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**Agrément
Certificate
No 95/3155**

Designated by Government
to issue
European Technical
Approvals

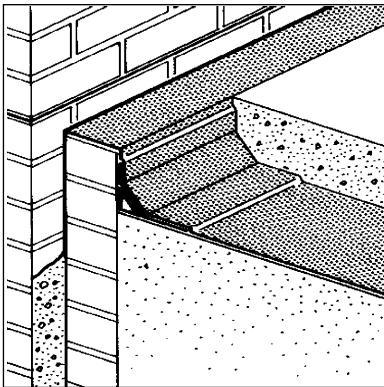
TYPE N SITESEALER WATERPROOFING MEMBRANE

Membrane d'étanchéité
Wasserdichtungsmittel

Product


• THIS CERTIFICATE RELATES TO TYPE N SITESEALER, A TWO-PLY, SELF-ADHESIVE WATERPROOFING MEMBRANE COMPRISING A TOP LAYER OF POLYETHYLENE FILM AND A BOTTOM LAYER OF BITUMEN/POLYMER ADHESIVE.

• The product is for use as a damp-proof and waterproof membrane for underground structures, etc and for internally and externally applied tanking below ground. The membrane must always be protected.




Building Regulations

1 The Building Regulations 1991 (as amended 1994) (England and Wales)

 The Secretary of State has agreed with the British Board of Agrément the aspects of performance to be used by the BBA in assessing the compliance of damp-proof membranes with the Building Regulations. In the opinion of the BBA, Type N Site sealer Waterproofing Membrane, if used in accordance with the provisions of this Certificate, will meet the relevant requirements.


Requirement: C4	Resistance to weather and ground moisture
Comment:	Tests indicate that the membrane will meet this Requirement. See section 7.1 of this Certificate.
Requirement: Regulation 7	Materials and workmanship
Comment:	The membrane is an acceptable material. See section 11 of this Certificate.

2 The Building Standards (Scotland) Regulations 1990 (as amended)

 In the opinion of the BBA, Type N Site sealer Waterproofing Membrane, if used in accordance with the provisions of this Certificate, will satisfy, or contribute to satisfying, the various Regulations and Technical Standards as listed below.

Regulation: 10	Fitness of materials
Standard: B2.1	Selection and use of materials and components
Comment:	The membrane complies with this Standard.
Regulation: 17	Preparation of sites and resistance to moisture
Standard: G2.6	Resistance to moisture from the ground
Comment:	The membrane can enable a floor to satisfy the requirements of this Standard. See section 7.2 of this Certificate.

3 The Building Regulations (Northern Ireland) 1994

 In the opinion of the BBA, Type N Site sealer Waterproofing Membrane, if used in accordance with the provisions of this Certificate, can satisfy the various Building Regulations as listed below.

Regulation: B2	Fitness of materials and workmanship
Comment:	The membrane is an acceptable material. See section 11 of this Certificate.
Regulation: C5	Resistance to ground moisture and weather
Comment:	Data obtained from tests for water resistance on Type N Site sealer Waterproofing Membrane, including joints, indicate that the material satisfies the requirements of these Regulations. See section 7.2 of this Certificate.

Technical Specification

4 Description

4.1 Type N Sitsesealer Waterproofing Membrane is a two-ply, self-adhesive, damp-proof membrane comprising a top layer of polyethylene film bonded to a layer of bitumen/polymer adhesive carried on a release paper.

4.2 The membrane consists of a 0.1 mm thick, cross-orientated, high density polyethylene film with a bitumen/polymer adhesive bottom layer, for use in internal and external tanking.

4.3 The nominal dimensions of the membrane are shown in Table 1.

Table 1 Nominal dimensions

Dimensions (units)	With selvedge	Without selvedge
thickness* (mm)	1.5	1.5
width (m)	1.05	1.0
roll length (m)	19.05	20.0
roll weight (kg)	34.0	34.0
weight per unit (kgm ⁻²)	1.7	1.7

*excluding release paper

4.4 Sitsesealer Primer is a solution of bitumen in a petroleum aliphatic hydrocarbon and is supplied in 5 litre and 25 litre containers.

4.5 Quality control on the final product includes checks on thickness, width, weight per unit area, tensile strength and elongation at break, low temperature flexibility and adhesion.

5 Delivery and site handling

5.1 Rolls of Type N Sitsesealer are packed in cardboard containers bearing the manufacturer's name and the BBA identification mark incorporating the number of this Certificate.

5.2 The rolls should be stacked on end and stored under cover.

5.3 Sitsesealer Primer is flammable with a flashpoint of 39°C and therefore should be kept in a suitable storage area, away from ignition sources, and not subject to extremes of temperatures.

Design Data


6 General


6.1 Type N Sitsesealer Waterproofing Membrane is satisfactory for use in accordance with the relevant clauses of BS 8102 : 1990 damp-proof and/or waterproof membrane provided it is fully supported and protected.

6.2 The membrane is compatible with concrete, smooth brickwork and blockwork or screeded substrates and is resistant to those chemicals likely to be present in normal service conditions.

6.3 The membrane can be installed in all normal site conditions but installation, including application of the primer, must not be carried out at temperatures below 5°C because of the risk of condensation moisture contamination.

7 Resistance to water and water vapour

 7.1 Tests confirm that the membrane, when completely sealed and consolidated, will adequately resist the passage of moisture from the ground and so meet the requirements of Section 3.3 of Approved Document C4 of the Building Regulations 1991 (as amended 1994) (England and Wales).

 7.2 Tests confirm that the membrane, when completely sealed and consolidated, will adequately resist the passage of moisture from the ground and so meet the requirements of Regulation 17, Standard G2.6 for compliance with the Building Standards (Scotland) Regulations 1990 (as amended) and Regulation C4 of the Building Regulations (Northern Ireland) 1994.

7.3 The membrane is impervious to water and, when used and installed in accordance with this Certificate, will give a waterproof layer capable of accepting minor structural movements without damage.

8 Resistance to puncture

8.1 Type N Sitsesealer Waterproofing Membrane can be punctured by sharp objects and care should be taken in handling building materials and equipment over the exposed surface.

8.2 Provided there are no sharp objects present on the membrane surfaces prior to and during installation of the protective layer, Type N Sitsesealer Waterproofing Membrane will not be damaged by normal foot traffic. If damaged, repairs can be carried out by patching.

9 Adhesion and stability

Tests indicate that the adhesion of Type N Sitsesealer to the substrate and to itself, jointed as described in this Certificate, is satisfactory. The properties of the membrane accommodate minor movements likely to occur under normal service conditions in the structure in which it is incorporated.

10 Effects of temperature

10.1 At low temperatures Type N Sitsesealer will become progressively stiffer, which may make the product difficult to handle. However, it does not crack at the minimum recommended laying temperature when folded around a 20 mm diameter mandrel.

10.2 At elevated temperature the adhesive will soften, which, under extreme conditions, may cause slippage. With Type N Sitsesealer, there may

also be the risk of curling of the laps caused by the cross-orientation of the polyethylene sheet; however, when used under the conditions of this Certificate (ie the membrane is protected as soon as possible after installation), the sheet will be restrained and will not achieve the temperatures at which these effects occur.

11 Durability



Type N Sitsesealer Waterproofing Membrane, when fully protected and subjected to normal service conditions, will provide an effective barrier to the transmission of liquid water and water vapour for the life of the structure in which it is incorporated.

Installation

12 General

12.1 The membrane must be installed in accordance with the relevant requirement of BS 8102 : 1990 and the marketing company's instructions. Additional guidance on the use of dpm materials is available in BS 8000 : Part 4 : 1989.

12.2 All surfaces to which Type N Sitsesealer is applied should have a smooth finish, ie they should be free from cavities, projections and mortar deposits. Surfaces should be dry and free from dust and frost. Concrete surfaces should be dense. Where necessary (ie dusty or porous substrates) the surface should be primed with Sitsesealer Primer at the recommended coverage rate, and allowed to dry. Vertical surfaces must always be primed.

12.3 Vertical surfaces of brickwork and blockwork should be dry and rendered to provide an even surface. Brickwork or blockwork not rendered must be flush pointed to give a smooth surface without sudden changes in level.

12.4 Type N Sitsesealer can be installed in all normal site conditions provided the air temperature is not below 5°C, to prevent the risk of surface condensation.

12.5 The membrane should be covered by a screed or other protective layer as soon as possible after installation. If blockwork protection is used, care must be taken to avoid damage to the membrane during construction.

12.6 Provided sharp objects are not present prior to and during installation of the protective layer, the membrane will not be damaged by normal foot traffic.

13 Procedure

13.1 The release paper is removed prior to applying the membrane to the prepared substrate. In all cases, as the sheet is laid, the membrane must be pressed firmly from the middle to prevent trapping air.

13.2 If applicable, the polyethylene strip at the selvedge must be removed to expose approximately 50 mm of the bitumen/polymer adhesive to facilitate lapping of the membranes.

13.3 Adjacent sheets should be overlapped by at least 50 mm and the ends of the sheets should be overlapped by at least 100 mm. The surface to be overlapped should be dust free and to ensure a watertight bond the membrane should be firmly pressed down.

14 Applications

External tanking

14.1 Type N Sitsesealer should be applied to the site concrete and then applied to the external face of the structure and into the internal wall. A 300 mm wide strip of the membrane should be placed at the angle (containing a 50 mm by 50 mm fillet) where the horizontal surface meets the vertical surface, and at the top where it is tucked into the internal wall. A protection wall of brickwork, blockwork or protection board should be used against the membrane to protect it against puncture during backfilling.

Internal tanking

14.2 Type N Sitsesealer should be applied to the site concrete base as well as to the interior face of the external wall. It should be tucked into the dpc and applied down the wall and 300 mm onto the site concrete base. A 300 mm (minimum) wide strip of the membrane should be placed at the angle (containing a 50 mm by 50 mm fillet) where the horizontal surface meets the vertical surface and at the top where the membrane is lapped into the dpc. The product is applied to the walls to achieve the overlaps defined in section 13.3. A wall (preferably concrete) should be applied immediately after installation to protect the damp-proof membrane and to resist the action of external water pressure. Where brickwork or blockwork is used it should be set 40 mm away from the membrane to enable the space so formed to be thoroughly filled with a sand/cement mortar.

Technical Investigations

The following is a summary of the technical investigations carried out on Type N Sitsesealer Waterproofing Membrane.

15 Tests

Samples of the membrane were obtained from the manufacturer for testing. The results of the tests carried out by the BBA, which are typical values for the material, are summarised in Tables 2 to 4.

16 Other investigations

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.

Table 2 Physical properties — general

Test (units)	Method*	Mean results	
		with selvedge	without selvedge
Weight per unit area (kgm ⁻²) (no release paper)	Direct measurement	1.58	1.56
Ring and ball softening point (°C)	BS 2000 : Part 58 : 1988	108	—
Water vapour permeability (75% RH/25°C)(gm ⁻² d ⁻¹)	BS 3177 : 1959	—	0.23
Water vapour resistance (75% RH/25°C)(MNsg ⁻¹)	BS 3177 : 1959	—	892

— not tested

*The test documents are detailed in the *Bibliography*. Numbers in the table refer to sections/parts of the various documents.

Table 3 Physical properties — directional

Test (units)	Method*	Mean results	
		Long	Trans
Tensile strength (N per 50 mm) unaged	BS 2782 : 1976 : 320A (rate=500 mm min ⁻¹)	218.5	262.5
heat aged ⁽¹⁾		220.5	233.9
Elongation at break ⁽²⁾ (%) unaged	BS 2782 : 1976 : 320A (rate=500 mm min ⁻¹)	208	147
heat aged		230	150
Dimensional stability unrestrained	MOAT 27 : 5.1.6	-0.1	-0.2

(1) Heat aged 56 days at 60°C.

(2) Elongation at break of polyethylene film.

*The test documents are detailed in the *Bibliography*. Numbers in the table refer to sections/parts of the various documents.

Table 4 Service performance

Test (units)	Method*	Mean results	
		with selvedge	without selvedge
Low temperature unrolling	MOAT 27 : 5.4.3	no cracking	—
Resistance to water pressure (6 metre head)	MOAT 27 : 5.1.4	—	no penetration
Resistance to cracking at 0°C and 20°C	TRRL Report No 636	—	no cracking
Low temperature flexibility (20 mm diameter mandrel at 0°C and -5°C)	MOAT 27 : 5.4.2	—	no cracking
Impact (free film unprotected on concrete substrate) chisel (90° tip, 2J) at 20°C and 0°C	MOAT 27 : 5.1.3	—	penetration
steel ball (64 mm diameter, 98 J) at 20°C and 0°C		—	penetration
Peel strength (N per 50 mm) control	MOAT 27 : 5.1.3	93.88	—
heat aged ⁽¹⁾		98.10	—
Tensile strength of joints (N per 50 mm) control	MOAT 27 : 5.2.2	251	243
heat aged ⁽¹⁾	MOAT 27 : 5.2.3	298	218
water soak ⁽²⁾	MOAT 27 : 5.2.4	189	224

— not tested

(1) Heat aged 28 days at 60°C.

(2) Water soaked 7 days at 60°C.

*The test documents are detailed in the *Bibliography*. Numbers in the table refer to sections/parts of the various documents.

Bibliography

BS 2000 *Methods of test for petroleum and its products*

Part 58 : 1993 *Determination of softening point of bitumen. Ring and ball method*

BS 2782 *Methods of testing plastics*

Part 3 *Mechanical properties*

Methods 320A to 320F : 1976(1986) *Tensile strength, elongation and elastic modulus*

BS 3177 : 1959 *Method for determining the permeability to water vapour of flexible sheet materials used for packaging*

BS 8000 *Workmanship on building sites*

Part 4 : 1989 *Code of practice for waterproofing*

BS 8102 : 1990 *Code of practice for protection of structures against water from the ground*

MOAT No 27 : 1983 *General Directive for the Assessment of Roof Waterproofing Systems*

TRRL Report No 636 *Transport and Road Research Laboratory Report No 636*.

Conditions of Certification

17 Conditions

17.1 Where reference is made in this Certificate to any Act of Parliament, Regulation made thereunder, Statutory Instrument, Code of Practice, British Standard, manufacturer's instruction 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 Certificate.

17.2 The quality of materials and the method of manufacture have been examined and found satisfactory by the BBA and must be maintained to this standard during the period of validity of this Certificate. This Certificate will remain valid for an unlimited period provided:

(a) the specification of the product is unchanged; and

(b) the manufacturer continues to have the product checked by the BBA.

17.3 This Certificate will apply only to the product that is installed, used and maintained as set out in this Certificate.

17.4 In granting this Certificate, the BBA makes no representation as to:

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- (a) the presence or absence of patent or similar rights subsisting in the product; and
- (b) the legal right of Cavity Trays Ltd to market, install or maintain the product; and
- (c) the nature of individual installations of the product, including methods and workmanship.

17.5 It should be noted that any recommendations relating to the safe use of this product which are contained or referred to in this Certificate are the minimum standards required to be met when the product is used. They do not purport in any way to

restate the requirements of the Health & Safety at Work etc Act 1974, or of any other statutory or Common Law duties of care, or of any duty of care which exist at the date of this Certificate or in the future; nor is conformity with such recommendations to be taken as satisfying the requirements of the 1974 Act or of any present or future statutory or Common Law duties of care. In granting this Certificate, the BBA does not accept responsibility to any person or body for any loss or damage, including personal injury, arising as a direct or indirect result of the use of this product.



In the opinion of the British Board of Agrément, Type N Sitesealer Waterproofing Membrane is fit for its intended use provided it is installed, used and maintained as set out in this Certificate. Certificate No 95/3155 is accordingly awarded to Cavity Trays Ltd.

On behalf of the British Board of Agrément

Director

Date of issue: 26th June 1995

