

CLIENT: TDA  
PROJECT NAME: SHERWELL VALLEY PRIMARY SCHOOL  
ROOF AREA NAME: INFANTS  
DATE: 27.4.21

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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 self-adhesive membrane should be used as described in: 'TORCH-FREE' & 'SAFE TO TORCH' ZONES - ALTERNATIVE MEMBRANES AND APPLICATION.*

### **SYSTEM CONSTRUCTION**

**Waterproofing 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.

### **PRIMER**

**Activator-Primer (Canister)** All areas receiving the new self-adhesive membranes to be thoroughly primed with **Activator-Primer (Canister)**.

**Purpose:** substrate primer to seal and prepare dry surfaces of a variety of common substrate material prior to the application of 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.

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**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**

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

### **PIR INSULATION**

**Product:** PIR

**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 Polyurethane Insulation Adhesive. 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 **Foil Contact Adhesive (Canister)** or **Polyurethane Insulation Adhesive – Twin Cartridge**.

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

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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 must not be carried out using insulation adhesive from the 6.5 Kg tin.
- Foil to AVCL installation must **not** be carried out using Foil Contact Adhesive (Canister).

*\*\*BS EN 1991-1-4 uses the following guidance to calculate perimeter zones. Buildings up to and including 10m in height have a perimeter zone of not more than 2m. Buildings over 10m, uses the calculation of  $2 \times \text{the building height} \div 10$ . 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.

**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.



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**Priming: Primer-Activator (Canister)**, to seal and prepare the surface of the mechanical retention plate prior to the application of 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

**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](mailto:uk.leeds@sfsintec.biz)

Web: [www.sfsintec.biz/uk](http://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**

2mm thick, 200g/m<sup>2</sup> 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 heat sealed/torched (depending on 'Torch-Free' & 'Safe to Torch' zones) and rolling with the **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.

#### **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.

#### **MECHANICAL FASTENERS (CAPPING SHEET ONLY)**

**Type:** IWF-5.2x35 screws (suitable for plywood or OBS3) together with associated

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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](mailto:uk.leeds@sfsintec.biz)

Web: [www.sfsintec.biz/uk](http://www.sfsintec.biz/uk)

### **CAPPING SHEET**

4mm thick, 250g/m<sup>2</sup> polyester reinforced, elastomeric bitumen capping sheet, charcoal grey, slate finish, fully bonded to the underlayer by torching in the approved manner. Head laps to be 100mm, side laps to be 80mm, torch sealed to provide a continuous bitumen bead extrusion from all laps.

### **UPSTANDS AND DETAILING**

Detail work to be carried out 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.

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.

### **ADDITIONAL FIXING OF BITUMEN MEMBRANES TO UPSTANDS**

Screw fix through into the underlying substrate as per the requirements set out below

#### **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 **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.

**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](mailto:uk.leeds@sfsintec.biz)  
Web: [www.sfsintec.biz/uk](http://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: Activator-Primer (Canister),** must be used when using self-adhesive membranes and a 'Torch-Free' application is required.
- **Underlayers:** it is permissible to use a self-adhesive membrane so long as this product is a recognised component of the system specified.

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- **Capping sheets:** Where appropriate, the installing contractor can use self-adhesive capping sheet, applied using the hot air hand tools approved for use with bituminous systems.

**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 membrane must be applied using the approved hot air hand tools. The list of permissible hot air electrical equipment suppliers for installing 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](mailto: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 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 Self-Adhesive Underlayer appropriate to the specified system must be used.

**TECHNICAL NOTES**

1. 50mm x 50mm **PIR angle fillets** must be used at all right-angled upstands. **Angle fillets will need to be installed using insulation adhesive**, or a suitable bitumen adhesive. Under no circumstances must fillets of an alternative material be incorporated (i.e. timber, cork, fibre, etc.)
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 system, should be reported immediately to the specifier
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 self-adhesive underlayer material to create the seal. The 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.

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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.
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 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,

#### **ADDITIONAL ITEMS**

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

- **Form a Weltded 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 weltded drip detail is to be formed in self-adhesive capping sheet if using Torch-Free methods or 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.
- **Weltded 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 suitable 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 weltded drip detail is to be formed in self-adhesive capping sheet if using Torch-Free methods or 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.
- **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 **conductor clips** incorporating capping sheet pad fully bonded using suitable heating methods to the main capping sheet at 1m centres. The re-commissioning of the conductor is to be carried out by a specialist company in conjunction with the roofing contractor.



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- Remove the existing metal verge piece and install a 30mm gutter to the cladding abutment. Reinstate 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.

### **WORKMANSHIP**

- [1] The System must be laid with the use of roll bars
- [2] Any building work which is the responsibility of the roofing contractor and has a bearing on the life of the **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

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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.
- [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

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- 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**.

**GUARANTEE**

A 20 year product and workmanship guarantee is to be provided upon completion. The system comprises the waterproofing membranes, insulation, air and vapour control layer, and attachment of these products.

**FIRE COMPLIANCE**

The proposed system must achieve a Broof(t4) system fire rating and evidence of this provided. The specific named vapour control layer, insulation name and thickness, underlay and capsheet should be named on either a BBA certificate or a test certificate based upon a TS1187 test.





CLIENT: TDA  
PROJECT NAME: SHERWELL VALLEY PRIMARY SCHOOL  
ROOF AREA NAME: MAIN BLOCK  
DATE: 28.04.21

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**SYSTEM CONSTRUCTION**

**Waterproofing System:** Warm roof construction  
**Substrate:** Existing Concrete Deck  
**Roof Fall:** 1°

**REMOVE EXISTING SYSTEM CONSTRUCTION BACK TO STRUCTURAL DECK**

Strip and remove and appropriately discard **all** the existing roof coverings, including EPDM layer, insulation, stone chippings, felt layers to expose the original structural concrete 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 (e.g. levels or back-falls, moisture retention in deck material) in any way and is beyond localised remedial treatment, it is imperative that the approved roofing contractor informs **the client** immediately in order that the problem be addressed.

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.

**PRIMER**

**Activator-Primer (Canister).** All areas receiving the new self-adhesive membranes to be thoroughly primed with **Activator-Primer (Canister)**

**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

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- 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.

### **AIR AND VAPOUR CONTROL LAYER**

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.

### **PIR INSULATION**

**Product:** PIR

**Description:** aluminium faced, rigid urethane flatboard insulation.

**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 Polyurethane Insulation Adhesive. 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.



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**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 **Foil Contact Adhesive (Canister)** or **Polyurethane Insulation Adhesive – Twin Cartridge**.

**Foil to Tissue Faced Boards:** These additional boards should be bonded using suitable 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.

*\*\*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, 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.

**UNDERLAYER**

2mm thick, 200g/m<sup>2</sup> 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 heat sealed/torched (depending on 'Torch-Free' & 'Safe to Torch' zones) and rolling with the **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.

**CAPPING SHEET**

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4mm thick, 250g/m<sup>2</sup> polyester reinforced, elastomeric bitumen capping sheet, charcoal grey, slate finish, fully bonded to the underlayer by torching in the approved manner. Head laps to be 100mm, side laps to be 80mm, torch sealed to provide a continuous bitumen bead extrusion from all laps.

### **UPSTANDS AND DETAILING**

Detail work to be carried out 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.

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

### **ADDITIONAL FIXING OF BITUMEN MEMBRANES TO UPSTANDS**

Screw fix through into the underlying substrate as per the requirements set out below

#### **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 **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.

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- 1800mm: fix underlayer at 600mm and 1200mm and capping sheet at top leading edge.

#### **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](mailto:uk.leeds@sfsintec.biz)

Web: [www.sfsintec.biz/uk](http://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: Activator-Primer (Canister)**, must be used when using self-adhesive membranes and a 'Torch-Free' application is required.
  - **Underlayers:** it is permissible to use a self-adhesive membrane so long as this product is a recognised component of the system specified.
  - **Capping sheets:** Where appropriate, the installing contractor can use self-adhesive capping sheet, applied using the hot air hand tools approved for use with bituminous systems.
  - **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 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](mailto:ch300@lister.co.uk)



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#### **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 Self-Adhesive Underlayer appropriate to the specified system must be used.

#### **TECHNICAL NOTES**

1. 50mm x 50mm **PIR angle fillets** must be used at all right-angled upstands. **Angle fillets will need to be installed using insulation adhesive**, or a suitable bitumen adhesive. Under no circumstances must fillets of an alternative material be incorporated (i.e. timber, cork, fibre, etc.)
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 system, should be reported immediately to the specifier 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 self-adhesive underlayer material to create the seal. The 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
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 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

#### **ADDITIONAL ITEMS**

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

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- **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 to prevent cold bridging. Install a new welted drip edge to the outside edge.

#### **WORKMANSHIP**

- [1] The System must be laid with the use of roll bars
- [2] Any building work which is the responsibility of the roofing contractor and has a bearing on the life of the **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

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rather than by temporary means. Where this is not available, it is the responsibility of the contractor to ensure a safe means of access, egress and a safe workplace.

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

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

- [8] The contractor must ensure that suitable written method statements and risk assessments are available for the work being undertaken. In particular, it is essential that manual handling methods be fully assessed as roofing materials are heavy and can cause serious injury.
- [9] The contractor must ensure that suitable information about the roof covering is provided to the Client at the end of the work to ensure that work in future can be carried out safely. This information will form part of the Safety File.
- [10] All persons working on the roof should be provided with, and wear, suitable personal protective equipment and wet weather gear. Training must be provided to all contract staff on the safe use of the equipment.
- [11] The installer must observe Product Safety Datasheets, relevant to the materials being used as well as completing and complying with COSHH risk assessments
- [12] We draw your attention to your duties under the Construction (Design and Management) Regulations 2015. Regulation 4, Client's duties in relation to managing projects states that the client must make suitable arrangements for managing a project, including the allocation of sufficient time and other resources. Regulation 5, Appointment of the Principal Designer and the Principal Contractor states that where more than one contractor will be working on a project at any time, the client must appoint a Principal Designer and a Principal Contractor.

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

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



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- 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. The system comprises the waterproofing membranes, insulation, air and vapour control layer, and attachment of these products.

**FIRE COMPLIANCE**

The proposed system must achieve a Broof(t4) system fire rating and evidence of this provided. The specific named vapour control layer, insulation name and thickness, underlay and capsheet should be named on either a BBA certificate or a test certificate based upon a TS1187 test.



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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 self-adhesive membrane should be used as described in: 'TORCH-FREE' & 'SAFE TO TORCH' ZONES - ALTERNATIVE MEMBRANES AND APPLICATION.*

#### **SYSTEM CONSTRUCTION**

**Waterproofing System:** Warm roof construction  
**Substrate:** Existing Concrete Deck/Screed  
**Roof Fall:** 1°

#### **REMOVE SYSTEM BACK TO STRUCTURAL CONCRETE DECK**

**Strip and remove and appropriately discard all existing roof coverings 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 **the client** 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.

#### **PRIMER**

**Activator-Primer (Canister)** All areas receiving the new self-adhesive membranes to be thoroughly primed with **Activator-Primer (Canister)**

**Purpose:** substrate primer to seal and prepare dry surfaces of a variety of common substrate material prior to the application of 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

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- 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**

2mm thick, 200g/m<sup>2</sup> 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 heat sealed/torched (depending on 'Torch-Free' & 'Safe to Torch' zones) and rolling with the **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.

### **CAPPING SHEET**

4mm thick, 250g/m<sup>2</sup> polyester reinforced, elastomeric bitumen capping sheet, charcoal grey, slate finish, fully bonded to the underlayer by torching in the approved manner. Head laps to be 100mm, side laps to be 80mm, torch sealed to provide a continuous bitumen bead extrusion from all laps.

### **UPSTANDS AND DETAILING**

Detail work to be carried out 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.

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

### **ADDITIONAL FIXING OF BITUMEN MEMBRANES TO UPSTANDS**

Screw fix through into the underlying substrate as per the requirements set out below  
**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 **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.

**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](mailto:uk.leeds@sfsintec.biz)

Web: [www.sfsintec.biz/uk](http://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: Activator-Primer (Canister)**, must be used when using self-adhesive membranes and a 'Torch-Free' application is required.
  - **Underlayers:** it is permissible to use a self-adhesive membrane so long as this product is a recognised component of the system specified.
  - **Capping sheets:** Where appropriate, the installing contractor can use self-adhesive capping sheet, applied using the hot air hand tools approved for use with bituminous systems.  
**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 membrane must be applied using the approved hot air hand tools. The list of permissible hot air electrical equipment suppliers for installing the 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](mailto: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 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 Self-Adhesive Underlayer appropriate to the specified system must be used.

#### **TECHNICAL NOTES**

1. 50mm x 50mm **PIR angle fillets** must be used at all right-angled upstands. **Angle fillets will need to be installed using insulation adhesive**, or a suitable bitumen adhesive. Under no circumstances must fillets of an alternative material be incorporated (i.e. timber, cork, fibre, etc.)
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.

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4. Any peculiarities or details discovered, which might affect the performance of the system, should be reported immediately to the specifier 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 self-adhesive underlayer material to create the seal. The 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.
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 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

#### **WORKMANSHIP**

- [1] The System must be laid with the use of roll bars
- [2] Any building work which is the responsibility of the roofing contractor and has a bearing on the life of the **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.

#### **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 **sealant primer** prior to the application of **sealant**.
- **Form a Weltded 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 weltded drip detail is to be formed in self-adhesive capping sheet if using Torch-Free methods or 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.

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- **Welded 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 welded drip detail is to be formed in self-adhesive capping sheet if using Torch-Free methods or 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.

#### **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.

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

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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.
- [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:**



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

#### **GUARANTEE**

A 20 year product and workmanship guarantee is to be provided upon completion following a Final Inspection. The system comprises the waterproofing membranes, insulation, air and vapour control layer, and attachment of these products.

#### **FIRE COMPLIANCE**

The proposed system must achieve a Broof(t4) system fire rating and evidence of this provided. The specific named vapour control layer, insulation name and thickness, underlay and capsheet should be named on either a BBA certificate or a test certificate based upon a TS1187 test.