



CLIENT: TDA
REF NO: B211743
PROJECT NAME: SHERWELL VALLEY PRIMARY SCHOOL
ROOF AREA NAME: INFANTS
DATE: 27.4.21

'Safe2Torch' advice:

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

For 'TORCH-FREE' locations refer to the 'TORCH-FREE ZONES REPORT' attached.

SYSTEM CONSTRUCTION

Waterproofing System: Bauderflex System – Warm roof construction

Substrate: Overlay Felt

Roof Fall: 6°

EXISTING FELT OVERLAY

Carefully remove all chippings, debris, etc. Star cut and fully bond down all loose areas of the upper layer of felt. All the existing waterproofing must be removed from upstands, edge details, outlets, etc. and the exposed areas prepared to receive the new waterproofing. Cut and seal all loose areas of the remaining felt system i.e. blisters etc.

Where it has not been possible to ascertain whether there is existing insulation; should it be discovered that existing insulation is found within the ceiling void space, there may be a requirement for this to be removed to prevent interstitial condensation forming. Please contact **Bauder** in order that the build-up and proposals are assessed before works commence/continue.

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.



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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.

AIR AND VAPOUR CONTROL LAYER

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

For 'Torch-Free' zones the air and vapour control layer must be dressed up all upstands and to the full extent of the detail. This is to ensure that the detail is fully encapsulated to reduce the risk of fire to exposed combustible materials. The contractor is also to form all details in such a way that a fully bonded 100mm lap is obtained between the air and vapour control layer and the underlayer – Please see Bauder 'Torch-Free' detail drawings.

FA-TE INSULATION

Product: BauderPIR FA-TE

Description: aluminium faced, rigid urethane flatboard insulation.

Thickness: 100mm thick*.

Performance: Zero ODP, and a Green guide rating of 'A'.

Setting out:

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

Application: Bonded to the upper surface of the air and vapour control layer (AVCL) using suitable Bauder Polyurethane Insulation Adhesive. (Product selection assistance



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available from Bauder – It is not recommended to use Bauder PU Insulation Adhesive – Tin, for adhering two foil surfaces together). It is essential that the surface of the air and vapour control layer is clean, dry and free from dust etc., before applying the adhesive.

The boards are to be close butted and staggered.

The adhesive should be applied in strips following the direction of the board length giving 2 no. (increase to 3 no. at roof perimeter)** continuous and equally spaced adhesive beads within each 600 mm board width.

Adhesive bead widths are stated on appropriate product label and datasheet.

Multiple board layers: Where the total thickness of insulation required is greater than can be achieved by a single standard board, then additional boards can be adhered to the previous layer(s) to make up the total thickness required.

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

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

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

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

Protection to exposed edges of insulation: Reduced thickness treated timber batten as clause 640 (or equivalent plywood construction), a minimum width of 150 mm and 10 mm less in thickness than the insulation to accommodate the build-up of the waterproofing layers – all securely fixed to the deck. Outer edges chamfered at changes in level.

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

Important Notes:

- Foil to foil installation (e.g. FA-TE to FA-TE) must not be carried out using Bauder insulation adhesive from the 6.5 Kg tin.
- Foil to AVCL installation (e.g. FA Tapered directly to KSD Mica) must **not** be carried out using Bauder Foil Contact Adhesive (Canister).

**'U' value calculation attached.*

***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 $2 \times \text{the building height} \div 10$. 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.*

Note:-

The inclusion of flat board insulation will not improve upon the existing falls present within the roof area. It is best practice to rectify areas of standing water, and to prevent a build-up of algae or silt. Regular routine maintenance will need to be carried out,



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especially where standing water exists to deter a build-up of algae or silt, which may in turn have a detrimental impact on the surface of the waterproofing.
If standing water is to be avoided and to minimise the maintenance issues associated with accumulated silt and debris, then consideration should be given to improving the roof falls within the specification. In the event of any queries or for further information, **Bauder Limited** should be contacted.

MECHANICAL FIXING OF BITUMEN MEMBRANES ON ROOFS PITCHED MORE THAN 5°

MECHANICAL RETENTION PLATE

Material: New exterior grade plywood or OSB3 timber laminate plates, conforming to BS EN 636-3 for plywood & BS EN 300 for OSB3, & CPD/CE compliance, fixed directly through the insulation to the deck using recommended screw fasteners.

Dimensions: 18mm thick, 300mm in width and 2400mm in length, (cut from a 1200 x 2400 mm standard sheet to produce four equal width plates with no wastage). A continuous run of the retention plate will be required for each row where the cap sheet head laps are staggered. Head laps should not be fixed in a continuous line, unless the roof is less than the length of the roll from the ridge to the gutter eaves.

Insulation thickness: Where the mechanical retention plate is to be incorporated, the insulation below needs to be 20mm thinner to ensure the plate finishes virtually flush with the main area insulation. Mechanically fix the plate through to the deck using the specified thermally broken fasteners.

Priming: Bauder Primer-Activator (Canister), APR01-Black to seal and prepare the surface of the mechanical retention plate prior to the application of Bauder membranes.

Substrates generally: Substrate to be fixed to should be secure, clean, dry, smooth, and free from frost, contaminants, voids and protrusions.

Moisture content and stability of substrate: Must not impair roof integrity.

Preparation: 12 no. fastener holes to be pre-drilled in accordance with the Bauder guidance document for the mechanical retention plate. The heads of the SFS Isotak tube fasteners are not required to be recessed into the plate.

Metal decks only: The hole positions in the plate must be drilled to correspond with the centres of the deck crowns of the specified deck. For metal decks with larger crown/trough profile, it may be necessary to use a plate wider than 300mm to pick up the crown centres and ensure that the plate can be fixed along both sides of its length and remain fully supported.

Setting out of membranes: Parallel to roof slope, with successive layers carried over ridges.

Lengths (maximum): As per roll length.

End laps: Half stagger and align on alternate bitumen membranes.

MECHANICAL FASTENERS (MECHANICAL RETENTION PLATE ONLY)

Type: Iso-Tak Insulation tube fastener

Purpose: Used for securing the mechanical retention plate to the deck.

Supplier: SFS Group Fastening Technology Ltd. 153 Kirkstall Road, Leeds, West Yorkshire. LS4 2AT

Tel: +44 (0)113 208 5500 Fax: +44 (0)113 208 5539 Email: uk.leeds@sfsintec.biz



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Web: www.sfsintec.biz/uk

Product reference: Iso-Tak InsulationTube fastener with a minimum 45mm round head - Tube length must be a minimum of 70% of the total depth of the insulation. The screw fastener type as recommended by the supplier for the particular deck substrate. Please note that long screws and 80 x 40 mm washer plates are not suitable nor permitted for this application).

UNDERLAYER

BauderTEC Sprint DUO, 2mm thick, 200g/m² glass grille reinforced, self-adhesive elastomeric bitumen underlayer, fully bonded by removing the peel off release film. The side laps are to be 100mm and must be **laid red over blue**, and heat sealed/torched (depending on 'Torch-Free' & 'Safe to Torch' zones) and rolling with the **Bauder Long Handled Lap Roller** to extrude a continuous bead of bitumen. Head laps to be 100mm and staggered, side laps to be 80mm and heat sealed/torched (depending on 'Torch-Free' & 'Safe to Torch' zones) to extrude a continuous bead of bitumen. The underlayer must be taken up all upstands, edge details, in accordance with current British Codes of Practice, and fully heat sealed/torched (depending on 'Torch-Free' & 'Safe to Torch' zones) with the air and vapour control layer by a minimum 100mm.

Optional 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 **Bauder EGV 3.5** underlayer where this product is considered to be better for application to these surfaces. For all other situations, and particularly to vertical insulation, the Sprint Duo underlayer must be used.

MECHANICAL FIXING OF BITUMEN MEMBRANES ON ROOFS PITCHED MORE THAN 5°

All head laps of the capping sheet need to be mechanically fixed using 5 no. fixings per sheet at 200mm centres, using screw fasteners as per below, together with associated galvanised pressed steel washer plates. Screw fix into the underlying plywood/OSB3 timber laminate plate, ensuring that the pressure plates lie flush within membrane surface. Sheets should be set out parallel to roof slope, with successive layers carried over ridges, where these occur. End laps should be half-staggered and aligned on alternate bitumen membranes. If there is any doubt as to the exact requirements, please contact Bauder Limited before proceeding.

MECHANICAL FASTENERS (CAPPING SHEET ONLY)

Type: IWF-5.2x35 screws (suitable for plywood or OBS3) together with associated IFC/IW-82x40 galvanised pressed steel washer plates. Purpose used for fixing the membrane to the mechanical retention plate.

Supplier: SFS Group Fastening Technology Ltd. 153 Kirkstall Road, Leeds, West Yorkshire. LS4 2AT

Tel: +44 (0)113 208 5500 Fax: +44 (0)113 208 5539 Email: uk.leeds@sfsintec.biz

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CAPPING SHEET

Bauder K4E, 4mm thick, 250g/m² polyester reinforced, elastomeric bitumen capping sheet, charcoal grey, slate finish, fully bonded to the underlayer by torching in the approved **Bauder** manner. Head laps to be 100mm, side laps to be 80mm, torch sealed to provide a continuous bitumen bead extrusion from all laps. **IMPORTANT NOTE:** The mineral slate finish is a natural product, so the raw material may differ in colour and shade, over which Bauder has no control. There may also be colour variations between each roll of membrane.

UPSTANDS AND DETAILING

Detail work to be carried out in Bauder K4E 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.

The minimum recommended height for constructing waterproofing details is 150mm from the top of the waterproofing. Special attention should be paid to all structures, such as rooflights, counter-flashings, window and door sills, etc. These may have to be raised to enable a 150mm high waterproofing detail to be formed. Bauder cannot take responsibility for water ingress over waterproofing details insufficiently high.

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

Level Thresholds: Acceptable, providing conforms to BS6229:2018 and current NHBC Standards, chapter, 7.1.

Requirements:

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

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

Note: Bauder recommends the installation of a linear drain (Bauder KH-60 linear drain is suitable for this purpose) in front of the access door threshold, to help prevent rainwater splash back and snow build-up.

ADDITIONAL FIXING OF BITUMEN MEMBRANES TO UPSTANDS

Screw fix through into the underlying substrate as per the requirements set out below and in accordance with the Bauder RBM Installation Guide.

Capping Sheets:



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- **Fixing Requirement:** Upstand details in excess of 250 mm in height; the top leading edge of the capping sheet will need to be mechanically fixed using 5 no. fixings per sheet.
 - **Fixing Pattern:** Set two fixings, one either side of the sheet set in 50mm from each edge. The three remaining fasteners equally spaced in between.
 - **Cap sheet cover flashing:** A separate flashing of capping sheet will be required to cover the fixings.

Please note: Up to and including 250mm, it is permissible to use a **Bauder Termination Bar** to mechanically fix the top leading edge; however, Termination bars are not suitable for brickwork substrates. No additional cover flashing is required.

Underlayers:

- **Fixing Requirement:** Where the height of the insulated upstand is in excess of 500mm, make provision for mechanically fixing through the underlayer using 5 no. fixings per sheet, in a row across the sheet.
- **Fixing Pattern:** Set two fixings, one either side of the sheet set in 50mm from each edge. The three remaining fasteners equally spaced in between.
- **Midway point fastening up to 1200mm:** Fasten at the midway point of the upstand height, with the maximum upstand height for one row of fixings being 1200mm. Anything above 1200mm will require an additional row of fixings through the underlayer – please see below:

Upstand height:

- o 600mm: fix underlayer at 300mm and capping sheet at top leading edge.
- o 900mm: fix underlayer at 450mm and capping sheet at top leading edge.
- o 1200mm: fix underlayer at 600mm and capping sheet at top leading edge.
- o 1500mm: fix underlayer at 500mm and 1000mm and capping sheet at top leading edge.
- o 1800mm: fix underlayer at 600mm and 1200mm and capping sheet at top leading edge.

For upstand heights in excess of 1800mm, please contact Bauder for further advice.

MECHANICAL FASTENER SUPPLIER

SFS Group Fastening Technology Ltd. 153 Kirkstall Road, Leeds, West Yorkshire. LS4 2AT

Tel: +44 (0)113 208 5500, Fax: +44 (0)113 208 5539, Email: uk.leeds@sfsintec.biz

Web: www.sfsintec.biz/uk

Mechanical Fasteners (Cold Roof Upstands):

Type: IWF-5.2x35 screws together with associated IFC/IW-82x40 galvanised pressed steel washer plates.

Mechanical Fasteners (Warm Roof Upstands):

Type: Respective tube washers to be used for both membrane and insulation.

Product reference: Tube fastener - Tube size and fastener type for both membrane and insulation as recommended by supplier specifically for project and installed in accordance to their fixing plan. Please note that insulation tubes (round) differ from membrane tubes (rectangular 80 x 40 mm).



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

- For detailing application in locations constructed from or within the 'Torch-Free' & 'Safe to Torch' zones to potentially combustible materials or otherwise where it is considered appropriate by the contractor necessary to minimise the potential risk.
 - **Primer: Bauder Activator-Primer (Canister), APR01-Black** must be used when using Bauder self-adhesive membranes and a 'Torch-Free' application is required.
 - **Underlayers:** it is permissible to use a Bauder self-adhesive membrane so long as this product is a recognised component of the system specified.
 - Acceptable alternatives underlayers are listed below: -
 - **Bauder EGV 3.5** to be replaced with **Bauder Sprint Duo**
 - **Capping sheets:** Where appropriate, the installing contractor can use **Bauder KSO-P SN / KSO SN** self-adhesive capping sheet, applied using the hot air hand tools approved for use with bituminous systems. Please note that **Bauder Activator-Primer (Canister), APR01-Black** must be applied to the underlayer prior to installation of the self-adhesive capping sheet.
Bauder KSO-P SN is only available in one colour – Charcoal Grey.
Bauder KSO SN is available in two colours – Natural Slate or Brown.
Self-adhered membranes - Mechanically fix the top leading edge of all upstand details at 300mm centres using appropriate fasteners, and suitable termination bar if required.
- Approved Hot Air Equipment**
- The **Bauder KSO-P SN / KSO SN** membrane must be applied using the approved hot air hand tools. The list of permissible hot air electrical equipment suppliers for installing Bauder waterproofing membranes are stated below. These are available either for purchase or hire from the below companies:

HOT AIR WELDING EQUIPMENT

LEISTER

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

SIEVERT

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

NON-COMBUSTIBLE SURFACES - ALTERNATIVE DETAILING MEMBRANES

- 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.



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TECHNICAL NOTES

1. 50mm x 50mm **BauderPIR 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.
2. Against all insulation boards where the edge of the board is susceptible to mechanical damage, provision is to be made to supply and fix a timber protection batten 10mm thinner than the insulation. This to be suitably mechanically fixed to the roof deck. On internal details such as internal gutters/outlets it is permissible to use a metal hard edge angle.
3. When the ambient temperature is below 5°C, care should be taken to ensure proper adhesion of the self-adhesive membranes.
4. Any peculiarities or details discovered, which might affect the performance of the **Bauder** system, should be reported immediately to the specifier and **Bauder Limited** in order that they may assist in overcoming the problem.
5. At the end of each working day, the new waterproofing should be terminated with a secure and waterproof temporary seal, which will be left in situ, utilising **Bauder** self-adhesive underlayer material (e.g. **BauderTEC Sprint DUO**) to create the seal. The **Bauder** self-adhesive underlayer should be extended onto the flat AVCL by a minimum of 200mm from the exposed edge of the insulation and heat activate to ensure a satisfactory seal.
To ensure that no moisture contamination of the system can occur between each working period, it is essential that the night seal is properly and securely bonded. No mopping or loose covers will be permitted.
6. 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 until all associated trades are complete and the roof areas are clear from all debris and protection layers.
7. 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 recommissioned on completion of the roofing works in accordance with the client's detailed specification.
8. 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 all round. In the case of heavy items it may be necessary to introduce a load spreading slab, please contact **Bauder** for further advice.

ADDITIONAL ITEMS

Provision should be made by the contractor to:-

- **Form a Weltded Drip to Edge Kerb (C01)**

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Supply and install a suitable sized soft wood tanalised timber drip batten to all edge kerbs. Fixings are to be screwed at 300mm centres, using plugs when fixing into masonry or concrete. A weltd drip detail is to be formed in Bauder self-adhesive capping sheet if using Torch-Free methods or Bauder slate finished torch applied capping sheet for Safe to Torch methods, stagger nailed at 50mm centres with large headed galvanised clout nails and turned back around a mechanically fixed, pre-primed, suitable former and dressed onto the roof by a minimum of 150mm.

Please refer to Bauder standard detail for Weltd Drip.

- **Weltd Drip to External Gutters (Flat Board System) (C06)**
Supply and fix a treated timber edge plate to all perimeters which are designed to shed water. The plate is to be 10mm less than the thickness of the insulation and 150mm wide to accommodate the thickness of the drip flashing so as to prevent a water check from occurring. Supply and fix a suitably sized soft wood tanalised timber drip batten to the top edge of the perimeter face. Fixings are to be screwed at 300mm centres, using plugs when fixing into masonry or concrete. A weltd drip detail is to be formed in Bauder self-adhesive capping sheet if using Torch-Free methods or Bauder slate finished torch applied capping sheet for Safe to Torch methods, stagger nailed at 50mm centres with large headed galvanised clout nails and turned back around a mechanically fixed, pre-primed, suitable former and dressed onto the roof by a minimum of 150mm.
Please refer to Bauder standard detail for Weltd Drip.
- **Retain Coated Lightning Conductor (Type 4 Clip) (M02)**
Temporarily remove the PVC coated lightning conductor without buckling or damaging so as to allow for the new waterproofing to be installed beneath. The lightning conductor is to be replaced on completion using **Bauder type 4 conductor clips** incorporating Bauder capping sheet pad fully bonded using suitable heating methods to the main capping sheet at 1m centres. The fixing to the new membranes is only to be carried out by the approved **Bauder** contractor. The re-commissioning of the conductor is to be carried out by a specialist company in conjunction with the roofing contractor.
- Remove the existing metal verge piece and install a 30mm gutter to the cladding abutment. Reinstall the existing verge flashing upon completion.
- Ply out the rendered upstand between the two pitched sections and take the new waterproofing tight under the soffit and terminate with a termination bar. The ends will need to be capped with either lead or a plastic trim.
- Install new white uPVC fascia's, soffits, and guttering. Fascia's will need to accommodate the new roof height; the soffits won't need any ventilation trims or sockets and be fixed in accordance with manufacturer's instructions. The gutters are to match the existing size and drainage positions. The product should be manufactured by Swish or similar approved.



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WORKMANSHIP

- [1] The **Bauder** System must be laid with the use of roll bars, as provided by **Bauder Limited** or equal and approved.
- [2] Any building work which is the responsibility of the roofing contractor and has a bearing on the life of the **Bauderflex Roof System**, must be carried out by properly trained tradesmen.
- [3] Consideration must be given by the contractor at all times to the aesthetic appearance of the roof, i.e. alternate head laps to be in line and no unnecessary short pieces of capping sheet are to be used.

HEALTH & SAFETY INFORMATION – ROOFING WORK

- [1] Follow the advice shown in the "Safe2Torch 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 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.
- [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.



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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.
- [14] No work must be carried out on fragile roofs or where there are skylights unless suitable precautions have been taken to prevent persons falling through fragile roofs and openings. In particular, the following are likely to be fragile:
 - Non reinforced fibre cement sheets e.g. asbestos
 - Corroded metal decking
 - Woodwool slabs
 - Rotten chipboard or similar
 - Stramit
 - Slates or tiles



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- Old roof lights
- Glass (including wired)

Specifying non fragile rooflights will help reduce the risk of falls from height. A non-fragility rating is required by the HSE (Health and Safety Executive) in order to comply with CDM (Construction Design and Management) Regulations 2015.

- [15] HSE guidance must be followed when carrying out any work involving interference with asbestos.

IMPORTANT NOTE:

On sites where asbestos has or has possibly been detected, it is to be treated in accordance with the **Control of Asbestos Regulations 2012**.
Bauder specification documentation is subject to any revisions necessary pending the findings from the above.

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 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.

CONTACT INFORMATION

For Further information contact Bauder Limited

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

Area Technical Manager: Liam Rose T: 07771 666200

Site Technician: Jim Marshall T: 07545 642305

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



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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.



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'Safe2Torch' advice:

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

For 'TORCH-FREE' locations refer to the 'TORCH-FREE ZONES REPORT' attached.

SYSTEM CONSTRUCTION

Waterproofing System: Bauderflex System – Warm roof construction

Substrate: Existing Concrete Deck/Screed

Roof Fall: 1°

STRIP BACK TO EXISTING SCREED

Strip and remove and appropriately discard all existing roof coverings to expose the original sand/cement screed. The waterproofing must also be removed from all upstands and edge details.

If it is discovered that this screed is degraded in any way and is beyond localised repair, it is imperative that the approved roofing contractor informs **both the client and Bauder Limited** immediately in order that the problem be addressed. The recommended surface finish for concrete decks and screeds is a U4/wood float finish.

The surface of the screed should be examined and then prepared by removing any rough edges and/or defects in its surface and repairing any localised damaged areas.

Note: - 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 screeded deck.

Where it has not been possible to ascertain whether there is existing insulation; should it be discovered that existing insulation is found within the ceiling void space, there may be a requirement for this to be removed to prevent interstitial condensation forming. Please contact **Bauder** in order that the build-up and proposals are assessed before works commence/continue.



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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/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.

AIR AND VAPOUR CONTROL LAYER

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

For 'Torch-Free' zones the air and vapour control layer must be dressed up all upstands and to the full extent of the detail. This is to ensure that the detail is fully encapsulated to reduce the risk of fire to exposed combustible materials. The contractor is also to form all details in such a way that a fully bonded 100mm lap is obtained between the air and vapour control layer and the underlayer – Please see Bauder 'Torch-Free' detail drawings.

FA-TE INSULATION

Product: BauderPIR FA-TE

Description: aluminium faced, rigid urethane flatboard insulation.



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Thickness: 120mm thick*.

Performance: Zero ODP, and a Green guide rating of 'A'.

Setting out:

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

Application: Bonded to the upper surface of the air and vapour control layer (AVCL) using suitable Bauder Polyurethane Insulation Adhesive. (Product selection assistance available from Bauder – It is not recommended to use Bauder PU Insulation Adhesive – Tin, for adhering two foil surfaces together). It is essential that the surface of the air and vapour control layer is clean, dry and free from dust etc., before applying the adhesive.

The boards are to be close butted and staggered.

The adhesive should be applied in strips following the direction of the board length giving 2 no. (increase to 3 no. at roof perimeter)** continuous and equally spaced adhesive beads within each 600 mm board width.

Adhesive bead widths are stated on appropriate product label and datasheet.

Multiple board layers: Where the total thickness of insulation required is greater than can be achieved by a single standard board, then additional boards can be adhered to the previous layer(s) to make up the total thickness required.

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

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

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

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

Protection to exposed edges of insulation: Reduced thickness treated timber batten as clause 640 (or equivalent plywood construction), a minimum width of 150 mm and 10 mm less in thickness than the insulation to accommodate the build-up of the waterproofing layers – all securely fixed to the deck. Outer edges chamfered at changes in level.

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

Important Notes:

- Foil to foil installation (e.g. FA-TE to FA-TE) must not be carried out using Bauder insulation adhesive from the 6.5 Kg tin.
- Foil to AVCL installation (e.g. FA Tapered directly to KSD Mica) must **not** be carried out using Bauder Foil Contact Adhesive (Canister).

*'U' value calculation attached.

**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



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over 10m, uses the calculation of $2 \times \text{the building height} \div 10$. 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.

Note:-

The inclusion of flat board insulation will not improve upon the existing falls present within the roof area. It is best practice to rectify areas of standing water, and to prevent a build-up of algae or silt. Regular routine maintenance will need to be carried out, especially where standing water exists to deter a build-up of algae or silt, which may in turn have a detrimental impact on the surface of the waterproofing.

If standing water is to be avoided and to minimise the maintenance issues associated with accumulated silt and debris, then consideration should be given to improving the roof falls within the specification. In the event of any queries or for further information, **Bauder Limited** should be contacted.

UNDERLAYER

BauderTEC Sprint DUO, 2mm thick, 200g/m² glass grille reinforced, self-adhesive elastomeric bitumen underlayer, fully bonded by removing the peel off release film. The side laps are to be 100mm and must be **laid red over blue**, and heat sealed/torched (depending on 'Torch-Free' & 'Safe to Torch' zones) and rolling with the **Bauder Long Handled Lap Roller** to extrude a continuous bead of bitumen. Head laps to be 100mm and staggered, side laps to be 80mm and heat sealed/torched (depending on 'Torch-Free' & 'Safe to Torch' zones) to extrude a continuous bead of bitumen. The underlayer must be taken up all upstands, edge details, in accordance with current British Codes of Practice, and fully heat sealed/torched (depending on 'Torch-Free' & 'Safe to Torch' zones) with the air and vapour control layer by a minimum 100mm.

Optional 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 **Bauder EGV 3.5** underlayer where this product is considered to be better for application to these surfaces. For all other situations, and particularly to vertical insulation, the Sprint Duo underlayer must be used.

CAPPING SHEET

Bauder K4E, 4mm thick, 250g/m² polyester reinforced, elastomeric bitumen capping sheet, charcoal grey, slate finish, fully bonded to the underlayer by torching in the approved **Bauder** manner. Head laps to be 100mm, side laps to be 80mm, torch sealed to provide a continuous bitumen bead extrusion from all laps. **IMPORTANT NOTE:** The mineral slate finish is a natural product, so the raw material may differ in colour and shade, over which Bauder has no control. There may also be colour variations between each roll of membrane.



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UPSTANDS AND DETAILING

Detail work to be carried out in Bauder K4E 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.

The minimum recommended height for constructing waterproofing details is 150mm from the top of the waterproofing. Special attention should be paid to all structures, such as rooflights, counter-flashings, window and door sills, etc. These may have to be raised to enable a 150mm high waterproofing detail to be formed. Bauder cannot take responsibility for water ingress over waterproofing details insufficiently high.

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

Level Thresholds: Acceptable, providing conforms to BS6229:2018 and current NHBC Standards, chapter, 7.1.

Requirements:

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

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

Note: Bauder recommends the installation of a linear drain (Bauder KH-60 linear drain is suitable for this purpose) in front of the access door threshold, to help prevent rainwater splash back and snow build-up.

ADDITIONAL FIXING OF BITUMEN MEMBRANES TO UPSTANDS

Screw fix through into the underlying substrate as per the requirements set out below and in accordance with the Bauder RBM Installation Guide.

Capping Sheets:

- **Fixing Requirement:** Upstand details in excess of 250 mm in height; the top leading edge of the capping sheet will need to be mechanically fixed using 5 no. fixings per sheet.
- **Fixing Pattern:** Set two fixings, one either side of the sheet set in 50mm from each edge. The three remaining fasteners equally spaced in between.
- **Cap sheet cover flashing:** A separate flashing of capping sheet will be required to cover the fixings.
Please note: Up to and including 250mm, it is permissible to use a **Bauder Termination Bar** to mechanically fix the top leading edge; however, Termination bars are not suitable for brickwork substrates. No additional cover flashing is required.

Underlayers:



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- **Fixing Requirement:** Where the height of the insulated upstand is in excess of 500mm, make provision for mechanically fixing through the underlayer using 5 no. fixings per sheet, in a row across the sheet.
- **Fixing Pattern:** Set two fixings, one either side of the sheet set in 50mm from each edge. The three remaining fasteners equally spaced in between.
- **Midway point fastening up to 1200mm:** Fasten at the midway point of the upstand height, with the maximum upstand height for one row of fixings being 1200mm. Anything above 1200mm will require an additional row of fixings through the underlayer – please see below:
Upstand height:
 - o 600mm: fix underlayer at 300mm and capping sheet at top leading edge.
 - o 900mm: fix underlayer at 450mm and capping sheet at top leading edge.
 - o 1200mm: fix underlayer at 600mm and capping sheet at top leading edge.
 - o 1500mm: fix underlayer at 500mm and 1000mm and capping sheet at top leading edge.
 - o 1800mm: fix underlayer at 600mm and 1200mm and capping sheet at top leading edge.

For upstand heights in excess of 1800mm, please contact Bauder for further advice.

MECHANICAL FASTENER SUPPLIER

SFS Group Fastening Technology Ltd. 153 Kirkstall Road, Leeds, West Yorkshire. LS4 2AT

Tel: +44 (0)113 208 5500, Fax: +44 (0)113 208 5539, Email: uk.leeds@sfsintec.biz

Web: www.sfsintec.biz/uk

Mechanical Fasteners (Cold Roof Upstands):

Type: IWF-5.2x35 screws together with associated IFC/IW-82x40 galvanised pressed steel washer plates.

Mechanical Fasteners (Warm Roof Upstands):

Type: Respective tube washers to be used for both membrane and insulation.

Product reference: Tube fastener - Tube size and fastener type for both membrane and insulation as recommended by supplier specifically for project and installed in accordance to their fixing plan. Please note that insulation tubes (round) differ from membrane tubes (rectangular 80 x 40 mm).

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

- For detailing application in locations constructed from or within the 'Torch-Free' & 'Safe to Torch' zones to potentially combustible materials or otherwise where it is considered appropriate by the contractor necessary to minimise the potential risk.
- **Primer: Bauder Activator-Primer (Canister), APR01-Black** must be used when using Bauder self-adhesive membranes and a 'Torch-Free' application is required.
- **Underlayers:** it is permissible to use a Bauder self-adhesive membrane so long as this product is a recognised component of the system specified.



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- Acceptable alternatives underlayers are listed below: -
 - **Bauder EGV 3.5** to be replaced with **Bauder Sprint Duo**
 - **Capping sheets:** Where appropriate, the installing contractor can use **Bauder KSO-P SN / KSO SN** self-adhesive capping sheet, applied using the hot air hand tools approved for use with bituminous systems. Please note that **Bauder Activator-Primer (Canister), APR01-Black** must be applied to the underlayer prior to installation of the self-adhesive capping sheet.
Bauder KSO-P SN is only available in one colour – Charcoal Grey.
Bauder KSO SN is available in two colours – Natural Slate or Brown.
Self-adhered membranes - Mechanically fix the top leading edge of all upstand details at 300mm centres using appropriate fasteners, and suitable termination bar if required.
 - **Approved Hot Air Equipment**
 - The **Bauder KSO-P SN / KSO SN** membrane must be applied using the approved hot air hand tools. The list of permissible hot air electrical equipment suppliers for installing Bauder waterproofing membranes are stated below. These are available either for purchase or hire from the below companies:

HOT AIR WELDING EQUIPMENT

LEISTER

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

SIEVERT

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

NON-COMBUSTIBLE SURFACES - ALTERNATIVE DETAILING MEMBRANES

- 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.

TECHNICAL NOTES

1. 50mm x 50mm **BauderPIR 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.
2. Against all insulation boards where the edge of the board is susceptible to mechanical damage, provision is to be made to supply and fix a timber protection batten 10mm thinner than the insulation. This to be suitably mechanically fixed to the roof deck. On internal details such as internal gutters/outlets it is permissible to use a metal hard edge angle.



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3. When the ambient temperature is below 5°C, care should be taken to ensure proper adhesion of the self-adhesive membranes.
 4. Any peculiarities or details discovered, which might affect the performance of the **Bauder** system, should be reported immediately to the specifier and **Bauder Limited** in order that they may assist in overcoming the problem.
 5. At the end of each working day, the new waterproofing should be terminated with a secure and waterproof temporary seal, which will be left in situ, utilising **Bauder** self-adhesive underlayer material (e.g. **BauderTEC Sprint DUO**) to create the seal. The **Bauder** self-adhesive underlayer should be extended onto the flat AVCL by a minimum of 200mm from the exposed edge of the insulation and heat activate to ensure a satisfactory seal.
To ensure that no moisture contamination of the system can occur between each working period, it is essential that the night seal is properly and securely bonded. No mopping or loose covers will be permitted.
 6. 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 until all associated trades are complete and the roof areas are clear from all debris and protection layers.
 7. 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 recommissioned on completion of the roofing works in accordance with the client's detailed specification.
 8. 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 all round. In the case of heavy items it may be necessary to introduce a load spreading slab, please contact **Bauder** for further advice.

ADDITIONAL ITEMS

Provision should be made by the contractor to:-

- **New Lead Liner to Chute Outlets Through Perimeter Detail (J11)**
Supply new Code 4 lead chute liners to all drainage chutes. All chute liners are to be site fabricated to suit the individual details with all joints being lead burned. The chute liner should be manufactured to provide a minimum of 100 mm bonding area for the cap sheet waterproofing to lap onto the lead. The flange of the lead sleeve must be positioned between the underlayer and capping sheet to ensure best security. On completion, the lead liner must be turned down and dressed into the hopper head and the ears returned back and chased into the outer wall.
- Strip off the existing waterproofing to the parapets and install new plywood to encapsulate the parapet. The parapet will need to be insulated with 30mm PIR FATE to prevent cold bridging. Install a new welged drip edge to the outside edge.



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WORKMANSHIP

- [1] The **Bauder** System must be laid with the use of roll bars, as provided by **Bauder Limited** or equal and approved.
- [2] Any building work which is the responsibility of the roofing contractor and has a bearing on the life of the **Bauderflex Roof System**, must be carried out by properly trained tradesmen.
- [3] Consideration must be given by the contractor at all times to the aesthetic appearance of the roof, i.e. alternate head laps to be in line and no unnecessary short pieces of capping sheet are to be used.

HEALTH & SAFETY INFORMATION – ROOFING WORK

- [1] Follow the advice shown in the "Safe2Torch 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 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.
- [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.



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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.
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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 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

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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: Liam Rose T: 07771 666200

Site Technician: Jim Marshall T: 07545 642305

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



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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.



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'Safe2Torch' advice:

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

SYSTEM CONSTRUCTION

Waterproofing System: Bauderflex System – Warm roof construction

Substrate: Existing Concrete Deck/Screed

Roof Fall: 1°

REMOVE SCREED BACK TO STRUCTURAL CONCRETE DECK

Strip and remove and appropriately discard all existing roof coverings and the underlying screed to expose the structural deck. The waterproofing must also be removed from all upstands and edge details.

If it is discovered that the deck surface is defective or unsuitable in any way (e.g. levels or back-falls) and is beyond localised remedial treatment, it is imperative that the approved roofing contractor informs **both the client and Bauder Limited** immediately in order that the problem be addressed. The recommended surface finish for concrete decks and screeds is a U4/wood float finish.

The surface of the deck should be examined and then prepared by removing any rough edges and/or defects in its surface and repairing any localised damaged areas.

Where it has not been possible to ascertain whether there is existing insulation; should it be discovered that existing insulation is found within the ceiling void space, there may be a requirement for this to be removed to prevent interstitial condensation forming. Please contact **Bauder** in order that the build-up and proposals are assessed before works commence/continue.

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.**



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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.

UNDERLAYER

BauderTEC Sprint DUO, 2mm thick, 200g/m² glass grille reinforced, self-adhesive elastomeric bitumen underlayer, fully bonded by removing the peel off release film. The side laps are to be 100mm and must be **laid red over blue**, and heat sealed/torched (depending on 'Torch-Free' & 'Safe to Torch' zones) and rolling with the **Bauder Long Handled Lap Roller** to extrude a continuous bead of bitumen. Head laps to be 100mm and staggered, side laps to be 80mm and heat sealed/torched (depending on 'Torch-Free' & 'Safe to Torch' zones) to extrude a continuous bead of bitumen. The underlayer must be taken up all upstands, edge details, in accordance with current British Codes of Practice, and fully heat sealed/torched (depending on 'Torch-Free' & 'Safe to Torch' zones) with the air and vapour control layer by a minimum 100mm.

Optional 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 **Bauder EGV 3.5** underlayer where this product is considered to be better for application to these surfaces. For all other situations, and particularly to vertical insulation, the Sprint Duo underlayer must be used.

CAPPING SHEET

Bauder K4E, 4mm thick, 250g/m² polyester reinforced, elastomeric bitumen capping sheet, charcoal grey, slate finish, fully bonded to the underlayer by torching in the approved **Bauder** manner. Head laps to be 100mm, side laps to be 80mm, torch sealed to provide a continuous bitumen bead extrusion from all laps.



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IMPORTANT NOTE: The mineral slate finish is a natural product, so the raw material may differ in colour and shade, over which Bauder has no control. There may also be colour variations between each roll of membrane.

UPSTANDS AND DETAILING

Detail work to be carried out in Bauder K4E 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.

The minimum recommended height for constructing waterproofing details is 150mm from the top of the waterproofing. Special attention should be paid to all structures, such as rooflights, counter-flashings, window and door sills, etc. These may have to be raised to enable a 150mm high waterproofing detail to be formed. Bauder cannot take responsibility for water ingress over waterproofing details insufficiently high.

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

Level Thresholds: Acceptable, providing conforms to BS6229:2018 and current NHBC Standards, chapter, 7.1.

Requirements:

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

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

Note: Bauder recommends the installation of a linear drain (Bauder KH-60 linear drain is suitable for this purpose) in front of the access door threshold, to help prevent rainwater splash back and snow build-up.

ADDITIONAL FIXING OF BITUMEN MEMBRANES TO UPSTANDS

Screw fix through into the underlying substrate as per the requirements set out below and in accordance with the Bauder RBM Installation Guide.

Capping Sheets:

- **Fixing Requirement:** Upstand details in excess of 250 mm in height; the top leading edge of the capping sheet will need to be mechanically fixed using 5 no. fixings per sheet.
- **Fixing Pattern:** Set two fixings, one either side of the sheet set in 50mm from each edge. The three remaining fasteners equally spaced in between.
- **Cap sheet cover flashing:** A separate flashing of capping sheet will be required to cover the fixings.



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Please note: Up to and including 250mm, it is permissible to use a **Bauder Termination Bar** to mechanically fix the top leading edge; however, Termination bars are not suitable for brickwork substrates. No additional cover flashing is required.

Underlayers:

- **Fixing Requirement:** Where the height of the insulated upstand is in excess of 500mm, make provision for mechanically fixing through the underlayer using 5 no. fixings per sheet, in a row across the sheet.
- **Fixing Pattern:** Set two fixings, one either side of the sheet set in 50mm from each edge. The three remaining fasteners equally spaced in between.
- **Midway point fastening up to 1200mm:** Fasten at the midway point of the upstand height, with the maximum upstand height for one row of fixings being 1200mm. Anything above 1200mm will require an additional row of fixings through the underlayer – please see below:
Upstand height:
 - o 600mm: fix underlayer at 300mm and capping sheet at top leading edge.
 - o 900mm: fix underlayer at 450mm and capping sheet at top leading edge.
 - o 1200mm: fix underlayer at 600mm and capping sheet at top leading edge.
 - o 1500mm: fix underlayer at 500mm and 1000mm and capping sheet at top leading edge.
 - o 1800mm: fix underlayer at 600mm and 1200mm and capping sheet at top leading edge.

For upstand heights in excess of 1800mm, please contact Bauder for further advice.

MECHANICAL FASTENER SUPPLIER

SFS Group Fastening Technology Ltd. 153 Kirkstall Road, Leeds, West Yorkshire. LS4 2AT

Tel: +44 (0)113 208 5500, Fax: +44 (0)113 208 5539, Email: uk.leeds@sfsintec.biz

Web: www.sfsintec.biz/uk

Mechanical Fasteners (Cold Roof Upstands):

Type: IWF-5.2x35 screws together with associated IFC/IW-82x40 galvanised pressed steel washer plates.

Mechanical Fasteners (Warm Roof Upstands):

Type: Respective tube washers to be used for both membrane and insulation.

Product reference: Tube fastener - Tube size and fastener type for both membrane and insulation as recommended by supplier specifically for project and installed in accordance to their fixing plan. Please note that insulation tubes (round) differ from membrane tubes (rectangular 80 x 40 mm).

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



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- For detailing application in locations constructed from or within the 'Torch-Free' & 'Safe to Torch' zones to potentially combustible materials or otherwise where it is considered appropriate by the contractor necessary to minimise the potential risk.
- **Primer: Bauder Activator-Primer (Canister), APR01-Black** must be used when using Bauder self-adhesive membranes and a 'Torch-Free' application is required.
- **Underlayers:** it is permissible to use a Bauder self-adhesive membrane so long as this product is a recognised component of the system specified.
- Acceptable alternatives underlayers are listed below: -
 - **Bauder EGV 3.5** to be replaced with **Bauder Sprint Duo**
- **Capping sheets:** Where appropriate, the installing contractor can use **Bauder KSO-P SN / KSO SN** self-adhesive capping sheet, applied using the hot air hand tools approved for use with bituminous systems. Please note that **Bauder Activator-Primer (Canister), APR01-Black** must be applied to the underlayer prior to installation of the self-adhesive capping sheet.
Bauder KSO-P SN is only available in one colour – Charcoal Grey.
Bauder KSO SN is available in two colours – Natural Slate or Brown.
Self-adhered membranes - Mechanically fix the top leading edge of all upstand details at 300mm centres using appropriate fasteners, and suitable termination bar if required.
- **Approved Hot Air Equipment**
- The **Bauder KSO-P SN / KSO SN** membrane must be applied using the approved hot air hand tools. The list of permissible hot air electrical equipment suppliers for installing Bauder waterproofing membranes are stated below. These are available either for purchase or hire from the below companies:

HOT AIR WELDING EQUIPMENT

LEISTER

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

SIEVERT

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

NON-COMBUSTIBLE SURFACES - ALTERNATIVE DETAILING MEMBRANES

- 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.

TECHNICAL NOTES

1. 50mm x 50mm **BauderPIR angle fillets** must be used at all right-angled upstands. **Angle fillets will need to be installed using Bauder insulation**



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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.

2. Against all insulation boards where the edge of the board is susceptible to mechanical damage, provision is to be made to supply and fix a timber protection batten 10mm thinner than the insulation. This to be suitably mechanically fixed to the roof deck. On internal details such as internal gutters/outlets it is permissible to use a metal hard edge angle.
3. When the ambient temperature is below 5°C, care should be taken to ensure proper adhesion of the self-adhesive membranes.
4. Any peculiarities or details discovered, which might affect the performance of the **Bauder** system, should be reported immediately to the specifier and **Bauder Limited** in order that they may assist in overcoming the problem.
5. At the end of each working day, the new waterproofing should be terminated with a secure and waterproof temporary seal, which will be left in situ, utilising **Bauder** self-adhesive underlayer material (e.g. **BauderTEC Sprint DUO**) to create the seal. The **Bauder** self-adhesive underlayer should be extended onto the flat AVCL by a minimum of 200mm from the exposed edge of the insulation and heat activate to ensure a satisfactory seal.
To ensure that no moisture contamination of the system can occur between each working period, it is essential that the night seal is properly and securely bonded. No mopping or loose covers will be permitted.
6. 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 until all associated trades are complete and the roof areas are clear from all debris and protection layers.
7. 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 recommissioned on completion of the roofing works in accordance with the client's detailed specification.
8. 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 all round. In the case of heavy items it may be necessary to introduce a load spreading slab, please contact **Bauder** for further advice.

WORKMANSHIP

- [1] The **Bauder** System must be laid with the use of roll bars, as provided by **Bauder Limited** or equal and approved.
- [2] Any building work which is the responsibility of the roofing contractor and has a bearing on the life of the **Bauderflex Roof System** must be carried out by properly trained tradesmen.
- [3] Consideration must be given by the contractor at all times to the aesthetic appearance of the roof, i.e. alternate head laps to be in line and no unnecessary short pieces of capping sheet are to be used.



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ADDITIONAL ITEMS

- **Lift Existing Flashings (A07)**
Retain the existing counter-flashings by carefully lifting them to expose the upstand. Check for any degradation and repair or replace defective lengths as necessary. On completion, ensure that the counter-flashings are correctly re-dressed over the new waterproofing. Check to ensure the counter-flashings are secured within the chase and repair or replace any defective pointing using **Bauder sealant primer** prior to the application of **Bauder sealant**.
- **Form a Weltd Drip to Edge Kerb (C01)**
Supply and install a suitable sized soft wood tanalised timber drip batten to all edge kerbs. Fixings are to be screwed at 300mm centres, using plugs when fixing into masonry or concrete. A weltd drip detail is to be formed in Bauder self-adhesive capping sheet if using Torch-Free methods or Bauder slate finished torch applied capping sheet for Safe to Torch methods, stagger nailed at 50mm centres with large headed galvanised clout nails and turned back around a mechanically fixed, pre-primed, suitable former and dressed onto the roof by a minimum of 150mm.
Please refer to Bauder standard detail for Weltd Drip.
- **Weltd Drip to External Gutters (Un-Insulated System) (C08)**
Supply and fix a suitably sized soft wood tanalised timber drip batten to the top face of all perimeters which are designed to shed water. Fixings are to be screwed at 300mm centres, using plugs when fixing into masonry or concrete. A weltd drip detail is to be formed in Bauder self-adhesive capping sheet if using Torch-Free methods or Bauder slate finished torch applied capping sheet for Safe to Torch methods, stagger nailed at 50mm centres with large headed galvanised clout nails and turned back around a mechanically fixed, pre-primed, suitable former and dressed onto the roof by a minimum of 150mm.
Please refer to Bauder standard detail for Weltd Drip.

HEALTH & SAFETY INFORMATION – ROOFING WORK

- [1] Follow the advice shown in the "Safe2Torch 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.

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- [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 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.
- [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.



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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.
- [14] No work must be carried out on fragile roofs or where there are skylights unless suitable precautions have been taken to prevent persons falling through fragile roofs and openings. In particular, the following are likely to be fragile:
- Non reinforced fibre cement sheets e.g. asbestos
 - Corroded metal decking
 - Woodwool slabs
 - Rotten chipboard or similar
 - Stramit
 - Slates or tiles
 - Old roof lights
 - Glass (including wired)

Specifying non fragile rooflights will help reduce the risk of falls from height. A non-fragility rating is required by the HSE (Health and Safety Executive) in order to comply with CDM (Construction Design and Management) Regulations 2015.

- [15] HSE guidance must be followed when carrying out any work involving interference with asbestos.

IMPORTANT NOTE:

On sites where asbestos has or has possibly been detected, it is to be treated in accordance with the **Control of Asbestos Regulations 2012**.

Bauder specification documentation is subject to any revisions necessary pending the findings from the above.

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 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.



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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.

CONTACT INFORMATION

For further information contact Bauder Limited

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

Area Technical Manager: Liam Rose T: 07771 666200

Site Technician: Jim Marshall T: 07545 642305

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.