Specification

Suggested For:

EXAMPLE WARM BALLASTED (G410-EL) SPECIFICATION

Our Reference:

NA

Date:

NA

Sarnafil Ltd, Robberds Way, Bowthorpe Industrial Estate, Norwich NR5 9JF Tel: 01603 748985 Fax: 01603 743054 www.sarnafil.co.uk

Project No: NA
Date: NA

J42 SINGLE LAYER POLYMERIC SHEET ROOF COVERINGS G410

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 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.

TYPES OF COVERING

110 WARM ROOF COVERING (EXAMPLE WARM BALLASTED (G410-EL) SPECIFICATION)

- Substrate: Insitu concrete deck (deck to have a smooth, wood float or steel trowel finish free of nibs, ridges and hollows)
  - Vapour Control Layer: Sarnavap 1000E s 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: Loose Laid as clause 683B
  - Waterproof membrane: Sarnafil G410-15EL Lacquered Reinforced PVC membrane
    Thickness: 1.5mm
    Colour: Light Grey
    Attachment: Loose Laid with perimeter restraint as clause 725B
  - Upper protective layer (loose laid): T Fleece
- Surface protection: Paving Slabs as clause 465A
  - Laying: As clause 840
- 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 Ltd Registered Contractor.

  For ballasted and green roofs the Customer is responsible for all investigative works and related costs for any alleged waterproofing failure until it can be demonstrated that there is a fault with the Sarnafil membrane.

  For a Sarnavert Extended Products guarantee to be issued, the roof build up and Green Roof elements must be supplied by Sarnafil Ltd or by our horticultural partner Blackdown Horticultural Consultants Ltd (trading as Greenroof). The Green Roof elements must be installed by Blackdown Horticultural Consultants Ltd (BHC) or by their approved trained registered Sarnafil contractors. The guarantee covers the planted element installation on the basis of a continued maintenance contract (details on request). If the Green Roof element is installed during the period May 01 to September 15 suitable irrigation will be required until the plant layer is self-sustaining, this is a guarantee requirement for the Green Roof element.

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/m².
  - 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

310A ANCILLIARY PRODUCTS AND ACCESSORIES
- Types: Recommended by Sarnafil Ltd.
  - 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
  - Fall Arrest: The Sarnafil Constant Force posts fall arrest/restraint system should be considered for rooftop safety.
  - Flashings: Sarnametal
  - Rooflights: Fit SarnaLite rooflights.

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: Sarnafil 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 Agrèment 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 681B.

375 MINOR MOVEMENT JOINTS IN SUBSTRATES
- Manufacturer: Sarnafil Ltd
  - Product reference: Aluminium Tape
- Size: 50mm wide
- Insert colour: Silver

380 PROTECTION LAYER
- Type: Polyester Fleece
- Manufacturer: Sarnafil Ltd
  - Product reference: Sarnafil Type T Fleece
- Grade: 300g/m²

395 VAPOUR CONTROL LAYER
- Type: Polyethylene.
  - Manufacturer: Sarnafil Ltd.
    Product reference: Sarnavap 1000E.
  - Thickness: 0.22m.
  - 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 Sarnafil 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
  - Product reference: SarnaTherm G/S
  - Edges: Staggered bond pattern with lightly butted joints
  - Thickness: (TBC) mm
  - Facing: Mineral Glass Tissue/Foil

460 STONE BALLAST
- Type: Washed, round aggregate
- Supplier: (TBC)
- Size: Graded 20 - 32 mm, free from fines and sharps
- Colour: (TBC)

465A PRECAST CONCRETE PAVING SLABS
- Precast concrete: To BS 7263-1 hydraulically pressed
- Manufacturer: (TBC)
  - Product reference: (TBC)
- Colour: (TBC)
- Finish: (TBC)
- Size: 50 x 600 x 600 mm

467 SUPPORT SYSTEM FOR PRECAST CONCRETE PAVING SLABS
- Manufacturer: Sarnafil Ltd.
  - Product reference: Sarnapad Paving Supports
- Size: 180mm diameter
- Accessories: Levelling Shims

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.

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): _____

660 JOINTS IN RIGID BOARD SUBSTRATES
- Cover strip: Lay centrally over substrate joints before laying vapour control layers or coverings. Adhere to substrate with bonding compound along edges only.

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.

683B INSTALLING WARM ROOF LOOSE LAID INSULATION
- Setting out:
  - Long edges: Fully support and run at right angles to structure.
  - End edges: Adequately support
  - Joints: Butted together
  - End joints: Staggered
  - Completion: Boards must be in good condition, well fitting and with no springing, flexing or rocking.

WATERPROOF COVERINGS/ ACCESSORIES

725B LOOSE LAID WATERPROOF MEMBRANE ATTACHMENT

Membrane
Loosely lay Sarnafil G410-15EL Light Grey glass fibre carrier roofing membrane with a minimum lap of 80mm.

Prior to welding, the leading edges of all transverse/cross joints are to be chamfered (for membrane ≥ 1.8mm thick). Hot air weld all side and end laps, Sarnamatic machine weld where possible.

Install a 6/15 Sarnabar with 15mm dia.holes and G/S welding cord to the perimeter of the roof, at all internal angles and around all roof penetrations. The Sarnabar to be fastened, where possible into the abutment, with a minimum of 5 no Sarnafil appropriate thermally broken SBT screw fasteners per linear metre. If the insulation is >120mm thick the Sarnabar should be fastened with 6.66no. fasteners per linear metre.

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

On large roofs or when the membrane is not to be immediately covered with the rest of the build up the Sarnafil should have a temporary ballast.

Fastener Guidance
For 20-year guarantee periods, when fixing into new decks or upstands and where Sarnafil thermally broken SBT tube fasteners cannot be used, Sarnafil stainless steel fasteners are required.

730A WELDED JOINTING
- Side and end joints:
  - Laps (minimum): 80mm.

  Preparation: Clean and dry surfaces for full width of joint. The leading edges of all transverse membrane joints are to be chamfered.
  - 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 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 to deck with a Sarnabar and PVC cord.
- Flanged sleeve:
  - Type: Form from Sarnafil 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

820 LAYING STONE BALLAST
- Condition of substrate: Clean.
- Gravel guards: Fit to outlets.
- Previously laid materials: Protect whilst laying ballast.
- Laying: Spread evenly. Do not pile to excessive heights.
  - Depth (minimum): 50mm

840 LAYING PRECAST CONCRETE PAVING SLABS
- Condition of substrate: Clean.
- Setting out: Minimize cutting.
- Joints: Open.
  - Width: Predetermined by SarnaPad support system
  - Perimeter/ Upstand margins: Minimum 150mm
- Completion: Slabs must be level and stable.

COMPLETION

910A INSPECTION

- Inspection of the roof installation whilst in progress (roof must be inspected prior to the ballasting with stone/paving/inverted insulation) and 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.

  Immediately prior to covering the Sarnafil membrane a Sarnafil Field Technician must be given the reasonable opportunity (min.5 days notice) to inspect the roof, this is one pre- issue of the Sarnafil guarantee.

NB: This may require chargeable phased inspections by the Sarnafil Applications Department.

920 ELECTRONIC ROOF INTEGRITY TEST

- 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 _____

- 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 Sarnafil Ltd and is to be to their satisfaction.