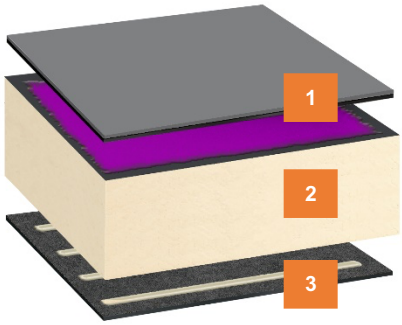
BAUDER
making roofs secure.

REF No: 1703 **PROJECT NAME: West Parley Clubhouse, Ferndown**

SPECIFICATION SUMMARY

System	Thermofol PVC system
Project plan	New Build
Applicable Structural decks	New Metal Deck / New Metal Deck overlaid with Plywood or OSB/3 (Is this applicable to a timber deck also?)
Roof construction	Warm Roof

Single layer sheet warm roof covering system – adhered.
Adhered, warm roof, single ply membrane waterproofing system suitable for new build, refurbishment and extensive green roof applications. A range of membrane colours and thicknesses are available.



Product	Description	thickness	weight
1 Thermofol U15 FR Membrane	The membrane is reinforced with a pre-coated polyester cross weave matting for high tear resistance required of a mechanically fastened membrane.	1.5mm	1.80Kg/m²
2 BauderPIR FA / FA-TE flatboard Insulation	Fully compatible; thermally efficient, lightweight; zero ODP rated. The insulation is foil-faced on both sides for increased thermal conductivity.	TBC – See table below	TBC – See table below Kg/m²
3 KSD Mica Air and Vapour Control Layer	Self-adhesive elastomeric bitumen air and vapour control layer; mica finished upper surface for easy bonding of insulation in Bauder insulation adhesive.	2.5mm	3.0Kg/m²
System Build up		**mm**	**Kg/m²**

SYSTEM OPTIONS

MEMBRANE COLOURS	
Light Grey	
Blue Grey	
Antharacite	

INSULATIONS	BauderPIR FA / FA-TE Flatboard	BauderPIR FA Tapered	Weight Loading
THICKNESS (mm)	Approx 'U' VALUE (W/m²K) assuming concrete, metal or plywood deck		Kg/m²
120	0.17	0.17	4.56
130*	-	0.16**	4.94
140	0.15	0.15**	5.32
160	0.13	0.13**	6.08
180* (100+80)	0.12	0.12**	6.84
200* (120+80)	0.11	0.11**	7.60

* denotes thicknesses only available for orders over 1000m²
** denotes U-value based on the average thickness

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IMPORTANT NOTE

Please note that changes made to the content of this document, outside of the available choices may impact technical suitability and eligibility to meet Bauder Limited's requirements for guarantee. For additional items to be added, not already included, please contact your local Area Technical Manager.

Design Information and Supporting Documents

This specification is to be read in conjunction with the supporting Specification-Appendix & Torch Free Report (where applicable), Calculations (where available), Bauder Installation Guides and Bauder Standard Detail Drawings.

This specification has been produced based on the information supplied at the time of writing and is deemed to apply subject to the conditions outlined below, unless additional calculations proving otherwise have been completed and issued to you by Bauder Ltd or an approved supplier.

Windloads: Suitable for roofs where the design load does not exceed 3.2KN/m^2. Should the site be situated in a location subject to increased windloads or have a Design Windload Pressure suspected to be exceeding this, Bauder Ltd must be informed and a site specific windload calculation must be completed.

U-Values: U-Values quoted are based on the Bauder waterproofing system construction including insulation and underlying deck material only. This does not include the supporting structure and/or any other materials within the construction below the deck, unless Bauder has been advised otherwise prior to producing the calculations. Refer to the project specific U-Value Calculation for additional information.

Drainage: Where Bauder Ltd have produced supporting drainage calculations based on the data supplied, and the resulting calculation states that 1 drainage outlet will be sufficient, Bauder Ltd additionally recommends the use of overflows on all roofs and that there should always be at least 2 outlets and/or overflows per drainage area.

NBS SECTION J42 - DESCRIPTION OF WORKS

Section J42 deals with the installation of the Bauder Single Ply System, comprising single layer coverings of polymeric sheets either mechanically fixed or adhesive bonded and jointed using hot air equipment. It includes where required the air and vapour control layers, insulation (whether above or below the waterproofing) the waterproof membrane and additional surface finishes of paving slabs or gravel in specifications where this finish is required. We presume the deck substrate and falls to be 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, surveyor or landscape architect) with technical assistance from Bauder as required and should be read in conjunction with any project specific drawings provided.

'Safe2Torch' advice:

The application of a torch-on air and vapour control layer to or in the vicinity of combustible materials does not conform to the recommendations and the advice given in the 'Safe2Torch' document produced by the National Federation of Roofing Contractors. Care should be taken if torch drying damp substrates.
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 to provide assistance in the assessment of the risks where the use of a gas torch is being considered.

SCOPE OF WORKS

- The Bauder Single Ply waterproofing system.
- Thermal insulation to meet the clients required U value.
- Related Bauder system accessories.
- Internal rainwater outlets (but not the connected drainage/plumbing goods).

This section does not include:

- Construction of the structural deck.
- Lightning protection (excluding Bauder Lightning Conductor Clips) – refer NBS Engineering Services, Section W60.
- Proprietary rainwater drainage / plumbing (Excluding Bauder RWO's) – refer NBS section R10.
- Latchways Constant Force Post System – refer NBS Section N25.
- Stairs/Ladders/Handrails/Balustrades – See NBS Section L30

J42 SINGLE LAYER POLYMERIC SHEET COVERINGS

To be read with preliminaries /general conditions

110 WARM ROOF COVERING

- **Roof Area Name:**
- **Substrate:** New Metal Deck / New Metal Deck overlaid with Plywood or OSB/3.

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(for slopes based on the minimum requirements use the below)

- Designed with a fall of 1:40 to a to ensure a minimum finished drainage fall of 1:80 is achieved.

*OR (for slopes of (1°) **1:60** use the below)*

- Designed and constructed to provide a minimum finished slope of (1°) **1:60**.

*OR (for slopes over (1°) **1:60** use the below and add the slope, e.g 2°)*

- Designed and constructed to provide a minimum finished slope of **?**°.
- The design should take account of construction tolerances, permitted deviations and deflections under load, as per Item 4.4 of BS6229:2018 (making provision for any anticipated inherent deflection in the metal decking that may occur).
- No deflections or back-falls
- Decking should be designed with independent metal upstands – refer to the architect's specification within NBS Section G30.
- **Preparation:** As clause 610B.

- **Roof covering system:** BAUDER SINGLE PLY THERMOFOL 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: , Tel:
  Technical Contact Details - Area Technical Manager: , Tel:
- **Primer: Bauder Activator-Primer(Canister), APR01-Black**, applied to the roof substrate and all upstands and skirtings. For application method and guidance information, refer clause 660B.
- **Air and vapour control layer: BauderTEC KSD Mica** Air and Vapour Control Layer, 2.5 mm thick aluminium lined, elastomeric bitumen self-adhesive air and vapour control layer. Installation as clause 670B.
- **Insulation: BauderPIR FA** or **FA-TE Flatboard**, aluminium foil faced, highly efficient rigid urethane insulation 120mm / 140mm / 160mm / 180mm (FA only) or 180 (comprising of 100mm+80mm) / 200mm (comprising of 120mm+80mm boards) / 220mm (comprising of 160mm+60mm boards) / 240mm (comprising of 160mm+80mm boards) thick to achieve the required U value (refer Clause 230). Thicknesses greater than 160mm will be supplied in two or more layers of insulation board.
  This product has a zero ODP and a Green guide rating of 'A'.
  Installation as clause 680C.
- **Insulating vertical upstands: BauderPIR FA-TE** flatboard, aluminium foil faced, zero ODP, highly efficient rigid urethane 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 30mm 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 **BauderPIR FA-TE** flatboard insulation.
  Installation as clause 681D.
- **Separating layer (loose laid):** N/A
- **Waterproof membrane: Bauder Thermofol U15 FR Membrane**, 1.5mm thick polyester reinforced waterproofing membrane, colour Light Grey / Blue Grey / Anthracite, attached by **Bauder Thermofol Contact Adhesive (Red) - Drum**. Installation as clauses 720A.
- **Lap joints:** All joints to be hot air welded, as clause 730A.

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- **Details: -**
  Two-dimensional detailing: All detailing work to be completed in the colour and thickness as used for the flat areas OR Blue/Grey OR Anthracite OR Light Grey materials. Formed using prefabricated **Bauder Thermofol Laminated Metal**, or non-fleece backed **Bauder Thermofol U15 FR Membrane**, or used in combination where appropriate. Membrane to be either fully bonded using **Bauder Thermofol Contact Adhesive (Red) - Drum** or mechanically fixed according to the construction - refer to the Bauder Thermofol PVC Installation Guide for further guidance.
  Three-dimensional detailing: Complex three dimensional detailing to curves, pipes or awkward shapes to be formed using unreinforced **Bauder Thermofol D18 PVC Detailing Membrane**. Otherwise **Bauder Thermofol Pre-formed Corners** must be used at intersections and returns.
  Detailing generally: to be carried out in accordance with clauses 760, 764A, 765A, 766A, 767A, 768A, 769, 770, 780A and the Bauder Thermofol PVC Installation Guide.
- **Surface protection:** N/A
- **Surfacing:** Designated areas of maintenance access walkway defined using **Bauder Thermofol Embossed Walkway** 2.0mm thick, reinforced waterproofing membrane in dark grey colour to be laid over the finished membrane surface (where required). Attachment as clause 850A.
- **Accessories:**
  - Use of **Bauder Mastic Sealant**. Application as clause 901A.
  - **Bauder Thermofol Lightning Conductor Clips**, where required (pad colour to match membrane). Installation, as clause 902A.
  - **Bauder Thermofol Rigid PVC Internal Rainwater outlet**, **DN 70, DN 100 or DN 150**, where required (size as required to match drainage pipe work). Installation as clause 904A.
  - **Bauder Thermofol 50 mm Emergency Overflow Outlet** (where required). Installation as clause 906A.
- **Additional requirements:** 210, 310, 510A, 517, 520, 522, 523, 524, 910, 940, 950C.

PERFORMANCE

210 ROOF PERFORMANCE

- **Roof covering:** Secure, free draining and weather-tight.

230 INSULATION

- **Thermal transmittance of roof (maximum):** 0.17W/m²K (???mm) / 0.15W/m²K (140mm) / 0.13W/m²K (???mm) / 0.12W/m²K (??? + ???mm) / 0.11W/m²K (??? + ???mm).
  U-Values quoted are based on the Bauder waterproofing system construction including insulation and underlying deck material only. This does not include the supporting structure and/or any other materials within the construction below the deck, unless Bauder has been advised otherwise prior to producing the calculations. Refer to the project specific U-Value Calculation for additional information.
- **Finished Surface:** Suitably even, stable and robust to receive roof covering.
- **Insulation compliance:** To relevant British Standard or Agrément certified.

PRODUCTS

310 ANCILLARY PRODUCTS AND ACCESSORIES

- Types: Recommended by coating manufacturer

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:** Contract Administrator to advise. Please note organic solvent-based timber preservatives are not permitted, as may affect the waterproofing.

EXECUTION GENERALLY

510A ADVERSE WEATHER

- **General:** Do not lay membrane at temperatures below 5°C or in wet or damp conditions.
- Provide temporary covers and drainage as required to keep finished areas of the roof dry.
- **Poor weather:** Suspend work in severe or continuously wet weather, unless an effective temporary roof is provided over the working area.
- If unavoidable wetting of the construction does occur, take prompt action to minimise and make good any damage.
- **Unfinished areas of roof:** Temporarily ballast incomplete areas of membrane as necessary to protect from wind action.

517 GENERAL WORKMANSHIP REQUIREMENTS

- Installation of the Bauder waterproofing system may only be carried out by approved Bauder contractors.
- Workmanship should comply with current Codes of Practice, BS6229 and Bauder Ltd installation instructions. All waterproofing materials and system components should be supplied by Bauder Ltd, unless otherwise stated, to be included within the guarantee. Non-compliant workmanship will not be permitted (even if the system is watertight). All such faults must be remedied, before the Guarantee can be issued.
- Any building work which is the responsibility of the contractor and has a bearing on the life of the Bauder System should be carried out by properly trained and qualified tradesmen.
- Any structural damage, peculiarities or defects discovered that might affect the performance of the Bauder waterproofing, should be reported immediately to the client and Bauder in order that they may make a decision in overcoming the problem prior to waterproofing.
- The contractor is to ensure water tightness of the roof at all times.
- 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 (where required) will not be carried out by the Bauder Site Technician until all associated trades are complete and the roof areas are clear from all debris and protection layers.
- 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.
- Any lead work must be carried out by skilled tradesmen and in accordance with current codes of practice and the recommendations of the Lead Contractor Association.

520 INCOMPLETE WORK

- **End of working day:** Provide temporary seal to the deck to prevent water infiltration, ensuring that the insulation, if present, is protected.

- Ensure that the sequence of laying enables temporary sealing of loose membrane edges to be down on the slope and not against the flow of water.
- **On resumption of work:** Cut away tail of membrane from completed area and remove from roof.

522 PROTECTION AND STORAGE OF MATERIALS

- Store rolls of polymeric membrane and associated products in a clean, dry, well ventilated and cool conditions.
- Store materials designated by the manufacturers as temperature sensitive in facilities where temperature can be maintained at the recommended level.
- Insulation products must be kept dry and protected from wet weather during storage and installation.

523 PROTECTION OF WORK

Ensure that from completion of the roof until practical completion:

- The roof is not used as a working platform, unless fully protected to the satisfaction of the CA.
- No paints, solvents or other volatile substances harmful to the membrane are allowed to come into contact with the roof surface.
- No building materials stored on the roof.
- Finished roof areas are adequately protected from damage by subsequent building operations.

524 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/ AIR AND VAPOUR CONTROL LAYERS/ WARM ROOF INSULATION

610B SUITABILITY OF SUBSTRATE (METAL) - OVERLAID WITH PLYWOOD OR OSB/3

- **Substrates Generally:**
  - Secure and properly fastened to the sub-structure, clean, dry, smooth, free from frost, corrosion, contaminants, loose material, damage and protrusions.
  - Compatible with waterproofing / coating system

METAL DECK ONLY

- **Substrate Design:** The metal deck should be of a suitable type/profile to support the Air and Vapour Control Layer and insulation and achieve a minimum bond area of approximately 50% including stiffeners, when adhering to the crowns i.e. the crowns should be wider than the troughs. Approval of the specified deck should be first obtained from Bauder Limited at specification stage to confirm suitability.
- **IMPORTANT NOTE:** For fully bonded systems, decks with a bond area less than 50% may need additional fixing measures due to the potential of the wind uplift exceeding the bond strength - as referenced in BS8217 Clause 5.1.4. These measures are subject to a project specific windload calculation and may include additional mechanical fixings and/or ballast to

the perimeter and corner zones. To obtain a project specific calculation for a given metal deck profile please contact Bauder Technical Dept.

- **Stability of Substrate:** Must not impair roof integrity.

METAL DECK OVERLAID WITH PLYWOOD OR OSB/3

- **Substrate Design:** The metal deck should be of a suitable type/profile to support the overlay panels. Overlay panels should be either:
  - Plywood should conform to BS EN 636-3 condition of Use Service Class 3 (Exterior) and Use Class 3, thickness as specified by client.
  - OSB/3 should conform to BS EN 300 & CPD/CE, thickness as specified by client.

  Guidance note: 12mm or 15mm thick panels are adequate for most profiles of metal deck where roof access is limited to maintenance or repair. Where regular access is likely, then 18 mm or 22mm should be specified.
- **Setting out:** The new deck, should be fixed directly to either the joists or firings using non corroding ring shank nails/recommended screw fasteners or should be fixed directly to the structural metal deck crowns using the appropriate grade steel or stainless-steel screw fasteners.
  - All board edges should be fully supported by the metal deck crowns with the long edges at right angles to the troughs in the metal deck.
  - Board joints to be close butted and staggered.
  - Joints: 2mm per metre panel size.
  - End joints: Centre over crowns of the deck.
- **Fasteners:**
  - Type: As recommended by panel manufacturer.
  - Fixing: One fastener per crown along each long edge and at 300mm centres along every alternate crown.
- **Fastener heads:** Flush with, or below the boards surface.
- **Moisture content and stability of substrate:** The deck should be protected from wetting during transportation, storage and installation on site before the Waterproofing System is installed. Before installing the waterproofing system, moisture readings should be taken into the timber deck and not just the surface. The results should be recorded. Readings should be no more than 20%.
- **Surface Preparation:** All such items to be rectified as necessary to eliminate the possibility of puncturing the new waterproofing system.
- **Deck Falls:** Refer to clauses 110/120/130 above (where appropriate) for roof specific requirements.
  - No deflections or back-falls shall be present if the deck is designed to achieve a zero falls finished surface.
  - Falls 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.
- **Preliminary work:** Complete including:
  - Formation of independent upstands, kerbs, box gutters, sumps, grooves, chases and expansion joints.
  - Fixing of battens, fillets and anchoring plugs/strips as required.
- **Preparation:** The approved waterproofing contractor is to inspect the installed deck and report any issues, including insufficient falls, that may have a detrimental effect upon the waterproofing system to both the Clients representative and Bauder Limited.

- **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.

640 FIXING TIMBER TRIMS

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

660B 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.

670B LAYING AIR AND VAPOUR CONTROL LAYER

- **Attachment:** Cold applied and fully bonded to the deck.
- **Side and end laps:** minimum 100 mm, laid with all laps heat sealed to provide a continuous bitumen bead extrusion.
  Metal Decks: With metal decks the sheets should run in the direction of the crowns/troughs, with laps formed on the crowns of the deck to ensure that they are fully supported in accordance with Bauder requirements. To ensure side laps of the air and vapour control layer (AVCL) are fully supported, they will need to have the width cut to suit the profile of the deck or larger laps should be formed. To support end laps, cut approximately 200mm strip off the end of the AVCL roll and apply it taut across the troughs where the roll ends will meet. 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 AVCL, dressed up level with the surface of insulation and adequately sealed to all roof edges, abutments, upstands, kerbs, penetrations. The contractor is also to form all details in accordance with the Bauder Single Ply detail drawings and Bauder Thermofol PVC Installation Guide.
  - Care should be taken to ensure adhesion when the temperature is below + 5º C.

680C LAYING WARM ROOF INSULATION

- **Setting out:**

- **Long edges:** Fully supported. (Where metal decking is specified, the long edges should 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 suitable Bauder Polyurethane Insulation Adhesive. (Product selection assistance available from Bauder – It is not recommended to use Bauder One Part Polyurethane Insulation Adhesive for adhering two foil surfaces together). 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)*
  - 1200mm width insulation boards - 4 no: (increase to 6 no. at roof perimeter)*

  Adhesive bead widths are stated on appropriate product label and datasheet.
  Note: If bonding using the 1200mm x 2400mm boards, care should be taken to avoid spanning over rough/uneven areas where the insulation adhesive is not able to adequately bond to both the lower face of the insulation and the substrate. It may be necessary to cut the board evenly across the full width once or twice to accommodate the uneven surface.
- **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.
  Foil to Foil Insulation Boards Only: These additional boards should be bonded using **Bauder Activator-Primer (Canister), APR01-Black** spray applied to the surface of both layers or **Bauder PU 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.
- **Non Fleece backed membranes:** Adhered to ***PIR tissue or foil faced boards only***, the insulation board joints must be taped with a suitable foil faced tape. This is to ensure adhesive is applied to the tissue facing only and cannot pass through the board joints. If in doubt, contact Fixfast UK for advice on suitable tape for this application. Fixfast UK, Merlin House, Seven Mile Lane, Borough Green, Sevenoaks, Kent, TN15 8QY Tel: 0845 450 7483.
- **Protection to exposed edges of insulation:** A hard timber edge or similar protection should be incorporated at all exposed edges. See clauses 330 & 640.
- **Completion:** Boards must be in good condition, well-fitting and stable.
- **Important Note:** Foil to foil installation (e.g. FA-TE to FA-TE or FA to TEC KSD Foil) must not be carried out using the 6.5kg **Bauder PU Insulation Adhesive (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.*

681D INSTALLING WARM ROOF INSULATION (INSULATED UPSTANDS)

- **Bedding:** Bonded to the upper surface of the air and vapour control layer using suitable Bauder Polyurethane Insulation Adhesive. The adhesive should be applied in strips following the direction of the board length giving 3 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.
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 suitable Bauder Insulation Adhesive.
  Foil to Foil Insulation Boards Only: These additional boards should be bonded using either **Bauder Activator-Primer (Canister), APR01-Black** or **Bauder PU Insulation Adhesive – Twin Cartridge**.
  Foil to Tissue Faced Boards: These additional boards should be bonded using suitable Bauder Insulation Adhesive.
  Adhesive bead widths or adhesive spray patterns and coverage rates are stated on appropriate product label and datasheet.
  The adhesive should be applied in strips following the direction of the board length giving 3 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 pre-formed metal trim (as appropriate to given detail situation) must be used at all right-angled edges e.g. top edges of parapet walls or abutment upstands.
- **Important Note:** Foil to foil installation (e.g. FA-TE to FA-TE or FA to TEC KSD Foil) must not be carried out using the 6.5kg **Bauder PU Insulation Adhesive (Tin)**.

WATERPROOF COVERINGS/ ACCESSORIES

720A ADHESIVE BONDING OF WATERPROOF MEMBRANE

- **Laying membrane: Bauder Non Fleece Backed PVC Membrane**
  - On a continuous even coating of adhesive.
  - Do not wrinkle or over-stretch.
- **Attachment:** Membrane to be bonded directly to the surface of the Insulation.
- **Adhesive: Bauder Thermofol Contact Adhesive (Red) - Drum**.
  Taping of board joints: The insulation board joints must be taped with a suitable foil faced self-adhesive tape, this to ensure adhesive is applied to the board facing only and cannot pass through the board joints. If in doubt contact Fixfast UK for advice on suitable tape for this application. Fixfast UK, Merlin House, Seven Mile Lane, Borough Green, Sevenoaks, Kent, TN15 8QY Tel: 0845 450 7483.
- **Application:** The adhesive is to be applied to the upper surface of the insulation and the underside of the membrane in a full and continuous covering to both surfaces. The adhesive coverage rate is 2-3 m², per litre depending on substrate and temperature. It is essential that the surface of the insulation is clean, dry and free from dust etc., before applying the adhesive. Care should be taken to ensure that the adhesive does not come into contact with the areas of the membrane that will require welding. The membrane should be unrolled directly onto the adhesive and should be pressure rolled over its full surface area a minimum of three times during a thirty minute period after application. All side and end laps to be hot air welded.

- **Equipment:** A list of suitable Hot Air Welding machines and accessories specifically designed for this operation is contained in the Bauder Thermofol PVC Installation Guide. Installation of the **Bauder Thermofol System** shall only be carried out by Bauder trained installers and shall be carried out in accordance with the details given in the Bauder Thermofol PVC Installation Guide.
- **Additional information:** Installation of the **Bauder Thermofol System** shall be carried out in accordance with the details given in the Bauder Thermofol PVC Installation Guide.
- **Surface condition at completion:** Fully sealed, smooth, weatherproof and free draining.

730A WELDED JOINTING

- **Laying:** Loose lay, do not wrinkle or stretch.
  - **Side and end joints:** manufacturer's/ supplier's recommendation
  - **Laps (minimum):** manufacturer's/ supplier's recommendation
  - **Preparation:** Clean and dry surfaces for full width of joint.
  - **Sealing:** Weld together (Hot Air welded).
- **Condition at completion:** Fully sealed, smooth, weather-proof and free draining.
- **Accessories:** None

760 PERIMETER OF MEMBRANE

- **General:** Secure membrane at roof edge conditions, changes of plane, curb flashings, upstands to roof lights, etc. with mechanical fasteners.
- **Supplier:** Bauder only approves the use of fasteners from manufacturer/supplier companies with associate membership to SPRA. Fasteners are included within the Bauder guarantee when supplied from SFS Group Fastening Technology Ltd when the project is covered by a Bauder Ltd Product and Workmanship guarantee.

764A PREFABRICATED BAUDER THERMOFOL LAMINATED METAL FLASHINGS

- Prefabricated **Bauder Thermofol Laminated Metal Trims/Flashings**, are available from Bauder.
- **Bauder Thermofol Laminated Metal Sheet** is available from Bauder for the formation of fabricated metal flashings and trims. All detail designs if not in accordance with the design shown within our detail drawing attached *must* be submitted to Bauder for approval prior to fabrication.
- All **Bauder Thermofol Laminated Metal Flashings** must be mechanically attached using recommended fastenings installed stagger fixed at maximum 250mm centres. The flashing must be sealed, using **Bauder Tape 20**, to the structure as shown in the Bauder standard detail drawings to ensure minimum air passage through or below the flashing. The chosen fastener supplier can give guidance as to the type of fastener required (fasteners must have counter sunk head style).

765A PERIMETER DETAILS FOR THERMOPLASTIC MEMBRANES

- Upstands, edge trims, drips, kerbs, etc: Secure **Bauder Thermofol Laminated Metal Trims/Flashings** to roof structure with mechanical fasteners.
- Roof membrane: Dress over perimeter profile. Overlap beyond fasteners as per manufacturers recommendations
- Sealing: Weld together.

766A WATERPROOFING MEMBRANE (TWO DIMENSIONAL DETAILS)

- Upstands, edge details, flashings etc**:** Detail work requiring membrane is to be carried out with Bauder Thermofol membrane restrained beneath or welded directly to **Bauder Thermofol Laminated Metal Trims/Flashings** as shown in the Bauder standard detail drawings. **Bauder Thermofol Pre-Formed Corners** must used for the formation of internal or external corner details.

- Special consideration must be given to the preparation required prior to hot air welding of the all laps within the **Bauder Thermofol System**.
- A list of suitable Hot Air Welding machines and accessories specifically designed for this operation is contained in the Bauder application manual/data sheets.

767A WATERPROOFING MEMBRANE (THREE DIMENSIONAL DETAILS)

- Pipes, Roof Penetrations etc.: Detail work requiring the membrane to be used in irregular angles is to be carried out with un-reinforced **Bauder Thermofol D18 PVC Detailing Membrane** Light Grey or using **Bauder Thermofol Pre-Formed** Accessory detailing items. Special consideration must be given to the preparation required prior to the hot air welding of all detailing joints within the **Bauder Thermofol System**.
- Special consideration must be given to the preparation required prior to hot air welding of all laps within the **Bauder Thermofol System**.
- A list of suitable Hot Air Welding machines and accessories specifically designed for this operation is contained in the Bauder Thermofol PVC Installation Guide.

768A COVER STRAPS TO BAUDER THERMOFOL METAL

- Provision should be made to allow a 2-3mm gap between abutting sections in the **Bauder Thermofol Metal Edge Trim**, for expansion/contraction. Supply and install **Bauder Thermofol reinforced cover straps**, 150-200mm in width fixed over the joints in the **Bauder Thermofol Metal Edge Trim** to provide a smooth neat finish. The membrane should be welded to the surface of the Thermofol metal leaving the centre section of the cover strap un-welded. The cover strap should be cut to remove visible 90º corners.

769 DETAILS GENERALLY

- The minimum recommended height for constructing waterproofing details is 150mm from the top of 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 etc. These may have to be raised to enable a 150mm waterproofing detail to be formed. We cannot take responsibility for water ingress over waterproofing details insufficiently high. There may be a requirement to mechanically fix 19mm exterior grade plywood or OSB/3 to the upstand detailing to ensure a smooth even surface to receive the new waterproofing.

770 PERIMETER DETAILS FOR THERMOPLASTIC

- **Upstands, edge trims, drips, kerbs, etc:** Form flashings from waterproof membrane material.
- **Roof membrane:** Terminate in horizontal plane immediately adjacent to change in direction and secure with mechanical fasteners.
- **Flashings:** Dress over perimeter profile. Overlap horizontal roof membrane beyond perimeter securement, strictly in accordance with the manufacturer's recommendations.
- **Sealing:** Weld together.

780A ROOF PENETRATIONS THROUGH THERMOPLASTIC MEMBRANES

- **Roof membrane:** Cut around penetrations and secure to deck.
- **Flanged sleeve:**
  - Type: Form from un-reinforced **Bauder Thermofol D18 PVC Detailing Membrane**, complete with base flange.
  - Installation: Dress over and around penetration.
  - Roof membrane overlap to flange (minimum): 50 mm beyond fasteners.
  - Sealing: Weld flange to roof membrane.
  - Protection to top edge of sleeve: Flashing or weathering cravat.

781 PATCH REPAIRS

If the specifier does not allow multi or small patch repairs, then they should specify where necessary that full membrane width patches should be used.

SURFACING

850A LAYING MEMBRANE WALKWAYS

- **Attachment:** The membrane should be heat welded around its full perimeter to the surface of the finished waterproofing.

ACCESSORIES

901A MASTIC SEALANT

- Provision should be made to allow for the use of **Bauder Sealant** in conjunction with **Bauder Sealant Primer** at all abutments with the Thermofol system, and any other instances where a mastic seal is required.
- It is imperative that the primer is used to prepare the surfaces effectively to enable a long lasting key with the sealant.

902A LIGHTNING CONDUCTOR

- Upon completion of the Bauder waterproofing system, the lightning conductor is to be fixed using **Bauder Lightning Conductor Clips**, incorporating a colour matched **Bauder Thermofol** pad, fully welded to the main membrane at 1m centres by the approved Bauder roofing contractor. Lightning conductor retention using single ply membrane strips are not acceptable.
- Where lightning conductors are required to be fixed to brickwork, upstands, parapet walls etc., proprietary clips mechanically fixed should be utilised. Care should be taken to ensure that fixings do not penetrate the new waterproofing system.
- The commissioning of the lightning conductor is to be carried out by a specialist company in conjunction with the roofing contractor.

904A INTERNAL OUTLET – BAUDER THERMOFOL RIGID PVC RAINWATER OUTLETS

- Internal rainwater outlet/s (suitable for PVC membranes) of the correct size is to be installed through the system and deck after creation of a suitable size diameter opening. The outlet should be secured using suitable fasteners.
- All air and vapour control layer edges should be sealed to the deck using **Bauder Tape 03**. Connection to the rainwater waste pipe should be made by others, details for this connection can be found in the product data pages. The outlet is designed to be connected into the standard spigot end connector on the rainwater waste pipe. The outlet spigot is universal length (300mm) to cope with differing insulation thicknesses and will require cutting down to the correct length. The Thermofol waterproofing membrane should be welded on to the body of the outlet. Available separately is the Bauder Leaf Guard for Rigid PVC Outlets.
- **Product sizes/ reference:**
  - **Bauder Thermofol Rigid PVC Outlet DN70**
  - **Bauder Thermofol Rigid PVC Outlet DN100**
  - **Bauder Thermofol Rigid PVC Outlet DN150**
- **Suitability:**
  - **DN70mm Outlet** is suitable for installation into a downpipe size of 75mm
  - **DN100mm Outlet** is suitable for installation into a downpipe size of 110mm

- **DN150mm Outlet** is suitable for installation into a downpipe size of 160mm

- **Flow rate:**
  - **DN70mm Outlet** has a flow rate of 4.6l/s
  - **DN100mm Outlet** has a flow rate of 5.5l/s
  - **DN150mm Outlet** has a flow rate of 6.6l/s

906A EMERGENCY OVERFLOW

- Emergency overflow pipe (suitable for PVC membranes) to be installed through the system and kerb after creation of a suitable size diameter opening. The overflow should be secured using suitable fasteners.
- The Thermofol waterproofing membrane should be welded on to the overflow body. A suitable grille should be provided. The overflow opening should be positioned just above the landscape surface (green or ballasted roof finishes).

COMPLETION

910 INSPECTION

- **Interim and final roof inspections:** in accordance with Bauder Ltd. 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.
- **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.

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 traffic and adjacent or high level working.

950C GUARANTEE

- A 15/20 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 be installed by a Bauder Approved Contractor, to be eligible for guarantee. The system comprises the waterproofing membranes, insulation, air and vapour control layer, and attachment of these products.

any resulting errors or omissions. Any deviation or modification to this specification without Bauder's consent may result in the system not achieving the stated Fire Performance or Guarantee Requirements.