

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 2002**.

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

PRODUCT DESCRIPTION:

This Certificate relates to Monaperm 700 Breather Membrane, which is a spunbonded polypropylene fabric underlay for use in slated or tiled pitched roofs.

USE:

Monaperm 700 Breather Membrane is manufactured for use under slates or tiles on open rafter (unsupported) or fully supported pitched roofs. The underlay may be used in the following roof systems:

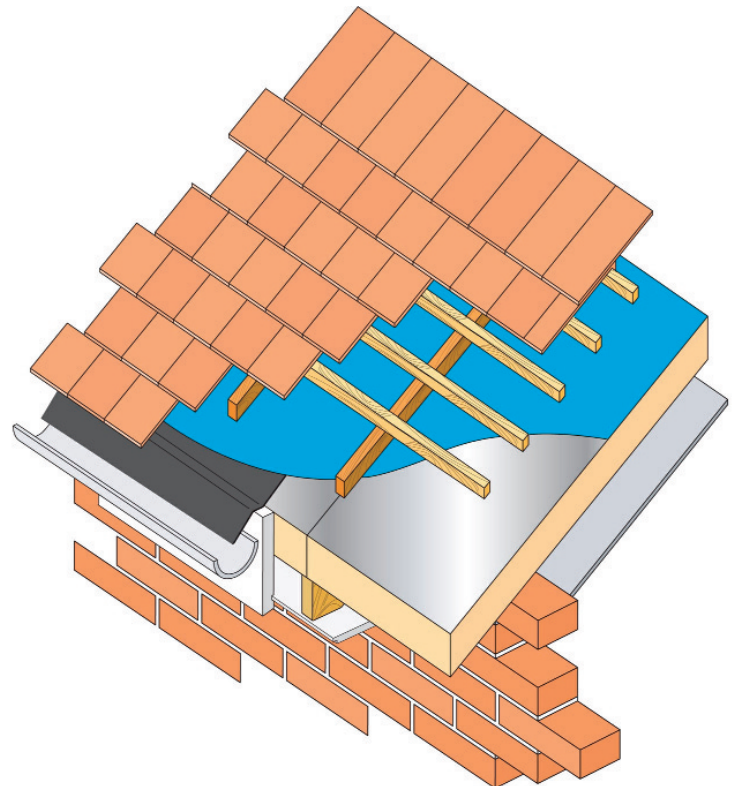
1. Conventional cold roof system
2. Non-ventilated in a cold roof system
3. Ventilated in a warm roof system
4. Non-ventilated in a warm roof system.

The installation of these roof systems using Monaperm 700 Breather Membrane is described in Section 2.4 of this certificate.

Monaperm 700 Breather Membrane provides a barrier which:

- Prevents the ingress of wind-blown rain, dust and snow.
- Minimises the wind load generated under wind gusts acting on slates and tiles when installed in accordance with this certificate.
- Offers adequate resistance to tearing during installation.
- Remains flexible at low ambient temperatures.
- Facilitates the control of harmful surface and interstitial condensation in the roof by allowing the safe dispersal of water vapour, when installed in accordance with this certificate.

This Certificate is a confirmation of BBA Certificate No. 02/3932 Monaperm Breathable Roof Lining Systems issued by the British Board of Agrément, PO Box 195, Bucknalls Lane, Garston, Watford, Herts., WD25 9BA



MANUFACTURE

The product is manufactured under contract on behalf of Icopal Limited.

MARKETING

The product is marketed by:

Icopal Limited
Barton Dock Road, Stretford
Manchester M32 OYL, United Kingdom
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E-mail; marketing@icopal.co.uk
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Mobile 00353 87 2583587
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1.1 ASSESSMENT

In the opinion of the Irish Agrément Board (IAB), Monaperm 700 Breather Membrane is satisfactory for the purpose defined above, and meets the requirements of the Building Regulations 1997 to 2002 as indicated in Section 1.2 of this certificate.

1.2 BUILDING REGULATIONS 1997 to 2002**Requirement:****PART D - MATERIALS AND WORKMANSHIP**

D3 – Monaperm 700 Breather Membrane, as certified in this Irish Agrément Board (IAB) certificate, is a proper material, fit for its intended use (see Part 4 of this certificate).

D1 – Monaperm 700 Breather Membrane, used in accordance with this Irish Agrément Board (IAB) certificate, meets the requirements for materials and workmanship.

PART A - STRUCTURE**A1 - Loading**

Tests indicate that a roof incorporating Monaperm 700 Breather Membrane meets the requirements provided the installation complies with the conditions set out in Section 2.4 and Part 3 of this Irish Agrément Board (IAB) certificate.

PART B - FIRE SAFETY**B4 - External Fire Spread**

Monaperm 700 Breather Membrane will not prejudice the external fire resistance of the roof, as indicated in Section 4.1 of this Irish Agrément Board (IAB) certificate.

PART C - SITE PREPARATION AND RESISTANCE TO MOISTURE.**C4 - Resistance to Weather and Ground Moisture**

Monaperm 700 Breather Membrane meets the requirements when installed as indicated in Section 2.4 of this Irish Agrément Board (IAB) certificate.

PART F – VENTILATION**F2 - Condensation in Roofs**

Monaperm 700 Breather Membrane will provide water

vapour permeability in excess of that quoted as a minimum for a vapour permeable underlay in *I.C.P. 2: 2002 Irish Code of Practice for slating and tiling* and hence, movement of moisture vapour can take place through the underlay.

The design guidelines contained in the Section 2 of the Technical Guidance Document to Part F of the Building Regulations 1997 to 2002 and in Section 8.4 of BS 5250: 2002 *Code of Practice for control of condensation in buildings*, must be met.

In a non-ventilated roof system where Monaperm 700 Breather Membrane is installed in accordance with this Irish Agrément Board (IAB) certificate, the underlay can prevent excessive condensation in a roof or in a roof void above an insulated ceiling as is required by Part F of the Building Regulations 1997 to 2002.

Monaperm 700 Breather Membrane can be treated as a vapour permeable underlay when considering the ventilation requirements of the roof.

PART L - CONSERVATION OF FUEL AND ENERGY**L1 - Conservation of Fuel and Energy**

Based on the measured vapour resistance of Monaperm 700 Breather Membrane, roofs incorporating insulation can meet the requirements of Part L of the Building Regulations 1997 to 2002.

Where the Monaperm 700 Breather Membrane is installed with ventilation and the ceiling has to be fixed to the soffit of the rafters, as in dormer roof construction, ventilation should be arranged for as shown in diagram 6D of TGD to Part F of the Building Regulations 1997 to 2002; in these circumstances it will be necessary to install a vapour control layer at the warm side of the insulation.

In a non-ventilated roof system where Monaperm 700 Breather Membrane is installed in accordance with this Irish Agrément Board (IAB) certificate and manufacturer's instructions and the ceiling has to be fixed to the soffit of the rafters as in dormer roof construction, it is likely to be necessary to install a vapour control layer at the warm side of the insulation.

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2.1 PRODUCT DESCRIPTION

Monaperm 700 Breather Membrane is a watertight, vapour permeable, flexible underlay intended for use as an unsupported/supported underlay beneath slates or tiles, constructed in accordance with *I.C.P. 2: 2002 Irish Code of Practice for slating and tiling*.

2.2 MANUFACTURE

Monaperm 700 Breather Membrane is manufactured by laminating a plastic between two polypropylene fabric layers to form a breathable waterproof membrane. The membrane is produced with a blue upper surface and a grey underside, printed with overlap guidelines and the product name.

The physical characteristics of Monaperm 700 Breather Membrane are given in Table 1.

2.2.1 Ancillary Items

- Monobond LT Tape (butyl adhesive tape)
- Monarflex Eaves Guard – a PVC-U detail used to protect the edge of the underlay at the eaves from the effects of ultraviolet light ageing and as a run-off into the gutter

2.2.2 Quality Control

Quality control checks are carried out on the incoming raw materials, during production and on the finished product. Quality control checks include visual inspection and checks on roll and membrane weights, dimensions (length, width, thickness), tensile strength, tear resistance, water vapour permeability and water penetration resistance (hydrostatic head).

2.3 DELIVERY, STORAGE AND MARKING

Monaperm 700 Breather Membrane is supplied in 50-metre rolls, shrink-wrapped in polythene with a label bearing the company name and the product name

Rolls should be stored on their sides on a smooth, clean, dry surface and be kept under cover to protect from long-term exposure to UV light. Care must be taken to avoid contact with solvents and with materials containing volatile organic components such as coal tar, and timbers newly treated with creosote.

The rolls must not be exposed to a naked flame or other ignition sources.

2.4 INSTALLATION PROCEDURE

2.4.1 General

Monaperm 700 Breather Membrane must be installed and fixed in accordance with this certificate and the manufacturer's/distributor's instructions, a copy of which should accompany each roll, and the recommendations of *I.C.P. 2: 2002 Code of Practice for slating and tiling*.

2.4.2 Installation

Installation of Monaperm 700 Breather Membrane can be carried out in all conditions normal to pitched roofing work. In roof construction it is important to remember that Monaperm 700 Breather Membrane is the second line of defence in excluding water penetrating the roof. For this reason the following list of criteria must be met to comply with the requirements of this certificate.

2.4.2.1 General installation criteria for Monaperm 700 Breather Membrane:

- Where the length of the roof slope measured on plan exceeds 6m, Monaperm 700 Breather Membrane should only be

used if slate or tile manufacturer's guidance is sought on detailing.

- Ensure that Monaperm 700 Breather Membrane is laid parallel to the eaves with the blue side and product name uppermost, and not damaged.
- Where Monaperm 700 Breather Membrane becomes damaged for whatever reason, it is imperative that it is suitably repaired with a new piece of the same material or, if the damage is only minor, with Monobond LT Tape adhesive tape. All penetrations to the underlay, such as vent pipes and chimneys should also be sealed with Monobond LT Tape adhesive tape to ensure complete protection of the interior.
- It is imperative that persons working on the roof do not use the underlay for supporting themselves or the slates/tiles independently of the roof.
- Overlaps of the underlay should be provided in accordance with the minimum dimensions given in Table 2, which are taken from *I.C.P. 2: 2002 Irish Code of Practice for slating and tiling*.
- Where underlay overlaps do not coincide with a batten, consideration should be given to either including an extra batten at the overlap or increasing the underlay overlap to coincide with the next batten.
- Batten gauges should not exceed that recommended by the tile/slate manufacturer for the particular tile/slate being used.
- Moisture content of battens at time of fixing should not exceed 22%.
- Where timbers on roofs are to be treated with wood preservative, it is essential that manufacturer's guidance be sought in relation to possible chemical attack on the roofing underlay.
- When tacking roof underlay to the rafters it is recommended that 3mm diameter X 20mm long extra large head clout/felt nails of copper, aluminium alloy

Table 1:
Physical Characteristics of Monaperm 700 Breather Membrane

Colour	Blue, upper surface Grey, lower surface
Roll Width (m)	1.5
Roll Length (m)	50
Weight (g/m ²)	140
Thickness (mm)	0.60
Water Vapour Resistance (MNs/g)	0.17
Water Vapour Permeability – Temperate	
Climate (g/m ² /day)	1196
Hydrostatic Head (mm of H ₂ O)	>1500
Tensile Strength (N/50mm)	Longitudinal 230 Transverse 160
Tensile Elongation (%)	Longitudinal 14.5 Transverse 40.0
Tear Resistance (N)	Longitudinal 87 Transverse 83

or galvanised steel be used. The underlay should be tacked at the head of the sheet only, at centres not exceeding 1200mm. It is important that all tacking nails be covered by the overlap of the next underlay course. Where hips and valleys occur on roofs, lay an additional strip of underlay at least 600mm wide, running continuously from eaves to ridge.

- For duo pitch roofs not requiring ridge ventilation, underlay from each side of the ridge should overlap the other side by at least 225mm. Where proprietary ventilating ridge systems are specified, detailing of the underlay should be in accordance with the manufacturer's recommendations.
- Where used unsupported, the underlay should be draped with a deflection of approximately 10mm between rafters to permit free drainage of water into the gutter.
- Where used fully supported on decking or insulation, counterbattens should be used and the guidelines from *BS 5250:2002* should be followed.
- Once Monaperm 700 Breather Membrane is installed, it is recommended that it should be covered with slates/tiles as quickly as possible (within 28 days) to prevent degradation by UV light. At the eaves a Monarflex Eaves Guard UV-light-resistant underlay or equivalent protection must be installed onto which the underlay can be lapped and sealed with Monobond LT Tape tape.
- Monaperm 700 Breather Membrane is not suitable for use in flat roof construction.

2.4.2.2 Installation Criteria for Non-ventilated roof designs in relation to condensation risk.

The Monaperm 700 Breather Membrane has a significantly higher water vapour permeability than that of conventional roof underlay and therefore does not have to rely upon air movement beneath the underlay to minimise the risk of damage through condensation. However it is essential that the amount of water vapour generated in the dwelling below is limited. The following measures will help to reduce the build up of water vapour.

- All penetrations into the roof space must be properly sealed and loft hatches made convection tight by means of a compressible draught seal.
- The dwelling below the roof must be ventilated in accordance with section F1 of TGD to Part F of the Building Regulations 1997 to 2002 for the dispersal and rapid dilution of water vapour.
- All water tanks in the loft space must be covered and all pipe work lagged.

- Extractor fans must be used in rooms that may experience high humidity, such as kitchens, utility rooms and bathrooms. The ventilation rates of the fans should be in accordance with the Building Regulations 1997 to 2002.
- A vapour control layer should be installed on the warm side of the insulation in both cold roof designs and warm roof designs.
- All penetrations, e.g. pipe work, electrical fittings to the loft space must be sealed.

To allow water vapour to disperse above the underlay, counter battens and tiling battens of minimum thickness 25mm each should be used where the space beneath the underlay is not ventilated. This airspace is open to the atmosphere, between the roof covering and the underlay and no eaves or ridge ventilation is required. As the ventilation of this airspace is dependent on gaps between the tiles or slates it may not be adequate where these are tightly jointed. In this case full ventilation (at eaves and ridge) of this airspace may be required.

The insulation is laid horizontally on a vapour barrier at ceiling level and must be pushed into the eaves and against the underlay to ensure that there are no gaps present.

A detail of Monaperm 700 Breather Membrane in a warm roof is shown in Figure 1

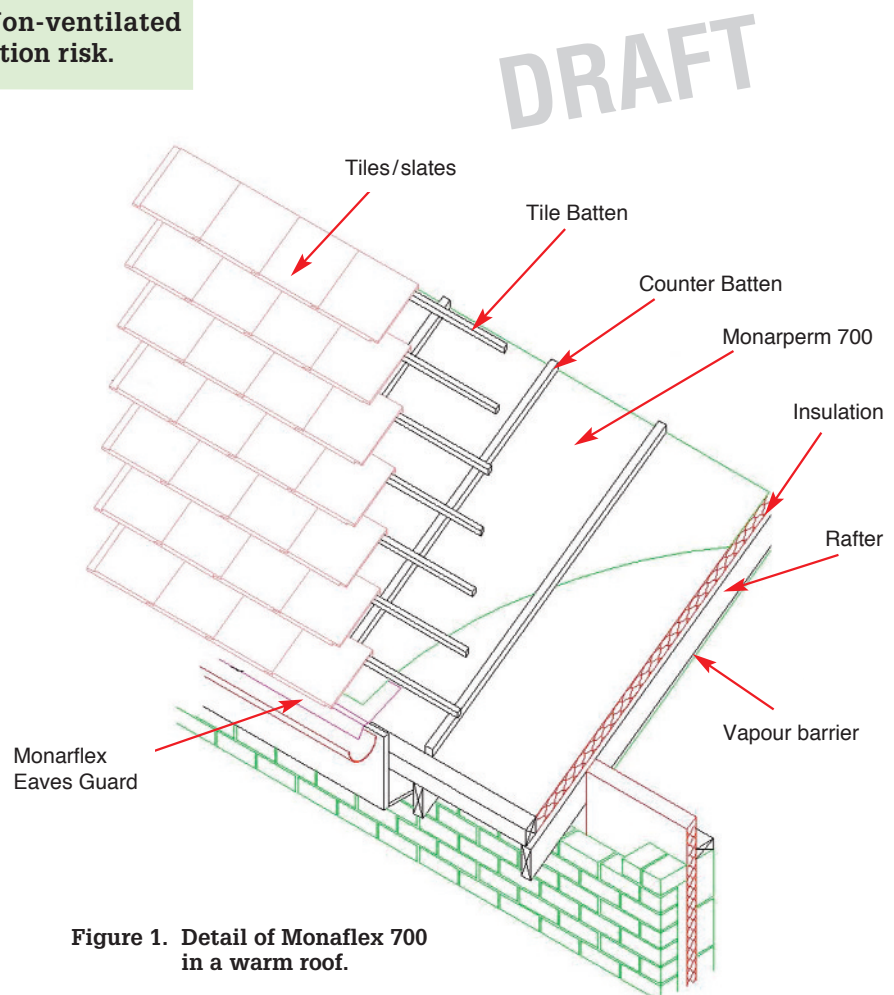


Figure 1. Detail of Monarflex 700 in a warm roof.

3 GENERAL

3.1 Monaperm 700 Breather Membrane provides a satisfactory underlay in slated and tiled pitched roofs constructed in accordance with *I.C.P. 2: 2002 Irish Code of practice for slating and tiling*.

3.2 STRENGTH

Monaperm 700 Breather Membrane will resist the loads associated with the installation phase of the roof.

Monaperm 700 Breather Membrane has adequate resistance to wind uplift forces in most locations in Ireland.

3.3 WEATHERTIGHTNESS

Tests confirm that Monaperm 700 Breather Membrane will resist the passage of water and wind-blown snow and dust into the interior of a building under all conditions to be found in a roof constructed to *I.C.P. 2: 2002 Irish Code of practice for slating and tiling*.

The underlay may be used to provide temporary waterproofing to the structure of the building prior to the installation of slates or tiles. It is however recommended that this period of time be kept to a minimum in accordance with the manufacturer's guidance.

3.4 VENTILATION

Where Monaperm 700 Breather Membrane is installed with ventilation, particular attention should be given to

ensure that there is adequate ventilation to the roof space at eaves and where required at ridge levels in accordance with Part F of the Building Regulations 1997 to 2002. Ridge vents must be flashed and sealed to the underlay to ensure that the roof space is ventilated at all times.

In conventional ventilated roof systems where the ceiling has to be fixed to the soffit of the rafters and insulation is fitted between rafters, as in dormer roof construction, a continuous ventilation space of at least 50mm should be arranged for as shown in Diagram 6D of TGD to Part F of the Building Regulations 1997 to 2002; in these circumstances it will be necessary to install a vapour control layer at the warm side of the insulation.

Where Monaperm 700 Breather Membrane is installed in a non-ventilated cold or warm roof system, the risk of condensation is equivalent to, or less than, that for conventionally ventilated cold roof systems meeting the criteria of *BS 5250: 2002 Code of Practice for control of condensation in buildings*.

It is essential that roofs be constructed so as to minimise the risk of moisture vapour entering the attic space and forming condensation. In accordance with good building construction practice, all openings for services and trap doors should be draught sealed, and trap doors should not be located in bathrooms, shower rooms or kitchens.

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4.1 BEHAVIOUR IN FIRE

Monaperm 700 Breather Membrane has a class B2 fire rating, with similar properties in relation to fire as traditional underlays, and so will present no additional fire hazard to a roof structure in which it is incorporated.

Tests indicate that there is a risk of fire spread if Monaperm 700 Breather Membrane is accidentally ignited during maintenance works, etc. (e.g. by a roofer or plumber's torch). As with all types of sarking material, care must be taken during building and maintenance to avoid the material becoming ignited. It should not come in contact with hot chimney surfaces as per clauses 2.15 to 2.17 of the TGD to Part J of the Building Regulations 1997 to 2002.

Toxicity is negligible when used for a roofing application.

4.2 WATER PENETRATION

Monaperm 700 Breather Membrane, when used in accordance with this certificate, presents no significant risk of water penetration.

4.3 WATER VAPOUR PENETRATION AND CONDENSATION RISK

Monaperm 700 Breather Membrane has a significantly higher water vapour permeability than that quoted as a minimum for conventional roof underlays in *I.C.P. 2: 2002 Irish Code of practice for slating and tiling* and, hence, movement of moisture vapour can take place through the underlay.

4.4 DURABILITY AND MAINTENANCE

Monaperm 700 Breather Membrane, once installed in accordance with this certificate, manufacturer's instructions and relevant codes of practice, is virtually unaffected by conditions normally found in a roof space and will have a design life comparable with that of the roof and in accordance with *BS 7543: 1992 Guide to the durability of building elements, products and components*. The durability of the roof underlay will be dependent on the performance of the roof covering (slates/tiles) and this could be compromised if the roof is not routinely maintained or is subjected to inappropriate traffic.

Such maintenance would involve building owners having their roofs inspected annually, preferably in late autumn. Inspection should include checking for missing, damaged or loose slates/tiles and their accessories or flashings. Clogged gutters or down pipes should be unblocked and cleaned.

4.5 TESTS AND ASSESSMENTS WERE CARRIED OUT TO DETERMINE THE FOLLOWING:

- Water penetration resistance
- Water vapour resistance
- Water vapour permeability
- Wind Resistance
- Tensile strength
- Tear strength
- Dimensional accuracy

4.6 OTHER INVESTIGATIONS

- Existing data on product properties in relation to fire, toxicity, environmental impact and the effect on mechanical strength/stability and durability were assessed.
- The manufacturing process was examined including the methods adopted for quality control, and details were obtained of the quality and composition of the materials used.
- An assessment of practicability of installation was made from data gathered during previous assessments of similar roof lining systems
- Test data on the condensation risk in warm roof constructions incorporating other similar composition membranes, with similar vapour permeability qualities, were examined.

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5.1 CONDITIONS OF CERTIFICATION

The 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 so long as:

- (a) the specification of the product is unchanged;
- (b) the Building Regulations, 1997 to 2002 and any other regulation or standard applicable to the product/process, its use or installation remain 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.

5.2 The IAB mark and certification number may only be used on or in relation to products/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 products already marked.

5.3 In granting this certificate, the NSAI makes no representation as to:

- (a) the presence or absence 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 or 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 statute or 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.

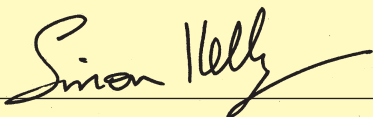
5.7 Where reference is made in this certificate to any Act of the Oireachtas, regulation made thereunder, statutory instrument, code of practice, national standards, manufacturer’s instructions or similar publication, it shall be construed as reference to such publication in the form in which it is in force at the date of this certification.

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THE IRISH AGRÉMENT BOARD

This Certificate No.03/0194 is accordingly granted by the NSAI on behalf of The Irish Agrément Board to Icopal Limited.

DATE OF ISSUE: November 2003.

Signed: 
Chief Executive, NSAI

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) 8073800.
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BUILDING PRODUCT CERTIFICATION

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