

IoN DRI Building Specification

17056 UCL IoN / DRI

30 July 2019

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Q

Paving/Planting/Fencing/Site furniture

Section Revision History

No.	Purpose	
P01	Issued for Review and Comment	30th Jul 2019

Clauses amended in Revision P01

This is the first revision stamp for this section. For all future revision stamps, details of all clauses amended at that revision will be included here.

Q37 Green roofs

To be read with Preliminaries/General conditions

12 DESCRIPTION OF WORKS

The specification is based on a tested system, which is supplied by a specific manufacturer with a warranty to cover the materials and workmanship of the installation. An alternative system or supplier can be selected, providing the alternative is an acceptable equivalent to the specified design. Compliance with the specification needs to be demonstrable. Any adaption of the system by the subcontractor must be in accordance with the manufacturers recommendations and maintain the warranty. The subcontractor is responsible for materials and workmanship.

Section Q37 deals with the installation of the MedO Green Roof System comprising drainage board, filter fleece, growing medium (substrate) and living plant materials. It includes where required, fire breaks and presumes the deck substrate and roof falls as stated within the specification below. Accessories are included where relevant.

- It is intended for use on projects where the detailed design is completed by the specifier (architect or landscape architect) with technical assistance from the manufacturer as required and should be read in conjunction with any project specific drawings provided.
- The details contained within this proposal are based on information available at the time of writing. It covers the installation of MedO green roofing materials and the preparation work necessary to provide a suitable substrate. Radmat Building Products Ltd cannot be held responsible for unknown site conditions or for the performance of materials within the system other than the MedO roofing products supplied.

A detailed method of work statement and programme of works should be agreed with the Radmat Approved Contractor before the commencement of the works.

The requirements of all relevant British Standards and Industry Codes of Practice should be complied with at all times. A bibliography is available upon request.

SCOPE OF WORKS

This section includes:

- The MedO green roof system
- Related system accessories

This section does not include:

- Construction of the structural deck.
- Proprietary rainwater drainage / plumbing – refer to M&E spec
- Lightning protection – refer to M&E spec
- Lead sheet coverings / flashings – See NBS Section H71.
- The waterproofing system – See NBS Section J31.
- Proprietary metal capping system – refer Section H72.

GENERAL

- 130A GREEN ROOF RFS-05 Wildflower mix
- Biodiverse: To Landscape Architects specification.
System Manufacture: Radmat Building Products Ltd or acceptable equivalent.
Holland House, Valley Way, Rockingham Road, Market Harborough, Leicestershire, LE16 7PS, Tel: 01858 410372, Email: techenquiries@radmat.com, Web: www.radmat.com .
Product reference: Radmat MedO Wildflower
- Inverted roof build up - refer to spec clause J31/130D
 - Insulation: Radmat ProTherm G Green Guide to Specification A rated insulation (see J31/340) on PermaQuik PQ6100 Hot Melt monolithic waterproofing membrane over plywood and precast concrete decks. (see J31/130).
Slope: Zero Falls with no backfalls or ponding.
 - " Waterproofing: PermaQuik PQ6100 Hot Melt monolithic waterproofing membrane (see J31/130A).
 - " Thermal insulation: 180mm (1x layer) ProTherm G.
Green Guide to Specification A rated insulation (see J31/340).
 - " Protection: Radmat Texsa Root Protection Sheet root barrier (see J31/130B).
 - " Moisture control layers:
 - Radmat D25 Drainage/Reservoir Board, 25mm deep with cusplate.
 - Radmat G11 Polyester geo-textile filter fleece 150g/m2.
 - " Growing medium: Radmat GM20 Extensive growing medium.
- Depth: minimum 120 mm deep after settlement. (Allow 12% Settlement). See architects drawings.
- " Vegetation: Wildflower
 - " Accessories:
Vegetation breaks: 500mm wide, 20-40mm rounded pebble margin.
Gravel Stop:
Inspection Chambers:
PARA100 Aluminium Inspection Chamber as clause 430
Fall restraint / abseiling anchor points, davit sockets etc. by others

- 130B GREEN ROOF RFS-06 Sedum mix
 Biodiverse: To Landscape Architects specification.
 System Manufacture: Radmat Building Products Ltd or acceptable equivalent.
 Holland House, Valley Way, Rockingham Road, Market Harborough, Leicestershire, LE16 7PS, Tel: 01858 410372, Email: techenquiries@radmat.com, Web: www.radmat.com.
 Product reference: Radmat Sedum
- Inverted roof build up - refer to spec clause J31/130D
 - Insulation: Radmat ProTherm G Green Guide to Specification A rated insulation (see J31/340) on PermaQuik PQ6100 Hot Melt monolithic waterproofing membrane over plywood and precast concrete decks. (see J31/130).
 Slope: Zero Falls with no backfalls or ponding.
 " Waterproofing: PermaQuik PQ6100 Hot Melt monolithic waterproofing membrane (see J31/130A).
 " Thermal insulation: 180mm (1x layer) ProTherm G.
 " Green Guide to Specification A rated insulation (see J31/340).
 " Protection: Radmat Texsa Root Protection Sheet root barrier (see J31/130B).
 " Moisture control layers:
 - Radmat D25 Drainage/Reservoir Board, 25mm deep with cusplate.
 - Radmat G11 Polyester geo-textile filter fleece 150g/m2.
 " Growing medium: Radmat GM20 Extensive growing medium.
 Depth: minimum 80 mm deep after settlement. (Allow 12% Settlement). See architects drawings.
 " Vegetation: Sedum Blanket
 " Accessories:
 Vegetation breaks: 500mm wide, 20-40mm rounded pebble margin.
 Gravel Stop:
 Inspection Chambers:
 PARA100 Aluminium Inspection Chamber as clause 430
 Fall restraint / abseiling anchor points, davit sockets etc. by others

- 140 PAVING AND DECKING SYSTEMS
- Type: Concrete slabs to walkways.
 - Paving support: Pedestals as clause 460 .

PERFORMANCE

- 210 GENERAL DESIGN
- Green roof and associated features: Complete the detailed design.
 - Proposals: Submit drawings, technical information, calculations and manufacturers' literature.
 - Performance criteria: as per details .
- 255 MAXIMUM PERMITTED GREEN ROOF LOADS
- Dead loads:
 - Green roof layers: 125kg/m2 (saturated).
 - Imposed loads:
 - Activity: In accordance with BS 6399-1.
 - Vegetation: Submit proposals.
 - Allowance for additional loads during construction: Submit proposals.
 - Service loads: Submit proposals.
 - Requirement: Restrict site activities to ensure that design loads are not exceeded, or submit proposals for temporary supports.

PRODUCTS

- 310 INVERTED ROOF INSULATION as J31/340
- Manufacturer: Radmat Building Products Ltd .
 - Product reference: ProTherm G XENERGY SL-EP - BBA No. 17/5397 .
 - Type: Extruded polystyrene board to BS EN 13164
 - Compressive strength: Submit proposals .
 - Edges: Shiplap .
 - Integral topping: None .
 - Thickness: as J31 and architects details .
- 320 ROOT BARRIER
- Manufacturer: Radmat Building Products Ltd .
 - Product reference: Radmat Texsa Root Protection Sheet .
 - Material: FLL Certified SBS modified reinforced bitumen membrane .
 - Thickness: 4.0 .
- 350 DRAINAGE LAYER
- Manufacturer: Radmat Building Products Ltd .
 - Product reference: Radmat D25 Drainage/Reservoir Board, 25mm deep recycled polystyrene Radmat D25 is chemically neutral, rotproof and resistant to mould and bacteria .
 - Material: Recycled Polystyrene .
 - Depth: 25 mm .
 - Infill: Not required .
- 360 FILTER MEMBRANE
- Manufacturer: Radmat Building Products Ltd .
 - Product reference: Radmat G11 filter fleece .
 - Material: Polyester geo-textile .
 - Mass: 150 g/m² .
- 390 EXTENSIVE GROWING MEDIUM
- " Manufacturer: Radmat Building Products Ltd
 - Product reference: Radmat GM20 Extensive Growing Medium.
 - " Material: Radmat GM20 Extensive Growing Medium provides a suitable base for a self-sustaining plant community.
 - " Apply to a depth as specified according to plant type allowing 12% post installation settlement. Indicative substrate depths are given in the table below, however the specified depth will vary based on a variety of factors including design load, building location, building height, plant species etc. It is therefore important to consult the project specification.
- 430 INSPECTION CHAMBERS
- Manufacturer: Radmat Building Products Ltd .
 - Product reference: PARA100 Aluminium Inspection Chamber as clause 430 .
 - Material: Aluminium .
 - Size: 300 x 300 mm .
 - Depth: 100 mm .
 - Access covers: fixed to frame and hinged .
 - Features: security fastened .

- 440 VEGETATION BARRIER
 - Material: 20-40 mm round washed pebbles .
 - Depth: 50 mm .
 - Width: 250 mm .

- 450 ROOF DRAINAGE OUTLETS
 - Manufacturer: Wade or acceptable equivalent .
 - Product reference: Submit proposals.
 - Material: Aluminium.
 - Size: To M&E engineer's specification.
 - Fixing: As recommended by manufacturer.

- 460 SUPPORT PEDESTALS for paving slabs.
 - Manufacturer: Radmat Building Products Ltd.
 - Product reference: Fixed head adjustable paving pedestal.
 - Type: Screwjack pedestal.
 - Material: Recycled polypropylene.
 - Dimensions: 205mm diameter, 10mm high, adjustable or stackable.
 - Additional pedestals: Adjacent to perimeters.
 - Accessories: Rubber shims.

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.

- 730 INSTALLATION OF INVERTED ROOF INSULATION
 - Preparation: Clear roof of other trades.
 - Condition of substrate: Clean.
 - Fitting: Loose lay.
 - Joints: Butt together.
 - End joints: Stagger.
 - Cutting: Minimize.
 - Perimeters and upstands: Fit full sized pieces.
 - Penetrations: Cut cleanly and fit closely.
 - Stability: Springing and rocking not permitted.
 - Protection: Cover to prevent wind uplift.

- 740 ROOT BARRIER INSTALLATION
- Joints: Minimize.
 - Overlaps (minimum): 150 mm .
 - Upstands: Extend to top of growing medium.
- 750 PROTECTION LAYER INSTALLATION
- Joints: Minimize.
 - Overlaps (minimum): 150 mm .
 - Upstands: Extend to top of growing medium.
- 770A DRAINAGE LAYER INSTALLATION
- Extent: Continuous over entire roof area except where omitted locally in build-up to increase diversity of habitat created.
 - Fitting: Loose-laid, close-butted.
 - Upstands: Cut to fit closely against abutments, roof penetrations and where butt joints are required. Rainwater outlets must not be covered.
- 780 FILTER MEMBRANE INSTALLATION
- Joints: Minimize.
 - Overlaps (minimum): 150 mm .
 - Fitting: Loose laid .
 - Upstands: Extend to top of growing medium.
- 790A GROWING MEDIUM INSTALLATION
- " Handling: Minimise. Deliver to Roof in Bulk Bag, spreading the specified depth on filter sheet, allowing for a settlement factor of 12%.
 - " Apply to a depth as specified according to plant type allowing 12% post installation settlement. Note the specified depth will vary based on a variety of factors including design load, building location, building height, plant species etc. It is therefore important to consult the project specification.
- Conditions: Handle in the driest condition possible. Do not handle or install when wet or frozen.
- " Layers:
 - Depth: 120mm (minimum) – 150mm (maximum).
 - Sequence: Gently firm each layer before spreading the next.

800 VEGETATION BLANKET INSTALLATION

- Handling blankets:
 - Timing: Lay within 36 hours of lifting from growing position.
 - Excessive stacking: Not permitted.
 - Material loss (maximum): 3% of total surface area.
- Growing medium condition: Thoroughly watered.
- Laying blankets:
 - Dry, damaged, frosty or waterlogged blankets: Do not lay.
 - Orientation: Diagonal or perpendicular to slope of roof.
 - Joints: Stagger. Butt together or slightly overlap to prevent gaps. Do not stretch blankets. Secure with biodegradable pegs.
 - Edges: Finish with whole blankets.
 - Consolidation: Firm as laying proceeds to ensure full contact with the growing medium. Do not use rollers.
- Dressing: Growing medium .
 - Application: Brush in to fill joints.
- Watering: Thorough, immediately after laying and dressing.

820 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 .

830 INSPECTION CHAMBER INSTALLATION

- Location: Install centrally over drain 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 20/40mm round washed pebbles .

840 PEDESTAL INSTALLATION

- Ensure that surface to accept pedestals is clean and free of debris.
- Setting out: Mark centre-point of pedestal on substrate surface, with perpendicular guidelines to ensure square layout.
 - Orientation: Align parallel with adjacent features.
 - Spacing: To suit paving material and dimensions.
- Overall movement tolerance (maximum): 3 mm.

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: Contractor to define .