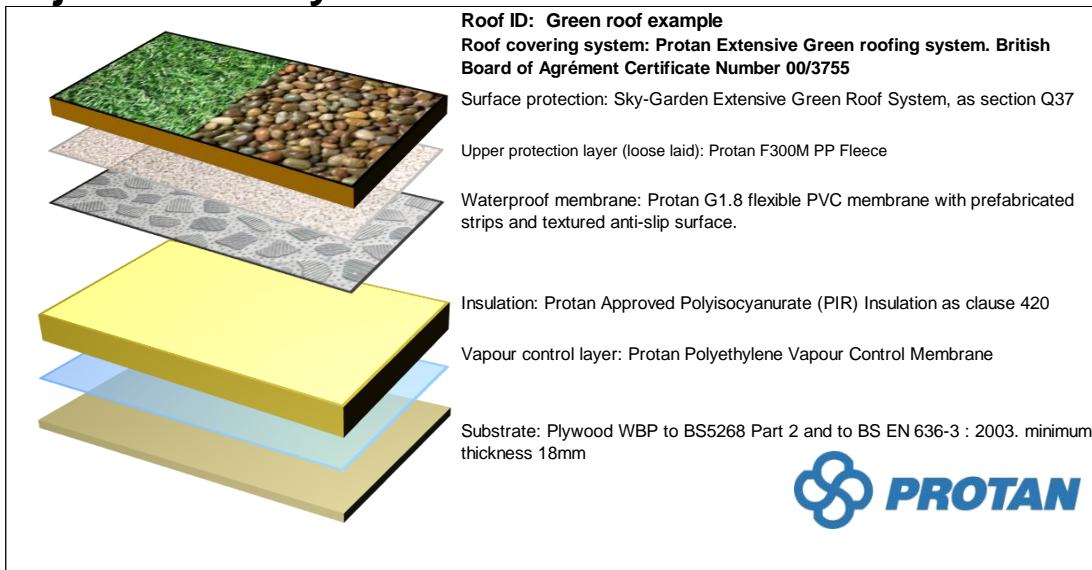


## Project Summary:



## 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](mailto: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](mailto: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

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/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.

#### 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.

### **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 ( $V_b$ ): to be confirmed

Altitude factor ( $C_{alt}$ ): to be confirmed

Directional factor ( $C_{dir}$ ): to be confirmed

Seasonal factor ( $C_{season}$ ): to be confirmed

Probability factor ( $C_{prob}$ ): to be confirmed

Terrain roughness factor ( $C_r$ ): to be confirmed

Orography factor ( $C_o$ ): to be confirmed

External pressure coefficients ( $C_{pe}$ ): 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

### **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.

### **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:

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.