

**Q37 Specification for:**

**UCL Data Centre**

**Project/Reference:**

**SG40829**

Bio-diverse system

**Date: 6th November 2015**

This specification is based on current information available at the time of writing, if any aspects are revised prior to construction, or you require any additional details. Please contact our Technical Services Dept who would be pleased to amend or update the information provided.

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| **SYSTEM** |  |
| 130 | **EXTENSIVE GREEN ROOF** |
|  |  |
|  | *Roof type: ...* |
|  | *Substrate:* As above |
|  | *Slope:* As above |
|  | *Waterproofing:* As above |
|  | *Thermal Insulation:* As above |
|  | *Protection:* Protection fleece clause 330 |
|  | *Moisture Control:* Drainage layer as clause 350 |
|  | *Depth:* Soil less substrate as clause 390 |
|  | *Vegetation:* As clause 400 |
|  | *Accessories:* Filter fleece as clause 360  *Edge retaining profile* as clause 420  *Intermediate restraints* as clause 820A  *Border* as clause 460  *Roof finish contour* as clause 391 |
|  | *Surface habitat creation* as clause 392  *Wall mounted habitats* as clause 393  *Aftercare* as clause 402  *Irrigation* as clause 401  **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 design requirements. |
| 250 | CHARACTERISTIC ROOF LOADS  *Roof structure:* The structural engineers are satisfied themselves that the roof  structure and deck are suitable to receive the dead load of the proposed green  roof system and landscape both during construction and on completion of the  works.  *Living Roof:* **185.00kgs/m2 max**  *Allowance for additional loads during construction:* To be advised  *Requirement:* Restrict site activities to ensure that design loads are not exceeded,  or submit proposals for temporary supports. |
|  | **PRODUCTS** |
| 320 | ROOT BARRIER To Extensive Roof  *Supplier:* Sky-Garden Ltd, Unit 4 Beta, Orchard Industrial Estate, Toddington Glou, GL545EB  P:01242 620905 F: 01242620739  *Product reference:* NA  *Material:* NA  *Thickness:* NA |
| 330 | PROTECTION LAYER To Extensive Roof  *Supplier:* Sky-Garden Ltd, Unit 4 Beta, Orchard Industrial Estate, Toddington Glou, GL545EB  P:01242 620905 F: 01242620739  *Product reference:*SGPL0102  *Material:* tensile geo-synthetic protection layer  *Thickness:* 2mm |
| 350 | DRAINAGE LAYER To Extensive Roof  *Supplier:* Sky-Garden Ltd, Unit 4 Beta, Orchard Industrial Estate, Toddington Glou, GL545EB  P:01242 620905 F: 01242620739  *Product reference:* SGRD0120  *Material:* Recycled PE rigid load tolerant drainage and retention board.  *Depth:* 20mm  *Infill:* Shingle over |
| 360 | Q37/360 FILTER MEMBRANE To Extensive Roof  *Supplier:* Sky-Garden Ltd, Unit 4 Beta, Orchard Industrial Estate, Toddington Glou, GL545EB  P:01242 620905 F: 01242620739  *Product reference:* SGFF0102  *Material:* Non Woven Geotextile  *Thickness:*1mm |
| 390  391  392 | BIO-DIVERSEEXTENSIVE GROWING MEDIUM To Extensive Roof  *Manufacturer*Sky-Garden Ltd, Unit 4 Beta, Orchard Industrial Estate, Toddington Glou, GL545EB  P:01242 620905 F: 01242620739  *Product reference:* SGBDS01100  *Material:* blend of crush brick, and free draining aggregates  *Depth:* 100 mm.  Crushed brick bio-diverse substrate, 30% organic content.  *Coverage:* total.  *Declaration of analysis:* Submit.  *Parameters:* consistent installation of product to filter layers provided.  ROOF FINISH CONTOUR To Extensive Roof  *Manufacturer*: Sky-Garden Ltd, Unit 4 Beta, Orchard Industrial Estate, Toddington Glou, GL545EB  P:01242 620905 F: 01242620739  *Product reference:* Contour 50mm  *Material:* Surface contour of substrate +-50mm (50-150mm finish)  SURFACE HABITAT CREATION To Extensive Roof  *Manufacturer*: Sky-Garden Ltd, Unit 4 Beta, Orchard Industrial Estate, Toddington Glou, GL545EB  P:01242 620905 F: 01242620739  *Product reference:* surface habitats R&W  *Material:* site sourced for surface habitat construction.  WALL MOUNTED HABITATS To Extensive Roof Boundaries  *Manufacturer*: Sky-Garden Ltd, Unit 4 Beta, Orchard Industrial Estate, Toddington Glou, GL545EB  P:01242 620905 F: 01242620739  *Product reference:* NA  *Material:* NA |
| 400  401  402 | VEGETATION To Extensive Roof  *Manufacturer*Sky-Garden Ltd, Unit 4 Beta, Orchard Industrial Estate, Toddington Glou, GL545EB  P:01242 620905 F: 01242620739  *Product reference:* SGBDSD010 + RGBDPP0105  *Planting mix: bio-diverse seed mix (regional) 30 species*  *Density:* 2gms/sqm broadcast  *Plugs :* mixed standard bio-diverse plugs planed in bands and blocks, 20/sqm  across 20% of surface area.  IRRIGATION  The green roof may need watering during periods of drought once the system has  established.  AFTERCARE  Generally Bio-Diverse roofs are left self populate and inspection infrequently are  generally suffice for this system. |
| 420  420/b | EDGE RETAINING PROFILE  *Manufacturer:*Sky-Garden Ltd, Unit 4 Beta, Orchard Industrial Estate, Toddington Glou, GL545EB  P:01242 620905 F: 01242620739  *Product Reference:* SGME0102  *Material:* Aluminium  *Height:*100mm  *Foot:* 75mm  SEPERATION PROFILE  *Manufacturer:*Sky-Garden Ltd, Unit 4 Beta, Orchard Industrial Estate, Toddington Glou, GL545EB  P:01242 620905 F: 01242620739  *Product Reference:* SGME01009  *Material:* Aluminium  *Height:*100mm  *Foot:* 75mm |
| 460 | BORDERS  *Type:* Riverstone Pebbles  *Supplier:* Sky-Garden Ltd, Unit 4 Beta, Orchard Industrial Estate, Toddington Glou, GL545EB  P:01242 620905 F: 01242620739  *Size:* 20-40mm round washed  *Colour:* Multi-colour mixed grade (minimal sharp edges but not guaranteed as stone  damage during bagging and transport can occur)  *Laying:* 300mm borders around perimeters, penetrations and outlets (25kg units) |
|  | **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. |
| 740 | 740 ROOT BARRIER INSTALLATION  *Joints:* Minimize.  *Overlaps (minimum):* 100mm |
| 750 | PROTECTION LAYER INSTALLATION  *Joints:* Minimize.  *Overlaps (minimum):* 100mm  *Up stands:* Extend to top of growing medium. |
| 770 | DRAINAGE LAYER INSTALLATION  *Extent:* Continuous over entire roof area.  *Fitting:* Loose laid  *Up stands:* Fit closely around penetrations and outlets. |
| 780 | FILTER MEMBRANE INSTALLATION  *Joints:* Minimize.  *Overlaps (minimum):* 100mm  *Fitting:* Loose Laid  *Up stands:* Extend to top of growing medium. |
| 790 | GROWING MEDIUM INSTALLATION  *Handling:* Minimize.  *Conditions:* Handle in the driest condition possible. Do not handle or install  wet or frozen.  *Layers:*  *Depth (maximum):* as per Q37 clause 390  *Sequence:* Gently firm each layer before spreading the next. |
| 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.  *Retention detail is used where there are system retention requirements and should*  *be spot bonded in accordance with manufacturers approval or system ballasted.*  *Separation detail if for physical divide between system and slab or stone detailing*  *and is system ballasted.* |
| 840A | INTERMEDIATE RESTRAINTS INSTALLATION  Intermediate restraints should be fitted across the roof on pitches exceeding 10o –  refer to specification and design detail or waterproof system manufacturer detail for  type and fixing method.  As a guide, retention battens on pitches from 10o – 20o should be installed at  2000mm increments up the roof slope with a mechanically fixed one at eaves. From  21o – 45o the spacing should be reduced to 1000mm. The height of the restraints  should not exceed the combined height of the drainage and substrate layers. |
| 840 | LAYING BORDER  *Condition of substrate:* Clean.  *Gravel guards:* Fit to outlets.  *Laying:* 300mm borders around perimeters and outlets **-** spread evenly, do not pile  to excessive heights  *Depth (minimum):* 50mm  *Previously laid materials:* Protect during the spreading of Riverstone Pebbles |
|  | **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.  Aftercare agreement  Aftercare guidelines  O&M manual  Irrigation guidelines  *Number of copies:* As required. |
| 940 | MAINTENANCE  This should consist of a minimum of two visits per year by the appropriate labour  force, which will be dictated by the roof area. Irrigation is unlikely to be required  once the plant layer is established.  Establishment of immature systems 18-36 months and blanket systems 12-18  months. |