

30 August 2013

This document includes:

Code	Section	Revision	Dated
Q37	Green roofs	C4	30 Aug 2013

PLEASE NOTE BAUDER SPEC Q37  
TAKES PRECEDENCE OVER ARCHIVAL CLAUSES  
FOR MATERIALS SPECIFICATIONS + BUILD UP/  
WORKMANSHIP

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**Paving/Planting/Fencing/Site furniture**

**Section Revision History**

No.	Purpose	
C1	CONSTRUCTION ISSUE	27 Mar 2013
C2	UP DATED TO DESIGN REQUIREMENTS	20 May 2013
C3	Updated to Contractor's requirements	1 Jul 2013
C4	Updated following comments	30 Aug 2013

**Clauses amended in this revision**

No.	Clause	
110	INTENSIVE GREEN ROOF	Revised
130	EXTENSIVE GREEN ROOF	Revised

## Q37 Green roofs

### TO BE READ WITH PRELIMINARIES/GENERAL CONDITIONS

#### GENERAL

- 110 INTENSIVE GREEN ROOF ART / DT FLAT ROOF AREA, REFER TO MANUFACTURERS SPECIFICATION Q37/110A
- Roof type: Inverted.
    - Substrate: In situ concrete slab minimum 250 mm thick.
    - Slope: Flat.
  - Waterproofing: Liquid applied coating as section J31.
  - Thermal insulation: Inverted roof insulation.
  - Protection: See Manufacturer's spec Q37 110.
  - Moisture control layers: See Manufacturer's spec Q37 110.
  - Growing medium: Intensive growing medium **as Manufacturer's spec Q37 110.**
    - Depth: **250 mm to main beds.**
  - Vegetation: **For Planting layout refer to LUC drawing 101 Rev C .**
  - Accessories: See Manu spec **and below under products.**
- 130 EXTENSIVE GREEN ROOF MARESFIELD BLOCK FLAT ROOF AREA, REFER TO MANUFACTURERS SPECIFICATION Q37/130
- Roof type: Inverted.
    - Substrate: In situ concrete slab minimum 250 mm thick.
    - Slope: Flat.
  - Waterproofing: Liquid applied coating as section J31.
  - Thermal insulation: Inverted roof insulation.
  - Protection: See Manufacturer's spec Q37 130.
  - Moisture control layers: See Manufacturer's spec Q37 130.
  - Growing medium: **Option B - Bauder Extensive Substrate**
    - Option A Emorsgate Seeds - tbc by Emorsgate Seeds .**
    - Depth: **80 mm.**
  - Vegetation: **Option B - Bauder KS-Plus seed mix**  
**Option A Emorsgate Seeds - Wild flower green roof mix .**
  - Accessories: See Manufacturer's spec **and below under products.**

#### PERFORMANCE

- 210A GENERAL DESIGN
- Green roof and associated features: Complete the detailed design.
  - Proposals: Submit drawings, technical information, calculations and manufacturers' literature.

#### PRODUCTS

- 420 EDGE RETAINING PROFILE To Maresfield Block **planting restraint only**
- Manufacturer: Fixfast Ltd .
    - Product reference: Edgeguard .
  - Material: Aluminium .
  - Height: **75mm see details .**

- 420A EDGE RETAINING PROFILE To Art & DT Block
- Manufacturer: Submit proposals .
  - Product reference: Submit proposals .
  - Material: Treated Douglas Fir Timber .
  - Size: 250 x 75mm see details .
- Support: Concealed Hot dipped galvanised mild steel brackets (friction based) Sub contractor to submit proposals.
- 420B EDGE RETAINING PROFILE TO PLANTERS To Art & DT Block
- Manufacturer: Submit proposals .
  - Product reference: Submit proposals .
  - Material: Treated Douglas Fir Timber .
  - Size: 3 x 250 x 75mm see details .
- Support: Concealed Hot dipped galvanised mild steel brackets (friction based) Sub contractor to submit proposals.
- Accessories: 10mm drainage/protection layer to vertical faces of planter walls only - See Manu spec Q37/110A.
- 445 PEBBLE BALLAST To Maresfield/Art & DT Blocks - Refer to drawings for location
- Material: 20-40 mm ballast .
  - Depth: **50/200mm (80kg/m<sup>2</sup> Min)** .
  - Width: 500 mm .
- 450A ROOF DRAINAGE CHANNEL To base of ramp Art & DT Block
- Manufacturer: Bauder Ltd .
  - Product reference: Linear Drain KH50 MR.
  - Material: Galvanised steel.
  - Size: 50(h) x 150(w) x (L) as drawings .
  - Fixing: as Manu requirements.
  - On adjustable support legs.
- 450B ROOF DRAINAGE OUTLETS To Maresfield/Art & DT Block
- Manufacturer: Harmer Drainage Systems .
  - Product reference: Insulated vertical spigot Outlet (**Product ref 1504**) with compatible connecting membrane .
  - Material: as product.
  - Size: for 100mm outlet .
  - Fixing: as manufacturers requirements.
- Accessories - Cut down extension piece to allow for a max height of **355mm (Product ref 152799)**.
- Domed grate.
- 460 SUPPORT PEDESTALS TO SUPPORT PAVING SLABS ON MARESFIELD BLOCK.
- Manufacturer: Wallbarn Ltd.
  - Product reference: Support pad.
  - Type: Non-adjustable.
  - Material: Recycled polypropylene .
  - Dimensions: 14mm high.
  - Additional pedestals: Adjacent to perimeters.
  - Accessories: Not required.

## 460A SUPPORT PEDESTALS TO SUPPORT PAVING SLABS ON ART & DT BLOCK.

- Manufacturer: Bauder Ltd.
  - Product reference: Bauder Pedestal Support System.
- Type: Adjustable.
- Material: Recycled polypropylene.
- Dimensions: As drawing A4-71.
- Additional pedestals: Adjacent to perimeters.
- Accessories: Acoustic rubber shims.
  - 5 degree pitch adjustable supports
  - Drainage channels to base of ramp.

### 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.

## 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: Manufacturer's standard .

## 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: As required by Client .



**NBS SECTION Q37 - DESCRIPTION OF WORKS**

Section Q37 deals with the design and installation of the Bauder Green Roof landscaping system, including the various related elements i.e. separation, protection, and drainage layers, substrates, Bauder supplied planting and accessories such as inspection chambers, trims etc. It invokes clauses from related sections for waterproofing, insulation, landscaping and maintenance as necessary for a complete system.

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.

**SCOPE OF WORKS****This section includes:**

- Bauder Extensive green roof system components/ landscaping
- Bauder Intensive green roof system components/ landscaping
- Related Bauder system accessories

**This section does not include:**

- Construction of the structural deck
- Bauder waterproofing system – refer NBS Section J31-130A/B/C
- Irrigation (for intensive landscaping) – refer NBS section S14
- Granular sub-bases to roads / paving – refer NBS section Q20
- Slab / brick / sett / cobble paving – refer NBS section Q25
- Seeding / turfing – refer NBS section Q30
- External planting – refer NBS section Q31

**Q37 GREEN ROOFS**

To be read with Preliminaries / General Conditions and Archial NBS Specification

**GENERAL****110 INTENSIVE GREEN ROOF: Art & DT Block**

- **Landscape finish:** Planting and Paving
- **Substrate:** New Concrete Deck
- **Slope:** Level
- **Waterproofing System:** BAUDER BAKOR MONOLITHIC MEMBRANE ROOF SYSTEM - as per J31-130B
- **Slip Layer:** N/A
- **Protection/drainage layer:** N/A
- **Water storage/drainage layer:**
  - Bauder DSE40 - drainage / water storage panel. Installation as clause 770E.
  - Bauder PLT10 - 10mm drainage / protection layer. Installation as clause 770A.(To vertical faces of planter walls only)
- **Filter membrane:** Bauder Filter Fleece. Installation as clause 780A.
- **Growing medium:** Bauder Intensive Substrate, depth 250 mm above the filter fleece.

Installation as clause 790E.

- **Landscaping depth: As LUC drawing 101 rev C requirements.**
- **Planting:** Intensive Planting (supplied and installed by others) in accordance with the landscape designers planting scheme and requirements. Refer clause 802F.
- **Surfacing:**
  - **Support pedestals for paving:** Bauder pedestal support system, as clause 835.
  - **Concrete paving slabs:** Supplied by others to the landscape designers specification, as clause 465A. Paving to be installed on the Bauder Pedestal Support System (refer Clause 835). Installation of paving as clause 841A.
- **Accessories:**
  - 20 - 40 mm round washed pebble vegetation barrier provided at all perimeters and protrusions, as clause 460. Installation as clause 840.
  - Fertiliser as specified by the client (supplied by others), as clause 464B and applied in accordance with the plant suppliers recommendations and following the manufacturers guidelines.
- **Additional requirements:** 210, 710, 715A, 720, 910, 915C, 916, 920, 930.  
Project specific irrigation system (designed, supplied and installed by others), as clause 463

### 130 EXTENSIVE GREEN ROOF: Maresfield Block

- **Landscaping finish:** KS PLUS- Sedum & Herb Grassland Mix
- **Substrate:** New Concrete Deck
- **Slope:** Level
- **Waterproofing system:** BAUDER BAKOR MONOLITHIC MEMBRANE ROOF SYSTEM - as per J31-130C
- **Slip Layer:** N/A
- **Protection layer:** N/A
- **Drainage layer:** Bauder DSE40 - drainage / water storage panel. Installation as clause 770E.
- **Filter membrane:** Bauder Filter Fleece. Installation as clause 780A.
- **Growing Medium:** Bauder Extensive Substrate, depth 80 mm above the filter fleece. Installation as clause 790A.
- **Landscaping depth:** TBC
- **Vegetation:** Bauder KS PLUS sedum, herb grassland seed mix. Installation as Clause 801C.
- **Surfacing:**
  - **Concrete paving slabs and support pedestals for paving:** Paving to be supplied by others to the client's specification (as clause 465), installed on the proprietary pedestal support system (as clause 467). Installation of paving as clause 835A & 841A
- **Accessories:** -
  - 20 - 40mm round washed pebble vegetation barrier provided at all perimeters and protrusions, as clause 460. Installation as clause 840.
- **Additional requirements:** As clauses 210, 710, 715A, 720, 910, 915D, 916, 920, 930.

### PERFORMANCE

### 210 GENERAL DESIGN

- **Green roof and associated features:** Complete the detailed design.
- **Proposals:** Submit drawings, technical information, calculations and manufacturers literature.

### PRODUCTS

### 460 PEBBLE BALLAST

- **Type:** Washed, round pebbles.
- **Size:** Graded 20-40 mm and free from fines and sharps.

**467 SUPPORT SYSTEM FOR PRECAST CONCRETE PAVING SLABS to Maresfield Block**

- **Manufacturer:** Wallbarn Ltd.
  - **Product reference:** Polypropylene support pad.
- **Size:** 14mm.
- **Accessories:** N/A.

**468 ALTERNATIVE EDGE RETAINING PROFILE to Maresfield Block**

- **Manufacturer:** Fixfast Ltd.
  - **Product reference:** Edgeguard.
- **Size:** 100/75mm see details.
- **Accessories:** N/A.

**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 (these can be omitted where Bauder inspection chambers are used, if the grille cap height obstructs the closing of the chamber lid).

**715A GREEN ROOF RELATED REQUIREMENTS**

- **The following are vital to the accurate pricing, correct installation, and ultimately the long-term life of a green roof, and must, therefore, be included within the specification and tender documents: -**
- **Loadings:** It is assumed that the architect or his advisors have 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.
- **Additional protection:** A planned or contractual delay between the installation of the waterproofing and landscape will almost certainly necessitate additional/increased protection to the waterproofing. This protection may be temporary or permanent. The responsibility and cost of this possible extra protection should be clearly included within the tender documents.
- **Detailed drawings:** Correct detailing design and construction is essential to the long-term life of the green roof. It is essential, therefore, that detail drawings illustrating for the construction are included with the tender documents, in order to enable the contractor to tender accurately.
- **Minimum upstand height requirements:** The waterproofing should be taken up all abutment upstands, pipes, detailing protrusions etc. a minimum of 150mm above finished landscape surface level to comply with British Standards and current code of practice BS8217:2005.
- **Provision for living products in hot weather conditions:** During hot weather conditions, living products such as plants, turf, sedum blankets etc. must be laid on the day of delivery to

site. With regard to sedum blankets or turf, any rolls not installed should be laid out and kept watered prior to final installation.

- **Watering / Irrigation:** Adequate provision for watering the installed any form of planting must be in place on site before the product is installed. Irrigation systems if fitted should be operational. Initial watering should be by surface sprinklers to water in the fertilizer, where this is specified. All watering should be carried out in strict accordance with the Bauder watering requirements and guidance document.
- **Final Inspection:** No landscaping work should be installed until Bauder have carried out a final inspection to the waterproofing and have passed this as suitable for guarantee. It is the responsibility of the roofing contractor to advise and organise this inspection with Bauder. We cannot guarantee any waterproofing that has been landscaped without this inspection having been carried out and passed as acceptable.
- **Damage risk form other trades:** No landscaping should be installed while the roof area is subject to other site traffic. Bauder will carry out an inspection of the completed roof 4-6 weeks following installation and any site related damage by others will be reported to the client. Bauder accept no responsibility whatsoever for damage to the product or the installation caused by site work carried out by others after the landscaping has been installed.
- **First year maintenance:** The contractor must price into his tender the cost of post installation maintenance for a minimum period of 1 year to ensure the hand over of a flourishing green roof.

## 720 ADVERSE WEATHER

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

## LANDSCAPING INSTALLATION

### 770A DRAINAGE LAYER INSTALLATION

- **Extent:** Continuous over designated Green roof area.
- **Fitting:** Loose laid over the waterproofing, with filter sheet side uppermost. Boards are to be overlapped and interlocked by a minimum of 100mm. This is achieved by peeling back the filter sheet from the board surface by a minimum of 100mm and attaching the next adjoining board by pressing the surfaces together to interlock the stud profiles. The filter sheet is then loosely lapped back over the adjoining board. All board joints to be staggered.
- **Upstands:** Cut and fit closely around penetrations and outlets. Apply to vertical surfaces, unless otherwise indicated. Where an overlap cannot be achieved by interlocking the studs and overlapping excess filter sheet, then a separate strip of Bauder Filter Fleece should be used to prevent fines from passing between and into the drainage layer.

### 770E DRAINAGE / WATER STORAGE LAYER INSTALLATION

- **Extent:** Continuous over entire designated Green roof area.
- **Fitting:** Loose laid over the protection layer. Boards to overlap and interlock by one cup profile at sides and ends and each row be laid staggered. The 'X' stamped impression on the highpoint of the cup moulding indicates where boards overlap.
- **Upstands:** Carefully cut to fit closely around penetrations and outlets.

### 775C COMPACTED SUB-BASE

- The depth of cover material above the board profile to be a minimum of 100mm following compaction. The sub-base is to be compacted using mechanical compaction and adequate

containment provided at all abutments or perimeters in the form of concrete kerbs bedded on a 'no fines' concrete with support haunching built directly off the profiled drainage board. Please refer to the architects / structural engineer's detailed plans and specification.

#### 780A FILTER MEMBRANE INSTALLATION

- **Joints:** Minimize.
- **Overlaps (minimum):** 150 mm
- **Fitting:** Loose laid over drainage layer in accordance with manufacturer's recommendation.
- **Upstands (soft landscaping):** Extend up, between vegetation barrier and growing medium and trim flush with finished surface level.
- **Upstands (Hard landscaping):** Extend to top of perimeter abutments and trim flush just below finished surface level.

#### 790A 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 two equal layers, building up to required maximum depth.
- **Sequence:** Gently firm each layer before spreading the next. Allowance should be made for any settlement that may occur. It is recommended that measuring stick markers of the required depth be used around the roof area to ensure that a minimum acceptable thickness of growing medium is achieved.
- **Supply:** Depending on size and access of the project the 'substrate' can be supplied by various methods i.e. Tipper, Silo lorry (pumping directly onto the roof area), Big bags, or sacks. Prior to costing this element of the installation the 'Approved Contractor' must contact Bauder Ltd so that they may advise on the best solution on any specific contract.
- **Important note regarding alternative substrates:** If alternative substrates are required (e.g. topsoil...etc), Bauder does not take any responsibility for the performance of such substrates supplied from an alternative source. We recommend that alternative substrates should be covered by a technical data sheet and certified in writing as suitable to support the system and plants specified. Saturated weight loadings must be provided directly from the supplier of the substrate and should be the subject to a structural engineer's approval.

#### 790E 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 two equal layers, building up to required maximum depth.
- **Sequence:** Gently firm each layer before spreading the next. Allowance should be made for any settlement that may occur. It is recommended that measuring stick markers of the required depth be used around the roof area to ensure that a minimum acceptable thickness of growing medium is achieved.
- **Supply:** Depending on size and access of the project the 'substrate' can be supplied by various methods i.e. Tipper, Silo lorry (pumping directly onto the roof area), Big bags, or sacks. Prior to costing this element of the installation the 'Approved Contractor' must contact Bauder Ltd so that they may advise on the best solution on any specific contract.
- **Important note regarding alternative substrates:** If alternative substrates are required (e.g. topsoil...etc), Bauder does not take any responsibility for the performance of such substrates supplied from an alternative source. We recommend that alternative substrates should be covered by a technical data sheet and certified in writing as suitable to support the system and

plants specified. Saturated weight loadings must be provided directly from the supplier of the substrate and should be the subject to a structural engineer's approval.

#### 801C BAUDER KS PLUS SEED MIXTURE

- A seed mixture of stonecrop and herb species, suitable for wildflower meadow or biodiversity areas.
- **Packaging:** 2Kg bag (20m<sup>2</sup> coverage) or 5Kg bag (50m<sup>2</sup> coverage)
- **Sowing Rate:** 100g/m<sup>2</sup> of mix (mix includes blend of selected seeds, bulking aggregate, seed adhesive, organic nutrients & beneficial Mycorrhizal fungi)
- **Layers:** Sow directly onto Bauder extensive substrate (without the need for a seed bed substrate layer), laid to a minimum depth of 80mm and watered immediately prior to application of the seed mix
- **Application:** Avoid sowing in strong winds. Sow approximately 50% of the mix longitudinally down the roof, and then over-sow at 90° with the remainder of the mix. **Do not rake the seed mix into the substrate surface.** The seed mix needs light to germinate. Lightly water the seed mix in only during the summer or where activation of the adhesive element is required in exposed locations. Best results may be achieved from sowing during spring and autumn. However the mix can be sown throughout the year.

#### 820F EDGE RETAINING PROFILE INSTALLATION

- **Cutting:** Neat, accurate and without spalling.
- **Junctions:** Cut with a hack saw to form 90° corners – mitre cut fixing arm.
- **Position:** True to line and level. Smooth continuous lines.
- **Fixing:** The AL80/100 or similar approved refer to clause 468, trim is to be secured in place by thin strips of reinforced Thermoplan membrane fed through the pre-cut horizontal slots positioned along the base of the vertical face of the trim. The ends of the fixing strips to be hot air welded to the main waterproof membrane. Bauder AL80/100 can be installed either to form an 80mm or 100mm perforated retention upstand, depending on which way the fixing arm is secured.
- **Location:** AL80/100 or similar approved refer to clause 468, must always be used in conjunction with the pebble vegetation barrier.
- **Precautionary note:** when cutting metal, please ensure that appropriate tools and personal protection equipment are used.

#### 835 ADJUSTABLE PEDESTAL SUPPORTS to Art & DT Block

- **Product ref:** Bauder Pedestal Support System
- **Material:** Polypropylene copolymer with min. 65% recycled content.
- **Colour:** Black
- **Placement - Supports to be installed according to the Bauder System build-up below: -**
  - **Bituminous membranes:** directly on to the waterproofing (inc. Bakor).
  - **Inverted insulation:** directly on to filter layer / vapour permeable membrane.
  - **Thermofol Single Ply Membrane:** directly on to Bauder protection fleece.
  - **Thermoplan Single Ply membrane:** directly on to membrane surface.
  - **LiquiTEC liquid cold applied system:** directly on to waterproofing surface.
- **Range of adjustment:** 17 mm - 850 mm (bracing system used on heights over 600 mm).
- **Head support (surface area):** 190 cm<sup>2</sup>.
- **Base Support (surface area):** 315 cm<sup>2</sup>.
- **Spacers/ shims:** range available. Acoustic shims required
- **Spacer tabs:** Available to provide drainage gaps of 2mm, 4.5 mm, 6 mm, 8 mm and 10 mm.
- **Slope compensation:** 0% - 5% @ half degree increments.

- **Ramped area** – To have 5° pitch adjustable supports.
- **Compressive strength:** Maximum 1000 kg.
- **Installation:** Please refer to the manufacturer's technical literature and guidelines.
- **Extenders:** Additional height adjustment, where required, can be obtained by using extenders. See information above and the technical literature.
- **Installation:** System to be installed in accordance with the technical literature and installation instructions. If there is any doubt as to the exact requirements consultation should be made with Bauder Limited.

#### 835A ADJUSTABLE PEDESTAL SUPPORTS

- **Product ref:** Refer Clause 467 for manufacturer/supplier and product details
- **Placement - Supports to be installed according to the Bauder System build-up below: -**
  - **Bituminous membranes:** directly on to the waterproofing (inc. Bakor hot melt).
  - **Inverted insulation:** directly on to filter layer / vapour permeable membrane.
  - **Thermofol Single Ply Membrane:** directly on to Bauder protection fleece.
  - **Thermoplan Single Ply membrane:** directly on to membrane surface.
  - **LiquiTEC liquid cold applied system:** directly on to waterproofing surface.
- **Installation:** Please refer to the manufacturer's technical literature and guidelines.
- **Installation:** System to be installed in accordance with the technical literature and installation instructions. If there is any doubt as to the exact requirements consultation should be made with the supplying manufacturer.

#### 840 VEGETATION BARRIER / DRAINAGE BARRIER

- A minimum 300 mm pebble vegetation barrier must be provided to all perimeters and roof penetrations and protrusions i.e. surrounds to roof light or plant upstand kerbs, rainwater outlets, soil vent pipes, man-safe posts etc. as specified. If there are adjacent buildings within 6 metres and the barrier functions also as a fire-break, then the width of the vegetation barrier should be increased to 500mm. On very large roof areas, a one metre wide pebble fire break should be incorporated every 40 metres.
- We recommend 20/40 mm rounded river washed pebbles. Stones or aggregates with sharp edges must not be used i.e. flint. Other materials may be used, but only after consultation and agreement with Bauder Ltd.
- At all open drainage perimeters AL80/100, or similar approved refer to clause 468, drainage trim must be used to contain the vegetation barrier.
- For extensive green roofs where sedum blanket is specified, the vegetation barrier must cover the edges of the blanket by a minimum of 100 mm in order to protect the exposed edge of the blanket against wind uplift and substrate erosion.

#### 841A LAYING PRECAST CONCRETE PAVING SLABS

- **Extent:** To designated areas – See landscape designers plan.
- **Support:** Slabs to be laid on the specified proprietary support pads, adjusted in accordance with the manufacturer's recommendations to ensure a flush, level finished surface.
- **Setting out:** Minimize cutting.
- **Joints:** 4.5 mm.
- **Completion:** Slabs must be level and stable.

#### COMPLETION

#### 910 INSPECTION

- **Timing:** Before handover.

- **Give notice (minimum):** 3 days.

#### **915C INITIAL AND POST INSTALLATION WATERING**

- It is the responsibility of the landscaping contractor to liaise with the main contractor/ building owner to provide initial watering to ensure that the growing medium, planting or turf does not dry out after planting/laying. An adequate mains supply of sufficient pressure must therefore be available and operational prior to the planting.
- Permanent Irrigation systems where installed, must fully operational where these are to provide Initial as well as post-installation watering. The end user should therefore be briefed as to the operation of the installed system. Bauder Ltd accepts no responsibility whatsoever for the condition of installed planting that is not properly watered or irrigated following landscaping works.

#### **915D INITIAL WATERING**

- It is the responsibility of the landscaping contractor to liaise with the main contractor/ building owner to provide initial watering to planted areas to ensure that the growing medium does not dry out after installation. An adequate water supply of sufficient pressure must therefore be available and operational prior to the planting.
- Bauder Ltd accepts no responsibility whatsoever for the condition of installed planting that is not properly watered or irrigated following landscaping works.

#### **916 POST INSTALLATION MAINTENANCE**

- The installing contractor should price into the tender, the cost of carrying out post-installation maintenance for a contract period to be agreed with the client's representative.
- **Soft landscaping:** Following the final maintenance visit and application of slow release fertiliser at the end of the agreed contract period, the responsibility for the ongoing maintenance of the green roof planting becomes the responsibility of the building owner.
- **Period of maintenance contract:** *one year – or as ER's.*
- **Scope of maintenance procedure:** as per manufacturer's recommendations.

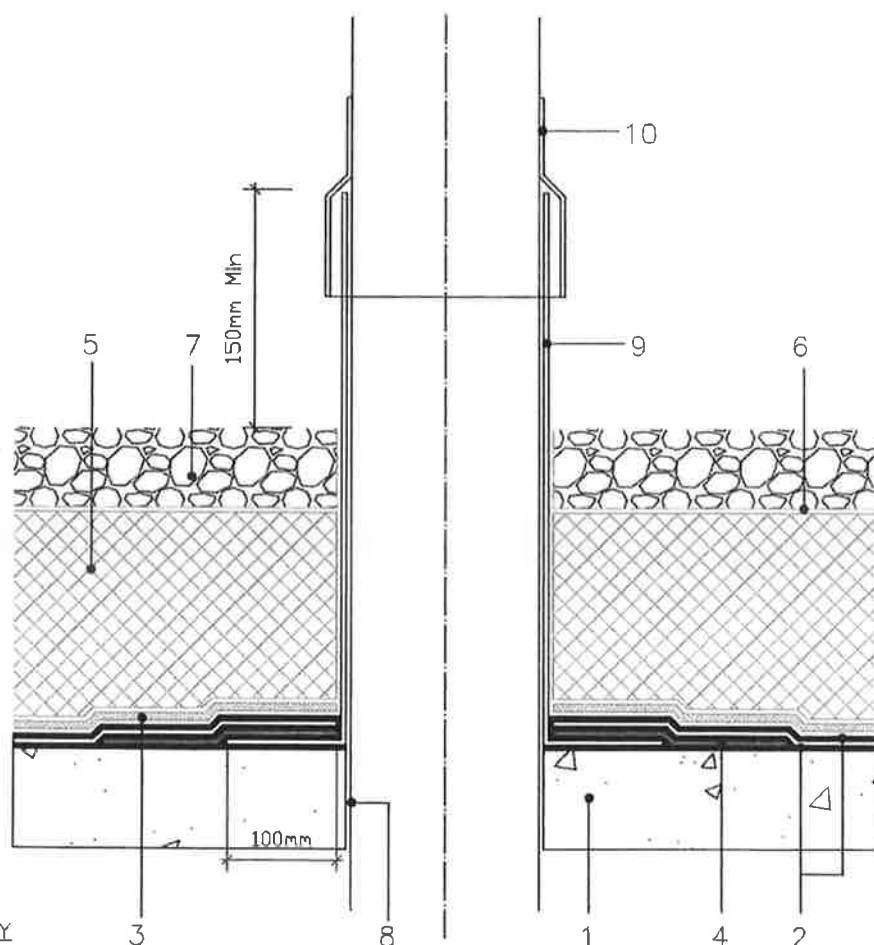
#### **920 COMPLETION**

- **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:**
  - 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 by client.





SECTION KEY

1. CONCRETE SURFACE TO BE FINISHED WITH WOOD FLOAT FINISH & PRIMED WITH BAUDER POLYMER PRIMER 910-18.
2. BAKOR 790-11 HOTMELT MEMBRANE INCORPORATING BAUDER POLYESTER REINFORCEMENT.
3. BAUDER AP1 ACCESS PROTECTION SHEET, ROLLED INTO THE SECOND LAYER OF BAKOR 790-11.
4. BAUDER 790-11 SECONDARY WATERPROOFING INCORPORATING BAUDER NEOPRENE FLASHING.
5. BAUDER XPS INVERTED INSULATION, THICKNESS TO BE DETERMINED TO MEET THE REQUIRED 'U' VALUE.
6. BAUDER U-MAX VAPOUR PERMEABLE MEMBRANE OR FILTER FLEECE.
7. 20-40mm ROUNDED WASHED BALLAST (BY OTHERS).
8. PIPE PENETRATION
9. LEAD SLEEVE (PRIMED)
10. SOLVENT WELEDED PIPE COLLAR

## Bakor 790-11 Waterproofing System - Standard Detail

### SOIL VENT UPSTAND DETAIL

Issue	Date	Checked
1	03.02.08	PS
2	09.11.09	PS

NOT TO SCALE

Contractor to check with QA Manual prior to the application of this system.

This detail is of a conceptual nature and should only be used as such.

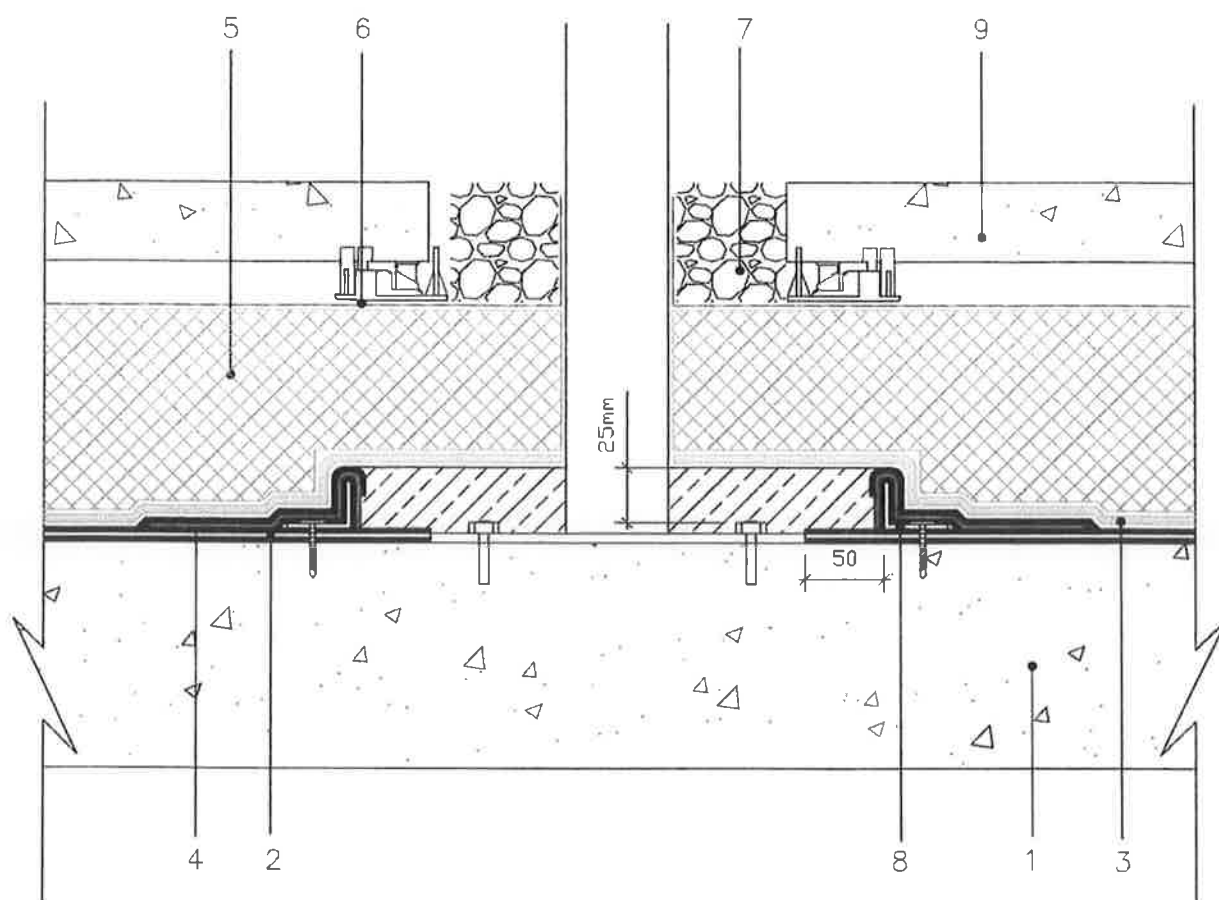
# BA16A

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#### SECTION KEY

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2. BAKOR 790-11 HOTMELT MEMBRANE INCORPORATING BAUDER POLYESTER REINFORCEMENT.
3. BAUDER AP1 ACCESS PROTECTION SHEET, ROLLED INTO THE SECOND LAYER OF BAKOR 790-11.
4. BAUDER 790-11 SECONDARY WATERPROOFING INCORPORATING BAUDER NEOPRENE FLASHING.
5. BAUDER XPS INVERTED INSULATION, THICKNESS TO BE DETERMINED TO MEET THE REQUIRED 'U' VALUE.
6. BAUDER U-MAX VAPOUR PERMEABLE MEMBRANE OR FILTER FLEECE.
7. 20-40mm ROUNDED WASHED BALLAST (BY OTHERS).
8. MECHANICALLY FIXED GALVANISED STEEL "PITCH POCKET" FORMER BY OTHERS.
9. PAVING ON BAUDER VERSIPAVE SUPPORTS

## Bakor 790-11 Waterproofing System - Standard Detail

### PITCH POCKET DETAIL MONOLITHIC

Contractor to check with QA Manual prior to the application of this system.

This detail is of a conceptual nature and should only be used as such.

Issue	Date	Checked
1	6.4.09	PS
2	6.11.09	PS

NOT TO SCALE

# BA08A

#### BAUDER

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# Emorsgate Seeds

EMORSGATE SEEDS

Limes Farm  
Tidney All Saints  
KING'S LYNN  
PE34 4RT

Tel (01553) 829028  
Fax: (01553) 829803  
www.wildseed.co.uk

FAO: Douglas Wheatland  
ARCHIAL  
Tennyson House  
2nd Floor  
159 - 165 Great Portland Street  
LONDON  
W1W 5PA

Re:

QUOTATION **76315**

16/04/2013

Our prices include packing and delivery to UK mainland destinations. Overseas and 24 hour delivery are charged extra at cost.

Quotations for special items and custom mixtures are subject to availability at time of ordering.

Ordering procedure: Please confirm your order by fax or by post quoting our reference number 76315. If you have an account with us we will invoice you. Otherwise please post a cheque with your order, payable to EMORSGATE SEEDS, or supply your credit card details.

Quantity	Species or mixture	Net price (£)
	2kg GREEN ROOF MIX	
800.000g	Festuca ovina (Sheep's Fescue) - wild - 40%	40.00
400.000g	Festuca filiformis (Fine-leaved Sheep's Fescue) wild - 20%	24.00
200.000g	Agrostis stolonifera (Creeping Bent) - 10%	8.00
100.000g	Koeleria macrantha (Crested Hair-grass) - 5%	20.00
100.000g	Poa pratensis (Smooth-stalked Meadow-grass) - 5%	4.00
60.000g	Prunella vulgaris (Selfheal) - 3%	24.00
60.000g	Poterium sanguisorba ssp sanguisorba (Salad Burnet) - 3%	21.00
40.000g	Anthyllis vulneraria (Kidney Vetch) - 2%	18.80
40.000g	Lotus corniculatus (Birdsfoot Trefoil) - 2%	16.00
40.000g	Origanum vulgare (Wild Marjoram) - 2%	16.00
40.000g	Galium verum (Lady's Bedstraw) - 2%	14.00
40.000g	Achillea millefolium (Yarrow) - 2%	14.00
40.000g	Echium vulgare (Viper's Bugloss) - 2%	16.00
40.000g	Plantago media (Hoary Plantain) - 2%	16.00
	for 400m2 @ 5g/m2	

Please check delivery address and correct if necessary:

Total Net Amount	251.80
Carriage	0.00
Total FRA Amount	10.07
<b>ORDER TOTAL</b>	<b>261.87</b>

FRA - We are registered with the VAT authorities as Flat Rate Farmers. This means that we charge a FLAT RATE ADDITION (FRA) of 4% on all of our supplies. This can be reclaimed in the normal way. REG No: FRF 10 - 000071

