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BBA APPROVAL INSPECTION TESTING CERTIFICATION
TECHNICAL APPROVALS FOR CONSTRUCTION

Agrément Certificate
**98/3459**
**Product Sheet 1**

# PROTAN ROOFING MEMBRANES

## PROTAN SE, EX AND EXG MECHANICALLY-FASTENED PVC ROOFING MEMBRANES

This Agrément Certificate Product Sheet[1] relates to Protan SE, EX and EXG Mechanically-Fastened PVC Roofing Membranes, for use on exposed flat and pitched roofs with limited access.

(1) Hereinafter referred to as 'Certificate'.

### CERTIFICATION INCLUDES:

- factors relating to compliance with Building Regulations where applicable
- factors relating to additional non-regulatory information where applicable
- independently verified technical specification
- assessment criteria and technical investigations
- design considerations
- installation guidance
- regular surveillance of production
- formal three-yearly review.

### KEY FACTORS ASSESSED

**Weathertightness** — the products and their joints will resist the passage of moisture to the interior of the building (see section 6).

**Properties in relation to fire** — the products, when used in a suitable specification, will enable a roof to be unrestricted under the Building Regulations (see section 7).

**Resistance to wind uplift** — tests indicate that the products will enable a roof to be unrestricted under the Building Regulations (see section 8).

**Resistance to foot traffic** — the products will accept, without damage, the limited foot traffic and loads associated with installation and maintenance (see section 9).

**Durability** — under normal service conditions, the products will provide a durable waterproof covering with a service life in excess of 30 years (see section 11).

The BBA has awarded this Certificate to the company named above for the products described herein. These products have been assessed by the BBA as being fit for their intended use provided they are installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

Date of Third issue: 26 January 2016

Originally certificated on 3 March 1998

John Albon — Head of Approvals
Construction Products

Claire Curtis-Thomas
Chief Executive

*The BBA is a UKAS accredited certification body — Number 113. The schedule of the current scope of accreditation for product certification is available in pdf format via the UKAS link on the BBA website at www.bbacerts.co.uk*

*Readers are advised to check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA direct.*

# Regulations

In the opinion of the BBA, Protan SE, EX and EXG Mechanically-Fastened PVC Roofing Membranes, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements of the following Building Regulations (the presence of a UK map indicates that the subject is related to the Building Regulations in the region or regions of the UK depicted):

### The Building Regulations 2010 (England and Wales) (as amended)

| | | |
|---|---|---|
| Requirement: | B4(2) | External fire spread |
| Comment: | | On suitable non-combustible substructures the products will enable a roof to be unrestricted under this Requirement. See section 7 of this Certificate. |
| Requirement: | C2(b) | Resistance to moisture |
| Comment: | | Tests for water resistance on the products, including joints, indicate that they meet this Requirement. See section 6.1 of this Certificate. |
| Regulation: | 7 | Materials and workmanship |
| Comment: | | The products are acceptable. See section 11 and the *Installation* part of this Certificate. |

### The Building (Scotland) Regulations 2004 (as amended)

| | | |
|---|---|---|
| Regulation: | 8(1)(2) | Durability, workmanship and fitness of materials |
| Comment: | | The products satisfy the requirements of this Regulation. See sections 10 and 11 and the *Installation* part of this Certificate. |
| Regulation: | 9 | Building standards applicable to construction |
| Standard: | 2.8 | Spread from neighbouring buildings |
| Comment: | | On suitable non-combustible substructures the products will be regarded as having low vulnerability under clause 2.8.1[(1)(2)] of this Standard. See section 7 of this Certificate. |
| Standard: | 3.10 | Precipitation |
| Comment: | | Data for water resistance on the products indicate that their use will enable a roof to satisfy the requirements of this Standard, with reference to clauses 3.10.1[(1)(2)] and 3.10.7[(1)(2)]. See section 6.1 of this Certificate. |
| Standard: | 7.1(a) | Statement of sustainability |
| Comment: | | The products can contribute to meeting the relevant Requirements of Regulation 9, Standards 1 to 6 and therefore will contribute to a construction meeting a bronze level of sustainability as defined in this Standard. |
| Regulation: | 12 | Building standards applicable to conversions |
| Comment: | | All comments made in relation to the products under Regulation 9, Standards 1 to 6 also apply to this Regulation, with reference to clause 0.12.1[(1)(2)] and Schedule 6[(1)(2)]. |

(1) Technical Handbook (Domestic).
(2) Technical Handbook (Non-Domestic).

### The Building Regulations (Northern Ireland) 2012 (as amended)

| | | |
|---|---|---|
| Regulation: | 23(a)(i)(iii)(b)(i) | Fitness of materials and workmanship |
| Comment: | | The products are acceptable. See section 11 and the *Installation* part of this Certificate. |
| Regulation: | 28(b) | Resistance to moisture and weather |
| Comment: | | Data for water resistance on the products, including joints, indicate that their use will enable a roof to satisfy the requirements of this Regulation. See section 6.1 of this Certificate. |
| Regulation: | 36(b) | External fire spread |
| Comment: | | On suitable non-combustible substructures the use of the products will be unrestricted by the requirements of this Regulation. See section 7 of this Certificate. |

**Construction (Design and Management) Regulations 2015**

**Construction (Design and Management) Regulations (Northern Ireland) 2007**

Information in this Certificate may assist the client, Principal Designer/CDM co-ordinator, designer and contractors to address their obligations under these Regulations.

See section: 1 *Description* (1.3) and 9 *Resistance to foot traffic* (9.2) of this Certificate.

# Additional Information

## NHBC Standards 2016

NHBC accepts the use of Protan SE, EX and EXG Mechanically-Fastened PVC Roofing Membranes, provided they are installed, used and maintained in accordance with this Certificate, as meeting Technical Requirement R3 in relation to *NHBC Standards*, Chapter 7.1, *Flat roofs and balconies*.

## CE marking

The Certificate holder has taken the responsibility of CE marking the products in accordance with harmonised European standard BS EN 13956 : 2012. An asterisk (*) appearing in this Certificate indicates that data shown are given in the manufacturer's Declaration of Performance.

# Technical Specification

## 1 Description

1.1 Protan SE, EX and EXG Mechanically-Fastened PVC Roofing Membranes consist of a knitted polyester-reinforced PVC roofing sheet with a slip-resistant upper surface, available in 1 m and 2 m widths. The membranes covered by this Certificate are:

- Protan SE — standard membrane requiring a separation/protection layer when used over polystyrene insulation boards or re-roofing applications
- Protan EX — laminated with a polyester felt on the underside to enable installation directly over existing systems
- Protan EXG — laminated with a glass felt on the underside to enable installation directly over polystyrene insulation boards.

1.2 Other versions of the Protan SE membrane are:

- Protan Secret-Fix System — a 2 m width of Protan SE with transverse factory-welded fixing strips on the underside
- Protan Prefabricated Sheet System — 2 m, 3.96 m and 5.92 m widths with longitudinal strips on the underside.

1.3 The membranes are manufactured with the nominal characteristics shown in Table 1 and have the declared values given in Table 2.

*Table 1 Nominal characteristics*

| Characteristic (unit) | Membrane | | |
|---|---|---|---|
| | Protan SE | Protan EX | Protan EXG |
| Thickness (mm) | 1.2, 1.6, 1.8 | 1.2, 1.6 | 1.2, 1.6 |
| Roll length (m) | 20, 20, 15 | 20, 20 | 20, 20 |
| Roll width (m) | 1, 2, 3.96 | 1, 2 | 1, 2 |
| Weight per unit area ($kg \cdot m^{-2}$) | 1.4, 1.8, 2.0 | 1.4, 1.8 | 1.4, 1.8 |
| Weight of polyester reinforcement ($g \cdot m^{-2}$) | 80, 80, 80 | 80, 80 | 80, 80 |
| Weight of polyester backing fleece ($g \cdot m^{-2}$) | —(1) | 180, 180 | —(1) |
| Weight of glass backing fleece ($g \cdot m^{-2}$) | —(1) | —(1) | 50, 50 |

(1) Not applicable.

*Table 2 CE marking declared values*

| Parameter | Membrane | | | | | | |
|---|---|---|---|---|---|---|---|
| | Protan SE | | | Protan EX | | Protan EXG | |
| | 1.2 | 1.6 | 1.8 | 1.2 | 1.6 | 1.2 | 1.6 |
| Watertightness* (10 kPa) | | pass | | | pass | | pass |
| Tensile strength* ($N \cdot 50\ mm^{-1}$) | | | | | | | |
| longitudinal | ≥1100 | ≥1100 | ≥1100 | ≥1100 | ≥1100 | ≥1100 | ≥1100 |
| transverse | ≥1050 | ≥1100 | ≥1100 | ≥1100 | ≥1100 | ≥1050 | ≥1100 |
| Elongation* (%) | | ≥15 | | | ≥15 | | ≥15 |
| Resistance to impact* (mm) | ≥500 | ≥700 | ≥800 | ≥500 | ≥700 | ≥500 | ≥600 |
| Resistance to static load* (kg) | | ≥20 | | | ≥20 | | ≥20 |
| Tear resistance* ($N \cdot 50\ mm^{-1}$) | | ≥210 | | | ≥300 | | ≥210 |
| Joint shear resistance* ($N \cdot 50\ mm^{-1}$) | | ≥1000 | | | ≥1000 | | ≥1000 |
| Joint peel resistance* ($N \cdot 50\ mm^{-1}$) | | ≥150 | | | ≥150 | | ≥150 |
| Foldability at low temperature* (°C) | –30 | –30 | –25 | | –30 | | –30 |

1.4 The membranes are manufactured in standard colours(1) of:

underside — dark grey or black

upper side — light grey or dark grey.

(1) Other colours are available to special order and are subject to minimum quantities.

1.5 Ancillary item used with the products but outside the scope of this Certificate include:

- telescopic tube, flat metal washers, non-thermal bridging plate, and various fastener types to suit the relevant decks
- Protan Secret-Fix Pocket — a factory-produced pocket for securing the membrane at upstands
- Protan Restraint Bar — a roll-formed 1.5 mm bar for use in conjunction with the Protan Secret-Fix Pocket
- Protan Grip Steel Bar — a roll-formed 1.5 mm bar with teeth for use in conjunction with a Secret-Fix strip
- Protan PVC laminated metal — a 0.6 mm thick galvanized steel sheet, factory laminated with 1.2 mm thick Protan G membrane
- preformed internal and external corners
- pipe collars — preformed cloaks for use at penetrations
- rainwater outlets — stainless steel outlets with a Protan membrane flange
- Protan Omega Profile — for use in creating architectural features on pitched roofs
- Protan 2.4 mm GT Terrace Grade — a 2.4 mm thick PVC membrane for use on access walkways and lightly trafficked terraces
- Protan Progrip Walkway
- Protan Pavepad — bearing pads for concrete slabs
- polypropylene geotextiles — a range of 140 $g \cdot m^{-2}$ to 800 $g \cdot m^{-2}$ non-woven mats, for use as protection layers over existing bitumen roofing or uneven substrates
- Protan Constant Force Post — used as a part of a Mansafe System
- Protan Lightning Clips — protection cable anchor clips
- Protan Vapour Control Layers.

### 2 Manufacture

2.1 The membranes are manufactured by coating one side of a lamination of a polyester reinforcement and calendered PVC with a plastisol coating, and fusing into one homogeneous sheet. The coating can be applied in several layers to achieve the required membrane thickness, and the sheet is then passed through a gelation oven.

2.2 As part of the assessment and ongoing surveillance of product quality, the BBA has:

- agreed with the manufacturer the quality control procedures and product testing to be undertaken
- assessed and agreed the quality control operated over batches of incoming materials
- monitored the production process and verified that it is in accordance with the documented process
- evaluated the process for management of nonconformities
- checked that equipment has been properly tested and calibrated
- undertaken to carry out the above measures on a regular basis through a surveillance process, to verify that the specifications and quality control operated by the manufacturer are being maintained.

2.3 The management system of Protan A/S has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2008 by Det Norske Veritas (Certificate OSL-AQ-6343).

2.4 The membranes are manufactured in Norway by Protan A/S and marketed in the UK by the Certificate holder.

### 3 Delivery and site handling

3.1 The membranes are delivered to site in rolls, on pallets covered with polythene wrappings bearing the product name, batch number and the BBA logo incorporating the number of this Certificate.

3.2 A production date and recycling symbol to identify the product classification are embossed into the membrane.

3.3 Rolls should be stored on a clean, level, dry surface and kept under cover. The rolls should only be unwrapped from packaging at the time of installation, and unused membrane should be returned to its packaging until required.

## Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Protan SE, EX and EXG Mechanically-Fastened PVC Roofing Membranes.

## Design Considerations

### 4 General

4.1 Protan SE, EX and EXG Mechanically Fastened PVC Roofing Membranes are satisfactory for use as mechanically-fixed roof waterproofing on pitched or flat roofs with limited access.

4.2 Limited access roofs are defined for the purpose of this Certificate as those subjected only to pedestrian traffic for maintenance of the roof covering, cleaning of gutters, etc. Where traffic in excess of this is envisaged, special precautions, such as additional protection to the membrane, must be taken.

4.3 Flat roofs are defined for the purpose of this Certificate as those having a minimum finished fall of 1:80. Pitched roofs are defined as those having falls in excess of 1:6. For design purposes twice the minimum finished fall should be assumed, unless a detailed analysis of the roof is available, including overall and local deflection, direction of falls, etc.

4.4 Decks to which the products are to be applied must comply with the relevant requirements of BS 8217 : 2005 and BS 6229 : 2003, and, where appropriate, *NHBC Standards*, Chapter 7.1, and the Certificate holder's instructions.

4.5 Insulation materials used in conjunction with the products must be approved by the Certificate holder and be either:

- as described in the relevant clauses of BS 8217 : 2005, or
- the subject of a current BBA Certificate and used in accordance with and within the limitations of that Certificate.

4.6 Contact with certain bituminous, coal tar and oil-based products must be avoided as the membrane is not compatible with lower grades of bitumen. If contact with such products is likely, a separating layer should be interposed before installing the waterproof sheet. Direct contact between the membrane and polystyrene insulation boards should also be avoided. Where doubt arises, the advice of the Certificate holder should be sought.

## 5 Practicability of installation

The Certificate holder operates an Approved Contractors Scheme for these products under which contractors are trained, registered and regularly reviewed by the Certificate holder to demonstrate that they are competent to carry out installation in accordance with this Certificate. Details of Approved Contractors are available from the Certificate holder. Approved Contractors are responsible for each installation of the products they undertake.

## 6 Weathertightness

6.1 Data confirm that the membranes, including joints, when completely sealed and consolidated, will adequately resist the passage of moisture to the inside of the building, enabling the roof to comply with the national Building Regulations.

6.2 The membranes are impervious to water and, when used as described in this Certificate, will give a weathertight roof covering capable of accepting minor structural movement without damage.

## 7 Properties in relation to fire

7.1 Results of tests indicate that a system comprising 0.7 mm profiled steel decking, 50 mm polyurethane insulation with an aluminium foil facing on the upper side and glass tissue facing to the underside, and one layer of Protan SE mechanically fixed, will be unrestricted.

7.2 Results of tests indicate that a system comprising 0.7 mm profiled steel decking, 0.21 mm thick vapour control layer, 90 mm foil-faced polyurethane insulation, and one layer of Protan SE mechanically fixed can be classified under BS EN 13501-5 : 2005 as $B_{ROOF}$ (t4).

7.3 Results of tests indicate that a system comprising 0.7 mm profiled steel decking, 150 mm foil faced Kingspan TR26 PIR insulation, a polyethylene vapour control layer, and one layer of Protan SE mechanically fixed can be classified under BS EN 13501-5 : 2005 as $B_{ROOF}$ (t4).

7.4 Results of tests indicate that a system comprising an 18 mm plywood deck, 150 mm foil faced Kingspan TR26 PIR insulation, a polyethylene vapour control layer, and one layer of Protan SE mechanically fixed can be classified under BS EN 13501-5 : 2005 as $B_{ROOF}$ (t4).

7.5 The designation of other specifications (eg when used on combustible substrates) should be confirmed by:

*England and Wales* — test or assessment in accordance with Approved Document B, Appendix A, Clause 1

*Scotland* — test to conform to Mandatory Standard 2.8, clause 2.8.1[1][2]

(1) Technical Handbook (Domestic).

(2) Technical Handbook (Non-Domestic).

*Northern Ireland* — test or assessment by a UKAS accredited laboratory, or an independent consultant with appropriate experience.

## 8 Resistance to wind uplift

8.1 The resistance to wind uplift of the membrane is provided by mechanical fasteners secured to the deck and passing through the membrane. The number of fixings will depend on a number of factors, including:

- wind uplift forces to be resisted
- pull-out strength of fasteners
- elastic limit of the membrane
- appropriate safety factors.

8.2 The number of fixings used should be established by reference to the wind uplift forces calculated in accordance with BS EN 1991-1-4 : 2005 and its UK National Annex on the basis of the maximum permissible loads.

## 9 Resistance to foot traffic

9.1 Results of tests indicate that the membranes can withstand the limited foot traffic and light concentrated loads associated with installation and maintenance. Reasonable care should be taken to avoid puncture by sharp objects or concentrated loads. Where regular traffic is envisaged, eg for maintenance of lift equipment, a walkway must be provided, for example using concrete slabs on bearing pads. When paviours are used, a protective sheet must be laid over the waterproofing membrane.

9.2 The membrane has a textured finish to aid slip resistance for foot traffic. However, care should be taken when walking across the roof if surface water is present.

## 10 Maintenance

10.1 Roofs covered with the products should be the subject of annual inspections to ensure continued performance. Exposed membrane must be free from the build-up of silt, unwanted vegetation and other debris.

10.2 Where damage has occurred, it should be repaired in accordance with section 17 and the Certificate holder's instructions.

## 11 Durability

Accelerated weathering tests and performance in service confirm that satisfactory retention of physical properties is achieved. All available evidence suggests that Protan SE, EX and EXG Mechanically-Fastened PVC Roofing Membranes should have a life in excess of 30 years.

## 12 Reuse and recyclability

The product contains PVC, which can be recycled.

# Installation

## 13 General

13.1 Installation of Protan SE, EX and EXG Mechanically Fastened PVC Roofing Membranes must be in strict accordance with the manufacturer's fixing instructions and must be carried out only by Protan Partner Contractors using trained labour, records for whom are kept on the Certificate holder's database.

13.2 For all warm roof installations, a vapour control layer must be used directly over the deck. When internal temperatures and humidity conditions exceed 22°C and 50% relative humidity, special precautions should be taken and the Certificate holder must be consulted.

13.3 Insulation boards must be fixed to the substructure in such a way as not to impair the performance of the waterproofing membrane. The insulation manufacturer should be consulted for further advice.

13.4 Deck surfaces must be clean, dry, and free from sharp projections, such as nail heads or concrete nibs. When necessary, a separating or levelling layer may be interposed between the substrate and the membrane.

13.5 The products must not be laid in damp weather. When installing below 5°C, precautions should be taken against the formation of condensation.

## 14 Procedures

14.1 The membrane is laid flat onto the substrate without folds or ripples, and fixed to the deck using Protan telescopic tubes or washers fixed by screws through the membrane, or factory-welded Secret-Fix strips (see Figures 1, 2 and 3).

*Figure 1 Standard overlap design*

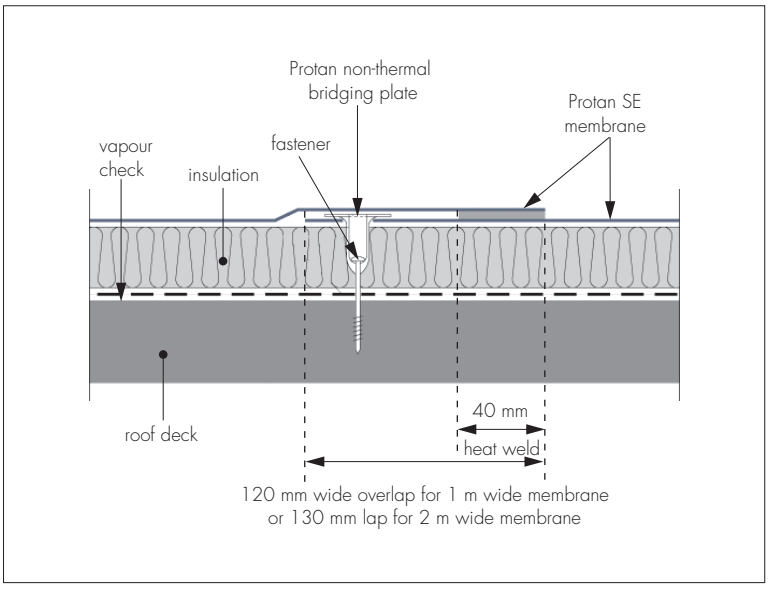


*Figure 2 Secret-Fix System*

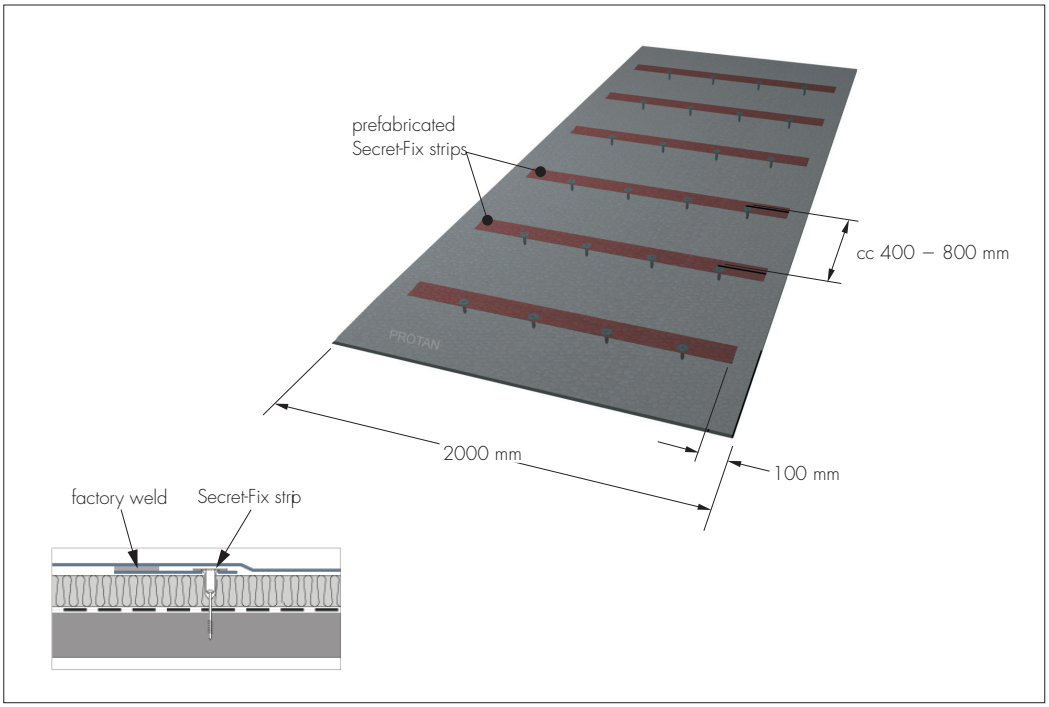
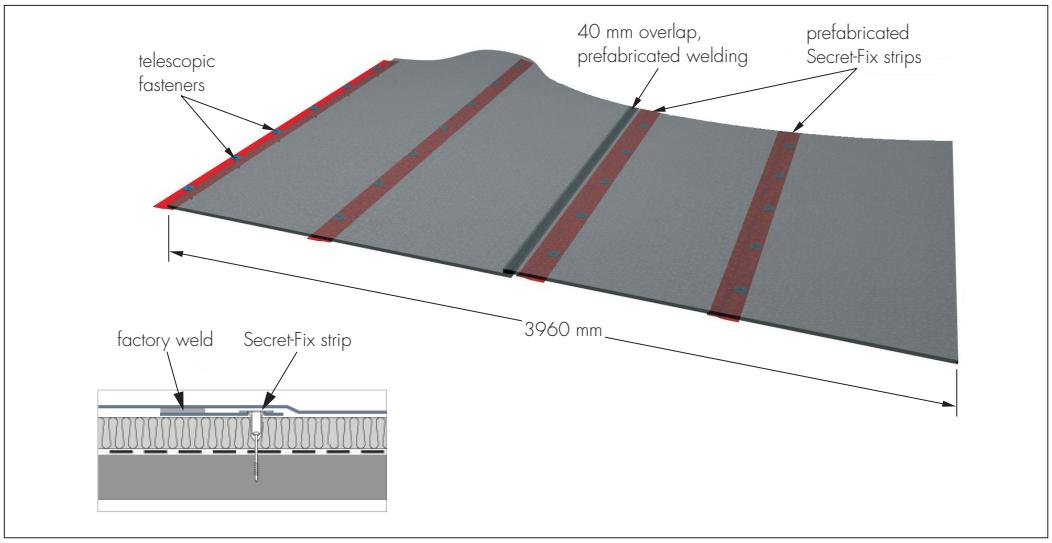



*Figure 3 Prefabricated Sheet System*




14.2 The position and the number of fasteners required must be in accordance with the fixing specifications provided by the Certificate holder.

14.3 At upstands or changes in angle, the horizontal membrane is secured using one of the following methods:

- a Protan Restraint Bar with Protan Welding Cord: the Protan Restraint Bar is mechanically fastened to the upstand through the membrane and the Protan Welding Cord is installed along the leading edge of the Protan Restraint Bar
- a Protan Grip Steel Bar mechanically fastened to the upstand through the membrane
- a prefabricated PVC pocket with Protan Restraint Bar: the Protan Restraint bar is sleeved within the pocket and mechanically fastened to the upstand
- a Secret-Fix strip with Protan Grip Steel Bar: the Protan Grip Steel Bar is installed against the reinforced strip and mechanically fastened to the upstand.

14.4 On main roof areas where a steel decking is used, standard membrane must be installed at 90° to the profile. When using the membrane with Secret-Fix strips, the strips must be installed at 90° to the profile.

## 15 Lap welding procedures

15.1 To ensure a watertight seam, the membrane is lapped by a minimum of 120 mm (for 1 m width sheets) or a minimum of 130 mm (for 2 m width sheets) at side laps, and 100 mm at end laps. For the Secret-Fix System the side laps are 100 mm, and for Prefabricated Sheet System 40 mm. Hot-air welding is by hand or machine (except the 2 m Standard Overlap membrane, which must be machine welded) using equipment approved by the Certificate holder.

15.2 When welding using a machine, test welds should be carried out to ensure the optimum setting for temperature, speed and pressure prior to the start of work. Peel tests should then be performed for every 200 linear metres of welding.

15.3 When hand welding, a continuous pre-weld should be made at the back edge of the overlap prior to full welding. The weld is then completed giving a finished seam width of 40 mm.

15.4 In all cases, an uninterrupted extrusion of molten material should be visible along the seam.

15.5 On completion of the weld, the seam is tested for total consolidation using a seam probe.

## 16 Details

The Certificate holder supplies a range of components for the treatment of details such as flashings and penetrations (for examples, see Figures 4 to 8).

*Figure 4 Secret-Fix pocket and parapet wall flashing detail*

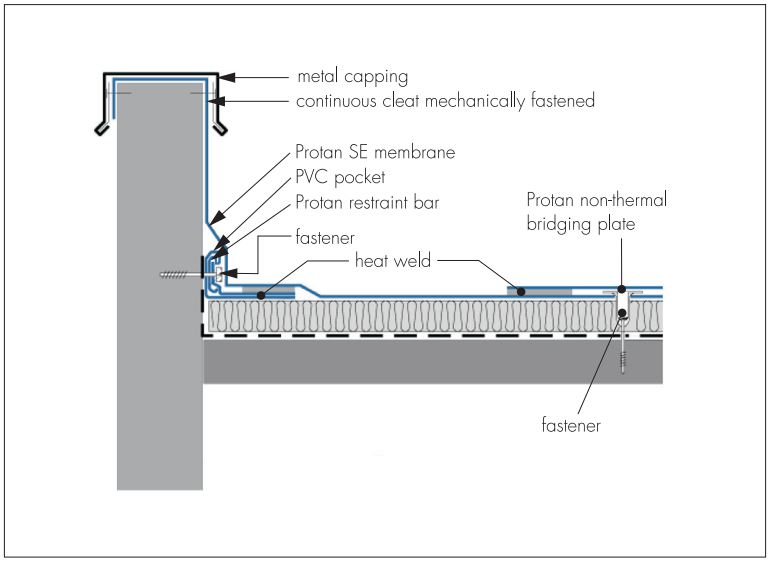



*Figure 5 Protan Grip Steel Bar Detail*

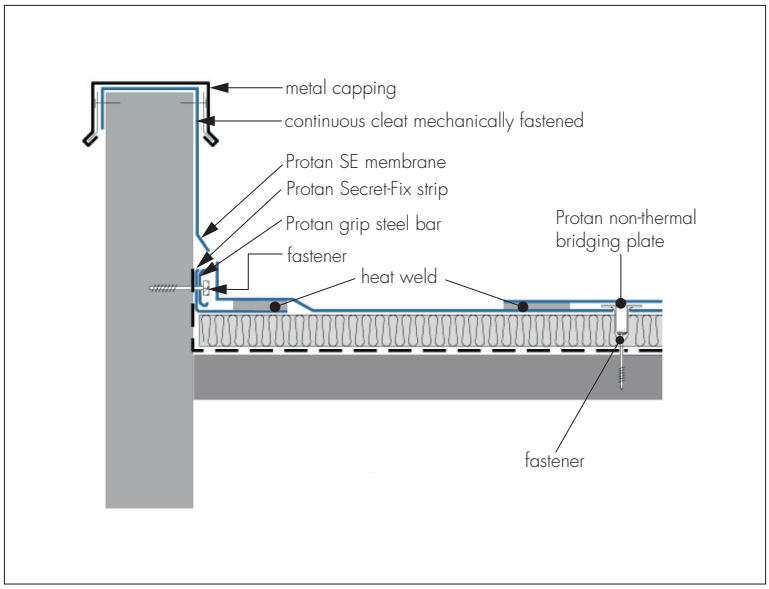


*Figure 6 Roof edge trim*

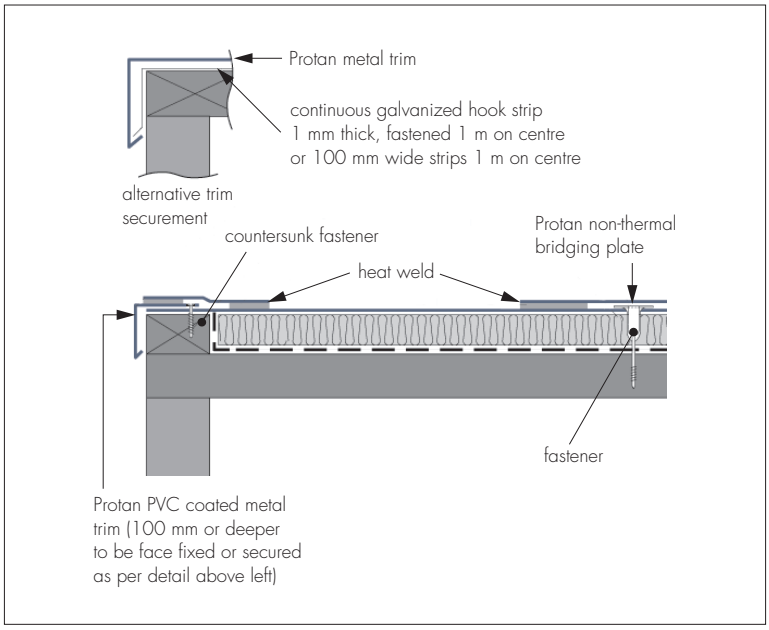



*Figure 7 Drainage — Protan Rainwater Outlet*

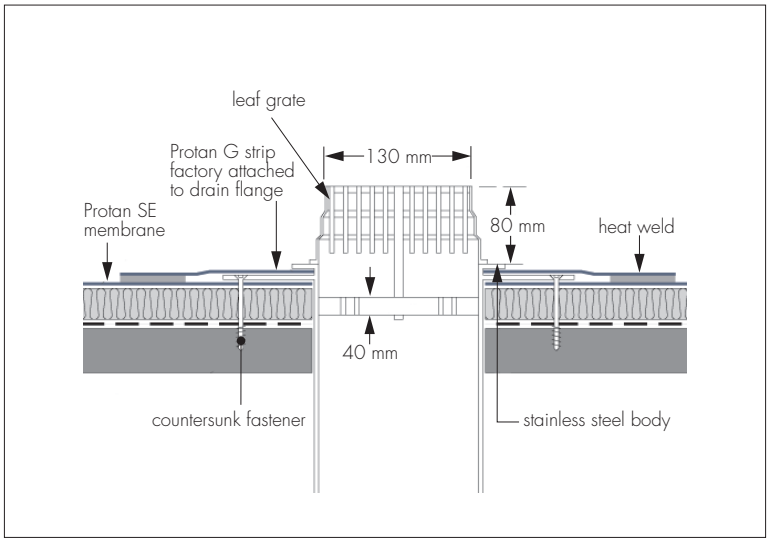
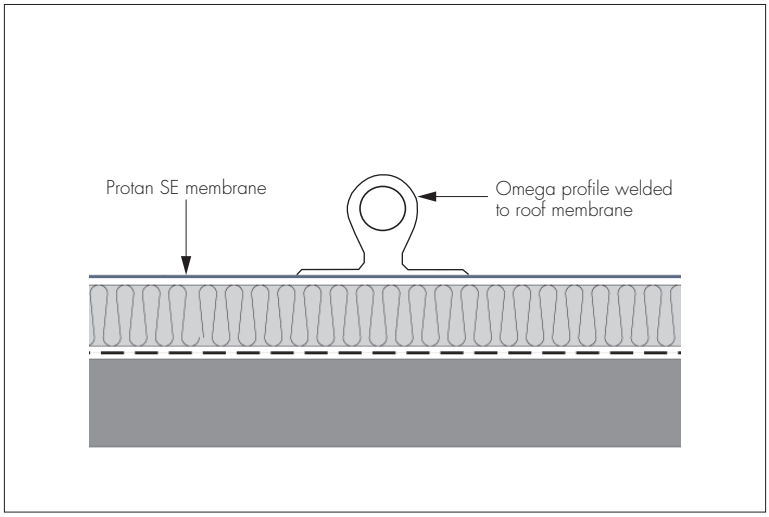



*Figure 8 Omega Architectural Profile*



### 17 Repair

In the event of damage, repair must be carried out in accordance with the Certificate holder's instructions. Repair consists of applying a welding patch of Protan SE membrane extending at least 50 mm beyond the defect. The joint should be cleaned back to unweathered material and hot-air welded.

## Technical Investigations

### 18 Tests

Tests were conducted and the results assessed to determine:

- tensile strength
- elongation at break
- tear strength
- dimensional stability
- water vapour permeability
- water vapour resistance
- low-temperature flexibility
- static indentation
- dynamic indentation
- leakage at joints
- tensile strength of joints
- T-peel
- coefficient of friction.

### 19 Investigations

19.1 Existing data on the fire performance of the membrane were examined.

19.2 The manufacturing process was evaluated, including the methods adopted for quality control, and details were obtained of the quality and composition of the materials used.

19.3 A visit was made to a site in progress to assess the methods of application.

19.4 Norwegian test data were assessed to ascertain the suitability of the fastening system.

19.5 Test data on samples taken by SINTEF Byggforsk during 2003 from an exposed site installed during 1977/78 were assessed against the product as new.

## Bibliography


BS 6229 : 2003 *Flat roofs with continuously supported coverings — Code of practice*

BS 8217 : 2005 *Reinforced bitumen membranes for roofing — Code of practice*

BS EN 1991-1-4 : 2005 *Eurocode 1: Actions on structures — General actions*
NA to BS EN 1991-1-4 : 2005 UK National Annex to *Eurocode 1: Actions on structures — General actions*

BS EN 13501-5 : 2005 + A1 : 2009 *Fire classification of construction products and building elements — Classification using data from external fire exposure to roofs tests*

BS EN 13956 : 2012 *Flexible sheets for waterproofing — Plastic and rubber sheets for roof waterproofing — Definitions and characteristics*

BS EN ISO 9001 : 2008 *Quality management systems — Requirements*

## 20 Conditions

20.1 This Certificate:

- relates only to the product/system that is named and described on the front page
- is issued only to the company, firm, organisation or person named on the front page — no other company, firm, organisation or person may hold or claim that this Certificate has been issued to them
- is valid only within the UK
- has to be read, considered and used as a whole document — it may be misleading and will be incomplete to be selective
- is copyright of the BBA
- is subject to English Law.

20.2 Publications, documents, specifications, legislation, regulations, standards and the like referenced in this Certificate are those that were current and/or deemed relevant by the BBA at the date of issue or reissue of this Certificate.

20.3 This Certificate will remain valid for an unlimited period provided that the product/system and its manufacture and/or fabrication, including all related and relevant parts and processes thereof:

- are maintained at or above the levels which have been assessed and found to be satisfactory by the BBA
- continue to be checked as and when deemed appropriate by the BBA under arrangements that it will determine
- are reviewed by the BBA as and when it considers appropriate.

20.4 The BBA has used due skill, care and diligence in preparing this Certificate, but no warranty is provided.

20.5 In issuing this Certificate, the BBA is not responsible and is excluded from any liability to any company, firm, organisation or person, for any matters arising directly or indirectly from:

- the presence or absence of any patent, intellectual property or similar rights subsisting in the product/system or any other product/system
- the right of the Certificate holder to manufacture, supply, install, maintain or market the product/system
- actual installations of the product/system, including their nature, design, methods, performance, workmanship and maintenance
- any works and constructions in which the product/system is installed, including their nature, design, methods, performance, workmanship and maintenance
- any loss or damage, including personal injury, howsoever caused by the product/system, including its manufacture, supply, installation, use, maintenance and removal
- any claims by the manufacturer relating to CE marking.

20.6 Any information relating to the manufacture, supply, installation, use, maintenance and removal of this product/system which is contained or referred to in this Certificate is the minimum required to be met when the product/system is manufactured, supplied, installed, used, maintained and removed. It does not purport in any way to restate the requirements of the Health and Safety at Work etc. Act 1974, or of any other statutory, common law or other duty which may exist at the date of issue or reissue of this Certificate; nor is conformity with such information to be taken as satisfying the requirements of the 1974 Act or of any statutory, common law or other duty of care.

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