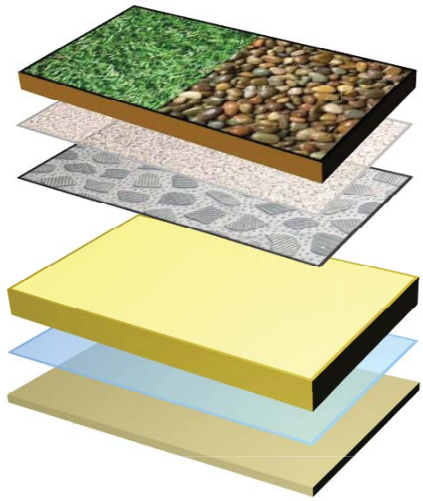
Project Summary:



Roof ID: Green roof example
Roof covering system: Protan Extensive Green roofing system. British Board of Agrément Certificate Number 00/3755

Surface protection: Sky-Garden Extensive Green Roof System, as section Q37

Upper protection layer (loose laid): Protan F300M PP Fleece

Waterproof membrane: Protan G1.8 flexible PVC membrane with prefabricated strips and textured anti-slip surface.

Insulation: Protan Approved Polyisocyanurate (PIR) Insulation as clause 420

Vapour control layer: Protan Polyethylene Vapour Control Membrane

Substrate: Plywood WBP to BS5268 Part 2 and to BS EN 636-3 : 2003. minimum thickness 18mm

J42

Single layer polymeric sheet roof coverings

J42 Single layer polymeric sheet roof coverings

To be read with Preliminaries/ General conditions.
The installation of the Protan Roofing System must be carried out by a Protan Approved Contractor. Please contact Protan for a list of suitable contractors. This specification has been written by Protan UK Ltd. (Author: Fergus d'Arcy; Date: 24/10/19)

TYPES OF ROOF COVERING

110 WARM DECK ROOF COVERING: Green roof example

Substrate: Plywood WBP to BS5268 Part 2 and to BS EN 636-3 : 2003. minimum thickness 18mm

Preparation: As clause 610.

Roof covering system: Protan Extensive Green roofing system. British Board of Agrément Certificate Number 00/3755

Manufacturer: Protan (UK) Ltd, Gemini Business Park, 256 Europa Boulevard, Warrington WA5 7TN. Tel 01925 658001 Fax 01925 899688 e-mail technical@protan.co.uk

ProPlan Optimisation: Tailored solutions with made-to-measure products, minimise waste and installation time. Please send roof details to technical@protan.co.uk.

Vapour control layer: Protan Polyethylene Vapour Control Membrane

Insulation: Protan Approved Polyisocyanurate (PIR) Insulation as clause 420

Waterproof membrane: Protan G1.8 flexible PVC membrane with prefabricated strips and textured anti-slip surface.

Secret-fix Strips:2 fixing strips longitudinally welded to the reverse of the membrane.

Width: 2000mm

Thickness: 1.8mm

Colour: Dark Grey (Closest RAL: 7012)

Durability: In excess of 40 years as stated in the above BBA Certificate.

Upper protection layer (loose laid): Protan F300M PP Fleece

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Surface protection: Sky-Garden Extensive Green Roof System, as section Q37
Accessories: Protan Projual Rainwater Outlets, Brett Martin Daylight Systems Roof Light(s) with Protan Prefabricated Collar(s), Protan Prefabricated Collars

PERFORMANCE

201 MANUFACTURER'S WARRANTY

In order to comply with the Protan Warranty, the work must be carried out by an approved Protan Partner Contractor. Please contact Protan UK for more details.

210 ROOF PERFORMANCE

Roof covering: Secure, free draining and weather tight.

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: To be confirmed
  - Relative humidity: To be confirmed
  - Vapour pressure: To be confirmed

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.

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): To be confirmed
- Compressive strength of insulation (minimum) at 10% compression: to be confirmed.
- Finished surface: Suitably even, stable and robust to receive roof covering.
- Insulation compliance: To a relevant British Standard, or Agrément certified.

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245 ATTACHMENT OF ROOF COVERING IN ACCORDANCE WITH BS EN 1991-1-4

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.

Design wind pressure: Calculate in accordance with BS EN 1991-1-4.

- Basic wind velocity (Vb): to be confirmed
- Altitude factor (Calt):to be confirmed
- Directional factor (Cdir): to be confirmed
- Seasonal factor (Cseason): to be confirmed
- Probability factor (Cprob): to be confirmed
- Terrain roughness factor (Cr): to be confirmed
- Orography factor (Co): to be confirmed
- External pressure coefficients (Cpe): to be confirmed

PRODUCTS

330 TIMBER TRIMS, ETC

Quality: Planed. Free from wane, pitch pockets, decay and insect attack except ambrosia beetle damage.

Moisture content at time of covering (maximum): 22%.

Preservative treatment: to be confirmed

345 PERIMETER TRIMS

Type: Protan Laminated Metal flashings as required.

Manufacturer: Protan (UK) Ltd

- Product reference: Protan Laminated Metal.

Colour: Same as membrane colour

Size: to be confirmed.

355 MECHANICAL FASTENERS, WASHERS, PRESSURE PLATES, ETC

Type: Protan Thermally broken fasteners (where applicable)

Supplier: Protan (UK) Ltd

- Product reference: to be confirmed (Stainless Steel fasteners required)

383 UPPER PROTECTION LAYER

Type: Non-woven polypropylene fleece & PVC membrane

Manufacturer: Protan (UK) Ltd

- Product reference: Protan F300M PP Fleece

395 VAPOUR CONTROL LAYER

Type: Polyethylene Vapour Control Layer

Manufacturer: Protan (UK) Ltd

Product reference: Protan Polyethylene Vapour Control Membrane

- Thickness: 0.25mm

Vapour Resistance: 586 MN s/g

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400 WATERPROOF MEMBRANE

Type: Protan Single Ply Waterproofing Membrane
Manufacturer: Protan (UK) Ltd, Gemini Business Park, 256 Europa Boulevard, Warrington WA5 7TN. Tel 01925 658001 Fax 01925 899688 e-mail technical@protan.co.uk
Product reference: Protan G1,8 flexible PVC membrane with prefabricated strips and textured anti-slip surface.
Secret-fix Strips: 2 fixing strips longitudinally welded to the reverse of the membrane.
Width: 2000mm
Thickness: 1.8mm
Colour: Dark Grey (Closest RAL: 7012)
Warranty: 20 years (subject to confirmation from Protan)

420 RIGID URETHANE FOAM WARM DECK ROOF INSULATION

Standard: Rigid polyurethane foam roofboard to BS 4841: Part 4
Manufacturer: Protan Approved Manufacturer
Product reference: Protan Approved Insulation
Thickness: 120mm
Facing: Foil

480 PIPE COLLARS

Manufacturer: Protan (UK) Ltd
Product reference: Protan Prefabricated Collars
Size: to be confirmed.

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.

520 INCOMPLETE WORK

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

SUBSTRATES/ VAPOUR CONTROL LAYERS/ WARM DECK 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.

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670 LAYING VAPOUR CONTROL LAYER

Laying: Loose laid and sealed with recommended tape
Side and head laps: 100mm
Upstands, kerbs and other penetrations: Enclose edges of insulation. Fully seal at abutment by bonding or taping.

680 LAYING WARM DECK ROOF INSULATION

Setting out:
- Long edges: Fully supported and running at right angles to the deck where applicable
- End edges: Adequately supported.
- Joints: Butted together.
- End joints: Staggered.

Attachment: Installed according to manufacturers instructions.
Mechanical fixing: Installed according to manufacturers instructions.
Completion: Boards must be in good condition, well fitting and secure.

WATERPROOF MEMBRANES/ ACCESSORIES

710 MECHANICAL FIXING OF WATERPROOF MEMBRANE

Setting out: Fully supported and running at right angles to the profiled metal deck, where applicable.
Laying: Loose, do not wrinkle or stretch.
Installing fasteners:
- Use manufacturer's/ supplier's recommended methods and equipment.
- Insertion: Correct and consistent.

Washers/ Pressure plates/ Bars:
- Distance from fixed edge (minimum): 10 mm.
- Fixing: Flush with membrane.

Sheet overlaps: Extend beyond washers/ pressure plates by minimum 50mm.
Surface condition at completion: Fully sealed, smooth, weatherproof and free draining.

730 WELDED JOINTING OF WATERPROOF MEMBRANE

Side and end joints:
- Laps (minimum): determined by membrane type & width
- Preparation: Clean and dry surfaces beyond full width of joint.
- Sealing: Weld together.

Condition at completion: Fully sealed, smooth, weatherproof and free draining.

765 PERIMETER DETAILS FOR THERMOPLASTIC MEMBRANES

Upstands, edge trims, drips, kerbs, etc: Secure preformed metal sections to roof structure with mechanical fasteners.
Roof membrane: Dress over perimeter profile. Overlap beyond fasteners by minimum 50mm.
- Sealing: Weld together.

780 ROOF PENETRATIONS THROUGH THERMOPLASTIC MEMBRANES

Roof membrane: Cut around penetrations and secure to deck.
Flanged sleeve:

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Type: Prefabricated Collar
Installation: Dress over and around penetration.
Roof membrane overlap to flange (minimum): 50 mm beyond fasteners.
Sealing: Weld flange to roof membrane.
Protection to top edge of sleeve: Flashing or weathering cravat.

COMPLETION

910 INSPECTION

Interim and final roof inspections: Submit reports.

920 ELECTRONIC ROOF INTEGRITY TEST (Optional)

Testing authority: To be confirmed
Timing of test: to be confirmed
Condition of roof prior to testing:
Waterproof membrane complete to a stage where integrity can be tested.
Surface: Clean.
Test results and warranty: Submit on completion of testing.

930 FLOOD TEST(Green roof example)

Condition of roof prior to testing:
Waterproof 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: to be confirmed
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.

940 COMPLETION

Roof areas: Clean.
Outlets: Clear.
Work necessary to provide a weather tight finish: Complete.
Storage of materials on finished surface: Not permitted.
Completed membrane: Do not damage. Protect from traffic and adjacent or high level working.

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