

## **J42 SINGLE LAYER POLYMERIC SHEET ROOF COVERINGS S327**

To be read with Preliminaries/ General conditions and the Sarnafil Ltd project specific specification.

The details contained within this proposal are based on information available at the the time of writing. It covers the installation of Sarnafil materials and the preparation work necessary to provide a suitable substrate. Sarnafil Ltd cannot be held responsible for unknown site conditions or for the performance of materials within the system other than those manufactured, supplied or branded by Sarnafil Ltd.

A detailed method of work statement and programme of works should be agreed with the Sarnafil Ltd registered contractor before the commencement of the works.

The requirements of all relevant British Standards and Industry Codes of Practice should be complied with at all times. A bibliography is available upon request.

**Underlined sections of text the addition of a description or selection from a choice of options. All clauses that are not applicable should be deleted.**

### **TYPES OF COVERING**

- 110 WARM ROOF COVERING (Insert Job/Roof Name)
- Substrate: Profiled Metal Deck
  - Roof covering:
    - Manufacturer: Sarnafil Ltd, Robberds Way, Bowthorpe, Norwich, NR5 9JF, Tel 01603 748985, Fax 01603 743054
    - Vapour Control Layer: Ecovap as clause 395 and 396B
    - Manufacturer: Sarnafil Ltd, Robberds Way, Bowthorpe, Norwich, NR5 9JF.  
Laying: Loose lay and overlap all side and end laps by a minimum 100mm, seal with Sarnavap jointing tape. As clause 670A
    - Insulation: SarnaTherm insulation board. As clause 420A.  
Attachment: Mechanically fixed as clause 682B
    - Waterproof membrane: Sarnafil S327-12EL Lacquered Reinforced PVC Membrane  
Thickness: 1.2mm  
Colour: Light Grey  
Attachment: Sarnafast Mechanically Fastened as clause 355, 710A, and 711B
    - Surface protection: Sarnatred as clause 850
    - Laying: Hot air welded  
Accessories: Sarnametal/Sarnatred/ Double L Insulation  
RWO/SarnaLite/Sarnafil Constant Force post

## PERFORMANCE

### 201B MANUFACTURERS GUARANTEE

In order to comply with the 10 year Sarnafil insurance backed guarantee, the work is to be carried out by a Sarnafil Ltd Registered Contractor.

### 210 ROOF PERFORMANCE

- General: Secure, free draining and completely weathertight.

### 220 VAPOUR CONTROL LAYER

- Requirement: Determine interstitial condensation risk of roof as recommended in BS 6229. Modify calculation method to conform to BS 5250.
- Basic design data:
  - Outdoor notional psychrometric conditions, winter:
    - Temperature: -5°C.
    - Relative humidity: 90%.
    - Vapour pressure: 0.361 kPa.
    - Duration: 60 days.
  - Outdoor notional psychrometric conditions, summer:
    - Temperature: 18°C.
    - Relative humidity: 65%.
    - Vapour pressure: 1.341 kPa.
    - Duration: 60 days.
  - Indoor notional psychrometric conditions:
    - Temperature: (TBC) °C.
    - Relative humidity: (TBC) %.
    - Vapour pressure: (TBC) kPa.
- Winter interstitial condensate:
  - Calculated amount (maximum) (TBC) kg/m<sup>2</sup>.
  - Calculated annual net retention (maximum): 5%.
- Vapour control layer: If calculated amounts of condensate exceed allowed amounts, provide a suitable membrane so that damage and nuisance from interstitial condensation do not occur.

### 230 INSULATION

- Requirement: Determine type and thickness of insulation and integral or separate overlay to satisfy the following criteria:
  - Thermal transmittance of the roof (maximum): 0.25 W/m<sup>2</sup>K.
  - Compressive strength of insulation (minimum) at 10% compression: 150 kPa.
  - Finished surface: Suitably even, stable and robust to receive the covering.
  - Insulation compliance: To a relevant British Standard, or Agrément certified.

### 240A ATTACHMENT OF ROOF COVERING

- Requirement: Determine methods of attachment to resist wind loads. Provide for relative movement of materials and effects of vapour pressure. Do not reduce performance of vapour control layer.
- Wind loads: Calculate to BS 6399-2 incorporating Amendment 1, Hybrid Method.
  - Basic wind speed ( $V_b$ ): (TBC) m/s.
  - Altitude factor ( $S_a$ ): (TBC)
  - Direction factor ( $S_d$ ): (TBC)
  - Seasonal factor ( $S_s$ ): 1.000
  - Probability factor ( $S_p$ ): 1.000
  - Terrain and building factor ( $S_b$ ): (TBC)
  - Size effect factor ( $C_a$ ): 1.000

## PRODUCTS

### 310A ANCILLIARY PRODUCTS AND ACCESSORIES

- Types: Recommended by Sarnafil Ltd.
- Drainage: Fit Sarnafil Double L high drainage capacity insulated rwo.
- Decoration: Fit Sarnafil Decor Profile standing seams or Sarnafil Batten Profiles.
- Lightning Protection: Fit Sarnafil Heat Weldable Lightning Conductor Clips.
- Fall Arrest: Fit Sarnafil Constant Force posts.
- Rooflights: Fit SarnaLite rooflights.

### 330A TIMBER FOR TRIMS, ETC

- Quality: Planed. Free from wane, pitch pockets, decay and insect attack except ambrosia beetle damage.
- Moisture content: Not exceeding 22% at time of covering.
- Preservative treatment: To British Wood Preserving and Damp-roofing Association Commodity Specification C8.
- Type:CCA
- If treated timber is in direct contact with Sarnafil membrane: only aqueous, salt based preservative is to be used.

### 355 MECHANICAL FASTENINGS, WASHERS, PRESSURE PLATES ETC.

- Type: In accordance with the current addition of the British board of Agreement MOAT 55 'UEAtc Supplementary guide for the assessment of mechanically fastened roof waterproofing' for Class 2 fasteners or a suitable alternative recommended in writing by Sarnafil Ltd.
- Manufacturer: SFS intec Ltd  
Product reference: As clause 710A

### 395 VAPOUR CONTROL LAYER

- Type: Polyethylene
- Manufacturer: Sarnafil  
Product reference: Ecovap E
- Thickness: 0.16mm
- Vapour resistance: 564 MNs/g

### 396B VAPOUR CONTROL LAYER SPECIFICATION

#### **Vapour Control Layer (Ecovap E)**

Over the structural deck loosely lay EcoVap E, polyethylene vapour control layer.

**All side and end laps to be a minimum of 100mm and sealed with Sarnavap jointing tape. To provide continuity of the vapour control layer the EcoVap is to be sealed to the abutment at the perimeter of the roof and around all penetrations. The surface of the abutment should be smooth enough to allow an adequate airtight seal of the vapour control layer.**

### 420A RIGID URETHANE FOAM WARM ROOF INSULATION

- Rigid urethane foam (RUF) roofboard to BSEN 13165
- Manufacturer: Kingspan Insulation Ltd.  
Product reference: SarnaTherm G/S.
- Thickness: TBC mm .
- Facing: Mineral Glass Tissue/Foil

## EXECUTION GENERALLY

### 510 ADVERSE WEATHER

- Laying: Do not lay membrane in wet or damp conditions or at temperatures below 5°C.
- Unfinished areas of roof: Keep dry.
- Work in severe or continuously wet weather: Suspend or provide effective temporary cover over working area.
- Unavoidable wetting: Minimise and make good any damage.
- Incomplete areas of membrane: Protect from wind action.

520 INCOMPLETE WORK

- End of working day: Provide temporary seal to prevent water infiltration.
- On resumption of work: Cut away tail of any contaminated Sarnafil membrane from completed area and remove from roof.

530 APPLYING PRIMERS

- Application rate: Consult Manufacturer L/m<sup>2</sup>.
- Surface coverage: Even and full.
- Coats: Fully bonded. Allow volatiles to dry off thoroughly between coats.

**SUBSTRATES/ VAPOUR CONTROL LAYERS/ WARM ROOF INSULATION**

610 SUITABILITY OF SUBSTRATE

- Surfaces to be covered: Firmly fixed, clean, dry, smooth, free from frost, contaminants, voids and protrusions.
- Preliminary work: Complete (including formation of upstands, kerbs, box gutters, sumps, grooves, chases, expansion joints and fixing of battens, fillets, anchoring plugs/ strips, etc.).
  - Moisture content and stability of substrate: Must not impair integrity of roof.

640 INSTALLING TIMBER FOR TRIMS

- Fixing centres (maximum): 600mm

670A LAYING A NON BITUMINOUS VAPOUR CONTROL LAYER

- Laying: Sheets loose, flat and without wrinkles.
- Laps: Seal using materials and method recommended by the vapour control layer manufacturer.
- Upstands, kerbs and other penetrations: Enclose edges of insulation. Fully seal at abutment by bonding or taping.

682B INSTALLING WARM ROOF MECHANICALLY FASTENED SARNATHERM INSULATION

- Setting out:
  - Long edges: Fully support and run at right angles to troughs.
  - End edges: Adequately support.
  - Joints: Butt together.
  - End joints: Stagger.
- Mechanical fixing: A minimum 4no. Sarnafil Ltd SBF fasteners and DTL-70 x 70 pressure plates or Sarnafil SBIW-70 x 70 washers and telescopic SBT screw fasteners per m<sup>2</sup>, as clause 240A.
- Completion: Boards must be in good condition, well fitting and with no springing, flexing or rocking.

**WATERPROOF COVERINGS/ ACCESSORIES**

710A MECHANICAL FIXING OF WATERPROOF MEMBRANE

- Installing fasteners:

- Use Sarnafil Ltd SBF or SBT thermally broken fastenings using SFS Intec Ltd recommended equipment, fitted with bit stop, etc.
- Insertion: Correct and consistent.
- For Sarnafast Install Sarnafil Ltd SFT thermally broken or SBF-A fastenings using correct SFS Intec Ltd installation tool.
- Insertion: Correct and consistent.
- For Sarnafast pressure plates must not be less than 5 mm from edge.
- Fixing: Flush with membrane.
- Sheet overlaps: For Sarnafast the overlapping sheet must extend beyond pressure plates by not less than 65 mm.
- Surface condition at completion: Smooth.

711B SARNAFAST MEMBRANE ATTACHMENT. Extract from Sarnafil specification.

**Membrane**

Loosely lay Sarnafil S327-12EL polyester reinforced roofing membrane and hot air weld all end laps.

**Mechanically fasten 2.0m wide Sarnafil membrane with Sarnafil SFT thermally broken fasteners along the edge of the membrane, as indicated by the ink dot line, at a maximum spacing of (TBC) mm, (TBC) no/linear metre. The fastener density for the roof is (TBC) / m<sup>2</sup>**

The fasteners must be inserted using the appropriate SFS Intec screw gun nosepiece and 'foot' attachment.

Overlap subsequent sheets by a minimum of 120 mm to cover fasteners and washers and heat weld the lap using a Sarnamatic 641/mc automatic welding machine. The fastener rows to be at 1880mm maximum centres. The fasteners are to project below the deck by a minimum 20mm.

(For metal decks the membrane should be fastened at 90° to the deck corrugations)

A Sarnabar and PVC cord is to be installed at the perimeter of the roof and around all penetrations.

**In the perimeter zone use a 1 metre wide Sarnafil S327-12EL membrane or alternatively install an intermediate row of Sarnafil SFT thermally broken fasteners along the centre of a 2 metre wide Sarnafil membrane, fasten at the same centres as the central zone and weather with a 200 mm wide Sarnafil S327-12EL coverstrip hot air welded on either side of the row of fasteners. Intermediate rows of fasteners in the perimeter zone only should be terminated with a Row Termination Plate (RTL90) or a thermally broken plate TRTL 90.**

**The fastener rows in the perimeter zone will be at 940mm or 880mm centres depending on whether a 1m wide sheet is used. The fastener density for the perimeter zone of the roof is (TBC) / m<sup>2</sup>.**

730A WELDED JOINTING

- Side and end joints:
  - Laps (minimum): 120mm for Sarnafast
  - Preparation: Clean and dry surfaces for full width of joint.

- Sealing: Heat weld with a Sarnamatic only.
- Condition at completion: Fully sealed and watertight.
- Accessories: Sarnamatic

**760A PERIMETER OF SARNAFIL MEMBRANE**

- General: Secure Sarnafil membrane with a Sarnabar and PVC cord at roof edge conditions, changes of plane, curb flashings, upstands to roof lights, etc. with Sarnafil approved mechanical fasteners.

**770A PERIMETER DETAILS**

- Upstands, edge trims, drips, kerbs, etc: Form flashings from Sarnafil waterproof membrane material. Edge trims and drips to be formed from Sarnametal.
- Roof membrane: Terminate Sarnafil membrane in horizontal plane immediately adjacent to change in direction and secure with a Sarnabar and PVC cord.
- Flashings: Dress Sarnafil membrane flashing over the Sarnabar. Overlap horizontal Sarnafil roof membrane beyond the Sarnabar by (minimum): 50mm.
- Sealing: Hot air weld the overlap.

**780A ROOF PENETRATIONS THROUGH THERMOPLASTIC MEMBRANES**

- Sarnafil roof membrane: Cut Sarnafil membrane around penetrations and secure Sarnafil membrane to deck with Sarnabar and PVC cord or SFT fasteners.
- Flanged sleeve:
  - Type: Form from Sarnafil roof membrane complete with base flange.
  - Dress Sarnafil membrane flashing over and around penetration.
  - Sealing: Weld flange to roof membrane.
  - Protection to top edge of sleeve: Flashing or compatible weathering cravat.

## **SURFACING**

**840 LAYING PRECAST CONCRETE PAVING SLABS**

- Condition of substrate: Clean.
- Setting out: Minimise cutting.
- Joints: Open.
  - Width: Predetermined by SarnaPad support system.

**850 MEMBRANE WALKWAYS**

- Material:
  - Manufacturer: Sarnafil Ltd
  - Product reference: Sarnatred Recycled PVC walkway tiles
  - Width: 600mm (750mm incl tabs)
  - Thickness: 6mm
  - Colour: Dark Grey
  - Attachment: Hot air weld tabs to Sarnafil membrane

## **COMPLETION**

**910A INSPECTION**

- Inspection of the roof installation whilst in progress and/or on completion must be made by Sarnafil Ltd Field Technicians. Copies of Sarnafil Ltd site reports of intrim and final inspection to be made available if required and previously agreed with Sarnafil Ltd Registered Contractor.

**920 ELECTRONIC ROOF INTEGRITY TEST (Optional)**

- Testing authority: (TBC)
- Timing of test: (TBC)

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- Condition of roof prior to testing:
    - Sarnafil membrane complete to a stage where integrity can be tested.
    - Surface: Clean.
  - Test results: Submit.
  - Waterproof integrity certificate: On completion of testing, submit.
- 930 FLOOD TEST (Optional)
- Condition of roof prior to testing:
    - Sarnafil membrane complete to a stage where integrity can be tested.
  - Outlets: Externally cover and seal. Protect against damage from water pressure using temporary kerbs. Do not use plugs to seal outlets.
  - Flood levels: Submit proposals. In no case higher than kerbs.
  - Flood duration: (TBC) days.
  - Inspection: Regular, to detect leaks.
  - Completion of test: Slowly drain roof. Do not overload or flood outlets.
  - Test results: Submit.
- 940A COMPLETION
- Roof areas: Clean.
    - Outlets: Clear.
  - Work necessary to provide a weathertight finish: Complete.
  - Storage of materials on finished surface: Not permitted.
  - Completed membrane: Do not damage. Protect against damage from traffic and adjacent or high level working.
  - Request the Sarnafil Guarantee.
  - The roof has to be finally inspected by Sarnafil Ltd and is to be to their satisfaction.