Bord Agrément na hÉireann
Irish Agrément Board

CERTIFICATE NO. 06/0262
Protan AS,
P.O. Box 420,
NO-3002 Drammen, Norway.
Tel: 0047 32221600
Fax: 0047 32221700
Web: www.protan.com

Protan SE, EX and EXG Roofing Membranes

Revetement d'étanchéité
Dachabdichtungen

The **Irish Agrément Board** is designated by Government to issue European Technical Approvals.

Irish Agrément Board Certificates establish proof that the certified products are **'proper materials'** suitable for their intended use under Irish site conditions, and in accordance with the **Building Regulations 1997 to 2006**.

The **Irish Agrément Board** operates in association with the **National Standards Authority of Ireland (NSAI)** as the National Member of UEAtc.

PRODUCT DESCRIPTION:
Protan SE, EX and EXG are roofing membranes manufactured from a pliable PVC with a central core of knitted polyester. They are installed using hot-air welded lap joints, mechanically fixed using approved fasteners. The system includes a range of accessories designed to deal with parapet, edge, rainwater outlet and drainage details. Protan SE, EX and EXG roofing membranes have been certified by the NBI, Norway, Certificate No. 2010. This Certificate certifies compliance with the requirements of the Building Regulations 1997 to 2006.

USE:
This Certificate covers the use of the Protan SE, EX and EXG Roofing Membranes as mechanically fastened roof waterproofing layers suitable for use on pitched and flat roofs with limited access.

MANUFACTURE AND MARKETING:
The product is manufactured by:
Protan AS
P.O. Box 420
NO-3002 Drammen
Norway
Tel: 0047 32221600
Fax: 0047 32221700
Web: www.protan.com

The product is marketed in Ireland by:
Colas Building Products Limited
Unit G1,
Maynooth Business Campus,
Maynooth,
Co. Kildare.
Tel: 01 629 3630
Fax:01 629 3703
Web: www.colasbp.ie

1.1 ASSESSMENT

In the opinion of the Irish Agrément Board (IAB), the Protan SE, EX and EXG Roofing Membranes installed in Ireland by Protan trained and registered contractors, in accordance with specifications issued by Protan AS. and used in the context of this Certificate, can meet the requirements of the Building Regulations 1997 to 2006 as listed in section 1.2 of this Certificate.

1.2 BUILDING REGULATIONS 1997 to 2006 REQUIREMENT:

Part D – Materials and Workmanship

D3 – The Protan SE, EX and EXG Roofing Membranes, as certified in this Irish Agrément Board Certificate, are manufactured from materials which are proper materials fit for their intended use. (See Part 4 of this Irish Agrément Board Certificate).

D1 – The Protan SE, EX and EXG Roofing Membranes, used in accordance with this Irish Agrément Board Certificate, can meet the requirements for workmanship.

Part A – Structure

A1 – Loading

Tests indicate that a roof incorporating the Protan SE, EX and EXG Roofing Membranes can meet the loading requirements, provided the installation complies with the conditions set out in Section 2.6 and Part 3 of this Certificate.

Part B – Fire Safety

B4 – External Fire Spread

The Protan SE, EX and EXG Roofing Membranes can meet the requirements for resistance to fire penetration and the distance of spread of flame for roofs, as indicated in Part 4.1 of this Certificate.

Part C – Site Preparation and Resistance to Moisture

C4 – Resistance to Weather and Ground Moisture

The Protan SE, EX and EXG Roofing Membranes can meet the weather resistant requirements when installed as indicated in Part 2.6 of this Certificate.

2.1 PRODUCT DESCRIPTION

The Protan SE, EX and EXG Roofing Membranes consist of knitted polyester reinforced PVC roofing sheets, with hot-air welded lap joints, mechanically fastened using approved fasteners. Installation must only be carried out by Protan trained and registered installers.

2.2 PRODUCT RANGE

Protan SE, EX and EXG are available in two standard thicknesses and in a range of colours to the characteristics and tolerances given in Table 1. Field of application of the SE, EX and EXG membranes is as follows:

- Protan SE can be used as a roofing membrane on a range of underlay, but needs a separate migration barrier/levelling layer on polystyrene underlay and for re-roofing applications.
- Protan EX, laminated with polyester felt on the underside, can be laid directly over existing systems.
- Protan EXG, laminated with glass felt on the underside to enable installation directly over polystyrene insulation boards.

2.3 ANCILLARY ITEMS

- Approved telescopic tube, flat metal washers, non-thermal bridging plate, and fasteners range to suit the relevant decks.
- Protan Secret Fix Pocket – a factory-produced pocket for securing the membrane at upstands.
- Protan Fixing Bar- a roll-formed 1.5mm bar for use in conjunction with fixing pocket.
- Protan PVC Laminated Metal – a 0.6mm thick galvanized steel sheet, factory laminated with 1.4mm thick Protan G membrane.
- Preformed internal and external corners.
- Rainwater Outlets – stainless steel outlets with a Protan membrane flange.
- Pipe Cloaks/Collars - preformed cloaks for use at penetrations.
- Protan Omega and Triangular Profiles – for use to create architectural features on roofs.
- Protan 2.4mm GT Terrace Grade – a 2.4mm thick PVC membrane for use on access walkways and lightly-trafficked terraces.
- Protan Proclip Decking – for use with walkways and terraces.
- Protan Pavepad – bearing pads for concrete slabs.
- Polypropylene Geotextiles - a range of 140 g/m^2 to 800 g/m^2 non-woven mats, for use as protective 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 Barrier.

2.4 MANUFACTURE

Protan SE, EX and EXG membranes are manufactured by coating the polyester fabric base on both sides with a plastisol coating, fused into a homogeneous sheet. The upper PVC coating can be applied in several layers to achieve the required membrane thickness before being passed through a gelation oven. In the case of the EX and EXG membranes, a polyester or glass fibre layer is laminated to the back of the PVC membrane leaving a selvedge as required to facilitate welding of lap joints. Stabilizers have been added to the PVC mix to make the roofing membranes more resistant to high and low temperatures, ultra violet radiation and to limit the spread of flames. The membrane is then cut to width and reeled onto cardboard cores.

Table 1: Characteristics and Tolerances

	Protan SE		Protan EX		Protan EXG	
Thickness (mm)	1.2 +0.2/-0.1	1.6 +0.2/-0.15	1.2 +0.2/-0.1	1.6 +0.2/-0.15	1.2 +0.2/-0.10	1.6 +0.2/-0.15
Weight (kg/m^2)	1.4 +0.2/-0.1	1.75 +0.2/-0.1	1.4 +0.2/-0.1	1.75 +0.2/-0.1	1.4 +0.2/-0.1	1.75 +0.2/-0.1
Width (m)	1 or 2 +/- 2%	1 or 2 +/- 2%	1 or 2 +/- 2%	1 or 2 +/- 2%	1 or 2 +/- 2%	1 or 2 +/- 2%
Roll Length (m)	20 +2%/-0%	20 +2%/-0%	20 +2%/-0%	20 +2%/-0%	20 +2%/-0%	20 +2%/-0%
Weight. Polyester core (g/m^2)	80	80	80	80	80	80
Weight. Polyester felt (g/m^2)	-	-	180	180	-	-
Weight. Glass felt (g/m^2)	-	-	-	-	55	55

2.4.1 QUALITY CONROL

Quality control checks are carried out on the incoming raw materials, during production and on the finished product. The management systems of Protan have been assessed and registered as meeting the requirements of ISO 9001:2000 and ISO 14001:1996 by Det Norske Veritas, (Certificate No. 95-OSL-AQ-6543 and 97-OSL0SYMI-8015).

2.5 DELIVERY, STORAGE AND MARKING

Protan SE, EX and EXG are delivered to site on palletised rolls with polyethylene wrappings. Each pallet and each membrane roll carries a label bearing the product's name, thickness, width, length, and production number, as well as the IAB Logo and Certificate number. A production number and recycling symbol to identify the product classification are embossed into the membrane.

Rolls are to be stored on a clean level surface and kept under cover. Adhesives and sealants are to be stored in a dry, secure area for inflammable materials.

2.6 DESIGN AND INSTALLATION

2.6.1 General

Installation of Protan SE, EX and EXG membranes must be in strict accordance with the manufacturer's fixing instructions and should be carried out only by Protan trained and registered installers, records of whom are kept on the Certificate holder's database.

For each project, Protan undertakes the wind loading calculations for the roofing system as per BS 6399: 2: 1997, amendment No. 1 *Loading for buildings – Part 2: Code of practice for wind loads* and Clause A1 of Part A of the Technical Guidance Documents to the Building Regulations. It should be noted that overall responsibility for the structural design for the building, including designing for dead and superimposed loading on the roof, rests with the Architectural/engineering design team for the Developer. Older roofs to be retrofitted must be inspected to determine their suitability and any repairs that may be required.

Protan provides the roofing specification, including the layout of fixings for each roof. In addition, installed Protan roofing systems are subject to a final inspection by a Protan AS. Field Technician prior to the issue of a Protan Guarantee.

Roof decks to which the covering is applied, must comply with the relevant requirements of BS 8217: 2005: Reinforced *bitumen membranes for roofing – Code of practice* and BS 6229: 2003 *Code of practice for flat roofs with continuously supported coverings.*

Substrates should be clean and free from sharp projections such as nail heads and concrete nibs. Where Protan SE, EX or EXG membranes are to be laid over rough finished decks, the appropriate protection/cushion layer must be used.

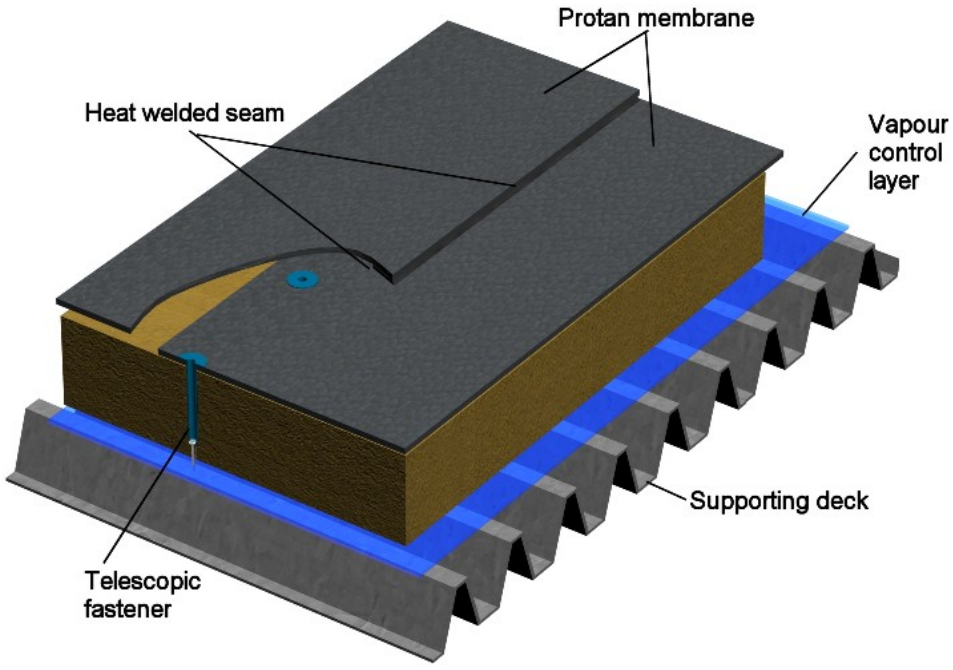


Figure 1 Standard Overlap - Insulated Roof Construction

All new roof constructions must incorporate a moisture barrier to prevent condensation saturating the insulation layer. The advise of the certificate holder should be sought if additional information is required in this regard.

Contact with all bituminous, coal tar and certain oil-based products must be avoided, as the basic membrane is not compatible with bitumen. In addition, direct contact between the basic membrane and polystyrene insulation should also be avoided. This must be taken into consideration regarding the choice of Protan membrane to be used. The advise of the certificate holder should be sought if additional information is required in this regard.

Insulation materials shall be the subject of current IAB Certificate and should be fixed to the substructure in such a way as not to impair the performance of the waterproofing membrane.

To avoid migration, Protan EXG or Protan SE with a separate migration barrier must be used when the roof membrane is installed directly on EPS or XPS insulation.

Protan EX or Protan SE, with a separate barrier, shall be used when the membrane is installed on old asphalt roofing without additional insulation.

Protan EX membrane is recommended for installation on wood-based roof sheathing.

Protan SE, EX and EXG roofing membranes may be laid in conditions normal to roofing work. Protan roofing membranes can be welded in damp weather or cold temperatures as the membranes are designed to remain flexible in low temperature conditions and have low water absorption. However, in damp or high humidity conditions, precautions should be taken to avoid trapped moisture in the roof construction. The advise of the certificate holder should be sought if additional information is required in this regard.

2.6.2 INSTALLATION PROCEDURE

Protan offers two types of systems for mechanical attachment:
- The Standard Overlap system. See Figure 1
- The Secret Fix Strip System. See Figure 3

The Protan SE, EX and EXG roofing membranes should be laid flat onto the substrate without folds or ripples, and fixed along its longitudinal edge (in the case of the Standard Overlap System), or through factory-welded fixing strips (in the case of the Secret Fix System) to the deck using approved fasteners. See Figures 1 & 2.

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

At upstands, or change in angle, the horizontal membrane is secured using the Protan Secret Fix Pocket, heat welded to the underside of the membrane, and Protan metal bars. The bars are sleeved within the pocket and mechanically fastened to the upstand. See Figure 2.

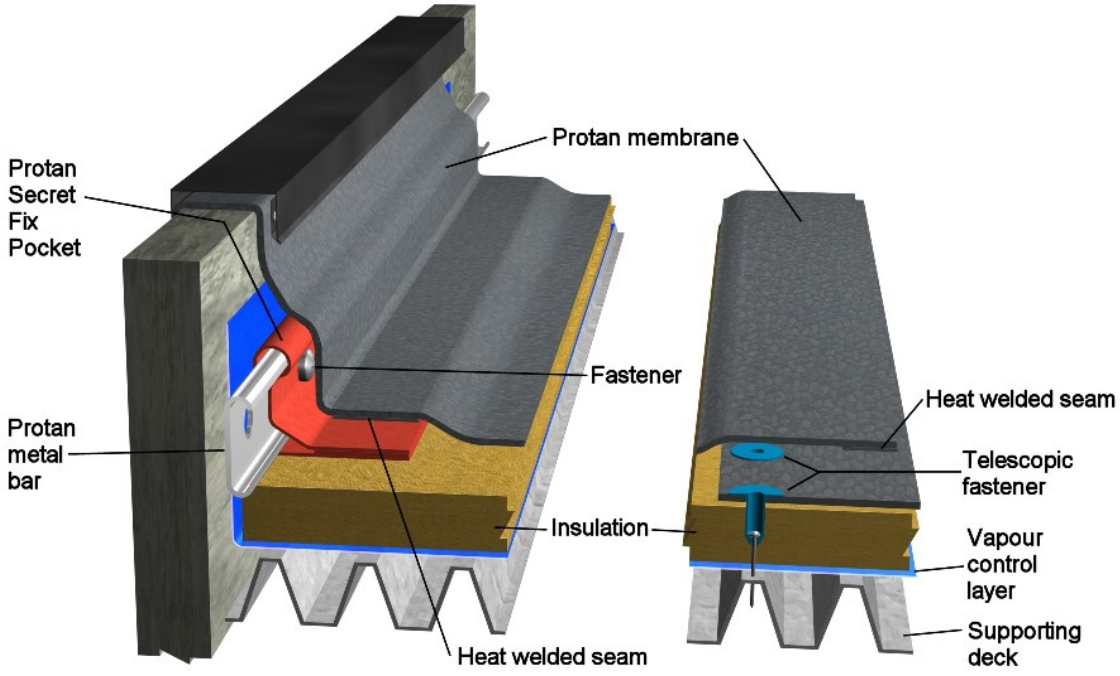


Figure 2 Parapet with Protan Secret Fix Pocket

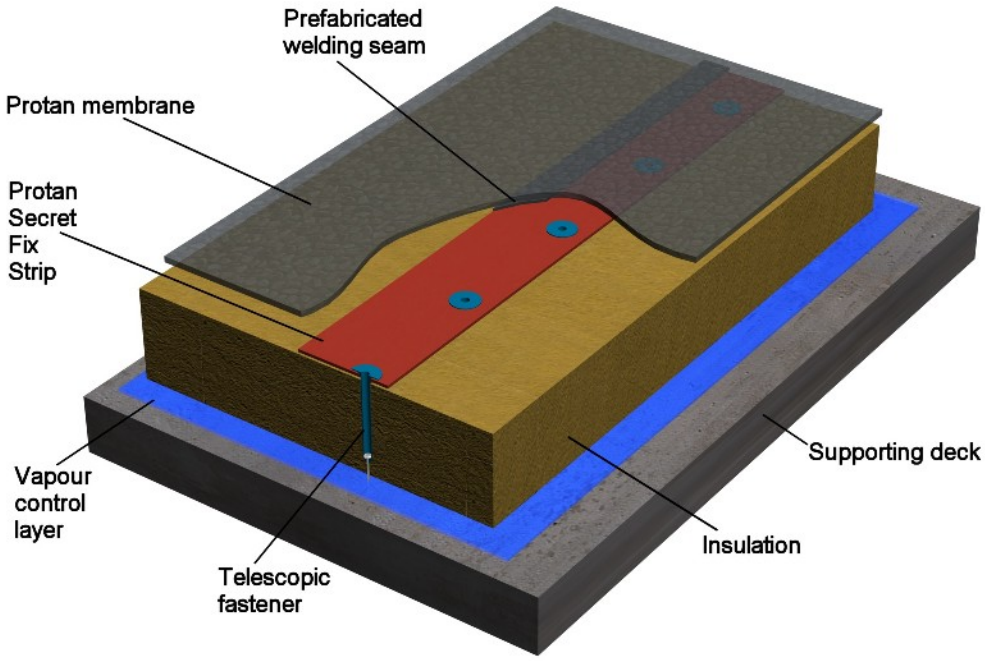


Figure 3 Protan Secret Fix System Detail

Steel Decks
Steel decks must be manufactured from galvanized steel with a minimum nominal thickness of 0.7mm.

On the main roof area, where steel decking is used, the membrane should be installed at 90° to the profile. Alternatively, when the Secret-Fix System is used, the membrane should be installed in the same direction as the profile. Self-tapping screws should be selected in accordance with the manufacturer's instructions.

A site pullout test is required for all refurbishment applications to establish the suitability of the existing steel deck for mechanical fastening.

Reinforced Concrete Deck
Concrete decks will require pre-drilling. The diameter of the holes should be relevant to the manufacturer's recommendations for the size of the self-drilling anchor or nylon dowel being used.

When re-roofing on concrete decks, fasteners must be anchored in solid concrete. This should be noted, particularly when using cement screeds or intermediate layers.

A site pullout test is required for all applications to establish the suitability of the concrete deck for mechanical fastening, the type of fastener required and the correct tapping hole diameter.

Timber Decks
Fasteners should be positioned above and fixed to beams or joists. If this is not possible, fasteners must be positioned across the direction of timber planks, provided the planks are sufficiently fastened to withstand the imposed wind loads. When fasteners are to be fixed to Plywood or OSB 3, a minimum board thickness of 18mm must be used.
In addition, the fastening screws must penetrate a minimum of 15mm beyond the underside of the board.

A site pullout test is required for all refurbishment applications to establish the suitability of the existing timber deck for mechanical fastening.

2.6.3 Lap Welding Procedure
Welding must only be carried out by Protan trained and registered contractors. To ensure a watertight weld, Protan SE, EX and EXG should be lapped by a minimum of 120 mm at side laps and 80mm at end laps. Hot-air welding is performed by hand or machine using equipment approved by the Certificate holder.

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 the work. Peel tests should be carried out at 200 m intervals and covered by a Protan Quality Inspection Patch to identify where tests have been executed.

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 between 20 mm and 40 mm.

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

On completion of the weld, the seam should be tested by running a metal probe down along the joint to check for total consolidation.

2.6.4 Details.

The Certificate holder supplies a range of preformed PVC rainwater outlets, PVC laminated metal and prefabricated PVC shapes to deal with parapet, edge, corner, rainwater outlet and drainage details.

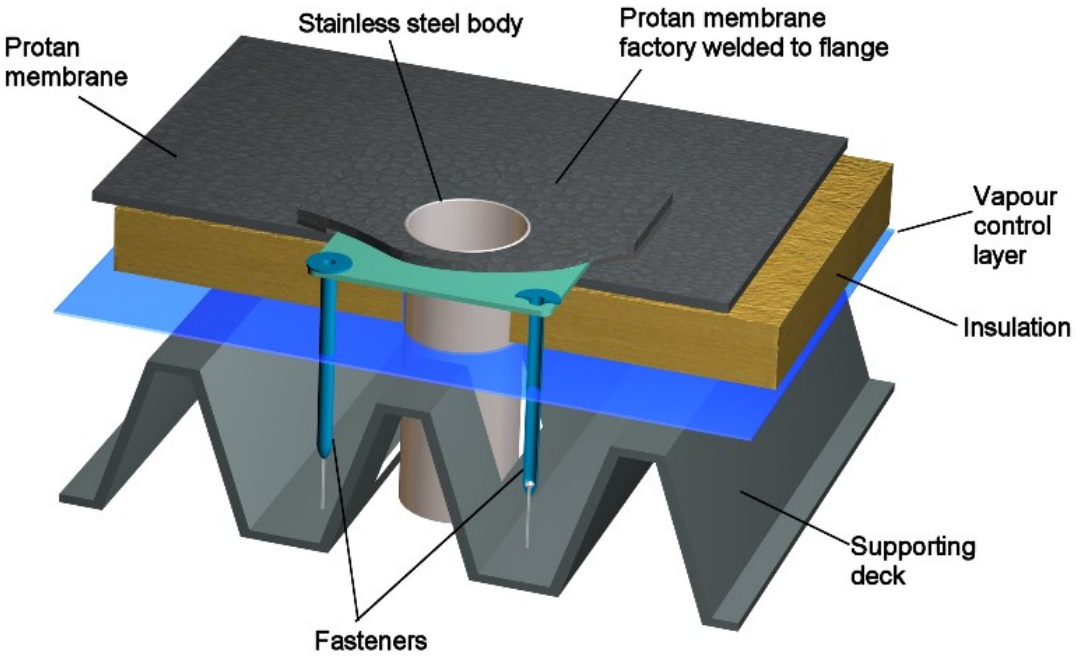


Figure 4 Outlet with Factory Attached Protan Membrane

3 GENERAL

3.1 Protan SE, EX and EXG roofing membranes when installed in accordance with the manufacturer's instructions are suitable for use on timber, metal, concrete or suitable insulated decks as a mechanically fixed waterproof covering on pitched or flat roofs with limited access.

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

3.3 Flat roofs are defined for the purpose of this Certificate as those roofs up to 10^0 to the horizontal. See section 4.1 (i) of this certificate for fire test ratings of flat roof systems per BS 476: Part 3: 2004: *Fire tests of building materials and structures*. The designation of other roof systems should be confirmed by test or assessment.

Section 4.1 (ii) of this certificate defined the fire rating of a Protan SE roofing system tested in the sloping position per BS 473: Part 3: 2004. The designation of other roof systems should be confirmed by test or assessment. Pitched roofs are defined as those which slope at an angle of greater than 10^o and up to 70^o to the horizontal.

3.4 To minimise ponding, and in accordance with BS 6229:2003, it is recommended that flat roofs should have a Design Fall of 1:40 to achieve a Minimum Finished fall of 1:80, unless a detailed analysis of the roof is available, including overall and local deflection and direction of falls.

3.5 Decks to which the product is to be applied must comply with the relevant requirements of BS 8217: 2005 and BS 6229: 2003

3.6 Non-traditional insulation systems or materials used in conjunction with this product must only be used in accordance with the Certificate holder's instructions.

3.7 Protan SE, EX and EXG roofing membranes installed in accordance with the manufacturers instructions can resist the effects of wind suction, thermal cycling and minor structural movements likely to occur in practice. See Clause 4.7 of this certificate.

3.8 The systems can accept, without damage, the limited foot traffic and light concentrated loads associated with installation and maintenance operations. Reasonable care is required, however, to avoid puncture by sharp objects or concentrated loads. Anywhere regular traffic is envisaged, i.e. such as the maintenance of lift equipment, a walkway must be provided by Protan 2.4mm GT Terrace Grade walkway membrane or concrete slabs supported on Protan Pavepad.

4.1 BEHAVIOUR IN FIRE

When tested in accordance with BS 476-3: 2004, a system comprising of:

(i) A 0.7mm profiled steel decking, 50mm polyurethane insulation with an aluminium foil facing the upper side, and glass tissue facing to the underside and one layer of Protan SE mechanically fixed, achieved an EXT.F.AA rating.

(ii) A 0.7mm profiled steel deck, a 0.21mm thick vapour control layer, one 90 mm thick layer of foil faced PIR insulation and one layer of Protan SE membrane fixed with Iso-telescopic washers and fastener combination achieved a EXT.S.AB rating.

The designation of other roof systems should be confirmed by test or assessment.

4.2 CONDENSATION RISK

When a correctly installed vapour barrier is used on the warm side of the insulation, interstitial condensation will not occur within the system.

4.3 MAINTENANCE

Protan SE, EX and EXG roofing membranes when installed in accordance with this Certificate and the Certificate holder's instructions will have minimum need for maintenance. Drainage outlets and gutters should be regularly maintained.

In the event of damage, repair should be carried out in accordance with Protans repair instructions. Repair consists of applying a Protan welding patch, diameter 110mm or 190mm or a manually fitted Protan SE patch, to extend at least 50mm beyond the defect.

The damaged area should be thoroughly cleaned and the patch then hot-air welded.

4.4 WEATHERTIGHTNESS

Test data examined by the IAB confirms that Protan SE, EX and EXG roofing membranes and joints in membranes, when completely sealed and consolidated, will adequately resist the passage of moisture to the inside of the building. They are capable of accepting minor structural movements without damage and so meet the requirements of Part C of the Building Regulations 1997 to 2006.

4.5 DURABILITY

When installed in accordance with this Certificate and adequately supported by the substrate, all available evidence indicates that Protan SE, EX and EXG roofing membranes should have a life in excess of 30 years.

Repairs carried out by Protan trained and registered contractors are effective in restoring weather tightness.

4.6 TOXICITY

The membranes are not toxic in normal service.

4.7 SECURITY OF FIXING

4.7.1 The resistance to wind uplift of a mechanically fixed Protan SE, EX and EXG roofing membranes is provided by the Protan washers secured to the deck by screws passing through the membrane. The number and position of fixings and washers will depend on many factors including:

Wind uplift forces to be resisted
Pull-out strength of fasteners
Elastic limit of the membrane
Appropriate safety factors

4.7.2 The number of fixings required will be established by the Certificate holder by reference to wind uplift forces calculated in accordance with BS 6399-2: 1997 Amendment 1 on the basis of the maximum permissible loads.

4.7.3 The Certificate holder offers a design service, which takes all the relevant supplied information into account, including calculations for the wind uplift affecting the roof, and provides a detailed written specification for the roof system. This specification will include the type of fasteners required and their fixing centres.

The Certificate holder takes liability for the calculations of their own design of the mechanically fastened system.

4.8 EFFECTS OF TEMPERATURE

Membranes will resist normal temperatures in the range -30°C to 80°C.

4.9 OTHER INVESTIGATIONS

(i) The manufacturing process was examined including methods adopted for quality control and details were obtained of the quality and composition of the materials used. In addition a range of product testing was witnessed.

(ii) The IAB carried out visits to assess the history of use and practicability of installation of the product. The Protan and Colas training facilities were also visited.

(iii) A visit was made to a site in progress to assess the method of application.

(iv) Test data on the following properties was also examined: See table 2 for details.

- Joint peel and shear strength
- Wind uplift
- Tensile, elongation and tear tests
- Water vapour permeability and resistance
- Flexibility at low temperatures

Table 2: Physical Properties

Property	Test Method	Control limit/product						Unit
		Protan SE		Protan EX		Protan EXG		
		1.2 mm	1.6 mm	1.2 mm with felt	1.6 mm with felt	1.2 mm	1.6 mm	
Water tightness (10 kPa)	EN 1928	Tight	Tight	Tight	Tight	Tight	Tight	-
Peel resistance of joints– side lap (T-peel)	EN 12316-2	≥ 150	≥ 150	≥ 150	≥ 150	≥ 150	≥ 150	N/50mm
Shear resistance of joints – side lap	EN 12317-2	≥ 1000	≥ 1000	≥ 1000	≥ 1000	≥ 1000	≥ 1000	N/50mm
Tensile strength	EN 12311-2	≥ 1050	≥ 1050	≥ 1100	≥ 1100	≥ 1050	≥ 1050	N/50mm
Elongation	EN 12311-2	≥ 15	≥ 15	≥ 15	≥ 15	≥ 15	≥ 15	%
Tear resistance	EN 12310-2	≥ 210	≥ 210	≥ 300	≥ 300	≥ 210	≥ 210	N
Resistance to puncture - By static load - By impact at +23°C - By impact at -10 °C	 EN 12730 EN 12691 EN 12691	 ≥ 200 ≤ 8 ≤ 8	 ≥ 200 ≤ 8 ≤ 8	 ≥ 200 ≤ 6 ≤ 8	 ≥ 200 ≤ 6 ≤ 8	 ≥ 200 ≤ 8 ≤ 10	 ≥ 200 ≤ 8 ≤ 10	 N mm dia. Mm dia.
Dimensional stability	EN 1107-2	± 0.5	± 0.5	± 0.5	± 0.5	± 0.5	± 0.5	%
Foldability at low temperatures	EN 495-5	≤ -30	≤ -30	≤ -30	≤ -30	≤ -30	≤ -30	°C
Water vapour permeability	EN ISO 12572	$12 \cdot 10^{-12}$	$9 \cdot 10^{-12}$	$12 \cdot 10^{-12}$	$9 \cdot 10^{-12}$	$12 \cdot 10^{-12}$	$9 \cdot 10^{-12}$	Kg/m^2s Pa
Water vapour resistance	EN ISO 12572	16	22	16	22	16	22	m

5.1 National Standards Authority of Ireland ("NSAI") following consultation with the Irish Agrément Board ("IAB") has assessed the performance and method of installation of the product/process and the quality of the materials used in its manufacture and certifies the product/process to be fit for the use for which it is certified provided that it is manufactured, installed, used and maintained in accordance with the descriptions and specifications set out in this Certificate and in accordance with the manufacturer's instructions and usual trade practice. This Certificate shall remain valid for 5 years so long as:

(a) the specification of the product is unchanged.
(b) the Building Regulations 1997 to 2006 and any other regulation or standard applicable to the product/process, its use or installation remains unchanged.
(c) the product continues to be assessed for the quality of its manufacture and marking by NSAI.
(d) no new information becomes available which in the opinion of the NSAI, would preclude the granting of the Certificate.
(e) the product or process continues to be manufactured, installed, used and maintained in accordance with the description, specifications and safety recommendations set out in this certificate.
(f) the registration and/or surveillance fees due to IAB are paid.

5.2 The IAB mark and certification number may only be used on or in relation to product/processes in respect of which a valid Certificate exists. If the Certificate becomes invalid the Certificate holder must not use the IAB mark and certification number and must remove them from the products already marked.

5.3 In granting Certification, the NSAI makes no representation as to;

(a) the absence or presence of patent rights subsisting in the product/process; or
(b) the legal right of the Certificate holder to market, install or maintain the product/process; or
(c) whether individual products have been manufactured or installed by the Certificate holder in accordance with the descriptions and specifications set out in this Certificate.

5.4 This Certificate does not comprise installation instructions and does not replace the manufacturer's directions or any professional or trade advice relating to use and installation, which may be appropriate.

5.5 Any recommendations contained in this Certificate relating to the safe use of the certified product/process are preconditions to the validity of the Certificate. However the NSAI does not certify that the manufacture or installation of the certified product or process in accordance with the descriptions and specifications set out in this Certificate will satisfy the requirements of the Safety, Health and Welfare at Work Act. 1989, or of any other current or future common law duty of care owed by the manufacturer or by the Certificate holder.

5.6 The NSAI is not responsible to any person or body for loss or damage including personal injury arising as a direct or indirect result of the use of this product or process.

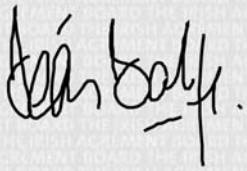
5.7 Where reference is made in this Certificate to any Act of the Oireachtas, Regulation made there under, Statutory Instrument, Code of Practice, National Standards. Manufacturer's instructions, or similar publication, it shall be construed as reference to such publication in the form in which it is in force at the date of this Certification.

The Irish Agrément Board

This Certificate No. **06/0262** is accordingly granted by the NSAI to **Protan AS,** on behalf of The Irish Agrément Board.

Date of Issue: **November 2006**

Signed



Seán Balfe
Director of the Irish Agrément Board

Readers may check that the status of this Certificate has not changed by contacting the Irish Agrément Board, NSAI, Glasnevin, Dublin 9, Ireland. Telephone: (01) 807 3800. Fax: (01) 807 3842. www.nsai.ie

Revisions: February 2007
To add fire test data for the product tested in the sloping position.