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#### IMPORTANT NOTE

<u>Please note that changes</u> 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 available), Calculations (where available), Bauder Installation Guides and 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 by Bauder Ltd or an approved supplier.

**Windloads:** Suitable for roofs where the design load does not exceed 3.2KN. Should the site be situated in a location subject to increased windloads or have a Design Windload Pressure 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 may not include the supporting structure and/or any other materials within the construction below the deck. 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.

**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.

This specification should be read in conjunction with the Bauder Roof Survey Report.

This specification should be read in conjunction with the Bauder Roof Survey Report (supplied separately) and the 'TORCH-FREE ZONES REPORT' attached.

#### SYSTEM CONSTRUCTION

Waterproofing System: Bauder Total Roof System – Warm roof construction Substrate: Strip and remove the existing waterproofing system back to the existing asphalt. Roof Fall:

- 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.

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- The design should take account of construction tolerances, permitted deviations and deflections under load, as per Item 4.4 of BS6229:2018.
- No deflections or back-falls.

It is imperative that should this information change for whatever reason, then Bauder should be contacted so that the specification can be amended accordingly.

### STRIP TO ORIGINAL WATERPROOFING SYSTEM

Strip to original waterproofing system: Carefully remove and appropriately discard all the existing roof coverings, including any secondary overlays, insulation (where relevant) etc. to expose the original waterproofing system.

### **IMPORTANT NOTES:**

- The Bauder approved contractor is to inspect the existing waterproofing and report any issues that may have a detrimental effect upon the proposed attachment/installation of the new waterproofing system to both the Client's representative and Bauder Limited.
- An adequate provisional sum should be set aside to cover for any unforeseen issues related to the removal of the existing waterproof covering that may necessitate localised repairs to the existing deck. If it is discovered that the deck is degraded in any way and is beyond localised repair, it is imperative that the Bauder approved roofing contractor informs both the client and Bauder Limited immediately in order that the problem be addressed prior to the waterproofing works to be carried out.
- An adequate provisional sum should be set aside to cover for any unforeseen issues related to remedial works that may be required to either the existing waterproofing or existing roof falls.

Remove all existing waterproofing, insulation, and any Air & Vapour Control Layers from all perimeter upstands and detailing to abutment upstands and vertical skirtings.

**Exposed Waterproofing:** The existing waterproofing should be examined and then prepared by removing any rough edges and/or defects in its surface, loose or flaking solar reflective paint, liquid overlays, surface chippings etc., repairing any localised damaged areas. Waterproofing generally should be secure and properly attached to the sub-structure, clean, dry, smooth, free from frost, contaminants, loose material, voids, protrusions, and organic growths. Dust, dirt, debris, moss, plants and grease must be removed.

**IMPORTANT NOTE - Blisters / Detached bitumen membrane:** Repair, re-adhere and protect with additional layer of matching bitumen membrane if necessary.

All new materials and accessories: Must be compatible with existing.

**Falls (Tapered insulation):** Falls to be provided by the tapered insulation and comply with the drainage requirements of BS 6229:2018 and current codes of practice BS 8217:2005. Where back-falls/ deflection are discovered which will reduce the effectiveness of the tapered design notify the client and Bauder immediately so the roof can be fully assessed and the correct remedial actions identified.

### Preliminary work: Complete including:

 Formation of abutment upstands, kerbs, box gutters, sumps, grooves, chases and expansion joints. ------

Fixing of battens, fillets and anchoring plugs/strips as required.

**Priming:** Before priming and application of the membrane, the substrate must 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.

## **IMPORTANT NOTE:**

- Existing insulation has been found below the roof deck, this will need to be removed prior to installation of the Bauder system in order to prevent interstitial condensation forming. Any existing ventilation openings must be sealed for the warm roof to perform, regardless of whether the insulation in the void remains or is removed. Please contact Bauder if there are any queries or concerns regards this.

#### PRIMER

Bauder Activator-Primer (Canister), APR01-Black. All areas receiving the new self-adhesive membranes to be thoroughly primed with 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/m<sup>2</sup>
- 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

**Bauder Quick Dry Primer.** All areas receiving the new torch-on membranes to be thoroughly primed with **Bauder Quick Dry 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.

**Application method:** Apply a thin even coat using a brush or roller to provide full coverage. Avoid pooling.

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**Application rate:** between 4-8m<sup>2</sup> per litre, dependent upon substrate porosity

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#### 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.

## AIR AND VAPOUR CONTROL LAYER - ALL AREAS EXCEPT 'TORCH-FREE' ZONE

**Bauder Super AL-E,** 4mm thick aluminium lined, elastomeric bitumen air and vapour control layer, fully bonded by torching. Laps to be 100mm, with all laps torch sealed to provide a continuous bitumen bead extrusion. The air and vapour control layer must be taken up all upstands, perimeter edges, high enough to form a waterproof layer, and later to form a seal with the underlayer.

### **IMPORTANT NOTE**

The **Bauder Super AL-E** must be dressed up all upstands above the insulation to a height of 150mm minimum. This is to ensure that a 100mm lap is constructed above the urethane fillet. The contractor is to form all perimeter details in such a way that a 100mm lap is obtained between the air and vapour control layer and the underlayer.

## AIR AND VAPOUR CONTROL LAYER - 'TORCH-FREE' / 'SAFE TO TORCH' ZONE

**BauderTEC KSD FBS**, 2.5mm thick, aluminium lined, self-adhesive elastomeric bitumen air and vapour control layer, cold applied by removing the peel off release film.

**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.

**Timber Boarded / Cross Laminated Timber Decks:** First layer random nailed. Second layer, **BauderTEC KSD FBS** cold applied and fully bonded to substrate in accordance with Bauder requirements.

Side laps to be 100mm and head laps to be 100mm and staggered and sealed by hot air welding/torching and rolling (depending on 'Torch-Free' & 'Safe to Torch' zoning), to extrude a continuous bead of bitumen. Care should be taken to ensure adhesion when the temperature is below +5°C. At all abutments and details the bitumen bead must be extruded from the lap joints to ensure a seal.

**Please note:** Areas where a self-adhesive AVCL is used, should be primed with **Bauder Activator-Primer (Canister), APR01-Black.** 

For 'Torch-Free' & 'Safe to Torch' the self-adhesive AVCL is to finish 150mm higher than the finished height of the insulation. Where combustible materials extend beyond this then the remainder of the

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upstand detail receives SA underlay. This is lapped 100mm onto the AVCL and taken to completely encapsulate the upstand and / or capping detail. This is installed at the AVCL stage to complete the entire roof area. The underlay on top of the insulation then laps onto this upstand by 100mm above the top edge of the angle fillet. Please see **Bauder** 'Torch-Free' drawings.

### INSULATION

### Product: BauderPIR FA G16 Tapered

**Description:** Foil faced, rigid urethane tapered insulation.

Thickness: Average Thickness TBC\*.

Performance: Zero ODP.

Before installing: No insulation boards should be laid on site without a copy of the current Bauder Tapered Insulation Layout drawing to hand. Contractors should always refer to the Layout Drawing for the recommended start point and layout of boards. If contractors are unsure whether the correct Layout Drawing is on site, they should contact the **Bauder** Technical Department before commencing installation. For installation guidance, Contractors should refer to the BauderPIR FA G16 Tapered Installation Guide.

Deck Suitability: 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.

Thermal performance: Refer to Bauder Tapered Insulation Layout drawing for details of the 'U' values achieved by this scheme.

Wastage: All off-cuts are considered usable and are included as such within the insulation Layout.

Protection to exposed edges of insulation: Reduced thickness treated timber hard edge (or equivalent plywood construction), suitably sized and 10mm 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.

Setting out: Installation must be carried out following the BauderPIR FA G16 Tapered Installation Guide and laid strictly in accordance with the correct **Bauder** Tapered Insulation Layout drawing and installation instructions. The BauderPIR FA G16 Tapered boards should be laid with the Bauder number / arrow / grid pattern facing upwards.

- Long edges: Fully supported.
- End edges: Fully supported.
- Joints: close butted together.
- End joints: Stagger.

Bedding: BauderPIR FA G16 Tapered boards are to be bonded to the upper surface of the Air and Vapour Control Layer (AVCL) (unless where a base-layer is required – please see Multiple-layer tapered schemes below) using suitable Bauder Polyurethane Insulation Adhesive:

- Bauder PU Insulation Adhesive Tin or Bauder PU Insulation Adhesive Twin Cartridge applied in strips following the direction of the board length giving 4No. continuous and equally spaced adhesive beads within each board width (increase to 6No. at the roof perimeter) \*\*
- Non-FA G16 Tapered insulation board types: Where BauderPIR T G Tapered Insulation (Unfaced 1:80 / 1:40 boards) or BauderPIR M Flatboard Insulation (tissue faced boards) are included within the Bauder Tapered Insulation Layout, these boards are to be bonded to the upper surface of the Air and Vapour Control Layer (AVCL) using either Bauder PU Insulation Adhesive - Tin or Bauder PU Insulation Adhesive - Twin Cartridge, applied in strips following the direction

of the board length giving continuous and equally spaced adhesive beads within each board width as below:

- 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)\*\*

**Multiple-layer tapered systems:** Where the total thickness of tapered insulation required is greater than can be achieved by a single layer, base-layer board(s) of **BauderPIR FA-TE Flatboard** can be adhered to the AVCL/previous layer(s) to make up the total thickness required before the uppermost layer of **BauderPIR FA G16 Tapered** boards are installed.

**Bedding:** As stated above. Surface should be clean and free of debris before application of the additional layer(s)

Additional Layer(s): Each additional layer of insulation board(s) should be laid off-set and staggered with the layer below and should be bonded together using the following adhesives:

- Foil to Foil (e.g. FA-TE to FA-TE): Bauder Activator-Primer (Canister), APR01-Black spray applied to the surface of both layers or Bauder PU Insulation Adhesive Twin Cartridge applied in strips following the direction of the board length giving continuous and equally spaced adhesive beads within each board width (as stated above).
- Foil to tissue Faced/unfaced boards (e.g. FA-TE to 1:80 tapered boards): Bauder PU Insulation Adhesive Tin or Bauder PU Insulation Adhesive Twin Cartridge. Applied in strips following the direction of the board length giving continuous and equally spaced adhesive beads within each board width (as stated above).

Tapered Layer (Uppermost layer): The BauderPIR FA G16 Tapered board layer 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 applied in strips following the direction of the board length giving continuous and equally spaced adhesive beads within each board width (as stated above). BauderPIR FA G16 Tapered boards should be laid with the Bauder number/arrow/grid pattern facing upwards. Boards should be laid off-set and staggered with the layer below.

**Ridge & Valley Infills:** The **BauderPIR GFE G16 (ridge infills) & BauderPIR KFS G16 (valley infills)** should be bonded using **Bauder Activator-Primer (Canister), APR01-Black**, spray applied to the tapered board and bottom of the infill giving continuous full coverage of the infill and the area where the infill is to be placed.

**Completion:** Boards must be in good condition, well-fitting and stable.

### **IMPORTANT NOTES:**

- Adhesive bead widths, spray patterns and coverage rates are stated on the appropriate product label and datasheet.
- **Bauder Activator-Primer (Canister), APR01-Black**, must be applied to the uppermost surface of insulation prior to installation of the self-adhesive underlayer.
- Foil to Foil installation (e.g. FA-TE to FA-TE) must not be carried out using the 6.5kg **Bauder PU** Insulation Adhesive Tin.
- Foil to AVCL installation (e.g. FA G16 Tapered directly to KSD FBS) must not be carried out using **Bauder Activator-Primer (Canister), APR01-Black**.

\*(Refer to Bauder Tapered Insulation Layout Plan for details of 'U' value achieved by this scheme).

\*\*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  $\div$  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.

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# PRIMER TO UPPER SURFACE OF ALL INSULATION / INSULATED UPSTANDS

Bauder Activator-Primer (Canister), APR01-Black. All areas of the uppermost layer of insulation receiving the new self-adhesive underlayer to be thoroughly primed with 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/m<sup>2</sup>
- 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.

## UNDERLAYER 1<sup>ST</sup> LAYER

**BauderTEC KSA DUO**, 3mm thick, 200g/m<sup>2</sup> glassfibre reinforced, self-adhesive elastomeric bitumen underlayer, fully bonded by removing the peel off release film. All laps are to be close butted. It is not necessary to torch the underside of the red lap to disperse the glass fleece.

Please note that Bauder Activator-Primer (Canister), APR01-Black, must be applied to the uppermost layer of Bauder Insulation prior to installation of the self-adhesive underlayer.

## UNDERLAYER 2<sup>ND</sup> LAYER

**BauderTEC KSA DUO**, 3mm thick, 200g/m<sup>2</sup> glassfibre reinforced, self-adhesive elastomeric bitumen underlayer, fully bonded by removing the peel off release film. **All laps are to be close butted and should break joint with the previous layer.** The red side laps must be 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. The underlayer must be taken up all upstands, edge details, in accordance with current British Codes of Practice, and fully heat sealed/torched (depending on 'Torch-Free' & 'Safe to Torch' zones) with the air and vapour control layer by a minimum 100mm.

### **CAPPING SHEET**

**BauderFLEX K5E**, 5mm thick 250g/m<sup>2</sup> polyester reinforced, elastomeric bitumen capping sheet, mica finish, fully bonded to the underlayer by torching in the approved Bauder manner.

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This layer is to be close butted and staggered and break joint with the previous layer. A continuous bead of bitumen must extrude from all laps.

## **UPSTANDS AND DETAILING**

Detail work to be carried out in **Bauder K5K** in accordance with current British Codes of Practice. Side laps to be 80mm, head laps to be 100mm. A continuous bead of bitumen must extrude from all laps. 50mm x 50mm **BauderPIR T KL 50 Angle Fillets** must be used at all right-angled upstands.

Angle fillets will need to be installed using **Bauder** insulation adhesive, or a suitable bitumen adhesive. Under no circumstances must fillets of an alternative material be incorporated (i.e. timber, cork, fibre, etc.) as this would invalidate the guarantee.

Separate flashings must always be formed. The capping sheet taken up a detail in one piece will not be permitted.

Refer to appendix for information on Required Upstand Heights and Level Thresholds.

### ADDITIONAL ITEMS

Refer to the Bauder Standard Details Drawing sheet D0000-00W-200-001 for further information.

#### Provision should be made by the contractor to:-

### • New Chase & suitable flashing to Brickwork Upstand (A01)

Cut new chases into brickwork upstands. The chase is to be a minimum of 25mm deep and 150mm above the finished surface level. Install suitable counter-flashing, this is to be base clipped and suitably plugged at 300mm centres. Lengths should not exceed 1.5 linear metres and laps should be not less than 150mm. All chases should be brushed clean and sealed using **Bauder Sealant Primer** prior to the application of **Bauder Sealant**. All work should be carried out by competent tradesmen in accordance with current British Codes of Practice and the recommendations of the Lead Contractor Association.

### • Raise Door sill (A12)

Raise all door sills to ensure that a minimum upstand height of 150mm is achievable above the finished surface level. The method of raising the sill should be determined and specified by the client.

• Paving on Bauder Support Pedestals (H01A)

Supply and install new paving slabs to the client's detailed specification. The paving is to be positioned on **Bauder Slope Correcting (DPH) Pedestal Support System**. This support system has an adjustment range from 17mm-1070mm (bracing system used on heights over 600 mm). This product has a range of shims, spacer tabs and also batten support component (for timber decking). This system includes provision for slope correction from 0% to 5% at half degree increments.

- Product name: Bauder Bitumen Refurbishment Warm Roof Outlet (I3) (where applicable) Material: Cast polyurethane body with integral bituminous connection flange. Product size/ reference:
  - 63mm Bauder Bitumen Refurbishment Warm Roof Outlet

### - 90mm Bauder Bitumen Refurbishment Warm Roof Outlet

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**Suitability:** Intended for existing roof overlay situations and limited to use where additional insulation is being provided. The insulation depth requirements for accommodating the bowl of these outlets are: -

- 63mm Outlet 70mm min.
- **90mm Outlet** 105mm min.

Please note that when fitted within existing outlets, the minimum insulation thickness could be reduced further depending upon the bowl size of the existing outlet. This product is not suitable for uninsulated overlay applications. Please refer to product data sheet for further information regarding the minimum insulation thickness required or contact our Technical Department.

**Flow rate:** Based upon vertical pipework and a 35 mm head of water pressure – according to BS EN 12056:3:2000.

- 63mm Outlet 6.1 litres/sec
- 90mm Outlet 6.9 litres/sec

**Pipe/ outlet connection:** designed to fit inside existing pipework or outlet units using the seals provided, where the internal diameter of the bore is: -

- 63mm Outlet between 68mm 86mm.
- 90mm Outlet between 89mm -107 mm.

Type of grate/ fittings: supplied with a tough polyamide leaf guard.

**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.

## Fixing:

- The existing pipe bore should be first cleaned to ensure a good seal.
- The outlet is to be secured to the structural deck by a minimum of four fasteners through the outlet rim to obtain an adequate attachment to the deck substrate material.
- The appropriate seal to suit the internal diameter of the opening must be fitted before the outlet is inserted into the existing pipe/ outlet. The stepped outlet seal can be trimmed to fit.
- When fixing through existing outlets, the long outlet spigot should extend beyond the spigot of the existing unit to from a seal with the downpipe beyond and should then be cut to the length required.
- For detailed information, refer to the Bauder Product Data Sheet & Bauder Detail Drawing.

### **GUARANTEE**

A 20 year system product, workmanship and design (including consequential loss) 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.

### **IMPORTANT NOTE**

It is imperative that the contractor conforms with the workmanship criteria as listed above. Any deviation from this will result in the contract being considered unguaranteeable by our insurers.

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#### **CONTACT INFORMATION**

For further information contact Bauder Limited.

Head office: T: 01473 257671 E: technical@bauder.co.uk

Area Technical Manager: Tom Pugh, T: 07740 922128

#### Site Technician: Toby Spayne, T: 07469 858610

Bauder reserves the right to amend information and product specifications without prior notice. All reasonable care has been taken to ensure that the information is current and correct at the time of issue. Please note that any future regulation changes could result in this specification requiring an update. In the case of a previous roof survey a new survey will be necessary to establish if the condition has further deteriorated and therefore if the specification requires amendment. The specifier is responsible for ensuring that this specification information is still current prior to issue, as Bauder Ltd can accept no liability for 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.