

# Specification

***Suggested For:***

**Example Adhered PVC Specification (G410-ELF)**

Our Reference:

**NA**

Date:

**NA**



**Sika Limited**, Robberds Way, Bowthorpe, Norwich, NR5 9JF.  
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**Sarnafil**®

## J42 SINGLE LAYER POLYMERIC SHEET ROOF COVERINGS G410

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

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

A detailed method of work statement and programme of works should be agreed with the Sarnafil 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.

### TYPES OF COVERING

- 110 WARM ROOF COVERING – **Example Adhered PVC Specification (G410-ELF)**
- Substrate: Install profiled metal decking to suit the span of the purlins and all anticipated loads as specified by the architect or structural engineer. Minimum 0.7mm thick.
  - Roof covering:
    - Manufacturer: Sika Ltd, Sika Sarnafil, Robberds Way, Bowthorpe, Norwich, NR5 9JF, Tel 01603 748985, Fax 01603 743054
    - Vapour control layer: As clause 395 and 396B  
Laying: As clause 670
    - Vapour Control Layer: Sarnavap 1000E as clause 395 and 396B  
Manufacturer: Sika Ltd, Sika Sarnafil, 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: Polyisocyanurate Rigid Insulation as clause 420A  
Attachment: Mechanically fixed as clause 681B
    - Waterproof membrane: Sarnafil G410-12ELF Lacquered Reinforced PVC membrane  
Thickness: 1.2mm  
Colour: Light Grey  
Attachment: Fully adhered as clause 720A and 721B
  - Surface protection: SarnaTred as clause 850
    - Laying: Hot air welded
  - Accessories: Drainage: Double L Insulated RWO  
Fall Arrest: Sarnafil Constant Force posts  
Flashings: Sarnametal  
Lightning Protection: Fit Sarnafil Heat Weldable Lightning Conductor Clips  
Rooflights: SarnaLite Rooflights  
Walkways: SarnaTred Walkway Tiles



## PERFORMANCE

- 201B MANUFACTURER'S GUARANTEE  
In order to comply with the 10 year Sarnafil insurance backed guarantee, the work is to be carried out by a Sarnafil Registered Contractor.
- 210 ROOF PERFORMANCE
- Roof covering: Secure, free draining and weathertight.
- 220 AVOIDANCE OF INTERSTITIAL CONDENSATION: WARM AND INVERTED ROOFS
- Determine: Interstitial condensation risk of roof construction as recommended in BS 6229.
  - Basic design data:
    - Outdoor notional psychrometric conditions, winter:  
Temperature: -5°C.  
Relative humidity: 90%.  
Vapour pressure: 0.36 kPa.  
Duration: 60 days.
    - Outdoor notional psychrometric conditions, summer:  
Temperature: 18°C.  
Relative humidity: 65%.  
Vapour pressure: 1.34 kPa.  
Duration: 60 days.
    - Indoor notional psychrometric conditions:  
Temperature: \_\_\_\_\_ .  
Relative humidity: \_\_\_\_\_ .  
Vapour pressure: \_\_\_\_\_ .
    - Winter interstitial condensate (warm roof):
      - Calculated amount (maximum): 0.35 kg/m<sup>2</sup>.
      - Calculated annual net retention: Nil.
    - Vapour control layer: If necessary, provide a suitable membrane or sealed deck so that damage and nuisance from interstitial condensation do not occur.
- 225 AVOIDANCE OF INTERSTITIAL CONDENSATION: WARM AND INVERTED ROOFS
- Determine: Interstitial condensation risk of roof construction as recommended in BS 5250, annex D.
  - Vapour control layer: If necessary, provide a suitable membrane so that damage and nuisance from interstitial condensation do not occur.
- 240A ATTACHMENT OF ROOF COVERING INCLUDING INSULATION
- 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**

### **310B ANCILLARY PRODUCTS AND ACCESSORIES (where applicable)**

- Types: Recommended Sarnafil products to be used where required.
- Drainage: Fit Sarnafil Double L fully insulated, high drainage capacity RWO, ensuring Part L compliance with air tightness and thermal insulation continuity at the deck opening
- Decoration: Fit Sarnafil Décor Profile standing seams or Sarnafil Batten Profiles.
- Fall Arrest: The Sarnafil Constant Force posts fall arrest/restraint system should be considered for rooftop safety.
- Flashings: Sarnametal
- Lightning Protection: Fit Sarnafil Heat Weldable Lightning Conductor Clips.
- Rooflights: Fit SarnaLite rooflights.

### **325 ADHESIVE**

- Type: As suggested below by Sika Ltd
- Manufacturer: As recommended by Sika Ltd  
Product reference: Sarnacol 2142s / Sarnacol 2170

### **330A TIMBER 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: \_\_\_\_\_
  - If treated timber is in direct contact with Sarnafil membrane: only aqueous, salt-based preservative is to be used.

### **345 PERIMETER TRIMS**

- Type: Galvanised steel sheet with Sarnafil membrane factory laminated
- Manufacturer: Sika Ltd.
- Product reference: Sarnametal.
- Colour: Light Grey
- Size: (TBC)

### **355 MECHANICAL FASTENERS, WASHERS, PRESSURE PLATES, ETC.**

- Type: In accordance with the current addition of the British board of Agrément MOAT 55 'UEAtc Supplementary guide for the assessment of mechanically fastened roof waterproofing' for Class 2 fasteners or a suitable alternative recommended in writing for use with Sarnafil systems.
- Manufacturer: SFS intec Ltd
- Product reference: As clause 681B.

### **375 MINOR MOVEMENT JOINTS IN SUBSTRATES**

- Manufacturer: Sika Ltd
  - Product reference: Sarnafil Aluminium Tape
- Size: 50mm wide
- Insert colour: Silver

**Project No: NA**

**Date: NA**

**395 VAPOUR CONTROL LAYER**

- Type: Polyethylene
- Manufacturer: Sika Ltd
- Product reference: Sarnavap 1000E
- Thickness: 0.22mm
- Vapour resistance: >800 MNs/g.

**396B VAPOUR CONTROL LAYER SPECIFICATION**

In accordance with BS 5250:2002 Code of Practice for control of condensation in buildings (Table B5) the suitability of the vapour control layer specified below is based on the Humidity Class 3.

Should the specifier require a different Humidity Class to be used for this design, then Sika Ltd should be notified. A change of Humidity Class will probably require a change to the specification for the vapour control layer.

**Vapour Control Layer (Sarnavap)**

Over the structural deck loosely lay a Sarnavap 1000E flame retarded, polyethylene vapour control layer. All side and end laps to be a minimum of 100mm and continuously sealed with Sarnavap jointing tape. To provide continuity of the vapour control layer the Sarnavap should have fully supported laps and 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 to allow an adequate airtight seal of the Sarnavap.

For the Sarnafil guarantee to include the vapour control layer, the appropriate Sarnavap must be used.

**420A RIGID URETHANE FOAM WARM ROOF INSULATION**

- Rigid urethane foam (RUF) roofboard to BS EN 13165
- Manufacturer: Kingspan Insulation Ltd / Celotex Ltd / Recticel Insulation Ltd
- Product reference: LPC/FM approved Thermaroom TR27 / Celotex EL3000 / Powerdeck F
- Edges: Staggered bond pattern with lightly butted joints
- Thickness: (TBC to achieve the required U Value) mm
- Facing: Mineral Glass Tissue

**485 MEMBRANE WALKWAY**

- Manufacturer / Supplier: Sika Ltd
- Product reference: SarnaTred G/S
- Width: 600mm (750mm incl tabs)
- Thickness: 7mm
- Colour: Grey
- Finish: 3mm deep chevron pattern tread
- Reinforcement: Where required install a minimum 0.9mm thick galvanised steel spreader sheet under the Sarnafil membrane to the same width as the chosen walkway in accordance with the recommendations for Sarnafil systems.

**EXECUTION GENERALLY**

**510 ADVERSE WEATHER**

- General: Do not lay membrane at temperatures below 5°C or in wet or damp conditions unless effective temporary cover is provided over working area.
- Unfinished areas of roof: Keep dry and protect edges of laid membrane from wind action.



**Project No: NA**  
**Date: NA**

**520A 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**

- Coverage per coat (minimum): \_\_\_\_\_
- Surface coverage: Even and full.
- Coats: Fully bonded. Allow volatiles to dry off thoroughly between coats.

**550 CONTROL SAMPLES**

- Type of covering: \_\_\_\_\_
- Sample area (minimum): \_\_\_\_\_
  - Location: \_\_\_\_\_
  - Features: \_\_\_\_\_
- Approval of appearance: Obtain before proceeding with remaining work.

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

**610 SUITABILITY OF SUBSTRATES**

- Surfaces to be covered: Secure, clean, dry, smooth, free from frost, contaminants, voids and protrusions.
- Preliminary work: Complete, including:
  - Grading to correct falls.
  - Formation of upstands, kerbs, box gutters, sumps, grooves, chases and expansion joints.
  - Fixing of battens, fillets and anchoring plugs/ strips.
- Moisture content and stability of substrate: Must not impair integrity of roof.

**640 FIXING TIMBER TRIMS**

- Fasteners: \_\_\_\_\_
- Fixing centres (maximum): \_\_\_\_\_

**670A LAYING A NON BITUMINOUS VAPOUR CONTROL LAYER**

- Laying: Sheets loose, flat and without wrinkles.
- Side and head 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.



**Project No: NA**  
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**681B INSTALLING WARM ROOF MECHANICALLY FASTENED INSULATION**

- Setting out:
  - Long edges: Fully support and run at right angles to the troughs.
  - End edges: Adequately support
  - Joints: Butted together
  - End joints: Staggered
- Mechanical fixings: Sarnafil SBIW-70 x 70 washers and telescopic SBT screw fasteners as clause 240A.

For 600mmx1200mm board size there should be a minimum of **(TBC)** no. fasteners per board throughout the roof.

For 1200mmx2400mm board size there should be a minimum of **(TBC)** no. fasteners per board throughout the roof.

All fixings and washers must be in an even pattern (see Sarnafil "Typical Fastener Layouts for PIR Insulation" drawing for further information) and located >50mm and <150mm from the edges and corners of the board and not overlap board joints.

- Completion: Boards must be in good condition, well fitting and with no springing, flexing or rocking.

**685B SELF ADHESIVE TAPE**

- All insulation board joints to be covered with self-adhesive foil tape if using Sarnacol 2170.

**WATERPROOF COVERINGS/ ACCESSORIES**

**720A ADHESIVE BONDING OF WATERPROOF MEMBRANE**

- Laying membrane:
  - On a continuous even coating of adhesive.
  - Do not wrinkle or stretch.
- Condition at completion:
  - Fully bonded with no air pockets.
  - Surface: Smooth.
  - Mechanically fix the Sarnafil membrane at all perimeters, change of plane and upstands.



**721B FULLY ADHERED MEMBRANE: Extract from Sarnafil Specification.**

**Membrane**

Adhere Sarnafil G410-12ELF Light Grey fleece backed glass fibre carried roofing membrane to the substrate using an appropriate Sarnacol adhesive. Hot air weld minimum 80mm side laps and end coverstrips. Fleece backed Sarnafil membrane is butt jointed at roll ends and weathered with Sarnafil G410-12EL Light Grey coverstrip, welded on each side of the roll end.

Sarnacol 2142S adhesive is not suitable for use in temperatures remaining below 5°C for prolonged periods and on roof pitches >10° without additional restraints.

In the main area of the roof use a water filled, foam covered roller to ensure that the membrane achieves intimate contact with the substrate. For sloping, vertical and detail work a lambswool roller should be used.

Install Sarnafil peelstops to the perimeter of the roof, at all internal angles of roof detail and around all roof penetrations. Peelstops can be fastened into the abutment if possible. Fix at maximum 250mm centres with appropriate thermally broken SBT screw fasteners.

Sarnafil thermally broken fasteners must be installed with the appropriate tooling and the membrane must be pre-punched with the Sarnafil SMP tool.

**730A WELDED JOINTING**

- Side and end joints: for the
  - Laps (minimum): 80 mm
  - Preparation: Clean and dry surfaces for full width of joint.
  - Sealing: Heat weld together.
- Condition at completion: Fully sealed and watertight.
- Accessories: Not required.

**760A PERIMETER OF SARNAFIL MEMBRANE**

General: Secure Sarnafil membrane with a Sarnafil peelstop 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 membrane material. Edge trims and drips to be formed from the Sarnametal.
- Roof membrane: Terminate Sarnafil membrane in horizontal plane immediately adjacent to change in direction and fixed down with Sarnafil peelstop.
- Flashings: Dress Sarnafil membrane flashing over the Sarnafil peelstop. Overlap horizontal Sarnafil roof membrane beyond the Sarnafil peelstop by (minimum): 50 mm
- Sealing: Hot air weld the overlap.

**780A ROOF PENETRATIONS THROUGH THERMOPLASTIC MEMBRANES**

- Sarnafil roof membrane: Cut Sarnafil membrane around penetrations and secure Sarnafil membrane with a peelstop.
- 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.

**Project No: NA**  
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## **SURFACING**

### **850 MEMBRANE WALKWAYS**

- Material:
  - Manufacturer: Sika Ltd.  
Product reference: SarnaTred G/S walkway tiles.
  - Width: 600mm (750mm incl tabs)
  - Thickness: 7mm.
  - Colour: Grey
  - Attachment: Hot air weld tabs to Sarnafil membrane.
  - Reinforcement: Where required fix to the deck a minimum 0.9mm galvanised steel plate wrapped in S-Felt T polyester fleece under an additional layer of Sarnafil membrane.

## **COMPLETION**

### **910A INSPECTION**

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

### **920 ELECTRONIC ROOF INTEGRITY TEST (If required)**

- Testing authority: \_\_\_\_\_
- Timing of test: \_\_\_\_\_
- 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 (If required)**

- 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: \_\_\_\_\_ days
- Inspection: Regular, to detect leaks.
- Completion of test: Slowly drain roof. Do not overload or flood outlets.
- Test results and warranty: Submit on completion of testing.

### **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 the Sika Roofing Applications Department and is to be to their satisfaction.

