

Q37 Green Roofs

Specification Reference: 24857

Project Name/Location: The Albion, 20 Albion Street, SE16 7JQ

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NBS SECTION Q37 – DESCRIPTION OF WORKS

Section Q37 deals with the design & installation of the ABG Ltd Blue & Green Roof Systems. It includes the following components; drainage/reservoir board, separation & protection layers, growing medium, vegetation layer & accessories.

The following document is intended for on projects where the detailed design is carried out by the specifier (architect or landscape architect) with technical assistance from the manufacturer as required. The detail should be read in conjunction with any project specific drawings provided.

SCOPE OF WORKS

This section includes:

- ABG bluroof system & components
- ABG Green Roof system & components
- Related ABG Ltd Accessories

This section does not include:

- Construction of the structural deck
- Waterproofing System – by others
- Fall Arrest System – refer to NBS Section N25
- Proprietary rainwater drainage & plumbing – refer to NBS section R10

Q37 GREEN ROOFS

To be read with Preliminaries/General conditions

GENERAL

130 BLUE ROOF SYSTEM WITH EXTENSIVE GREEN ROOF FINISH

- Roof type: Inverted
 - Substrate: Concrete
 - Slope: Flat

- Waterproofing System: by others
- Thermal insulation: by others
- Drainage, Attenuation & Protection Layer: ABG **bluroof VE HD 79** as clause 355
- Growing medium: Geogreen Growing Medium - Biodiverse Roof Mix. Depth min80mm. as clause 390
- Vegetation: Biodiverse mix consisting of wildflower seed, log and rock outcrops.
 - Deadwood piles: At least 5 native hardwood logs (preferably in a pile) per 300m² will be added on top of the main substrate with each item having an approximate length of 800-1000mm, with a minimum diameter of 100mm. Total piles.
 - The seed mix for the all substrate will consist of all the wildflowers listed below. Hand cast or hydro-seeded at a rate of 2g/m².

Species List: Agrimonia eupatoria (Agrimony), Anthyllis vulneraria (Kidney Vetch), Centaurea nigra (Common Knapweed), Clinopodium vulgare (Wild basil), Echium vulgare (Viper's-bugloss), Galium verum (Lady's Bedstraw), Hypericum perforatum (Perforate St John's-wort), Knautia arvensis (Field Scabious), Leontodon autumnalis (Autumn Hawkbit), Leontodon hispidus (Rough Hawkbit), (Oxeye Daisy), Linaria vulgaris (Common Toadflax), Lotus corniculatus (Bird's-foot-trefoil), Malva moschata (Musk-mallow), Origanum vulgare (Wild Marjoram), Plantago media (Hoary Plantain), Primula veris (Cowslip), Prunella vulgaris (Selfheal), Ranunculus acris (Meadow Buttercup), Ranunculus bulbosus (Bulbous Buttercup), Reseda lutea (Wild Mignonette), Poterium sanguisorba (Salad Burnet) Silene vulgaris (Bladder Campion), Salvia verbenaca (Wild Clary), Scabiosa columbaria (Small Scabious), Verbascum nigrum (Dark Mullein), Briza media (Quaking Grass (w)), Cynosurus cristatus (Crested Dogstail), Festuca ovina (Sheep's Fescue), Festuca rubra (Red Fescue (w)), Koeleria macrantha (Crested Hair-grass (w)), Phleum bertolonii (Smaller Cat's-tail), Trisetum flavescens (Yellow Oat-grass (w))

- Accessories:
 - Edge retaining profile to separate pebble & growing medium as clause 420
 - Inspection chambers to be installed over all internal rainwater outlets as clause 430
 - Vegetation barrier: 20-40mm washed pebble to perimeter & all major protrusions as clause 440
 - 600mm x 600mm x 50mm Paving Flags on 30mm support pedestal to maintenance pathways only (if required) 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.

255 MAXIMUM PERMITTED BLUE & GREEN ROOF LOADS

- Dead loads:
 - Blue & Green roof layers: 240kg/m²
- Requirement: Restrict site activities to ensure that design loads are not exceeded, or submit proposals for temporary supports.

PRODUCTS

355 COMBINED LAYERS

- Manufacturer: ABG Ltd, Unit E7 Meltham Mills Road, Huddersfield. W.Yorkshire HD9 4DS, www.abgltd.com, Tel: 01484 852096
 - Product reference: ABG Blue Roof BRG B79
- Material: Consisting of 3 components:
 - A Blue Roof system which performs the roll of both a reservoir for the planting layer and an attenuation layer to provide storage capacity during storm events.
 - Depth: 79mm

390 BIODIVERSE GROWING MEDIUM

- Manufacturer: ABG Ltd, Unit E7 Meltham Mills Road, Huddersfield. W.Yorkshire HD9 4DS, www.abgltd.com, Tel: 01484 852096
 - Product reference: Geogreen Growing Medium – Biodiverse Mix
- Material: Composed of recycled 14-5mm crushed brick, fine grade 10mm topsoil (certified to BS 3882) and 10mm composted recycled material (certified to PAS 100). UK manufactured, 100% recycled. Both the top soil and compost used meet strict soil association standards. The recycled brick element is a by-product or second of the brick manufacturing process and therefore contains no demolition waste.
- Depth: min80mm (plus settlement allowance of 20%)
- Declaration of analysis: Submit.
 - Parameters: Density 900kg/m² (dry); Density 1200kg/m² (saturated)

401 VEGETATION

- Manufacturer: ABG Ltd, Unit E7 Meltham Mills Road, Huddersfield. W.Yorkshire HD9 4DS, www.abgltd.com, Tel: 01484 852096
 - Product reference: Geogreen Wildflower Seed Mix (2g/m²)
- Planting mix: 24 species - Agrimony, Kidney Vetch, Common Knapweed, Viper's Bugloss, Lady's Bedstraw, Perforate St John's Wort, Wild Candytuft, Field Scabious, Rough Hawkbit, Oxeye Daisy, Common Toadflax, Birdsfoot Trefoil, Musk Mallow, Wild Marjoram, Hoary Plantain, Salad Burnet, Cowslip, Selfheal, Bulbous Buttercup, Wild Mignonette, Wild Clary, Small Scabious, Bladder Campion, Wild Pansy.

- Additional: Habitat creation areas to support invertebrates and other wildlife. Log piles (eg 100mm x 500mm/1000mm), rock/gravel outcrops, sand piles, insect habitat boxes.
- Vegetation/Habitat coverage (minimum): 20%.

420 EDGE RETAINING PROFILE (Between Pebble & Growing Medium)

- Manufacturer: ABG Ltd, Unit E7 Meltham Mills Road, Huddersfield. W.Yorkshire HD9 4DS, www.abgltd.com, Tel: 01484 852096
 - Product reference: ABG Abpro Aluminium Profile
- Material: Aluminium
- Height: To suit depth of the green roof

430 BLUE ROOF CHAMBER

- Manufacturer: ABG Ltd, Unit E7 Meltham Mills Road, Huddersfield. W.Yorkshire HD9 4DS, www.abgltd.com, Tel: 01484 852096
 - Product reference: ABG Blueroof Restrictor Chamber
- Material: Polypropylene
- Size: 450mm x 450mm x height to suit build up
- Fixing: Strictly in accordance with Manufacturer's Instructions.

440 VEGETATION BARRIER

- Material: 20 -40mm pebble
- Depth: 75mm
- Width: 500mm to external perimeter edge / 500mm to internal junctions and penetrations etc.

450 ROOF DRAINAGE OUTLETS – *by others*

460 PAVING SLABS & SUPPORT PEDESTALS – if required

- Manufacturer: ABG Ltd
 - Product reference: Paving Flag on proprietary support pedestal
- Type: Grey
- Dimensions: 600mm x 600mm x 50mm
- Accessories: levelling shims

EXECUTION

710 INSTALLATION GENERALLY

- Preparation: Clear all surfaces of debris. Please note: It is important that during & after installation of the green roof, the roof remains clear of other trades to eliminate the risk of damage to the Vegetation.
 - 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.

715 BLUE & GREEN ROOF RELATED REQUIREMENTS

- Provision to be made for living products in hot weather conditions. During hot weather conditions sedum should be laid on the day of delivery to site.
- The ABG bluroof system is supplied with a 3 year maintenance plan consisting of 2 visits per annum.
- First years Green Roof maintenance. The contractor must price in to his tender the cost of post installation maintenance for a minimum period of 12 months. On –going bi-annual maintenance will be required beyond this period and should be agreed with the client prior to completion of the initial agreement.

720 ADVERSE WEATHER

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

770 ABG BLUROOF SYSTEM – *Only Available Installed by ABG Ltd or an ABG approved installer*

790 GROWING MEDIUM INSTALLATION

- Handling: Minimize.
 - Conditions: Handle in the driest condition possible. Do not handle or install when wet or frozen.
- Layers: Start by applying consecutive layers, building up to the required maximum depth.
 - Depth (maximum): 80-150 mm.
- Sequence: Apply the growing medium directly on to the Roofdrain drainage/reservoir board, build up and spread to reach the depth specified. The contractor must make provision to separate the 20-40mm stone at the perimeter and the growing medium. Allowance must also be made for consolidation/settlement of the growing medium (typically 10%).

792 WILDFLOWER MIX SEEDING

- Prior to planting the whole system must be thoroughly watered to ensure that the growing medium is saturated and the Roofdrain is filled.
- Gently firm and rake over the growing medium
- Supply and sow 100% wildflower seed mix directly on to the growing medium at a rate of 2g/m². For even spread it is recommend to mix the seed with a carrier prior to sowing. For further advice refer back to ABG.
- We recommend consulting the supplier prior to sowing to ensure this is being done at the appropriate time of year.

820 EDGE RETAINING PROFILE INSTALLATION (Between Pebble & Growing Medium)

- Cutting: Neat, accurate and without spalling.
 - Junctions: vertical, secured using proprietary connectors where possible.
- Position: True to line and level. Smooth continuous lines.
- Fixing: Loose laid on top of the drainage layer.

COMPLETION**910 INSPECTION**

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

915 ESTABLISHMENT WATERING REQUIREMENTS

- Watering of the vegetation during the early establishment phase, typically the first 4- 6 weeks (depending upon the time of year the installation is carried out), is to be carried out by the main contractor or waterproofing subcontractor under the guidance of the green roof sub-contractor.

917 POST INSTALLATION MAINTENANCE

- Prior to commencement of the installation, the green roof sub-contractor is to provide a cost for on-going maintenance of the green roof system/s for an agreeable period. This period should be no less than 12 months. A maintenance agreement should in turn be in place prior to completion of the installation. Please note a dedicated mains water supply (min 3 bar / max. 4 bar pressure) is required at each green roof level for post installation watering and on-going maintenance. Safety pressure valves should be incorporated where appropriate.

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: As required.