



Feb Ltd

Albany House
Swinton Hall Road
Swinton
Manchester M27 1DT
Tel: 0161-794 7411 Fax: 0161-793 4529

**Agrément
Certificate
No 92/2833**
Second issue*

Designated by Government
to issue
European Technical
Approvals

MASTERSEAL WATERPROOFING MEMBRANES

Membrane d'étanchéité
Wasserdichtungsmittel

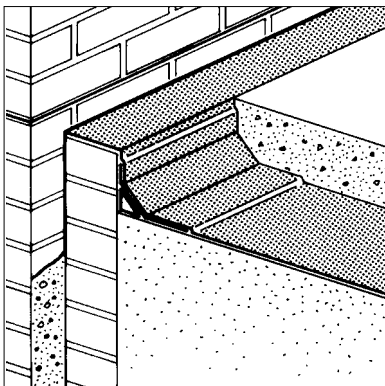
Product

• THIS CERTIFICATE REPLACES CERTIFICATE No 87/1854 AND RELATES TO MASTERSEAL, TWO-PLY, SELF-ADHESIVE WATERPROOFING MEMBRANES COMPRISING A TOP LAYER OF POLYTHENE FILM AND A BOTTOM LAYER OF BITUMEN/POLYMER ADHESIVE.

• The products are available in three grades, Masterseal MCLP, MP and MPX. All grades are available with or without a polythene protected seldvege strip.

• The products are for use as damp-proof and waterproof membranes for solid concrete floors, underground structures, etc and for internally and externally applied tanking below ground. The membranes must always be protected.

• The products are marketed by Feb Ltd.



Regulations

1 The Building Regulations 2000 (as amended) (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, Masterseal Waterproofing Membranes, if used in accordance with the provisions of this Certificate, will meet or contribute to meeting the relevant requirements.

Requirement:	C4	Resistance to weather and ground moisture
Comment:		The membranes will meet the requirement. See section 8.1 of this Certificate.
Requirement:	Regulation 7	Materials and workmanship
Comment:		The membranes are acceptable materials. See section 12 of this Certificate.

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

In the opinion of the BBA, Masterseal Waterproofing Membranes, if used in accordance with the provisions of this Certificate, will satisfy or contribute to satisfying the various Regulations and related Technical Standards as listed below.

Regulation:	10	Fitness of materials
Standards:	B2.1 and B2.2	Selection and use of materials, fittings, and components, and workmanship
Comment:		The membranes comply with these Standards. See section 12 of this Certificate.
Regulation:	17	Resistance to moisture
Standard:	G2.6	Resistance to moisture from the ground
Standard:	G3.1	Resistance to precipitation
Comment:		The membranes can enable a floor to satisfy the requirements of these Standards. See section 8.1 of this Certificate.

3 The Building Regulations (Northern Ireland) 2000

In the opinion of the BBA, Masterseal Waterproofing Membranes, if used in accordance with the provisions of this Certificate, will satisfy or contribute to satisfying the various Building Regulations as listed below.

Regulation:	B2	Fitness of materials and workmanship
Comment:		The membranes are acceptable materials. See section 12 of this Certificate.
Regulation:	C4	Resistance to ground moisture and weather
Comment:		Data obtained from tests for water resistance on the membranes, including joints, indicate that the materials satisfy the requirements of these Regulations. See section 8.1 of this Certificate.

4 Construction (Design and Management) Regulations 1994 (as amended) Construction (Design and Management) Regulations (Northern Ireland) 1995 (as amended)

Information in this Certificate may assist the client, planning supervisor, designer and contractors to address their obligations under these Regulations.

See sections: 5 Description (5.2) and 6 Delivery and site handling (6.3).

5 Description

5.1 Masterseal Waterproofing Membranes are two-ply, self-adhesive, damp-proof membranes comprising a top layer of polythene film bonded to a layer of bitumen/polymer adhesive carried on a release paper.

5.2 Masterseal membranes are available in the following grades both with and without a selvedge strip:

Masterseal MCLP — a 0.1 mm thick, cross-orientated, high density polythene film with a bitumen/polymer adhesive bottom layer, for use in internal and external tanking.

Masterseal MP — a 0.125 mm thick, low density polythene film with a bitumen/polymer adhesive bottom layer, for use in waterproofing solid floors.

Masterseal MPX — a 0.25 mm thick, low density polythene film with a bitumen/polymer adhesive

bottom layer, for use in internal and external tanking and underground structures.

5.3 The nominal dimensions of the membranes are shown in Table 1.

Table 1 Nominal dimensions

	Masterseal MCLP		Masterseal MP		Masterseal MPX	
	with selvedge	without selvedge	with selvedge	without selvedge	with selvedge	without selvedge
thickness ⁽¹⁾ (mm)	1.5	1.5	1.5	1.5	1.5	1.5
width (m)	1.05	1.0	1.05	1.0	1.05	1.0
roll length (m)	19.05	20.0	19.05	20.0	19.05	20.0
roll weight (kg)	34.0	34.0	34.0	34.0	34.0	34.0
weight per unit (kgm ⁻²)	1.7	1.7	1.7	1.7	1.7	1.7

(1) Excluding release paper.

5.4 Masterseal Bitumen Primer is a solution of bitumen in a petroleum aliphatic hydrocarbon and is supplied in 5 litre and 25 litre containers.

5.5 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.

6 Delivery and site handling

6.1 Rolls of Masterseal are packed in cardboard containers bearing the manufacturer's name and the BBA identification mark incorporating the number of this Certificate.

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

6.3 Masterseal Bitumen Primer is classified as flammable under the Chemicals (Hazard Information and Packaging for Supply) Regulations 2002 (CHIP3), with a flashpoint above 32°C, and should be stored under cover and away from heat and ignition sources.

Design Data

7 General

7.1 Masterseal Waterproofing Membranes are satisfactory for use in accordance with the relevant clauses of CP 102 : 1973, Section 2 or BS 8102 : 1990 and BS 8000-4 : 1989 as damp-proof and/or waterproof membranes provided they are fully supported and protected.

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

7.3 Membranes 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.

8 Resistance to water and water vapour



8.1 Test data confirm that the membranes, when completely sealed and consolidated, will adequately resist the passage of moisture from the ground and so meet the requirements of the national Building Regulations, thus:

England and Wales

Approved Document C, Requirement C4, Section 3.1

Scotland

Regulation 17, Standards G2.6 and 3.1

Northern Ireland

Regulation C4.

8.2 The membranes are impervious to water and, when used in the system described, will give a waterproof layer capable of accepting minor structural movements without damage.

9 Resistance to puncture

9.1 Masterseal Waterproofing Membranes can be punctured by sharp objects and care should be

taken in handling building materials and equipment over the exposed surface.

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

10 Adhesion and stability


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

11 Effects of temperature

11.1 At low temperatures, the membranes 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.

11.2 At elevated temperature the adhesive will soften, which, under extreme conditions, may cause slippage. With Masterseal MCLP, there may also be the risk of curling of the laps caused by the cross-orientation of the polythene 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.

12 Durability

 Masterseal Waterproofing Membranes, 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 they are incorporated.

Installation

13 General

13.1 The membranes must be installed in accordance with the relevant requirement of CP 102 : 1973, Section 2, BS 8102 : 1990 and the manufacturer's instructions. Additional guidance on the use of DPM materials is available in BS 8000-4 : 1989.

13.2 All surfaces to which the membrane 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 Masterseal Bitumen Primer, at the recommended coverage rate, and allowed to dry. Vertical surfaces must always be primed.

13.3 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.

13.4 The membranes can be installed in all normal site conditions provided the air temperature is not below 5°C to prevent the risk of surface condensation.

13.5 The membranes 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.

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

14 Procedure

14.1 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.

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

14.3 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.

15 Applications

Solid concrete floors

15.1 It is essential that the damp-proof membrane (Masterseal MP) in the floor should be continuous with the damp-proof course in the surrounding walls. This is achieved by continuing the membrane up internal wall surfaces to tie in with the damp-proof course. A sand/cement

screed or rot-proof board should be laid immediately after the installation of Masterseal MP to prevent damage.

External tanking

15.2 Masterseal MCLP or MPX 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 Masterseal MCLP or MPX 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

15.3 Masterseal MCLP or MPX 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 Masterseal MCLP or MPX 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 Masterseal MCLP or MPX 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 Masterseal Waterproofing Membranes.

16 Tests

Samples of the membranes 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.

17 Investigations

17.1 A re-examination was made of the data and investigations on which the previous Certificate was based, including surveys of known users.

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

Table 2 Physical properties — general

Test (units)	Method ⁽¹⁾	Mean results					
		Masterseal MCLP		Masterseal MP		Masterseal MPX	
		with selvedge	without selvedge	with selvedge	without selvedge	with selvedge	without selvedge
Weight per unit area (kgm ⁻²) (no release paper)	Direct measurement	1.58	1.56	1.63	1.41	1.46	—
Ring and ball softening point (°C)	BS 2000-58	108	—	—	—	—	—
Water vapour permeability (75% RH/25°C) (gm ⁻² day ⁻¹)	BS 3177	—	0.23	—	0.28	—	0.23
Water vapour resistance (75% RH/25°C) (MNsg ⁻¹)	BS 3177	—	892	—	733	—	892

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

— Not tested.

Table 3 Physical properties — directional

Test (units)	Method ⁽¹⁾	Mean results					
		Masterseal MCLP		Masterseal MP		Masterseal MPX	
		long ⁽⁴⁾	cross	long ⁽⁴⁾	cross	long ⁽⁴⁾	cross
Tensile strength (N per 50 mm) unaged heat aged ⁽²⁾	BS 2782 : 320A (rate=500 mm min ⁻¹)	218.5 220.5	262.5 233.9	140.2 115.0	136.2 145.7	313.4 292.9	298.4 314.2
Elongation at break ⁽³⁾ (%) unaged heat aged	BS 2782 : 320A (rate=500 mm min ⁻¹)	208 230	147 150	570 515	995 1240	770 1000	895 1300
Dimensional stability unrestrained	MOAT 27 : 5.1.6	-0.1	-0.2	+2.0	+1.6	+1.6	+2.0

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

(2) Heat aged 56 days at 60°C.

(3) Elongation at break of polythene film.

(4) Longitudinal.

Table 4 Service performance

Test (units)	Method ⁽¹⁾	Mean results						
		Masterseal MCLP		Masterseal MP		Masterseal MPX		
		with selvedge	without selvedge	with selvedge	without selvedge	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	—	no penetration	—	no penetration	
Resistance to cracking at 0°C and 20°C	TRRL Report No 636	—	no cracking	—	no cracking	—	no cracking	
Low temperature flexibility (20 mm diameter mandrel)	MOAT 27 : 5.4.2	—	no cracking	—	no cracking	—	no cracking	
Impact (free film unprotected on concrete substrate) chisel (90° tip, 2J) at 20°C and 0°C steel ball (64 mm diameter, 98 J) at 20°C and 0°C		—	penetration	—	penetration	—	penetration	
		—	penetration	—	penetration	—	penetration	
Peel strength (N per 50 mm) control heat aged ⁽²⁾	MOAT 27 : 5.1.3	93.88 98.10	— —	— —	— —	— —	141.0 119.0	
Tensile strength of joints (N per 50 mm)	control	MOAT 27 : 5.2.2	251	243	—	—	42	184
	heat aged ⁽²⁾	MOAT 27 : 5.2.3	298	218	—	—	112	177
	water soak ⁽³⁾	MOAT 27 : 5.2.4	189	224	—	—	81	188

(1) The test documents are detailed in the *Bibliography*. Numbers in the table refer to sections/parts of the document.

(2) Heat aged 28 days at 60°C.

(3) Water soaked 7 days at 60°C.

— Not tested.

Bibliography

BS 2000-58 : 1993 *Methods of test for petroleum and its products — Determination of softening point of bitumen — Ring and ball method*

BS 2782-3 : Methods 320A to 320F : 1976
Methods of testing plastics — Mechanical properties — 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 8000-4 : 1989 *Workmanship on building sites — Code of practice for waterproofing*

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

CP 102 : 1973 *Code of practice for protection of buildings against water from the ground*

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

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

18 Conditions

18.1 This Certificate:

- (a) relates only to the product that is described, installed, used and maintained as set out in this Certificate;
- (b) is granted only to the company, firm or person identified on the front cover — no other company, firm or person may hold or claim any entitlement to this Certificate;
- (c) has to be read, considered and used as a whole document — it may be misleading and will be incomplete to be selective;
- (d) is copyright of the BBA.

18.2 References in this Certificate to any Act of Parliament, Regulation made thereunder, Directive or Regulation of the European Union, Statutory Instrument, Code of Practice, British Standard, manufacturers' instructions or similar publication, shall be construed as references to such publication in the form in which it was current at the date of this Certificate.

18.3 This Certificate will remain valid for an unlimited period provided that the product and the manufacture and/or fabricating process(es) thereof:

- (a) are maintained at or above the levels which have been assessed and found to be satisfactory by the BBA;

(b) continue to be checked by the BBA or its agents; and

(c) are reviewed by the BBA as and when it considers appropriate.

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

- (a) the presence or absence of any patent or similar rights subsisting in the product or any other product;
- (b) the right of the Certificate holder to market, supply, install or maintain the product; and
- (c) the nature of individual installations of the product, including methods and workmanship.

18.5 Any recommendations relating to the use or installation 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, common law or other duty which may 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, common law or other duty 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 installation and use of this product.



In the opinion of the British Board of Agrément, Masterseal Waterproofing Membranes are fit for their intended use provided they are installed, used and maintained as set out in this Certificate. Certificate No 92/2833 is accordingly awarded to Feb Ltd.

On behalf of the British Board of Agrément

Date of Second issue: 11th December 2002

Chief Executive

**The original Certificate was issued on 8th October 1992. This amended version includes, change of product name references to the revised Building Regulations, addition of CDM Regulations, and revised Conditions of Certification.*

Electronic Copy

British Board of Agrément
P O Box No 195, Bucknalls Lane
Garston, Watford, Herts WD25 9BA
Fax: 01923 665301

©2002

e-mail: mail@bba.star.co.uk
website: www.bbacerts.co.uk



For additional information about the Certificate, tel: 01923 665300.
For information about Agrément Certificate validity and scope, tel: Hotline 01923 665400, or check the BBA website.