REF No: B203537 **PROJECT NAME: UBB (UGLY BROWN BUILDING) – REV C**

NBS SECTION J41 - DESCRIPTION OF WORKS

Section J41 deals with the installation of the Bauder Waterproofing System, comprising coverings of multiple layers of reinforced bituminous membranes laid and jointed using self-adhesive and/or torch application as required. It includes where required, the air and vapour control layer, thermal insulation, underlayer and capping sheet membranes (root resistant for green roof systems) 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.

'Safe2Torch' advice:

The application of torch-on materials to or in the vicinity of combustible deck materials does not conform to the recommendations of BS8217:2005, clause 7.3.2.1, paragraph 3, or the advice given in the 'Safe2Torch' document produced by the National Federation of Roofing Contractors. When encountering an area which contains combustible material a minimum 900mm deep zone of the flat area around the material and any detail flashing to the material itself there is a requirement for 'Torch-Free' detailing. In these instances an appropriate alternative Bauder self-adhesive membrane should be used as described in: 'TORCH-FREE' & 'SAFE TO TORCH' zones (as per clause 773) - ALTERNATIVE MEMBRANES AND APPLICATION. The 'Torch-Free' & 'Safe to Torch' zone detailing and method of application will be described in the Additional Items section and the 'Torch-Free' & 'Safe to Torch' zones section of this specification and further shown in the Bauder 'Torch-Free' & Bauder Bituminous detail drawings.

Main Roof Level – 7 & Level 8 Plant Room Roof Inc Lift Over & Basement Roof Below External Works (Type 7)
Please note, there could be 'TORCH-FREE' areas within the roof area(s), however there are either no roof plans available or the design is not sufficiently complete at this stage in the project to enable Bauder to complete a 'TORCH-FREE' roof plan. Once this plan becomes available and the design is sufficiently complete, please contact the Bauder Area Technical Manager (details at the end of the specification) and this can then be created for this area.

Balconies Level - 01/02/03/04 & Level 5 Roof Terrace/Green Roof
For 'TORCH-FREE' locations refer to the 'TORCH-FREE ZONES REPORT' attached.

SCOPE OF WORKS

This section includes:

- The Bauder waterproofing system.
- Related Bauder system accessories
- Thermal insulation that meets the required U Value.
- Internal rainwater outlets (but not the connected drainage/plumbing goods)
- Surfacing (paving on support pads)

This section does not include:

- Construction of the structural deck.
- Proprietary rainwater drainage / plumbing – refer NBS section R10
- Lightning protection – refer NBS Engineering Services, Section W60.
- Latchways Constant Force Post System – refer NBS Section N25.
- Blue Roof landscaping – refer section Q37
- Lead sheet coverings / flashings – See NBS Section H71.
- Stairs/Ladders/Handrails/Balustrades – See NBS Section L30
- Bauder Automatic Opening Vents (AOV's) - see NBS Section L10.
- Proprietary modular rooflights (supplied by others) - refer NBS section L10.
- Proprietary metal capping system – refer Section H72.
- Associated building work – refurbishment related builders work is not covered by NBS. For a list of items requiring attention before re-waterproofing, please see the associated Bauder survey report and the separate Builders work / additional items list provided.

J41 REINFORCED BITUMEN MEMBRANE ROOF COVERINGS

To be read with Preliminaries/ General Conditions.

TYPES OF COVERING

110A BUILT-UP REINFORCED BITUMEN MEMBRANE WARM DECK ROOF COVERING

- **Roof area:** Main Roof Level – 7 (Type 5)
- **Substrate:** Structural Concrete Deck
  - Designed with a fall of 1:40 to a to ensure a minimum finished drainage fall of 1:80 is achieved.
  - The design should take account of construction tolerances, permitted deviations and deflections under load, as per Item 4.4 of BS6229:2018.
  - The maximum permissible departure from datum, in accordance with BS 8204-2:2003+A2:2011 Screeds, bases and in situ floorings Concrete wearing surfaces Code of practice shall be SR2 (5mm).
  - No hollows or back-falls, wood float finished and fully cured.
  - **Preparation:** As clauses 610C.
- **Primer: Bauder Activator-Primer (Canister), APR01-Black** or **Bauder SA Bonding Primer (Black)**, applied to the roof substrate and all upstands and skirtings. For application method and guidance information, refer clause as clause 660C.
- **Air & vapour control layer:** BauderTEC KSD Mica, 2.5 mm thick aluminium lined, elastomeric bitumen self-adhesive air and vapour control layer. Installation as clauses 670G, 710.
- **Insulation:** Bauder PIR FA-TE flat board, aluminium foil faced, highly efficient rigid urethane insulation 160mm thick to achieve the required U value (refer Clause 230). This product has a zero ODP and a Green guide rating of 'A'.
  Bauder 50 mm x 50 mm PIR angle fillets for use with insulated & un-insulated upstands.
  Installation as clauses 680D and 775.
- **Insulating vertical upstands: BauderRock flat board**, zero ODP and GWP, dual density mineral wool insulation.
  The vertical upstand(s) should be insulated, typically an external wall to a conditioned/habited space will be insulated in its own right e.g. a cavity wall, but there is still a requirement for a nominal 60mm thickness of insulation on the external face of the wall to reduce thermal bridging at the roof/wall intersection.

This insulation will be a minimum of 300mm in height from the deck surface to the top of the upstand and will ideally be fitted before the flat insulation so that it is retained at the base. Treated timber battens or **Bauder pre-formed metal trim** should be installed to secure the top and provide a hard-leading edge.
For Kerbs/upstands that are not inherently insulated e.g. at rooflights, access hatches, extract fans etc, then these should be insulated with a thickness appropriate for an external wall. Installation as clause 681E.

- **Waterproof covering:** BAUDER TOTAL ROOF SYSTEM
  - **System manufacturer:** Bauder Limited, 70, Landseer Road, Ipswich, Suffolk, IP3 0DH.
    Tel: 01473 257 671. Fax: 01473 230 761. **Email:** technical@bauder.co.uk
    Web: www.bauder.co.uk
    Site Contact Details - Site Technician: Toby Spayne - T: 07469 858610
    Technical Contact Details - Area Sales Manager: Stuart Parratt - T: 07775 037930
  - **Underlayer (Main field area & 1st layer detailing):** BauderTEC KSA DUO, 3 mm thick, 200g/m² glass-fibre reinforced, elastomeric self-adhesive bitumen underlayer to the field area and detailing.
  - **Underlayer (2nd layer detailing):** Bauder G4E, 4 mm thick, 200g/m² glass-fibre reinforced, elastomeric torch applied bitumen underlayer overlaying 1st layer of underlayer at perimeters and detailing only.
    Attachment: As clauses 710, 747D.
  - **Top layer / Cap sheet:** Bauder K5K, 5 mm thick, 250g/m² polyester reinforced, elastomeric bitumen torch applied capping sheet, charcoal grey finish.
    Attachment: As clauses 710, 750A.
  - **Flashings and detail work:**
    - Bauder K5K capping sheet, charcoal grey finish. Install as clauses 773, 775 & 777.
    - **Liquid applied detailing (Bauder LiquiPOCKET):** Product to be applied to the specific areas stated below, in strict accordance with the Bauder instructions provided, as clause 776B. The product must not be used in any areas of Bauder Roof Systems without prior consent of Bauder Limited.
      - **Areas for application:** TBC
- **Surface protection:** N/A
- **Surfacing:**
  - Support pedestals for paving: **Bauder pedestal support system**, as clause 835A.
  - **Concrete paving slabs:** Supplied by others to the designers requirements) as clause 465. Concrete paving slabs to be installed on to the specified paving pedestal support system, as clause 840A.
- **Accessories:**
  - **Bauder Bitumen Blue Roof Vertical Outlet DN 70,** complete with pre-attached bitumen connection flange and dome grating. To be supplied and installed – quantity as required. When this outlet is used within a warm roof construction with insulation depth 60mm or greater, the **Bauder Extension Unit** (supplied separately) must be used. Installation as clause 784F.
  - **Bauder Parapet Emergency Overflow Stainless Steel DN 70** Installation as clause 784H.
  - **Bauder GA400 rainwater access cover.**
    Size: 400 x 400 mm. Features removable grille plate, gravel guard surround and adjustable feet (height adjustment range 65 mm to 100 mm), that is suitable for most situations. Installation, as clause 830A.
  - **Bauder KH60 linear drainage channel**, supplied with grille plate only. Adjustable leg sets are to provide an adjustment range of 75-120 mm (leg sets to be ordered separately). Installation as clause 830D.

- **Additional Requirements:**
  - No sumping of Blue Roof Outlet, as this alters drainage calculations.
    Note: Bauder Ltd does not advise on Blue Roof Outlet locations.
  - 210, 230, 515, 520, 560, 561, 562, 910, 916, 940.
  - Supply and install **Bauder Automatic opening vents (AOV'S)**, in accordance with Section L10 and the separately supplied Bauder schedule.
- **Guarantee information:** Refer clause 950B.
  For associated lead work, refer to Section H71 for the following items:
  - Provision for forming a chase and installing lead substitute counter-flashings to brickwork or concrete upstands (with no DPCc present). Refer H71, clause 770A.
  - Provision for forming a chase and installing lead substitute counter-flashings to brickwork or concrete upstands (with a DPC present). Refer H71, clause 780A.

  Associated Builders Work:
  This relates to items of builders work that must be carried out as part of the overall roof refurbishment. Please refer to the separate document Preparatory Builders Work & Additional Items (By Others) and the client's related specifications.

110B BUILT-UP REINFORCED BITUMEN MEMBRANE WARM DECK ROOF COVERING

- **Roof area:** Balconies Level - 01/02/03/04 (Type 1)
- **Substrate:** Structural Concrete Deck
  - Designed with a fall of 1:40 to a to ensure a minimum finished drainage fall of 1:80 is achieved.
  - The design should take account of construction tolerances, permitted deviations and deflections under load, as per Item 4.4 of BS6229:2018.
  - The maximum permissible departure from datum, in accordance with BS 8204-2:2003+A2:2011 Screeds, bases and in situ floorings Concrete wearing surfaces Code of practice shall be SR2 (5mm).
  - No hollows or back-falls, wood float finished and fully cured.
  - **Preparation:** As clauses 610C.
- **Primer: Bauder Activator-Primer (Canister), APR01-Black** or **Bauder SA Bonding Primer (Black)**, applied to the roof substrate and all upstands and skirtings. For application method and guidance information, refer clause as clause 660C.
- **Air & vapour control layer:** BauderTEC KSD Mica, 2.5 mm thick aluminium lined, elastomeric bitumen self-adhesive air and vapour control layer. Installation as clauses 670G, 710.
- **Insulation:** Bauder PIR FA-TE flat board, aluminium foil faced, highly efficient rigid urethane insulation 160mm thick to achieve the required U value (refer Clause 230). This product has a zero ODP and a Green guide rating of 'A'.
  Bauder 50 mm x 50 mm PIR angle fillets for use with insulated & un-insulated upstands.
  Installation as clauses 680D and 775.
- **Insulating vertical upstands: BauderRock flat board**, zero ODP and GWP, dual density mineral wool insulation.
  The vertical upstand(s) should be insulated, typically an external wall to a conditioned/habited space will be insulated in its own right e.g. a cavity wall, but there is still a requirement for a nominal 60mm thickness of insulation on the external face of the wall to reduce thermal bridging at the roof/wall intersection.
  This insulation will be a minimum of 300mm in height from the deck surface to the top of the upstand and will ideally be fitted before the flat insulation so that it is retained at the base. Treated timber battens or **Bauder pre-formed metal trim** should be installed to secure the top and provide a hard-leading edge.

For Kerbs/upstands that are not inherently insulated e.g. at rooflights, access hatches, extract fans etc, then these should be insulated with a thickness appropriate for an external wall. Installation as clause 681E.

- **Waterproof covering:** BAUDER TOTAL ROOF SYSTEM
  - **System manufacturer:** Bauder Limited, 70, Landseer Road, Ipswich, Suffolk, IP3 0DH.
    Tel: 01473 257 671. Fax: 01473 230 761. **Email:** technical@bauder.co.uk
    Web: www.bauder.co.uk
    Site Contact Details - Site Technician: Toby Spayne - T: 07469 858610
    Technical Contact Details - Area Sales Manager: Stuart Parratt - T: 07775 037930
  - **Underlayer (Main field area & 1st layer detailing):** BauderTEC KSA DUO, 3 mm thick, 200g/m² glass-fibre reinforced, elastomeric self-adhesive bitumen underlayer to the field area and detailing.
  - **Underlayer (2nd layer detailing):** Bauder G4E, 4 mm thick, 200g/m² glass-fibre reinforced, elastomeric torch applied bitumen underlayer overlaying 1st layer of underlayer at perimeters and detailing only.
    Attachment: As clauses 710, 747D.
  - **Top layer / Cap sheet:** Bauder K5K, 5 mm thick, 250g/m² polyester reinforced, elastomeric bitumen torch applied capping sheet, charcoal grey finish.
    Attachment: As clauses 710, 750A.
  - **Flashings and detail work:**
    - Bauder K5K capping sheet, charcoal grey finish. Install as clauses 773, 775 & 777.
    - **Liquid applied detailing (Bauder LiquiPOCKET):** Product to be applied to the specific areas stated below, in strict accordance with the Bauder instructions provided, as clause 776B. The product must not be used in any areas of Bauder Roof Systems without prior consent of Bauder Limited.
    - **Areas for application:** TBC
- **Surface protection:** N/A
- **Surfacing:**
  - Support pedestals for paving: **Bauder pedestal support system**, as clause 835A.
  - **Concrete paving slabs:** Supplied by others to the designers requirements) as clause 465. Concrete paving slabs to be installed on to the specified paving pedestal support system, as clause 840A.
- **Accessories:**
  - **Bauder Bitumen Blue Roof Vertical Outlet DN 70,** complete with pre-attached bitumen connection flange and dome grating. To be supplied and installed – quantity as required. When this outlet is used within a warm roof construction with insulation depth 60mm or greater, the **Bauder Extension Unit** (supplied separately) must be used. Installation as clause 784F.
  - **Bauder Parapet Emergency Overflow Stainless Steel DN 70** Installation as clause 784H.
  - **Bauder GA400 rainwater access cover.**
    Size: 400 x 400 mm. Features removable grille plate, gravel guard surround and adjustable feet (height adjustment range 65 mm to 100 mm), that is suitable for most situations. Installation, as clause 830A.
  - **Bauder KH60 linear drainage channel**, supplied with grille plate only. Adjustable leg sets are to provide an adjustment range of 75-120 mm (leg sets to be ordered separately). Installation as clause 830D.
- **Additional Requirements:**
  - No sumping of Blue Roof Outlet, as this alters drainage calculations.
    Note: Bauder Ltd does not advise on Blue Roof Outlet locations.
  - 210, 230, 515, 520, 560, 561, 562, 910, 916, 940.

- **Guarantee information:** Refer clause 950B.
  For associated lead work, refer to Section H71 for the following items:
  - Provision for forming a chase and installing lead substitute counter-flashings to brickwork or concrete upstands (with no DPCc present). Refer H71, clause 770A.
  - Provision for forming a chase and installing lead substitute counter-flashings to brickwork or concrete upstands (with a DPC present). Refer H71, clause 780A.
  - Provision for installing lead substitute counter-flashings below designated window or door thresholds, in accordance with the clients requirements. Refer H71, clause 785B.

  Associated Builders Work:
  This relates to items of builders work that must be carried out as part of the overall roof refurbishment. Please refer to the separate document Preparatory Builders Work & Additional Items (By Others) and the client's related specifications.

110C BUILT-UP REINFORCED BITUMEN MEMBRANE WARM DECK ROOF COVERING

- **Roof area:** Level 5 Roof Terrace/Green Roof (Types 2, 3 & 4)
- **Substrate:** Structural Concrete Deck
  - Designed with a fall of 1:40 to a to ensure a minimum finished drainage fall of 1:80 is achieved.
  - The design should take account of construction tolerances, permitted deviations and deflections under load, as per Item 4.4 of BS6229:2018.
  - The maximum permissible departure from datum, in accordance with BS 8204-2:2003+A2:2011 Screeds, bases and in situ floorings Concrete wearing surfaces Code of practice shall be SR2 (5mm).
  - No hollows or back-falls, wood float finished and fully cured.
  - **Preparation:** As clauses 610C.
- **Primer: Bauder Activator-Primer (Canister), APR01-Black** or **Bauder SA Bonding Primer (Black)**, applied to the roof substrate and all upstands and skirtings. For application method and guidance information, refer clause as clause 660C
- **Air & vapour control layer:** BauderTEC KSD Mica, 2.5 mm thick aluminium lined, elastomeric bitumen self-adhesive air and vapour control layer. Installation as clauses 670G, 710.
- **Insulation:** Bauder PIR FA-TE flat board, aluminium foil faced, highly efficient rigid urethane insulation 160mm thick to achieve the required U value (refer Clause 230). This product has a zero ODP and a Green guide rating of 'A'.
  Bauder 50 mm x 50 mm PIR angle fillets for use with insulated & un-insulated upstands.
  Installation as clauses 680D and 775.
- **Insulating vertical upstands: BauderRock flat board**, zero ODP and GWP, dual density mineral wool insulation.
  The vertical upstand(s) should be insulated, typically an external wall to a conditioned/habited space will be insulated in its own right e.g. a cavity wall, but there is still a requirement for a nominal 60mm thickness of insulation on the external face of the wall to reduce thermal bridging at the roof/wall intersection.
  This insulation will be a minimum of 300mm in height from the deck surface to the top of the upstand and will ideally be fitted before the flat insulation so that it is retained at the base. Treated timber battens or **Bauder pre-formed metal trim** should be installed to secure the top and provide a hard-leading edge.
  For Kerbs/upstands that are not inherently insulated e.g. at rooflights, access hatches, extract fans etc, then these should be insulated with a thickness appropriate for an external wall. Installation as clause 681E.
- **Waterproof covering:** BAUDER TOTAL GREEN ROOF SYSTEM
  - **System manufacturer:** Bauder Limited, 70, Landseer Road, Ipswich, Suffolk, IP3 0DH.

Tel: 01473 257 671. Fax: 01473 230 761. **Email:** technical@bauder.co.uk
Web: www.bauder.co.uk
Site Contact Details - Site Technician: Toby Spayne - T: 07469 858610
Technical Contact Details - Area Sales Manager: Stuart Parratt - T: 07775 037930

- **Underlayer (Main field area & 1st layer detailing):** BauderTEC KSA DUO, 3 mm thick, 200g/m² glass-fibre reinforced, elastomeric self-adhesive bitumen underlayer to the field area and detailing.
- **Underlayer (2nd layer detailing):** Bauder G4E, 4 mm thick, 200g/m² glass-fibre reinforced, elastomeric torch applied bitumen underlayer overlaying 1st layer of underlayer at perimeters and detailing only.
  Attachment: As clauses 710, 747D.
- **Top layer/Capping sheet:** Bauder Plant-E, 5 mm thick, 250g/m² polyester reinforced, root resistant, elastomeric bitumen torch applied capping sheet - green slate mineral finish.
  Attachment: As clauses 710, 750B.
- **Flashings and detail work:**
  - Bauder Plant-E root resistant capping sheet Install as clauses 773, 775 & 777.
  - **Liquid applied detailing (Bauder LiquiPOCKET):** Product to be applied to the specific areas stated below, in strict accordance with the Bauder instructions provided, as clause 776B. The product must not be used in any areas of Bauder Roof Systems without prior consent of Bauder Limited.
  - **Areas for application:** TBC

- **Surface protection:** N/A
- **Surfacing:** Extensive green roof landscaping - refer Section Q37-130.
- **Accessories:**
  - **Bauder Bitumen Blue Roof Vertical Outlet DN 70,** complete with pre-attached bitumen connection flange and dome grating. To be supplied and installed – quantity as required. When this outlet is used within a warm roof construction with insulation depth 60mm or greater, the **Bauder Extension Unit** (supplied separately) must be used. Installation as clause 784F.
  - **Bauder Parapet Emergency Overflow Stainless Steel DN 70** Installation as clause 784H.
- **Additional Requirements:**
  Note: Bauder Ltd does not advise on Blue Roof Outlet locations.
  - 210, 230, 515, 520, 560, 561, 562, 910, 916, 940.
- **Guarantee information:** Refer clause 950B.

For associated lead work, refer to Section H71 for the following items:

- Provision for forming a chase and installing lead substitute counter-flashings to brickwork or concrete upstands (with no DPCc present). Refer H71, clause 770A.
- Provision for forming a chase and installing lead substitute counter-flashings to brickwork or concrete upstands (with a DPC present). Refer H71, clause 780A.
- Provision for installing lead substitute counter-flashings below designated window or door thresholds, in accordance with the clients requirements. Refer H71, clause 785B.

Associated Builders Work:
This relates to items of builders work that must be carried out as part of the overall roof refurbishment. Please refer to the separate document Preparatory Builders Work & Additional Items (By Others) and the client's related specifications.

110D BUILT-UP REINFORCED BITUMEN MEMBRANE WARM DECK ROOF COVERING

- **Roof area:** Level 8 Plant Roof inc Lift Overrun (Type 6)
- **Substrate:** Structural Concrete Deck.

- For the purpose of the tapered insulation scheme design, the roof deck is assumed to be level.
- Roof falls to be provided by the tapered insulation scheme.
- The design should take account of construction tolerances, permitted deviations and deflections under load, as per Item 4.4 of BS6229:2018.
- The maximum permissible departure from datum, in accordance with BS 8204-2:2003+A2:2011 Screeds, bases and in situ floorings Concrete wearing surfaces Code of practice shall be SR2 (5mm).
- No hollows, deflections or back-falls, wood float finished and fully cured.
- **Preparation:** As clause 610C.

- **Primer: Bauder Activator-Primer (Canister), APR01-Black** or **Bauder SA Bonding Primer (Black)**, applied to the roof substrate and all upstands and skirtings. For application method and guidance information, refer clause as clause 660C.
- **Air & vapour control layer:** BauderTEC KSD Mica, 2.5 mm thick aluminium lined, elastomeric bitumen self-adhesive air and vapour control layer. Installation as clauses 670G, 710.
- **Insulation:** Multi-layered Bauder Tapered scheme consisting of - BauderRock, un-faced, dual density rock fibre flat board insulation thickness TBC, installed as base layer(s). (Please refer to Bauder Tapered Scheme drawing for individual board thickness and number of layers). Uppermost layer consisting BauderRock, glass fleece faced, dual density rock fibre tapered insulation. Installation in accordance with the Bauder scheme supplied to achieve the required U value (refer Clause 230). These products have a zero ODP and a Green guide rating of 'C'.
  BauderRock angle fillets, for use with insulated & un-insulated upstands.
  Installation as clauses 680Q and 775.
- **Insulating vertical upstands: BauderRock flat board**, zero ODP and GWP, dual density mineral wool insulation.
  The vertical upstand(s) should be insulated, typically an external wall to a conditioned/habited space will be insulated in its own right e.g. a cavity wall, but there is still a requirement for a nominal 60mm thickness of insulation on the external face of the wall to reduce thermal bridging at the roof/wall intersection.
  This insulation will be a minimum of 300mm in height from the deck surface to the top of the upstand and will ideally be fitted before the flat insulation so that it is retained at the base. Treated timber battens or **Bauder pre-formed metal trim** should be installed to secure the top and provide a hard-leading edge.
  For Kerbs/upstands that are not inherently insulated e.g. at rooflights, access hatches, extract fans etc, then these should be insulated with a thickness appropriate for an external wall. Installation as clause 681E.
- **Waterproof covering:** BAUDER TOTAL ROOF SYSTEM
  - **System manufacturer:** Bauder Limited, 70, Landseer Road, Ipswich, Suffolk, IP3 0DH.
    Tel: 01473 257 671. Fax: 01473 230 761. **Email:** technical@bauder.co.uk
    Web: www.bauder.co.uk
  Site Contact Details - Site Technician: Toby Spayne - T: 07469 858610
  Technical Contact Details - Area Sales Manager: Stuart Parratt - T: 07775 037930
  - **Primer: Bauder Primer-Activator (Canister), APR01-Black**, applied to the upper surface of the BauderROCK insulation. For application method and guidance information, refer clause 660B.
  - **Underlayer:** BauderTEC KSA DUO, 3 mm thick, 200g/m² glass-fibre reinforced, elastomeric self-adhesive bitumen underlayer.
    Attachment: As clauses 710, 747A.
  - **Top layer / Cap sheet:** Bauder K5K, 5 mm thick, tensile strength 1000N/50mm, 250g/m² polyester reinforced, elastomeric bitumen torch applied capping sheet, charcoal grey finish.
    Attachment: As clauses 710, 750A.

- **Flashings and detail work:** Bauder K5K capping sheet, charcoal grey finish. Install as clauses 773, 775 & 777.

- **Surface protection:** N/A
- **Surfacing:** N/A
- **Accessories:** N/A
- **Additional Requirements:** 210, 230, 515, 520, 560, 561, 562, 910, 940.
  - Supply and install **Bauder Automatic opening vents (AOV'S)**, in accordance with Section L10 and the separately supplied Bauder schedule.
- **Guarantee information:** Refer clause 950B.
  Associated Builders Work:
  This relates to items of builders work that must be carried out as part of the overall roof refurbishment. Please refer to the separate document Preparatory Builders Work & Additional Items (By Others) and the client's related specifications.

110E BUILT-UP REINFORCED BITUMEN MEMBRANE WARM DECK ROOF COVERING

- **Roof area:** Basement Roof Below External Works (Type 7)
- **Substrate:** Structural Concrete Deck
  - Designed with a fall of 1:40 to a to ensure a minimum finished drainage fall of 1:80 is achieved.
  - The design should take account of construction tolerances, permitted deviations and deflections under load, as per Item 4.4 of BS6229:2018.
  - The maximum permissible departure from datum, in accordance with BS 8204-2:2003+A2:2011 Screeds, bases and in situ floorings Concrete wearing surfaces Code of practice shall be SR2 (5mm).
  - No hollows or back-falls, wood float finished and fully cured.
  - **Preparation:** As clauses 610C.
- **Primer: Bauder Activator-Primer (Canister), APR01-Black** or **Bauder SA Bonding Primer (Black)**, applied to the roof substrate and all upstands and skirtings. For application method and guidance information, refer clause as clause 660C
- **Air & vapour control layer:** BauderTEC KSD Mica, 2.5 mm thick aluminium lined, elastomeric bitumen self-adhesive air and vapour control layer. Installation as clauses 670G, 710.
- **Insulation: BauderGLAS Roof Block G1 T3+** Flatboard Cellular Glass Warm roof insulation, 320mm thick (should the required total thickness of insulation exceed 200mm it will be supplied in two layers consisting of BauderGLAS Slab T3+ base layer(s) and BauderGLAS Roof Block G1 T3+ uppermost layer) to achieve the client's required 'U' Value (refer Clause 230). This product is fire resistant, has a zero ODP and a green guide rating of A+.
  BauderGLAS Angle Fillets 50 mm x 50 mm Cellular Glass angle fillets for use with insulated & un-insulated upstands.
  Installation as clauses 680V and 775.
- **Insulating vertical upstands: BauderGLAS Roof Block G1 T3+** Cellular Glass Warm roof insulation.
  The vertical upstand(s) should be insulated, typically an external wall to a conditioned/habited space will be insulated in its own right e.g. a cavity wall, but there is still a requirement for a nominal 60mm thickness of insulation on the external face of the wall to reduce thermal bridging at the roof/wall intersection.
  This insulation will be a minimum of 300mm in height from the deck surface to the top of the upstand and will ideally be fitted before the flat insulation so that it is retained at the base. Treated timber battens or **Bauder pre-formed metal trim** should be installed to secure the top and provide a hard-leading edge.

Kerbs/upstands that are not inherently insulated e.g. at rooflights, access hatches, extract fans etc, should be insulated with 60mm thick **BauderGLAS flatboard** insulation. Installation as clause 681E.

- **Waterproof covering:** BAUDER TOTAL ROOF SYSTEM
  - **System manufacturer:** Bauder Limited, 70, Landseer Road, Ipswich, Suffolk, IP3 0DH.
    Tel: 01473 257 671. Fax: 01473 230 761. **Email:** technical@bauder.co.uk
    Web: www.bauder.co.uk
    Site Contact Details - Site Technician: Toby Spayne - T: 07469 858610
    Technical Contact Details - Area Sales Manager: Stuart Parratt - T: 07775 037930
  - **Primer: Bauder Primer-Activator (Canister), APR01-Black**, applied to the upper surface of the BauderGLAS Roof Block G1 T3+ insulation. For application method and guidance information, refer clause 660B.
  - **Underlayer (Main field area & 1st layer detailing):** BauderTEC KSA DUO, 3 mm thick, 200g/m² glass-fibre reinforced, elastomeric self-adhesive bitumen underlayer to the field area and detailing.
  - **Underlayer (2nd layer detailing):** Bauder G4E, 4 mm thick, 200g/m² glass-fibre reinforced, elastomeric torch applied bitumen underlayer overlaying 1st layer of underlayer at perimeters and detailing only.
    Attachment: As clauses 710, 747D.
  - **Top layer / Cap sheet:** Bauder K5K, 5 mm thick, 250g/m² polyester reinforced, elastomeric bitumen torch applied capping sheet, charcoal grey finish.
    Attachment: As clauses 710, 750A.
  - **Flashings and detail work:**
  - Bauder K5K capping sheet, charcoal grey finish. Install as clauses 773, 775 & 777.
  - Form join-on detail to a compatible bituminous tanking system (by others). Refer clause 787A.
- **Surface protection:** N/A
- **Surfacing:**
  - Intensive green roof landscaping - refer Section Q37-110
- **Accessories:**
  - **Bauder Bitumen Blue Roof Vertical Outlet DN 70,** complete with pre-attached bitumen connection flange and dome grating. To be supplied and installed – quantity as required. When this outlet is used within a warm roof construction with insulation depth 60mm or greater, the **Bauder Extension Unit** (supplied separately) must be used. Installation as clause 784F.
  - **Bauder Parapet Emergency Overflow Stainless Steel DN 70** Installation as clause 784H.
  - **Bauder GRP edge trim** to all perimeter kerbs – Profile type:_____ Colour:_____. Installation, as clause 785.
  - **Bauder GA400 rainwater access cover.**
    Size: 400 x 400 mm. Features removable grille plate, gravel guard surround and adjustable feet (height adjustment range 65 mm to 100 mm), that is suitable for most situations. Installation, as clause 830A.
  - **Bauder KH60 linear drainage channel**, supplied with grille plate only. Adjustable leg sets are to provide an adjustment range of 75-120 mm (leg sets to be ordered separately). Installation as clause 830D.
- **Additional Requirements:**
  Note: Bauder Ltd does not advise on Blue Roof Outlet locations.
  - 210, 230, 515, 520, 560, 561, 562, 910, 916, 940.
- **Guarantee information:** Refer clause 950B.

For associated lead work, refer to Section H71 for the following items:

- Provision for forming a chase and installing lead substitute counter-flashings to brickwork or concrete upstands (with no DPCc present). Refer H71, clause 770A.
- Provision for forming a chase and installing lead substitute counter-flashings to brickwork or concrete upstands (with a DPC present). Refer H71, clause 780A.
- Provision for installing lead substitute counter-flashings below designated window or door thresholds, in accordance with the clients requirements. Refer H71, clause 785B.

PERFORMANCE

210 ROOF PERFORMANCE

- **General:** Secure, free draining and weather tight.

230 INSULATION

- **Thermal transmittance (U-Value) of roof:**
  - J41-110A - 0.13 W/m²K
  - J41-110B - 0.13 W/m²K
  - J41-110C - 0.13 W/m²K
  - J41-110D - 0.14 W/m²K
  - J41-110E – 0.11 W/m²K
- **Finished Surface:** Suitably even, stable and robust to receive roof covering.
- **Insulation compliance:** To relevant British Standard or Agrément certified.

PRODUCTS

330 TIMBER TRIMS, ETC

- Quality: Planed. Free from wane, pitch pockets, decay and insect attack (except ambrosia beetle damage).
- Moisture content at time of covering (maximum): 22%.
- Preservative treatment: CA to advise. Please note organic solvent based timber preservatives are not permitted, as may affect the waterproofing.

331 PREFORMED METAL HARD EDGE INSULATION PROTECTION ANGLES

- **Material:** Galvanised mild steel
- **Thickness:** 1mm
- **Dimensions:** 50 mm x 50 mm
- **Length:** 3 m max.

465 PAVING SLABS (various materials)

- **Standard:**
- **Manufacturer:** _____ .
- **Product reference:** _____ .
- **Colour/ Finish:** _____ .
- **Size:** _____ .
- **Recycled content:** _____ .

EXECUTION GENERALLY

515 ADVERSE WEATHER

- **General:** Do not lay coverings in high winds, wet or damp conditions or in extremes of temperature unless effective temporary cover is provided over working area.
- **Unfinished areas of roof:** Keep dry; protect edges of laid membrane from wind action.

520 INCOMPLETE WORK

- **End of working day:** Provide temporary seal to prevent water infiltration.
- **On resumption of work:** Cut away tail of membrane from completed area and remove from roof.

560 GENERAL WORKMANSHIP REQUIREMENTS

- Installation of the Bauder waterproofing system may only be carried out by trained and certified operatives approved by Bauder Ltd and who carry current ID badges. These should be available for inspection at all times.
- Workmanship must comply with Codes of Practice BS 8217:2005 (or alternatively Bauder Ltd.'s specification where otherwise stated). Non-compliant workmanship will not be permitted, even if the system is watertight. The client will be told that all such faults must be remedied, before the Guarantee is issued.
- All waterproofing materials and system components must be supplied by Bauder Ltd, unless otherwise stated. Any sub-standard materials or un-authorised alternatives will be rejected. Any building work which is the responsibility of the roofing contractor and has a bearing on the life of the Bauder System must be carried out by properly trained and qualified tradesmen.
- Any structural damage, peculiarities or details discovered that might affect the performance of the Bauder system, should be reported immediately to the client's representative and Bauder Limited in order that they may assist in overcoming the problem.
- At the end of each working day, the new waterproofing should be terminated with a secure and waterproof temporary seal, which will be left in situ, utilising **Bauder** self-adhesive underlayer material (e.g. **BauderTEC Sprint DUO**) to create the seal. The **Bauder** self-adhesive underlayer should be extended onto the flat AVCL by a minimum of 200mm from the exposed edge of the insulation and heat activate to ensure a satisfactory seal.
  To ensure that no moisture contamination of the system can occur between each working period, it is essential that the night seal is properly and securely bonded.
- Where building works are to be carried out by other trades, following completion of the waterproofing, the contractor must make adequate provision for supplying protection to prevent damage to the new membranes. The final inspection will not be carried out by the Bauder Site Technician or the Bauder nominated Independent surveyor until all associated trades are complete and the roof areas are clear from all debris and protection layers.
- It is imperative that the Bauder Approved Contractor conforms to the workmanship criteria as listed above. Any deviation will result in the contract being considered unguaranteeable.
- All mechanical and electrical work to plant and equipment should be carried out by competent mechanical and electrical qualified tradesmen. All plant is to be reinstated and re-commissioned on completion of the roofing works in accordance with the client's detailed specification.
- Where building works are to be carried out by other trades, following completion of the waterproofing, the contractor must make adequate provision for supplying protection to prevent damage to the new waterproofing.
- If any items of plant/equipment are to be situated on the finished roof, a sacrificial layer of Bauder capping sheet is to be loose laid beneath. This is to extend a minimum 25mm past the point of contact on all sides. In the case of heavy items it may be necessary to introduce a load-spreading slab, please contact Bauder for further advice.

- All lead work to be carried out by skilled tradesmen and in accordance with current codes of practice and the recommendations of the Lead Sheet Manufacturer.

561 SITE INSPECTIONS

- Bauder Site technicians will carry out regular inspections of the project during the course of the works.
- Bauder must be notified when the roof is ready for final inspection and all related works and snagging complete. See also clause 910

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562 HEALTH & SAFETY INFORMATION – ROOFING WORK

1. Follow the advice shown in the "Responsible Specification Checklist" produced by the National Federation of Roofing Contractors.

2. Suitable precautions must be taken to prevent accidents occurring when roofing systems are being installed.

3. The contractor must ensure that adequate measures are taken to effectively prevent injury to members of the public, contractors and any other persons who may be affected by the works including the public.

4. Where microwave equipment is installed at roof level, care must be taken to prevent persons working on the roof from being exposed to large doses of microwave radiation.

5. Similarly, the contractor should liaise with the client to ensure that there are no extract outlets situated on the roof where noxious or harmful emissions could affect persons working. Suitable precautions will be necessary to prevent exposure where this situation arises.

6. The contractor is responsible for providing adequate firefighting equipment in the form of extinguishers during work on the roof. These should be kept in easily accessible locations and be suitably signed.

7. Whenever possible, access to the roof should be made via internal staircases rather than by temporary means. Where this is not available, it is the responsibility of the contractor to ensure a safe means of access, egress and a safe workplace.

   As far as roofs are concerned, edge protection in the form of scaffolding or a fixed structure should be in place to a height of 1.1 metres in accordance with the Workplace (Health, Safety and Welfare) Regulations 1992.

   Failing this, the hierarchy of controls should be applied from the Work at Height Regulations 2005. Means of access should be by fixed ladder, passenger hoist or scaffolding.

8. The contractor must ensure that suitable written method statements and risk assessments are available for the work being undertaken. In particular, it is essential that manual handling methods be fully assessed as roofing materials are heavy and can cause serious injury.

9. The contractor must ensure that suitable information about the roof covering is provided to the Client at the end of the work to ensure that work in future can be carried out safely. This information will form part of the Safety File.

10. All persons working on the roof should be provided with, and wear, suitable personal protective equipment and wet weather gear. Training must be provided to all contract staff on the safe use of the equipment.

11. The installer must observe Product Safety Datasheets, relevant to the materials being used as well as completing and complying with COSHH risk assessments.

12. We draw your attention to your duties under the Construction (Design and Management) Regulations 2015. Regulation 4, Client's duties in relation to managing projects states that the client must make suitable arrangements for managing a project, including the allocation of sufficient time and other resources. Regulation 5, Appointment of the Principal Designer and the Principal Contractor states that where more than one contractor will be working on a project at any time, the client must appoint a Principal Designer and a Principal Contractor.

    Please note that although Bauder will assist with the roof waterproofing system design, we will not undertake the role of Principal Designer.

13. It is always the responsibility of the contractor to carry out a risk assessment on all aspects of the contract. The 'Safe2Torch' checklist is solely for guidance for the safe installation of torch-on reinforced bitumen membranes and use of gas torches in the workplace

SUBSTRATES / VAPOUR CONTROL LAYERS / WARM ROOF INSULATION

610C SUITABILITY OF SUBSTRATE

- **Substrates Generally:**
  - Firmly fixed, secure, clean, dry, smooth, free from frost, contaminants, loose material, voids, protrusions, and organic growths.
  - Compatible with waterproofing / coating system.
- **Substrate Design:** New concrete substrates and structures should be designed and constructed in accordance with:
  - BS EN 1992-1-1:2004 Eurocode 2: Design of concrete structures. General rules and rules for buildings (+A: 2014).
  - BS 8500-2:2015 Concrete - complimentary British Standard to BS EN 206. Specification for constituent materials and concrete (A2: 2019).
  - BS EN 206:2013 Concrete - Specification, performance, production and conformity.
  - The maximum permissible departure from datum, in accordance with BS 8204-2:2003+A2:2011 Screeds, bases and in situ floorings Concrete wearing surfaces Code of practice shall be SR2 (5mm).
- **NBS Reference**
  - E10-In situ Concrete.
  - E20-Formwork for In Situ Concrete.
  - E30-Reinforcement for In Situ Concrete.

- E60-Pre-Cast Concrete Floors and Roof Decks.
- M10-Cement Based Levelling and Wearing Screeds.

- **Concrete Density:** In-Situ Concrete density should be as per the concrete manufacturer's specification and no less than 1842kg/m3 for hotmelt applications.
- **Moisture content and stability:** Must not impair the integrity of roof with a target moisture content of ≤5%.
  - Concrete should be allowed to hydrate (cure) for 28 days (unless specific information is made available regarding variations in concrete specification and design). To avoid premature drying out, employ measures to minimise early age thermal cracking. Surface shall be dry.
  - In-Situ concrete placed into a vented profiled metal deck permanent shuttering may take a minimum of 60 days to cure.
  - Pre-Cast Concrete Planks should be fully cured prior to delivery to site.
  - A minimum of 14 days from concrete installation should be allowed before 'Peel Bond Tests' are carried out with Bauder in attendance. If successful adhesion tests are carried out in accordance with Bauder requirements, installation of the waterproofing system can commence. Further guidance is provided in BS 8217:2005 clause 5.1.2 and 6.7.
- **Surface Applied Curing Compounds:**
  - Details of Surface Applied Curing Compounds (Sodium Silicate preferred) proposed or used shall be provided to the Bauder Approved Contractor/Bauder Technical Department to ensure compatibility with the waterproofing system specified. Please refer to BS 13670:2009. Other acceptable curing methods are Water Cure, Wet Coverings, Plastic Sheets.
  - Surface Applied Curing Compounds that have been used and identified as incompatible with the specified waterproofing system shall be removed via scarification or sandblasting or alternative method approved by Bauder Technical.
- **Concrete Surface Finish:** Concrete Surfaces shall be to a wood float, wood trowelled equivalent, broom or Bauder Approved finish and uniform. Steel float finishes and overworking of the concrete can lead to laitance, which will need to be removed prior to priming. Please refer to the manufacturer's Installation and Quality Assurance Manual for important information.
- **Deck Falls:** Refer to clauses 110/120/130 above (where applicable) for roof specific requirements.
  - No deflections or back-falls shall be present.
  - Falls are to comply with the drainage requirements of BS 6229:2018 and current codes of practice BS 8217:2005.
  - The design should take account of construction tolerances, permitted deviations and deflections under load, as per Item 4.4 of BS6229:2018.
  - An Engineer's deflection analysis and site level survey should be consulted before commencement of waterproofing. Measures to rectify back-falls or deflection shall be undertaken by the deck installer/supplier prior to commencement of the waterproofing system.

  IMPORTANT NOTE: Blue roof drainage calculations are valid for a zero fall roof with minimal variation in levels. Any significant variation will affect the volume of water stored and the roofs ability to attenuate extreme rain events. Typically variations in roof level should be less than 0 to +30mm, (with the H-Max taken from the mean roof level) **with no negative falls**.
- **Preliminary work:** The new concrete to be allowed to cure thoroughly, remove rough edges, and surface defects. Rough surfaces should be scarified or ground to achieve acceptable surface for waterproofing.

  Complete including:
  - Application of surface screed to create falls if specified, or to remove surface irregularities.

- Open concrete plank joints should be grouted with sand and cement prior to specified waterproofing installation.
- Voids, cracks, holes, honeycombs and other damaged horizontal or vertical surfaces shall be repaired or reinforced before application of the membrane.
- Formation of abutment upstands, kerbs, box gutters, sumps, grooves, chases (raggles) and expansion joints.
- Fixing of battens, fillets and anchoring plugs/strips as required.

- **Priming:**
  Before priming and application of the membrane, the substrate shall be clean and dry, free from surface water, ice, snow or frost, dust, dirt, oil, grease, or any foreign matter detrimental to the adhesion of the waterproofing system. Any scaling or laitance on the surface of the concrete shall be removed either by scarification, grinding, sandblasting or other Bauder Approved method.

ADHESION TESTS

- **Requirement:**
  Carry out a test to determine substrate suitability to receive the waterproofing system.
- **Curing times:** It is imperative that the concrete substrate is allowed to cure sufficiently as per above recommendations.
- **Nature of test:** The contractor shall carry out a "peel" bond test to each roof area to be prepared for waterproofing. The testing should be carried out well in advance of the actual application, in case any remedial treatment is required, or further curing is necessary.
- **Test:** Clean a small area of the substrate being tested by using a soft broom/brush to remove any dirt/debris from the surface. Dry surface as required. Apply the specified primer (where required) to the substrate (500mm²) which must be allowed to dry as per Bauder recommendations. Once the primer has dried, apply the specified AVCL, Underlayer or Membrane as per Bauder recommendations. Leave overnight. Cut a triangular shaped incision through the Bauder AVCL/Underlayer/Membrane in the central zone of the test patch. If the membrane/build-up can be peeled up easily from the substrate, then the substrate is not ready (adhesive failure). This could be due to the deck requiring extra cure time or be an issue of contamination or laitance within the surface. If the membrane/build-up cannot be pulled away and distorts when pulled, then the bond is considered satisfactory.
  (An extended Bauder Peel Bond Test procedure description is available as a .pdf on request).
  We recommend that a second Peel Bond Test is done 24/48 hrs after the first to confirm the security of the first test results.
- **Test results:** Submit and arrange for inspection. We recommend that all Peel Bond Tests are recorded via photo or video referencing the location.

640 FIXING TIMBER TRIMS

- **Fasteners:** type/length appropriate and suitable to particular deck substrate.
- **Fixing centres (maximum):** 500 mm.
- **Timber Trims –** refer clause 330.

641 INSTALLING PREFORMED METAL HARD EDGE INSULATION PROTECTION ANGLES

- **Location:** Use to provide hard edge protection at all internal gutter channels on warm roofs where the insulation from the flat area steps down to meet the insulation in the gutter sole.
- **Preparation:** Surface to be inspected and cleaned if necessary, using white spirit to remove any contaminants, dirt or dust & primed with the specified Bauder primer. Prepared material to be thoroughly dry before use

- **Installation:** The 50 x 50 mm galvanised mild steel angle to be adhered to the exposed leading edge of the insulation using the specified Bauder primer along the upper surface/edge. The purpose being to retain the metal in position to prevent any post-installation movement.

660B APPLYING PRIMER

- **Purpose:** Bauder Activator-Primer (Canister), APR01-Black, substrate primer to seal and prepare dry surfaces of a variety of common substrate material prior to the application of Bauder self-adhesive bitumen membranes.
- **Before application:** All surfaces must be dry, clean and free from dust, dirt, oil, grease and loose material.
- **Application method:** Spray Applied to provide even and full coverage. Avoid pooling. Never attempt torching within 10 min of primer application, even if the surface appears dry.
- **Application rate:**
  - 300mm wide spray
  - Coverage: Approx. 96 g/m²
  - Two coats may be required for very porous substrates.
- **Application temperature:** +5 - +30°C
- **Drying time:** Approx.5 - 10 mins, dependent upon ambient temperature and material porosity.
- **Coats:** Fully bond. Allow volatiles to dry off thoroughly between coats.
- **Re-application:** Necessary after 4 hours exposure if waterproofing has not yet been applied, to maintain adhesion performance.
- **Caution:** Use only outdoors in well ventilated areas or with respiratory apparatus and keep away from all sources of ignition. Take necessary precautions to avoid the solvent vapour from entering the buildings ventilation system.

660C APPLYING PRIMER

- **Primer: Bauder Activator-Primer (Canister), APR01-Black**.
- **Purpose:** Substrate primer to seal and prepare dry surfaces of a variety of common substrate material prior to the application of Bauder self-adhesive bitumen membranes.
- **Before application:** All surfaces must be dry, clean and free from dust, dirt, oil, grease and loose material.
- **Application method:** Spray Applied to provide even and full coverage. Avoid pooling. Never attempt torching within 10 min of primer application, even if the surface appears dry.
- **Application rate:**
  - 300mm wide spray
  - Coverage: Approx. 96 g/m²
  - Two coats may be required for very porous substrates.
- **Application temperature:** +5 - +30°C
- **Drying time:** Approx.5 - 10 mins, dependent upon ambient temperature and material porosity.
- **Coats:** Fully bond. Allow volatiles to dry off thoroughly between coats.
- **Re-application:** Necessary after 4 hours exposure if waterproofing has not yet been applied, to maintain adhesion performance.
- **Caution:** Use only outdoors in well ventilated areas or with respiratory apparatus and keep away from all sources of ignition. Take necessary precautions to avoid the solvent vapour from entering the buildings ventilation system.

OR

- **Purpose: Primer: Bauder SA Bonding Primer (Black)**

- **Purpose:** Primer to seal and prepare dry surfaces of a variety of common substrate material prior to the application of Bauder self-adhesive bitumen membranes.
- **Before application:** All surfaces must be dry, clean and free from dust, dirt, oil, grease and loose material.
- **Application method:** Apply by brush or roller to provide even and full coverage. Avoid pooling.
- **Application rate:**
  - Timber/Metal: Approx. 200 g/m²
  - Concrete / brickwork: Approx. 200-300 g/m² depending upon roughness and porosity.
  - Two coats may be required for very porous substrates.
- **Application temperature:** +5 - +30°C
- **Drying time:** Approx.30 mins, dependent upon ambient temperature and material porosity.
- **Coats:** Fully bond. Allow volatiles to dry off thoroughly between coats.
- **Re-application:** Necessary after 4 hours exposure if Bauder self-adhesive bitumen membrane has not yet been applied, to maintain adhesion performance.
- **Caution:** Use only outdoors in well ventilated areas or with respiratory apparatus and keep away from all sources of ignition. Take necessary precautions to avoid the solvent vapour from entering the buildings ventilation system.

670G LAYING AIR AND VAPOUR CONTROL LAYER

- **Attachment:** Cold applied and fully bonded to substrate in accordance with Bauder's requirements.
- **Side and end laps:** minimum 100 mm, laid with all laps heat sealed to provide a continuous bitumen bead extrusion. Installation methods as recommended by Bauder.
- **Penetrations:** Fully seal using bonding methods recommended by Bauder.
- **Edges of insulation at roof edges, abutments, upstands, kerbs, penetrations and the like**: Enclose, with air and vapour control layer:
  The air and vapour control layer must be dressed up all upstands and to the full extent of the detail. This is to ensure that the detail is fully encapsulated to reduce the risk to exposed combustible materials. The contractor is also to form all details in such a way that a fully bonded 100mm lap is obtained between the air and vapour control layer and the underlayer – please see Bauder Bituminous detail drawings.
  - Care should be taken to ensure adhesion when the temperature is below + 5º C.

680D LAYING WARM ROOF INSULATION

- **Setting out:**
  - **Long edges:** Fully supported (if metal deck - run at right angles to metal deck troughs)
  - **End edges:** Fully supported.
  - **Joints:** close butted together.
  - **End joints:** Stagger.
- **Bedding:** Bonded to the upper surface of the air and vapour control layer (AVCL) using suitable Bauder Polyurethane Insulation Adhesive. (Product selection assistance available from Bauder). The adhesive should be applied in strips following the direction of the board length. Giving continuous and equally spaced adhesive beads within each board width.
  - 600mm width insulation boards - 2 no: (increase to 3 no. at roof perimeter)*
  - 800mm width insulation boards - 3 no: (increase to 4 no. at roof perimeter)*
  - 1000mm width insulation boards - 4 no: (increase to 6 no. at roof perimeter)*

  Adhesive bead widths are stated on appropriate product label and datasheet.
- **Multiple board layers:** Where the total thickness of insulation required is greater than can be achieved by a single standard board, then additional boards can be adhered to the previous layer(s) to make up the total thickness required.

Foil to Foil Insulation Boards Only: These additional boards should be bonded using either **Bauder Foil Contact Adhesive (Canister)** or **Bauder Polyurethane Insulation Adhesive – Twin Cartridge**.

Foil to Tissue Faced Boards: These additional boards should be bonded using suitable Bauder Insulation Adhesive.

Adhesives applied in strips following the direction of the board length giving continuous and equally spaced adhesive beads within each board width (as above). The second layer of boards should be laid off-set and staggered.

Adhesive bead widths or adhesive spray patterns and coverage rates are stated on appropriate product label and datasheet.

- **Protection to exposed edges of insulation:** Reduced thickness treated timber batten as clause 640 (or equivalent plywood construction), a minimum width of 150 mm and 10 mm less in thickness than the insulation to accommodate the build-up of the waterproofing layers – all securely fixed to the deck. Outer edges chamfered at changes in level.
- **Completion:** Boards must be in good condition, well-fitting and stable.
- **Important Notes:**
  - Foil to foil installation (e.g. FA-TE to FA-TE) must not be carried out using Bauder insulation adhesive from the 6.5 Kg tin.
  - Foil to AVCL installation (e.g. FA Tapered directly to KSD Mica) must **not** be carried out using Bauder Foil Contact Adhesive (Canister).

**BS EN 1991-1-4 uses the following guidance to calculate perimeter zones. Buildings up to and including 10m in height have a perimeter zone of not more than 2m. Buildings over 10m, uses the calculation of 2 x the building height ÷ 10. These are general guidance rules and do not take into account all of the information used in a full wind uplift calculation, they are therefore superseded by a project specific calculation.*

680V LAYING WARM ROOF INSULATION

- **Setting out:**
  - **Long edges:** Fully supported. (if metal deck - run at right angles to metal deck troughs)
  - **End edges:** Fully supported.
  - **Joints:** close butted together.
  - **End joints:** Stagger.
- **Bedding:** Bonded to the upper surface of the air and vapour control layer using **Bauder Polyurethane Insulation Adhesive – Twin Cartridge**. The adhesive should be applied in strips following the direction of the board length giving 2 no. (increase to 3 no. at roof perimeter)* giving continuous and equally spaced adhesive beads within each board width.
  Adhesive bead widths are stated on appropriate product label and datasheet.
- **Multiple board layers:** Where the total thickness of insulation required is greater than can be achieved by a single standard board, then additional boards of **BauderGLAS Slab T3+** can be adhered as base layer(s), with **BauderGLAS Roof Block G1 T3+** as the uppermost layer to make up the total thickness required. These additional boards should be bonded using **Bauder Polyurethane Insulation Adhesive – Twin Cartridge**, applied in strips following the direction of the board length giving 2 no. (increase to 3 no. at roof perimeter)* giving continuous and equally spaced adhesive beads within each board width. The second layer of boards should be laid off-set and staggered. Ensure all boards are swept clean prior to installation of the next layer.
  Adhesive bead widths are stated on appropriate product label and datasheet.
- **Protection to exposed edges of insulation:** Reduced thickness treated timber batten as clause 640 (or equivalent plywood construction), a minimum width of 150 mm and 10 mm less in thickness than the insulation to accommodate the build-up of the waterproofing layers – all securely fixed to the deck. Outer edges chamfered at changes in level.
- **Completion:** Boards must be in good condition, well-fitting and stable.

- **Important Notes:**
  - Where two layers of boards are to be installed, the un-faced board should be used as the first layer.
- Please note that **Bauder Activator-Primer (Canister), APR01-Black**, must be applied to the top surface of the uppermost surface of insulation prior to installation of the self-adhesive underlayer.

**BS EN 1991-1-4 uses the following guidance to calculate perimeter zones. Buildings up to and including 10m in height have a perimeter zone of not more than 2m. Buildings over 10m, uses the calculation of 2 x the building height ÷ 10. These are general guidance rules and do not take into account all of the information used in a full wind uplift calculation, they are therefore superseded by a project specific calculation.*

680Q LAYING WARM ROOF INSULATION

- **Setting out:** Laid strictly in accordance with the manufacturers scheme plan and installation instructions. Bauder cannot be held responsible for the drainage performance of tapered insulation schemes applied to an inappropriate deck surface and it is the responsibility of the installing contractor to check the roof deck surface and report any discrepancies.
  - **Long edges:** Fully supported.
  - **End edges:** Fully supported.
  - **Joints:** close butted together.
  - **End joints:** Stagger.
- **Thermal performance:** Refer to Manufacturer's Tapered Insulation Layout Plan for details of 'U' value achieved by this scheme.
- **Before installing:** No tapered boards should be laid on site without a copy of the latest scheme to hand. Contractors should always refer to the Manufacturer's scheme with regard to the recommended start point and layout of boards. If contractors are unsure of the correct plan being on site they should check with the Manufacturer's Technical Department ASAP.
- **Wastage:** All off-cuts are considered as usable and are included as such within the scheme plan.
- **Bedding:** Bonded to the upper surface of the air and vapour control layer using **Bauder Polyurethane Insulation Adhesive – Twin Cartridge**. The adhesive should be applied in strips following the direction of the board length giving 4 no. (increase to 6 no. at roof perimeter)* giving continuous and equally spaced adhesive beads within each board width.
  Adhesive bead widths are stated on appropriate product label and datasheet.
- **Multi-layer tapered systems:** Where the total thickness of insulation required is greater than can be achieved by a single layer, then additional base-layer boards can be adhered to the previous layer(s) to make up the total thickness required before the uppermost layer of BauderRock Tapered boards are installed. These additional boards should be bonded using **Bauder Polyurethane Insulation Adhesive – Twin Cartridge** applied in strips following the direction of the board length giving 4 no. (increase to 6 no. at roof perimeter)* giving continuous and equally spaced adhesive beads within each board width.
  Adhesive bead widths are stated on appropriate product label and datasheet.
- **Uppermost Tapered Layer:** The BauderROCK Tapered board layer should be bonded using **Bauder Polyurethane Insulation Adhesive – Twin Cartridge** applied in strips following the direction of the board length giving 4 no. (increase to 6 no. at roof perimeter)* giving continuous and equally spaced adhesive beads within each board width.
  Adhesive bead widths are stated on appropriate product label and datasheet.
- **Protection to exposed edges of insulation:** Reduced thickness treated timber batten as clause 640 (or equivalent plywood construction), a minimum width of 150 mm and 10 mm less in thickness than the insulation to accommodate the build-up of the waterproofing layers – all securely fixed to the deck. Outer edges chamfered at changes in level.
- **Completion:** Boards must be in good condition, well-fitting and stable.

- **IMPORTANT NOTES:**
  - **Bauder Activator-Primer (Canister), APR01-Black**, must be applied to the tissue facing of the uppermost surface of insulation prior to installation of the self-adhesive underlayer.
  - Where two layers of boards are to be installed, the un-faced board should be used as the first layer.
  - Foil to foil installation (e.g. FA-TE to FA-TE or FA to TEC KSD Foil) must not be carried out using Bauder insulation adhesive from the 6.5 Kg tin.

**BS EN 1991-1-4 uses the following guidance to calculate perimeter zones. Buildings up to and including 10m in height have a perimeter zone of not more than 2m. Buildings over 10m, uses the calculation of 2 x the building height ÷ 10. These are general guidance rules and do not take into account all of the information used in a full wind uplift calculation, they are therefore superseded by a project specific calculation.*

681E INSTALLING WARM ROOF INSULATION (INSULATED UPSTANDS)

- **Bedding:** Bonded to the upper surface of the air and vapour control layer using **Bauder Polyurethane Insulation Adhesive – Twin Cartridge**. The adhesive should be applied in strips following the direction of the board length giving 6 no. continuous and equally spaced adhesive beads within each board width.
  Adhesive bead widths are stated on appropriate product label and datasheet. Upstand insulation boards should be installed before the insulation to the flat areas so that the vertical upstand insulation is retained both at the base and at the top.
  Adhesive bead widths are stated on appropriate product label and datasheet.
  Note: Where the surface is uneven of difficult to bond to, it is permissible to use suitable thermally broken fixings.
- **Multiple board layers:** Where the total thickness of insulation required is greater than can be achieved by a single standard board, then additional boards can be adhered to make up the total thickness required. These additional boards should be bonded using
  using **Bauder Polyurethane Insulation Adhesive – Twin Cartridge**.
  Adhesive bead widths are stated on appropriate product label and datasheet.
  The adhesive should be applied in strips following the direction of the board length giving 6 no. continuous and equally spaced adhesive beads within each board width. Upstand insulation boards should be installed before the insulation to the flat areas so that the vertical upstand insulation is retained both at the base and at the top.
  The second layer of boards should be laid off-set and staggered.
  Note: Where the surface is uneven of difficult to bond to, it is permissible to use suitable thermally broken fixings.
- **Protective hard edges:** treated timber battens or Bauder Insulated upstand brackets (as appropriate to given detail situation) must be used at all right angled edges e.g. top edges of parapet walls or abutment upstands.
- **Encapsulation seal:** Provision must be allowed for forming a minimum 100mm lap seal between the air and vapour control layer and underlayer where the insulation finishes.
- **IMPORTANT NOTES:**
  - **Bauder Activator-Primer (Canister), APR01-Black**, must be applied to the tissue facing of the uppermost surface of insulation prior to installation of the self-adhesive underlayer.
  - Where two layers of boards are to be installed, the un-faced board should be used as the first layer.
  - Foil to foil installation (e.g. FA-TE to FA-TE or FA to TEC KSD Foil) must not be carried out using Bauder insulation adhesive from the 6.5 Kg tin.

WATERPROOF COVERINGS/ ACCESSORIES

710 LAYING REINFORCED BITUMEN MEMBRANES GENERALLY

- **Direction of laying:** Unrolled up the slope.
  - Where practicable, install so that water drains over and not into laps.
- **Side and end laps (minimum):** 100 mm, with the exception of mineral surfaced membranes, where side laps are 80 mm, but the head laps to remain 100 mm.
- **Head and side laps:** Offset.
- **Intermediate and top layer/Capping sheet:** Fully bond.
- **Successive layers:** Apply without delay. Do not trap moisture.
- **Strips of bitumen membrane for 'linear' details:** Cut from length of roll e.g. gutter sole pieces.
- **Detail flashings:** to be cut from width of roll.
- **Completed coverings:** Firmly attached, fully sealed, smooth, weather proof and free draining.

747A SELF-ADHESIVE BONDING OF REINFORCED BITUMEN UNDERLAYER

- **Bond:** Full over whole surface, with no air pockets.
- **Underlayer:** Cold applied and fully bonded by removing the peel off release film. The side laps are to be 100mm and must be **laid red over blue,** and heat sealed/torched (depending on 'Torch-Free' & 'Safe to Torch' zones) and rolling with the **Bauder Long Handled Lap Roller** to extrude a continuous bead of bitumen. Head laps to be 100mm and staggered, side laps to be 80mm and heat sealed/torched (depending on 'Torch-Free' & 'Safe to Torch' zones) to extrude a continuous bead of bitumen. The underlayer must be taken up all upstands, edge details, in accordance with current British Codes of Practice and Bauder recommendations, and fully heat sealed/torched (depending on 'Torch-Free' & 'Safe to Torch' zones) with the air and vapour control layer by a minimum 100mm.
- **Alternative underlayer for detail work:** For detailing to un-insulated abutment upstands, where the waterproofing is to be applied to rough or uneven non-combustible surfaces i.e. brickwork or concrete, it is permissible for the installing contractor to use the Bauder underlayer appropriate to the specified system where this product is considered to be better for application to these surfaces. For all other situations, and particularly to vertical insulation, the Bauder Self-Adhesive Underlayer appropriate to the specified system must be used.
- **Provision for prevention of wind uplift (where required):** Mechanically fix as per the corresponding project specific wind load calculation, using appropriate thermally broken fasteners (for cold roofs as clause 355A and for warm roof as clause 355B), fixed through to the deck.
- **Fixing of bitumen membranes to vertical upstands:** Please refer to clause 775.

747D SELF-ADHESIVE BONDING OF REINFORCED BITUMEN UNDERLAYER

- **Underlayer (Field Area):**
  Bond: Full over whole surface, with no air pockets.
  Cold applied and fully bonded by removing the peel off release film. The side laps are to be 100mm and must be **laid red over blue,** and heat sealed/torched (depending on 'Torch-Free' & 'Safe to Torch' zones) and rolling with the **Bauder Long Handled Lap Roller** to extrude a continuous bead of bitumen. Head laps to be 100mm and staggered, side laps to be 80mm and heat sealed/torched (depending on 'Torch-Free' & 'Safe to Torch' zones) to extrude a continuous bead of bitumen. The underlayer must be taken up all upstands, edge details, in accordance with current British Codes of Practice and Bauder recommendations, and fully heat sealed/torched (depending on 'Torch-Free' & 'Safe to Torch' zones) with the air and vapour control layer by a minimum 100mm.
- **Second Layer Underlayer to upstands and perimeter details only:**
  Bond: Perimeter details only, dressing down onto the horizontal to a minimum width of 200mm beyond the angle fillet. Fully bond to surface, with no air pockets. Torch Applied.

Head and side laps to be 100mm. All laps to upstands, edge details, flashings, etc., to be a minimum 100mm. All laps torch sealed to provide a continuous bitumen bead extrusion. The underlayer must be taken up all upstands, edge details, in accordance with current British Standards and Bauder's recommendations and fully torched and sealed to the air and vapour control layer by a minimum 100mm.

- **Alternative underlayer for detail work:** For detailing to un-insulated abutment upstands, where the waterproofing is to be applied to rough or uneven non-combustible surfaces i.e. brickwork or concrete, it is permissible for the installing contractor to use the Bauder underlayer appropriate to the specified system where this product is considered to be better for application to these surfaces. For all other situations, and particularly to vertical insulation, the Bauder Self-Adhesive Underlayer appropriate to the specified system must be used.
- **Provision for prevention of wind uplift (where required):** Mechanically fix as per the corresponding project specific wind load calculation, using appropriate thermally broken fasteners (for cold roofs as clause 355A and for warm roof as clause 355B), fixed through to the deck.
- **Fixing of bitumen membranes to vertical upstands:** Please refer to clauses 775.

750A LAYING MINERAL FACED REINFORCED BITUMEN TORCH-ON CAPPING SHEET - 'SAFE TO TORCH' ZONE

- **Bond:** Full over whole surface, with no air pockets.
- **Excess compound at laps of top layer/ capping sheet:** Leave as a continuous bitumen bead extrusion.
- **Laying top layer:** Fully bonded to the underlayer by torching in the approved Bauder manner. Head laps to be 100 mm, side laps to be 80 mm. All laps to upstands, edge details, flashings, etc. to be 100 mm.
- **Fixing of bitumen membranes to vertical upstands:** Please refer to clauses 775.
- **Final Inspection:** The finished roof must be thoroughly inspected by the Bauder Site Technician. This is to ensure that any remedial treatment that is necessary can be carried out prior to issuing the guarantee. Failure to ensure the instigation of this inspection will result in the issuing of the Bauder guarantee being put in jeopardy.
- **IMPORTANT NOTE:** The mineral slate finish is a natural product, so the raw material may differ in colour and shade, over which Bauder has no control. There may also be colour variations between each roll of membrane.

750B LAYING REINFORCED BITUMEN TORCH-ON CAPPING SHEET - 'SAFE TO TORCH' ZONE

- **Bond:** Full over whole surface, with no air pockets.
- **Excess compound at laps of top layer/ capping sheet:** Leave as a continuous bitumen bead extrusion.
- **Laying top layer:** Fully bonded to the underlayer by torching in the approved Bauder manner. Head laps to be 100 mm, side laps to be 80 mm. All laps to upstands, edge details, flashings, etc. to be 100 mm.
- **Fixing of bitumen membranes to vertical upstands:** Please refer to clause 775.
- **Final Inspection:** No landscaping is to be applied until the root resistant capping sheet has been thoroughly inspected by the Bauder Site Technician. This is to ensure that any remedial treatment that is necessary can be carried out prior to laying the landscaping elements. Failure to ensure the instigation of this inspection will result in the issuing of the Bauder guarantee being put in jeopardy.
- **IMPORTANT NOTE:** The mineral slate finish is a natural product, so the raw material may differ in colour and shade, over which Bauder has no control. There may also be colour variations between each roll of membrane.

FLASHINGS AND DETAIL WORK

773 'TORCH-FREE' & 'SAFE TO TORCH' ZONES - ALTERNATIVE MEMBRANES AND APPLICATION

For detailing application in locations constructed from or within the 'Torch-Free' & 'Safe to Torch' zones to potentially combustible materials or otherwise where it is considered appropriate by the contractor necessary to minimise the potential risk.

- **Primers: Bauder Activator-Primer (Canister), APR01-Black**, must be used when using Bauder self-adhesive membranes and a 'TORCH-FREE' application is required.
- **Underlayers:**
  It is permissible to use a Bauder self-adhesive membrane so long as this product is a recognised component of the system specified.
  Acceptable alternatives underlayers are listed below: -
  - **BTRS: Bauder G4E** to be replaced with **BauderTEC KSA Duo**
  - **BauderFlex: Bauder EGV3.5** to be replaced with **BauderTEC Sprint Duo**

  NB: Where surface is uneven or not suitable for a self-adhesive membrane and where the surface is of a non-combustible material and is not required to be a 'Torch-Free' or 'Safe to Torch' zone – it is permissable to use a Torch Applied underderlayer, so long as the product is a recognised component of the system specifed.
  Acceptable alternative underlayers are listed below:
  - **BTRS: BauderTEC KSA Duo** to be replaced with **Bauder G4E**
  - **BauderFlex: BauderTEC Sprint Duo** to be replaced with **Bauder EGV3.5**
- **Capping sheets:** Where appropriate, the installing contractor can use **Bauder KSO-P SN / KSO SN** self-adhesive capping sheet, applied using the hot air hand tools approved for use with bituminous systems. Please note that **Bauder Activator-Primer (Canister), APR01-Black**, must be applied to the underlayer prior to installation of the self-adhesive capping sheet.
  Bauder KSO-P SN is only available in one colour – Charcoal Grey.
  Bauder KSO SN is available in two colours – Natural Slate or Brown.
  Self-adhered membranes - Mechanically fix the top leading edge of all upstand details at 300mm centres using appropriate fasteners, and suitable termination bar if required. Please refer to Bauder Bituminous Standard Detail Drawings.
- **Green Roof Notes:** Please note it is strictly only permissable to use self-adhesive capping sheet for flashings and detailing work when installing **Bauder XF301 Sedum Blanket** or Hard landscaping finishes.
- **Approved Hot Air Equipment**
  The **Bauder KSO-P SN / KSO SN** membrane must be applied using the approved hot air hand tools. The list of permissible hot air electrical equipment suppliers for installing Bauder waterproofing membranes are stated below. These are available either for purchase or hire from the below companies:

HOT AIR WELDING EQUIPMENT

LEISTER

Contact: Welwyn Tool Group, Tel 01707 331 111, http://www.welwyntoolgroup.co.uk

SIEVERT

Contact: Lister Gas Pro, Tel 0800 801 046, ch300@lister.co.uk

775 SKIRTINGS AND UPSTANDS

- **Angle Fillets: BauderPIR angle Fillets (50 mm x 50 mm)** must be used at all right-angled upstands.
  - Warm Roof Construction: Provisionally bonded in suitable **Bauder Polyurethane Insulation Adhesive** or **Bauder Activator-Primer (Canister), APR01-Black**, and subsequently retained once the underlay detailing is applied.
  - Cold/Inverted Roof Construction: Coat both the surface area to receive the angle fillet and the angle fillet with **Bauder Activator-Primer (Canister), APR01-Black**. Once both surfaces are tacky, place the angle fillet in the correct location and apply pressure to the angle fillet to ensure adhesion is achieved.

  Angle Fillets: BauderROCK / BauderGLAS angle fillets, must be used at all right angled upstands, bonded using **Bauder PU Insulation Adhesive – Twin Cartridge**. The adhesive should be applied in a single strip following the direction of the angle fillet. Place the angle fillet in the correct location and ensure adhesion is achieved.

  Important note - under no circumstances must fillets of an alternative material be incorporated (i.e. timber, cork, fibre, etc.) as this would invalidate the guarantee.
- **Layers of bitumen membrane:** Carry in staggered formation up the upstand, with each layer fully bonded.
- **Upstands:**
  - **At ends of rolls:** Underlay layer only, form with bitumen membrane carried up without using separate strip.
  - **Elsewhere:** Form with matching strips of bitumen membrane, maintaining laps.
- **Upstand details (150mm minimum height):** This must be taken from the finished roof surface. Please note that for landscaped roofs, this minimum height is measured from the finished landscape surface as opposed to the waterproofing surface. *Special attention should be paid to all structures, such as rooflights, counter-flashings, window and door cills, pipes etc. Bauder cannot take responsibility for water ingress over waterproofing details constructed below the recommended minimum height.
- **Level Thresholds:** Acceptable, providing conforms to BS6229:2018 and current NHBC Standards, chapter, 7.1.

  Requirements:
  - Minimum 75mm upstand height. (This must be taken from the waterproofing or top of the insulation if an inverted roof).
  - Falls are directed away from the door cill.
  - Waterproofing is dressed up and under the door cill.
  - Door cill has a minimum 45mm overhang.
  - Provision is made for emergency overflow to prevent water getting to the waterproofing and cill interface.

  Any level threshold details not meeting this standard cannot be guaranteed by Bauder.

  Note: Bauder recommends the installation of a linear drain (Bauder KH-60 linear drain is suitable for this purpose) in front of the access door threshold, to help prevent rainwater splash back and snow build-up.
- **Flashings:** Separate flashings must always be formed. Capping sheet taken up the upstand in one piece will not be permitted.
- **Green Roof Notes:** If the client should desire not to see a green mineral finish then it is permissible to install a piece of suitable colour Bauder bituminous capping sheet membrane.

  The Bauder root resistant capping sheet must be taken a minimum 150mm from the finished landscaping surface*. The suitable coloured Bauder bituminous capping sheet must be lapped

onto the Bauder root resistant capping sheet by a minimum 150mm and lapped onto the structure by a minimum of 100mm.

- **Fixing of bitumen membranes to vertical upstands:**
  Screw fix through into the underlying substrate as per the requirements set out below and in accordance with the Bauder RBM Installation Guide.
  - **Capping Sheets:**
    - **Fixing Requirement:** Upstand details in excess of 250 mm in height; the top leading edge of the capping sheet will need to be mechanically fixed using 5 no. fixings per sheet.
    - **Fixing Pattern:** Set two fixings, one either side of the sheet set in 50mm from each edge. The three remaining fasteners equally spaced in between.
    - **Cap sheet cover flashing:** A separate flashing of capping sheet will be required to cover the fixings.

  Please note: Up to and including 250mm, it is permissible to use a **Bauder Termination Bar** to mechanically fix the top leading edge; however, Termination bars are not suitable for brickwork substrates. No additional cover flashing is required.
  - **Underlayers:**
    - **Fixing Requirement:** Where the height of the insulated upstand is in excess of 500mm, make provision for mechanically fixing through the underlayer using 5 no. fixings per sheet, in a row across the sheet.
    - **Fixing Pattern:** Set two fixings, one either side of the sheet set in 50mm from each edge. The three remaining fasteners equally spaced in between.
    - **Midway point fastening up to 1200mm:** Fasten at the midway point of the upstand height, with the maximum upstand height for one row of fixings being 1200mm. Anything above 1200mm will require an additional row of fixings through the underlayer – please see below:
      Upstand height:
      - 600mm: fix underlayer at 300mm and capping sheet at top leading edge.
      - 900mm: fix underlayer at 450mm and capping sheet at top leading edge.
      - 1200mm: fix underlayer at 600mm and capping sheet at top leading edge.
      - 1500mm: fix underlayer at 500mm and 1000mm and capping sheet at top leading edge.
      - 1800mm: fix underlayer at 600mm and 1200mm and capping sheet at top leading edge.

  For upstand heights in excess of 1800mm, please contact Bauder for further advice.
- **Mechanical Fasteners:**
  - **Supplier:** SFS Group Fastening Technology Ltd. 153 Kirkstall Road, Leeds, West Yorkshire. LS4 2AT
    Tel: +44 (0)113 208 5500 Fax: +44 (0)113 208 5539
    Email: uk.leeds@sfsintec.biz
    Web: www.sfsintec.biz/uk

  Warm Roof Upstands
  - **Type:** Respective tube washers to be used for both membrane and insulation.
  - **Product reference:** Tube fastener - Tube size and fastener type for both membrane and insulation as recommended by supplier specifically for project and installed in accordance with their fixing plan. Please note that insulation tubes (round) differ from membrane tubes (rectangular 80 x 40 mm).

  Cold /Inverted Roof Upstands
  - **Type:** IWF-5.2x35 screws together with associated IFC/IW–82x40 galvanised pressed steel washer plates.

776B LIQUID APPLIED DETAILING

- **Product:** Bauder LiquiPOCKET Detailing Kit
- **Preparation:** Ensure that the surface receiving the Bauder LiquiPOCKET is clean, dry and free from dust, laitance, grease, oil, and any other contaminants.
  - **Protection:** Cover the completed waterproofing membranes with a clean tarpaulin to protect from any spills and splashes.
  - **Metal:** All flaking paint should be removed back to clean metal. Any rust should be treated with a suitable rust inhibitor strictly in accordance with the manufacturer's instructions.
  - **Plastics:** Roughen surface with sandpaper to provide a key.
- **Application:** Create frame and apply Bauder LiquiPOCKET to specified areas, in strict accordance with the Bauder application instructions and drawings provided within each kit. Application is straightforward, but Bauder will provide on-site training in the use of this product on request. The product must not be used in any areas of Bauder Roof Systems without prior consent of Bauder Limited. Where this product is used, it will be covered under separate Guarantee Terms and Conditions.

777 SECONDARY WEATHERING (PIPES, DUCTING etc.)

- Provision must be made to supply and install a secondary weathering flashing above all waterproof upstand detailing to pipe penetrations, balustrade posts, cable entry pipes, ventilation ducting, sun pipes etc. This can take the form of a welded collar (where appropriate) or a bespoke galvanized cowling or hood sealed with a suitable sealant and fasteners. Solvent welded plastic collars fitted to plastic soil vent pipes.

784F BLUE ROOF DRAINAGE OUTLETS

- **Product name:** Bauder Bitumen Blue Roof Vertical Outlet DN 70
- **Material:** Cast polyurethane body with integral bituminous connection flange.
- **Product size/ reference: 70 DN** mm, with vertical spigot designed to connect to standard 75mm pipework.
- **Flow rate:** Controlled and calculated per project and adjusted using the Blue Roof Vertical Outlet Flow Restrictor.
- **Pipe connection:** Bauder Bitumen Blue Roof Vertical Outlet are suitable for connection to:
  - uPVC "O" ring socketed soil grade pipe to BS 4514: 1983
  - Socketed and socket-less cast-iron pipework to BS 416:1973 and EN 887. Socketed pipework will require cold caulking or PVC to cast iron adaptors. Socket-less pipework can be connection using an appropriate SML mechanical coupling.
  - HDPE pipework with appropriate SML mechanical coupling
- **Type of grate/ fittings:** supplied with a tough polyamide Dome Grate leaf guard.

BAUDER EXTENSION UNIT

- **Bauder Extension Unit - Warm roofs only:** When the outlet is used as part of a warm roof build-up and the insulation thickness exceeds 60 mm, an additional extension component must be used. The Bauder Extension Unit is suitable for use with Insulation:
  60mm - 220 mm.
  - **Material:** Cast polyurethane body with integral bituminous connection flange.
  - **Fixing:** The extension unit must be mechanically fixed through the PUR rim to the structural deck.
  - **Type of grate/ fittings**: When required the Dome Grate leaf guard is transferred from the Bauder Bitumen Blue Roof Vertical Outlet.
- **Extension Unit Housing** – Polyurethane housing board 500 x 500 x 60mm with pre-molded opening to receive the Bauder Extension Unit. Thermal Conductivity 0.025 W/Mk. Compressive Strength 200 kPa and a Density of 50 kg/m³.

BLUE ROOF VERTICAL OUTLET FLOW RESTRICTOR

- **Blue Roof Flow Restrictor –** is manufactured bespoke to the projects drainage restriction requirements. The unit is two part and designed for installation into the **Bauder Extension Unit**.
- **Material:** Base unit is manufactured from Polyamide, the 223mm accumulation / overflow pipe is manufactured from HDPE and can be cut to the maximum designed water depth. All sealing rings are manufactured from EPDM.
- **Flow Rate: TBC**
- **Fixing:** Hand - push fit.
- **Installation requirements:** These components that form part of the Bauder waterproofing system and for guarantee reasons, should only be installed by Bauder Approved installers. Connectivity to below deck drainage pipework to be the responsibility of the plumbing contractor.
- **Fixing:** The outlet is to be secured through the rim to the structural deck by a minimum of four fasteners appropriate to obtain an adequate attachment to the deck substrate material. Some deck structures require preparatory works before the outlets can be installed: -
  - **Concrete decks** – the opening for the outlet to be either pre-cast or core-drilled so that the outlet can be installed at the same time as the vapour barrier layer. Provision for a 250 mm dia. opening is required.
  - **Profiled metal decks** – these also require a 250 mm dia. Opening cut into the decking, but in addition will require a 600 x 600 x 1.25 mm galvanised steel reinforcing plate secured to the deck before the outlet can be installed. This item has a pre-cut 250 mm dia. hole and is available from Bauder.
  - For detailed information, refer to the Bauder Product Data Sheet.

784H PARAPET EMERGENCY OVERLFLOW

- **Product Name:** Bauder Parapet Emergency Overflow Stainless Steel DN 70
- **Material and specification**: Stainless Steel. Length of tube 800mm. 3° neck slope
- **Flow Rate:** In accordance with BS EN 12056-3-2000, Overflows or emergency outlets should be provided on flat roofs with parapets and in non-eaves gutters in order to reduce the risk of over spilling of rainwater into a building or structural overloading.
- **Suitability:** These emergency overflow outlets are designed to be used as a through chute to warn of a build-up of water on the roof due to a blockage of the drainage system(s). They are not suitable or intended for connection to internal pipework that is within a wall construction or boxed in and is inaccessible after construction.
- **Installation requirements:** Emergency overflow (suitable for bitumen membranes) to be installed through the system and kerb after creation of a suitable size diameter opening. The overflow should be secured using suitable fixings. The fixing plates supplied will form part of the Bauder waterproofing system and for guarantee reasons, should only be installed by Bauder Approved installers.
- **Fixing:** The deck or wall structure may require preparatory works before the emergency overflow can be installed: The bitumen waterproofing membrane should be suitably bonded on to the overflow plate. The bottom of the overflow opening should be positioned to the same height as the top of H-Max.

785 FIXING PERIMETER TRIMS

- **Bituminous Membranes:**
  - The first layer of membrane **must** be self-adhesive and dressed to the full extent of the detail using Torch-Free methods. This is to ensure that the detail is fully encapsulated to reduce the risk of fire to exposed combustible materials.

- Dress the underlayer up and over the perimeter detail to provide a 25mm overhang.

Please refer to Bauder standard detail drawings.

- **Trim:**
  - **Setting out:** 10mm gap between the back edge of the bottom of the drip to the fascia/wall and 3mm gap between abutting lengths of trim.
  - **Fasteners:** Screw fasteners of type appropriate to kerb or deck substrate. Nail fixing is not permitted.
  - **Fixing:** 30mm from ends and at 300mm (maximum) centres, stagger fixed.
    - 150mm deep trims (type 6) – 3no. additional fixings per length of trim. The fixings are to be face fixed with screws and positioned 75mm down from the top edge, one fixing 100mm in from each end and one in the centre and capped with coloured matched plastic weathering caps. *A fixed timber packer will be required behind the face of the trim to help facilitate ease of fixing.*
    - *For roofs above 10 metres in height* – the 100mm deep trim (type 4) will require face fixing, as per 150mm trim above. *A fixed timber packer will be required behind the face of the trim to help facilitate ease of fixing.*
  - **Jointing sleeves / bridging piece:** All lengths should be close butt jointed using an internal jointing sleeve. This must be provided to each joint.
  - **Corner pieces:** Purpose made.
- **Completion:**
  - **Contact surfaces:** Prime with **Bauder Primer.**
  - **Joints:** Cover with 200mm long pads of bitumen membrane, bonded to trim.
- **Completion of bitumen membrane:**
  - **Top layer/ Capping sheet:** Butt joint to rear edge of trim.
  - **Cover strip:** Fully bond to trim and top layer/ capping sheet of bitumen membrane. Carry over roof edge upstand and lap 100 mm onto roof. The capping sheet is to be dressed tightly into the top lip of the trim, ensuring a bead of bitumen extrudes at the edge.
- **Wall / kerb joints:** The new trim must cover any open joint that may exist at the top of the kerb or wall, by a minimum distance of 20mm.

787A FORMING A JOIN-ON DETAIL TO COMPATABLE VERTICAL BITUMINOUS TANKING (SUPPLIED AND INSTALLED BY OTHERS)

- It is important that the specified tanking system is confirmed as compatible, so that a waterproof seal between to the new Bauder waterproofing system can be obtained. Bauder should be contacted with a view to confirming both compatibility of the chosen tanking system and the method of join-on attachment required.
- Bauder can be successfully adhered to most bituminous tanking systems, but we take no responsibility for the seal or integrity beyond our material. The join–on detail is not covered under the Bauder warranty.

SLIP LAYERS (VERTICAL WATERPROOFING AREAS ONLY)

- Bauder P.E. Foil to be rolled out loose in two layers over the finished vertical waterproofing to prevent binding between the waterproofing and landscaping. The PE Foil should extend on to the horizontal area of the waterproofing by 1 metre and be weighed down to retain it in place before draping both sheets down the vertical face. All laps to be 150mm with care being taken to ensure that the P.E. Foil breaks joint between layers. Sufficient foil must be allowed for, to enable it to be taken up all upstand and edge details prior to installation of the protection layer.

DRAINAGE LAYER (FOR VERTICAL TANKING)

- Bauder Drainage Board PLT 10. Where vertical drainage to perimeter walls is required, provision by the contractor, should be made to install Bauder PLT 10 Drainage Board. The

surface filter fleece can be peeled back by 100 mm, allowing the board profile to interlock and should be installed sequentially from bottom to top. Soil can then be back filled to support the boards row by row. Where appropriate, the boards may be stapled together if this helps the process of back-filling the soil. Should any queries arise with regard to this detail, Bauder Limited should be contacted before proceeding.

LAND DRAIN INSTALLATION (BY OTHERS)

- Provision should be made to supply and install a land drain running horizontally at the base of the vertically tanked wall, all in accordance with the client's specification. The land drain should be wrapped in filter fleece to prevent soil fines entering the pipe. This work is usually undertaken by the main contractor or by his nominated drainage contractor.

SURFACING

830A RAINWATER OUTLET ACCESS COVER (FOR PAVED LANDSCAPING AREAS)

- The contractor shall provide a suitably sized Bauder rainwater access inspection cover over all internal rainwater outlets.
- Required where traditional paving slabs on pedestal supports are specified, for maintenance access.
- **Completion:** The feet of the unit should be manually adjusted so it finishes flush with the surrounding paved surface.

830D LINEAR DRAINAGE SYSTEM

- **Drainage channels:** Bauder KH60 linear drainage channel, galvanised steel channel sections, 1000 x 150 x 60mm with integral grille plate. These units should be used with adjustable leg sets.
- **Adjustment range**: Leg sets are available allowing the linear drain channel height to be adjusted between 75-120mm. Please note that leg sets must be ordered separately
- **Connecting the drainage channels:** Individual sections of Bauder KH60 channel should be joined using Bauder Connection Clips, with Bauder Stop Ends used where the drain terminates at abutments.
- These drainage channel units are perforated and designed to allow water to discharge at a controlled rate into the drainage layer below.
- Please note that these units are not suitable for supporting the weight of vehicular traffic.

835A ADJUSTABLE PEDESTAL SUPPORTS

- **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.
  - **Inverted insulation:** directly on to filter layer / vapour permeable membrane.
  - **Thermofol Single Ply Membrane:** directly on to membrane surface.
  - **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^2.
- **Base Support (surface area):** 315 cm^2.
- **Spacers/ shims:** range available.
- **Spacer tabs:** Available to provide drainage gaps of 4.5 mm.

- **Slope compensation:** 0% - 5% @ half degree increments.
- **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.

840A LAYING PRECAST CONCRETE PAVING SLABS

- **Extent:** To designated areas – See landscape designers plan.
- **Support:** Slabs to be laid on the specified 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.

- Intensive green roof landscaping - refer Section Q37-110

COMPLETION

910 INSPECTION

- **Interim and final roof inspections:** in accordance with the manufacturer's requirements for guarantee.
- **Notification:**
  Final Inspection: It is the responsibility of the approved contractor to advise Bauder Ltd when the roof is ready for Final Inspection. The 'Final Inspection' of the waterproofing must be carried out and approved by Bauder Ltd prior to any landscaping products/materials being installed, otherwise a guarantee cannot be issued. Safe access to carry out this inspection must be provided. **Please note**, there are/maybe further roof 'sign-off' inspections required to complete the roof(s) for this specification. If so, please note the below.
- **Sign-off Inspections:**
  Bauder Extensive Green Roofs: Bauder Extensive or Biodiverse soft landscaped green roof installations similarly require an inspection and it is the responsibility of the installing contractor to inform Bauder Ltd when the installation has been completed. Safe access to carry out this inspection must be provided.
  Bauder Blue Roofs: Landscaped roofs designated as 'Blue Roofs' and featuring outlets fitted with Bauder Blue roof flow rate restrictors, must be inspected and signed off by Bauder. This is to ensure correct installation of integral 'Blue Roof' components. Safe access to carry out this inspection must be provided.
- **Other requirements:** Please also refer to preliminaries / general conditions.
- **If project needs to follow NHBC Requirements:** The waterproofing must be visually inspected and electronically tested for waterproofing integrity, faults rectified, and retested prior to the installation of any landscaping products. The results of the test(s) should be made available to the NHBC.
- **Site Contact Details - Site Technician:** Toby Spayne - T: 07469 858610
- **Technical Contact Details - Area Sales Manager:** Stuart Parratt - T: 07775 037930

916 POST INSTALLATION MAINTENANCE

It is important that the Bauder Bitumen Blue Roof Vertical Outlets and Bauder Blue Roof Flow Restrictors are checked and maintained regularly to ensure there are no blockages that will

affect the calculated flow rate. In addition to regular maintenance inspections the outlets should be inspected after a storm event.

940 COMPLETION

- **Roof areas:** Clean.
- **Outlets:** Clear.
- **Work necessary to provide a weather tight finish:** Complete.
- **Storage of materials on finished surface:** Not permitted.
- **Completed membrane:** Do not damage. Protect from chemicals, traffic and adjacent or high level working.

950B GUARANTEE

- A 25 year system product, workmanship and design guarantee is to be provided upon completion following a Final Inspection by Bauder. Details regarding the full terms and conditions are available separately from Bauder Ltd upon request. This system must installed by a Bauder Approved Contractor, to be eligible for guarantee. The system comprises the waterproofing membranes, insulation, vapour control layer, and attachment of these products.