REF No: B142594/2/A
PROJECT NAME: VIACOM INTERNATIONAL MEDIA WORKS

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 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.

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.
- Green Roof landscaping – refer section Q37

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:** Infill Plant Area – Concrete Deck
- **Substrate:** New Concrete deck (designed and constructed level with no deflections, hollows or back-falls).
    - **Preparation:** As clause 610C.
- **Primer type and application:** Bauder Quick Dry Primer, applied to the roof substrate and all upstands and skirtings. For application method and guidance information, refer clause as clause 660A.
- **Vapour control layer:** Bauder VB4-Expal, 4 mm thick aluminium lined, elastomeric bitumen torch applied vapour barrier. Installation as clauses 670D, 710.
- **Insulation:** Bauder PIR FA-TE flat board, aluminium foil faced, highly efficient rigid urethane insulation 220mm thick to achieve the required U value (refer Clause 230). The insulation will be made up of 120mm Bauder FA-TE + 100mm Bauder FA-TE to achieve the required U Value. This product is fire resistant, 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.

- **Insulation to upstands:** Vertical upstands to roof light kerbs, access hatches i.e. builders kerbs (but excluding proprietary insulated integrated rooflight units) and changes of level, the Insulation is to meet the same thermal value as used for the flat area. Installation as clause 681B
- **Vertical upstands to insulated cavity wall abutments only:** 30 mm thick, Bauder PIR FA-TE flat board, fire resistant, aluminium foil faced, zero ODP, highly efficient rigid urethane insulation. In compliance with Part L of the current Building Regulations, the insulation to wall abutments should be 300 mm in height from the deck surface to the top of the upstand, with the vertical insulation being installed before the flat, so as to retain the insulation at the base. Installation as clause 681B
- **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
  - **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, 250g/m² polyester reinforced, elastomeric bitumen torch applied capping sheet, charcoal grey finish.
    Attachment: As clauses 710, 750B
  - **Flashings and detail work:** Bauder K5K capping sheet, charcoal grey finish. Install as clauses 774, 775 & 777
- **Surface protection:**
- **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 proprietary paving pedestal support system, as clause 840A.
- **Accessories: -**
  - **Bauder Bituminous Compact insulated vertical rainwater outlets,** 100 mm nominal bore, 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 appropriate depth extension unit (supplied separately) must be used. Installation as clause 784A.
- **Additional Requirements:** Refer clauses 210, 230, 515, 520, 560, 561, 562, 910, 940.
- **Guarantee information:** 950B

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

- **Roof area:** Courtyard Infill Roof – Metal Deck
- **Substrate:** New Metal Deck (designed and constructed level, with no deflections or back-falls, taking account in the design of the supporting structure for any anticipated inherent deflection in the metal decking that will occur). Decking should be designed with independent metal upstands – refer to the architects specification within NBS Section G30.
  - **Preparation:** As clause 610D.
- **Primer type and application:** Bauder Quick Dry Primer, applied to the roof substrate and all upstands and skirtings. For application method and guidance information, refer clause as clause 660A.
- **Vapour control layer:** Bauder VB4-Expal, 4 mm thick aluminium lined, elastomeric bitumen torch applied vapour barrier. Installation as clauses 670E, 710.

- **Insulation:** Bauder PIR FA-TE flat board, aluminium foil faced, highly efficient rigid urethane insulation 220mm thick to achieve the required U value (refer Clause 230). The insulation will be made up of 120mm Bauder FA-TE + 100mm Bauder FA-TE to achieve the required U Value. This product is fire resistant, 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.
- **Insulation to upstands:** Vertical upstands to roof light kerbs, access hatches i.e. builders kerbs (but excluding proprietary insulated integrated rooflight units) and changes of level, the Insulation is to meet the same thermal value as used for the flat area. Installation as clause 681B
- **Vertical upstands to insulated cavity wall abutments only:** 30 mm thick, Bauder PIR FA-TE flat board, fire resistant, aluminium foil faced, zero ODP, highly efficient rigid urethane insulation. In compliance with Part L of the current Building Regulations, the insulation to wall abutments should be 300 mm in height from the deck surface to the top of the upstand, with the vertical insulation being installed before the flat, so as to retain the insulation at the base. Installation as clause 681B
- **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
  - **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 Plant-E, 5 mm thick, 250g/m² polyester reinforced, elastomeric bitumen root resistant, torch applied capping sheet, green slate finish.
    Attachment: As clauses 710, 750A
  - **Flashings and detail work:** Bauder Plant-E root resistant capping sheet. Install as clauses 775 & 777

  Surface protection: Extensive Green Landscaping – refer Q37-130
- **Accessories: -**
  - **Bauder Bituminous Compact insulated vertical rainwater outlets,** 100 mm nominal bore, 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 appropriate depth extension unit (supplied separately) must be used. Installation as clause 784A.
- **Additional Requirements:** Refer clauses 210, 230, 515, 520, 560, 561, 562, 910, 940.
- **Guarantee information:** 950B

PERFORMANCE

210 ROOF PERFORMANCE

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

230 INSULATION

- **Thermal transmittance (U-Value) of roof:** 0.10 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:** Please note organic solvent based timber preservatives are not permitted, as these attack bitumen based materials.

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 PRECAST CONCRETE PAVING SLABS

- **Standard:** To BS 7263-1, hydraulically pressed.
- **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.
- The contractor is to ensure water tightness of the roof at all times. Proper day joints must be formed at the end of each working day to provide a temporary seal. No mopping or loose covers will be permitted.

- 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 Development Association.

561 SITE INSPECTIONS

- Bauder Site Technicians will carry out regular inspections of the project during the course of the works. The Approved Contractor must give reasonable notice to Bauder of their intention to commence laying capping sheet. This will allow a discretionary inspection of the underlayer to take place, so that any remedial treatment necessary can be carried out prior to installing the capping sheet. This is particularly important when tapered insulation has been used to ensure that any areas of standing water that may remain can be addressed.
- Bauder must be notified when the roof is ready for final inspection and all related works and snagging complete. See also clause 910.

562 HEALTH & SAFETY INFORMATION – ROOFING WORK

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

2. 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.

3. 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.

4. 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.

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

6. 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.

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

8. 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.

9. 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.

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

11. The Construction Design Management Regulations must also be complied with.

SUBSTRATES / VAPOUR CONTROL LAYERS / WARM ROOF INSULATION

610C SUITABILITY OF SUBSTRATES (CONCRETE)

- **Substrates generally:** Secure, clean, dry, smooth, and free from frost, contaminants, voids and protrusions.
- **Falls:** Where provided, the falls/cross-falls should be designed to 1:40 to achieve minimum finished falls of 1:80 to comply with drainage requirements of BS 6229:2003 and current codes of practice BS 8217:2005. No deflections or back-falls present if the deck is designed to achieve a 0° level finished surface.
- **Preliminary work:** Complete including:
  - Grouting of deck slab joints, application of surface screed (including falls if specified).
  - Formation of abutment upstands, kerbs, box gutters, sumps, grooves, chases and expansion joints.
  - Fixing of battens, fillets and anchoring plugs/strips as required.
- **Moisture content and stability of substrate:** Must not impair roof integrity.
- **Preparation:** The new concrete/ screed deck to be allowed to cure thoroughly, remove rough edges, and surface defects. If the surface is very rough a skin screed of concrete to be applied to give a smooth surface.

610D SUITABILITY OF SUBSTRATES (METAL)

- **Substrates generally:** Secure, clean, dry, smooth, and free from corrosion, contaminants, damage and protrusions.

- **Falls:** Where provided, the falls/cross-falls should be designed to 1:40 to achieve minimum finished falls of 1:80 to comply with drainage requirements of BS 6229:2003 and current codes of practice BS 8217:2005. No deflections or back-falls present if the deck is designed to achieve a 0° level finished surface.
- **Preliminary work:** Complete including:
  - Formation of upstands, kerbs, box gutters, sumps, grooves, chases and expansion joints.
  - Fixing of battens, fillets and anchoring plugs/strips.
- **Stability of substrate:** Must not impair roof integrity.
- **Preparation:** The new metal deck should be of a suitable type/profile to support the vapour barrier and insulation. Approval of the specified deck should be first obtained from Bauder Limited at specification stage to confirm suitability. The approved waterproofing contractor to Inspect the installed deck and report any issues that may have a detrimental effect upon waterproofing system to the both the Clients representative and Bauder Limited. If there is any doubt as to the exact requirement Bauder Limited should be contacted for further advice.

640 FIXING TIMBER TRIMS

- **Fasteners:** type/length appropriate and suitable to particular deck substrate.
- **Fixing centres (maximum):** 500 mm.

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 or alternatively primed with bituminous 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 a small thin intermittent line of Bauder Foaming insulation adhesive along the upper surface/edge. The purpose being to retain the metal in position to prevent any post-installation movement.

660A APPLYING PRIMER

- **Purpose:** Quick drying substrate primer to seal and prepare dry surfaces of a variety of common substrate material prior to the application of Bauder bituminous waterproof membranes.
- **Before application:** All surfaces must be dry, clean and free from dust, dirt, oil, grease and loose material. Smooth metal to be prepared using a wire brush.
- **Application method:** Apply a thin even coat using a brush or roller to provide full coverage. Avoid pooling.
- **Application rate:** between 4-8 litres per m^2, dependent upon substrate porosity
- **Application temperature:** 5-25°C
- **Drying time:** 3-6 hours dependent upon ambient temperature and substrate porosity.
- **Coats:** Fully bond. Allow volatiles to dry off thoroughly between coats. Never attempt torching within 30 min of primer application, even if the surface appears dry.
- **Re-application:** Necessary after 24 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.

670D LAYING VAPOUR CONTROL LAYER

- **Attachment:** Generally, fully bonded to deck substrate in accordance with manufacturer's requirements. However, for new concrete, the vapour barrier should be partially bonded (in the approved Bauder manner) to meet the requirements of the current codes of practice.
- **Side and end laps:** minimum 100 mm, with all laps torch sealed to provide a 5-10 mm bitumen bead extrusion. Installation methods as recommended by manufacturer.
- **Penetrations:** Fully seal using bonding methods recommended by manufacturer.
- **Edges of insulation at roof edges, abutments, upstands, kerbs, penetrations and the like:** Enclose, with vapour control layer:
  - Dressed up 150 mm above surface of insulation, thus providing 100 mm (minimum) seal when overlapped by the roof covering.

670E LAYING VAPOUR CONTROL LAYER

- **Attachment:** Fully bonded to the crowns of the metal deck in accordance with manufacturers requirements. Waterproofing to be laid in same direction as the decking so that all side laps can be sealed on supporting deck crowns.
- **Side and end laps:** minimum 100 mm, with all laps torch sealed to provide a 5-10 mm bitumen bead extrusion. Installation methods as recommended by manufacturer.
- **Penetrations:** Fully seal using bonding methods recommended by manufacturer.
- **Edges of insulation at roof edges, abutments, upstands, kerbs, penetrations and the like:** Enclose, with vapour control layer:
  - Dressed up 150 mm above surface of insulation, thus providing 100 mm (minimum) seal when overlapped by the roof covering.

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 Vapour barrier using Bauder Foaming Insulation Adhesive. The adhesive should be applied in strips across the width of the board giving 4 no. 30mm wide continuous and equally spaced adhesive beads within each 1200 mm board length.
- **Multiple board layers:** Where the total thickness of insulation required is greater than can be achieved by a single standard board, then a second board can be adhered to make up the total thickness required. The second board layer should be bonded using Bauder Foaming Insulation Adhesive applied in strips following the direction of the board length giving 4 no. 30mm wide continuous and equally spaced adhesive beads within each 1200 mm board length. The second layer of boards should be laid off-set and staggered.
  BauderRock Multi-layer systems only: Please note that an unfaced base board should be installed first and then faced board adhered above.
- **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.

681B INSTALLING WARM ROOF INSULATION (INSULATED UPSTANDS)

- **Bedding:** Bonded to the upper surface of the Vapour barrier using Bauder Polyurethane Insulation Adhesive. The adhesive should be applied in strips following the direction of the board length giving 4 no. 8 mm wide continuous and equally spaced adhesive beads within each 600 mm 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. Where the use of hot bitumen is considered unsafe or impractical for access reasons, it is permissible to use Bauder insulation adhesive as an alternative, following the guidance/installation instructions on the container.

- **Insulated upstand brackets:** Bauder insulated upstand support brackets must be used at all vertical abutment wall upstands (where the wall cavity is insulated) in conjunction with 30 mm Bauder insulation. These are to be fixed at 400mm centres using suitable fixings through the vapour barrier, so that the top edge is a minimum of 300mm above the surface of the deck. A 3mm gap should be left between adjacent sections. The detail is to be carried out in accordance with the Bauder detail drawing, where provided.
- **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 100 mm lap seal between the vapour control layer and underlayer where the insulation finishes.

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 release foil sheet and installing in the approved Bauder manner, using the Bauder long handled roller to extrude a 5-10 mm bead of bitumen. Head laps to be 100 mm side laps to be 80 mm, lapping red strip over blue and torch sealing. All laps to upstands, edge details, flashings, etc., to be 100 mm. The underlayer must be taken up all upstands, edge details, in accordance with current British Standards and the manufacturer's recommendations.
- **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.
- **Underlayer inspection:** The Approved Contractor must give reasonable notice to the nominated Bauder Site Technician of their intention to commence laying capping sheet. This will allow a discretionary inspection of the underlayer to take place, so that any remedial treatment necessary can be carried out prior to installing the capping sheet.

750A LAYING MINERAL FACED REINFORCED BITUMEN TORCH-ON CAPPING SHEET

- **Bond:** Full over whole surface, with no air pockets.
- **Excess compound at laps of top layer/ capping sheet:** Leave as a 5 mm - 10 mm 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.
- **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.

750B LAYING REINFORCED BITUMEN TORCH-ON CAPPING SHEET

- **Bond:** Full over whole surface, with no air pockets.
- **Excess compound at laps of top layer/ capping sheet:** Leave as a 5 mm - 10 mm 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.
- **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.

FLASHINGS AND DETAIL WORK

774 FIRE RISK DETAILING - ALTERNATIVE CAPPING SHEET

Where appropriate, the installing contractor can use Bauder KSO SN self-adhesive capping sheet as an acceptable alternative that may be used instead of the specified torch-on capping sheet for locations near to or adjacent to potentially combustible materials or otherwise where it is considered appropriate by the contractor as necessary to minimise potential fire risk.

Please note - Bauder KSO SN is only available in one colour - Natural Slate.

Approved Hot Air Equipment

The Bauder KSO SN membrane must be applied using the approved hot air hand tools. The list of permissible hot air electrical equipment approved for installing Bauder waterproofing membranes are stated below. These are available either for purchase or hire.

LEISTER

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

- Side laps – one of the following: -
  - **Leister Varimat or Bitumat** automatic hot air welder 240V/4600W with an 80mm Nozzle.
  - **Leister Electron** hot air hand tool 240V/4500W with an 80mm nozzle.

- Head laps and all detailing
  - **Leister Electron** hot air hand tool 240V/4500W with an 80mm nozzle.

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SIEVERT

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

- Side laps – one of the following:-
  - **Sievert TW5000** automatic hot air welder 240V/5000W with an 80mm nozzle.
  - **Sievert TH1750** hot air hand tool 240V/2300W with an 80mm nozzle.

- Head laps and all detailing
  - **Sievert TH1750** hot air hand tool 240V/2300W with an 80mm nozzle.

775 SKIRTINGS AND UPSTANDS

- **Angle Fillets:** BauderPIR angle Fillets (50 mm x 50 mm) must be used at all right angled upstands, provisionally bonded in Bauder Foaming insulation adhesive and subsequently retained once the underlay detailing is applied. Under no circumstances must fillets of an alternative material be incorporated (i.e. 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.
- **Additional fixing of bitumen membranes:** Mechanically fix the top leading edge of all upstand details in excess of 250 mm in height using appropriate fasteners. In the event of doubt, Bauder should be consulted regarding any specific requirement.
- **Upstand details (minimum height):** 150 mm. 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.
- **Flashings:** Separate flashings must always be formed. Capping sheet taken up the upstand in one piece will not be permitted.

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.

784A ROOF DRAINAGE OUTLETS

- **Product name:** Bauder Bituminous Compact Insulated Vertical Outlet
- **Material:** Cast polyurethane body with integral bituminous connection flange.
- **Product size/ reference:** 100 mm nominal bore, with vertical spigot designed to connect to standard 110mm pipework (ref Part Nr. GB60262100).
- **Flow rate:** 6.1 litres/sec. (Based upon vertical pipework and a 35 mm head of water pressure – according to BS EN 1206:3:2000).
- **Pipe connection:** Bauder Compact Insulated Vertical Outlets 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 leaf guard.
- **Insulation Extension - 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 Compact Extension Unit is available in two sizes:
  - 60mm -150 mm (ref. Part Nr. GB60263060)
  - 120mm - 220 mm (ref. Part Nr. GB60263120)

  The extension unit must be mechanically fixed through the PUR rim to the structural deck.
- **Installation requirements:** These outlets are 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 as accessory item, ref: Part Nr. GB60266250.
  - For detailed information, refer to the manufacturers installation guidelines.

SURFACING

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 Bauder protection fleece.
  - **Thermoplan Single Ply membrane:** directly on to membrane surface.
  - **LiquiTEC liquid cold applied system:** directly on to waterproofing surface.
- **Range of adjustment:** 17 mm - 850 mm (bracing system used on heights over 600 mm).
- **Head support (surface area):** 190 cm^2.
- **Base Support (surface area):** 315 cm^2.
- **Spacers/ shims:** range available.
- **Spacer tabs:** Available to provide drainage gaps of 2mm, 4.5 mm, 6 mm, 8 mm and 10 mm.
- **Slope compensation:** 0% - 5% @ half degree increments.
- **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 proprietary support pads, adjusted in accordance with the manufacturer's recommendations to ensure a flush, level finished surface.
- **Setting out:** Minimize cutting.
- **Joints:** 4.5 mm.
- **Completion:** Slabs must be level and stable.

COMPLETION

910 INSPECTION

- **Interim and final roof inspections:** in accordance with the manufacturer's requirements for guarantee.
- **Notification:** 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.
- **Other requirements:** Please also refer to preliminaries / general conditions.
- **Site contact details - Site Technician: Robert Lane**, Tel: 07787 226231
- **Technical Contact Details - Area Sales Manager: Mike Jones**, Tel: 07885 291982

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 20 year product and workmanship 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.