around penetrations and outlets

12.5. Dainage layer installation:

12.5.1. Extent: Continuous over entire roof area.

12.5.2. Fitting: Laid loose with butt joined edges.

12.5.3. Upstands: Fit closely around penetrations and outlets

12.6. Filter membrane installation:

12.6.1. Joints: Minimize.
Overlaps (minimum): 200mm.

12.6.2. Fitting: Laid Loose, turned back over the surface of the growing medium before placement of the Sedum blanket.

12.6.3. Upstands: Extend to top of growing medium and turn back per manufacturer's details.

12.7. Growing medium installation:

12.7.1. Handling: Minimize.
Conditions: Handle in the driest condition possible. Do not handle or install when wet or frozen.

12.7.2. Layers: Depth (maximum): 60 mm.
Sequence: Gently firm and level the growing media layer.

12.8. Vegetation blanket installation:

12.8.1. Handling blankets:

12.8.1.1. Timing: Lay within 36 hours of lifting from growing position.

12.8.1.2. Excessive stacking: Not permitted.

12.8.1.3. Material loss: Maximum 3% of total surface area.

12.8.1.4. Growing medium condition: Thoroughly watered.

12.8.2. Laying blankets:

12.8.2.1. Dry, damaged, frosty or waterlogged blankets: Do not lay.

12.8.2.2. Orientation: Diagonal or perpendicular to slope of roof.

12.8.2.3. Joints: Stagger. Butt together or slightly overlap to prevent gaps. Do not stretch blankets. Secure with biodegradable pegs.

12.8.2.4. Edges: Finish edges and perimeters with whole blankets.

12.8.2.5. Consolidation: Firm as laying proceeds to ensure full contact with the growing medium. Do not use rollers. Install such temporary wind securement ballast as may be required to secure the blanket until established. Seek manufacturer's advice for exposed sites.

12.8.3. Dressing: Apply Moy growing media to any exposed blanket edges or bare areas.
Application: Brush in to fill joints.

12.8.4. Watering: Water at a minimum rate of 2 litres per m2, immediately after laying and dressing. Irrigate 2 -3 times weekly until the blanket becomes established.

12.9. Edge retaining profile installation:

12.9.1. Cutting: Neat, accurate and without spalling.

12.9.2. Junctions: Vertical, secured using proprietary connectors.

12.9.3. Position: True to line and level. Smooth continuous lines.

12.9.4. Fixing: Seek Manufacturers advice.

12.10. Inspection chamber installation:

12.10.1. Location: Install centrally over drain outlet.

12.10.2. Orientation: Align parallel with adjacent features.

12.10.3. Bedding: Securely bedded upon the protection fleece layer.

12.10.4. Backfill: Min 300mm wide band of ballast pebble.

12.10.5. Surround: Dressed with a pre-cut apron of VLF150 fleece tightly fitted by cutting and pulling over the walls of the inspection chamber. No growing media shall be allowed to wash into the rainwater outlet.

13. System completion:

13.1. Inspection:

13.1.1. Timing: Before handover.

13.1.2. Give notice: Minimum 3 days.

13.2. Completion:

13.2.1. General: Leave the works in a clean, tidy condition.

13.2.2. Surfaces: Clean immediately before handover.

13.2.3. Outlets: Clean and clear of obstructions.

13.2.4. Completed green roof: Protect from adjacent or high level working.

13.3. Documentation:

13.3.1. Timing: Submit at handover.

13.3.2. 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.

13.3.3. Number of copies: Digital Copy to Installing Contractor & Main Building Contractor.

Ω End of System