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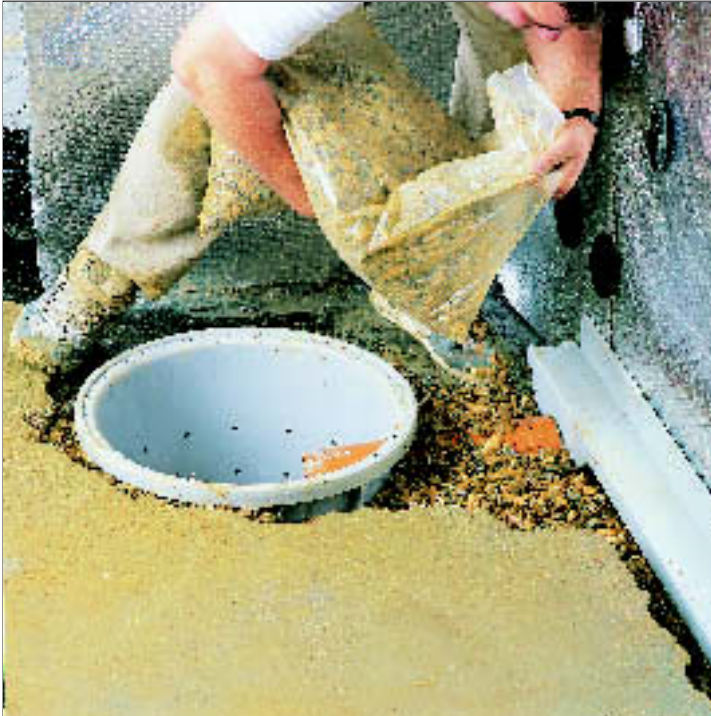
**Agrément  
Certificate  
No 02/3956**  
Second issue\*

Designated by Government  
to issue  
European Technical  
Approvals

## BASEMENT WATER CONTROL SYSTEM

Système de commande de l'eau en sous-sol  
Kellerwassersteuersystem

# Product



• THIS CERTIFICATE RELATES TO THE BASEMENT WATER CONTROL SYSTEM.


• The system is for use in existing and new basements, or underground structures in combination with other products for the controlling of groundwater ingress.

• This Certificate covers the WaterGuard channels, outlets, service ports and joints, the Supersump, Ultrasump and associated pipework, ThermalDry Wall Membrane and electrical accessories.

These Front Sheets must be read in conjunction with the accompanying Detail Sheets, which provide information specific to the products listed above.

## Regulations — Detail Sheet 1

### 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 used by the BBA in assessing the compliance of the system with the Building Regulations. In the opinion of the BBA, the Basement Water Control System, if used in accordance with the provisions of this Certificate, will meet or contribute to meeting the relevant requirements.

Requirement: B3(4)	Internal fire spread (structure)
Comment:	The product is combustible but will not prejudice the fire resistance properties of the basement wall. See sections 5.1 to 5.4 of Detail Sheet 3.
Requirement: C4	Resistance to weather and ground moisture
Comment:	Floors incorporating this system will resist the passage of moisture to the inside of the building. See sections 4.1 and 4.2 of Detail Sheet 3.
Requirement: H3(3)	Rainwater drainage
Comment:	The system will transport rainwater from the floor of the building to an adequate soakaway, watercourse or sewer. The system is acceptable.
Requirement: L1	Dwellings
Comment:	The system can contribute to satisfying this Requirement. See section 6 of Detail Sheet 3.
Requirement: Regulation 7	Materials and workmanship
Comment:	The system is acceptable. See sections 3.2 and 8 of Detail Sheet 2 and section 8 of Detail Sheet 3.

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



In the opinion of the BBA, the position of the Basement Water Control System, if used in accordance with the provisions of this Certificate, will satisfy or contribute to satisfying the various Regulations and related Technical Standards listed below.

Regulation:	10	Fitness of materials
Standard:	B2.1	Selection and use of materials, fittings, and components, and workmanship
Comment:		The system is acceptable. See section 3.2 and 9.1 of Detail Sheet 2 and section 3.4 of Detail Sheet 3.
Standard:	B2.2	Selection and use of materials, fittings, and components, and workmanship
Comment:		The system is acceptable. See section 8 of Detail Sheet 2 and section 8 of Detail Sheet 3.
Regulation:	17	Resistance to moisture
Standard:	G2.6	Preparation of a site and resistance to moisture from the ground — Resistance to moisture from the ground
Comment:		The system can satisfy this Standard. See sections 4.1 to 4.3 of Detail Sheet 3.
Regulation:	22	Conservation of fuel and power
Standards:	J2.1 and J2.2	Rules for the use of Part J — Thermal conductivity and transmittance
Comment:		The system can contribute to satisfying these Standards. See section 6 of Detail Sheet 3.
Regulation:	24	Drainage
Standards:	M2.1 and M2.2	Drainage system — Wastewater and surface drainage
Comment:		The system will contribute to satisfying and meeting these Standards. See section 3.1 of Detail Sheet 2.
Standard:	M2.4	Drainage system — Wastewater and surface water drainage
Comment:		The system will satisfy and meet this Standard. See section 3.1 of Detail Sheet 2.
Regulation:	26	Electrical installations
Standard:	N2.1	Electrical installations — Electrical installations
Comment:		The system will contribute to satisfying this Standard.

## 3 The Building Regulations (Northern Ireland) 2000



In the opinion of the BBA, the position of the Basement Water Control System, if used in accordance with the provisions of this Certificate, will satisfy or contribute to satisfying the various Building Regulations listed below.

Regulation:	B2	Fitness of materials and workmanship
Comment:		The system is acceptable. See sections 3.2 and 8 of Detail Sheet 2 and section 8 of Detail Sheet 3.
Regulation:	C4	Resistance to ground moisture and weather
Comment:		The system can meet the relevant requirements of this Regulation. See section 6 of Detail Sheet 2 and sections 4.1 to 4.3 of Detail Sheet 3.
Regulation:	E4	Internal fire spread — Structure
Comment:		Walls incorporating this system can meet this Regulation. See section 5.2 of Detail Sheet 3.
Regulation:	N2	Drainage systems
Regulation:	N5	Rain-water drainage
Comment:		The system will meet the relevant requirements of this Regulation. See section 3.1 of Detail Sheet 2.

## 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: *2 Delivery and site handling* (2.1 and 2.2 of Detail Sheet 2 and 2.1 and 2.2 of Detail Sheet 3).

## 5 The Electrical Equipment (Safety) Regulations 1994 and the Electromagnetic Compatibility Regulations 1994

These Regulations implement the Low Voltage Directive 73/23/EEC (as amended by the CE Marking Directive 93/68/EEC) and the Electromagnetic Compatibility Directive 89/336/EEC and require manufacturers to carry out assessment of their products against the criteria given in the Directives. Declarations of Conformity have been provided by Basement Systems UK Ltd. The BBA has not assessed the product for compliance with these Directives.

## Conditions of Certification

### 6 Conditions

6.1 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.

6.2 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.

6.3 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.

6.4 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.

6.5 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, the Basement Water Control System is fit for its intended use provided it is installed, used and maintained as set out in this Certificate.

Certificate No 02/3956 is accordingly awarded to Basement Systems UK Ltd.

On behalf of the British Board of Agrément

Date of Second issue: 10th October 2003

Chief Executive

*\*Original Certificate issued on 30th September 2002. This amended version includes a change to Detail Sheet format and the addition of a new product.*

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For technical or additional information,  
contact the Certificate holder (see  
front page).  
For information about the Agrément  
Certificate, including validity and  
scope, tel: Hotline 01923 665400,  
or check the BBA website.



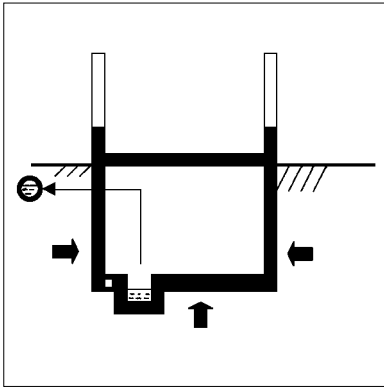
**Basement Systems UK Ltd**

**Certificate No 02/3956**

**WATERGUARD AND SUPERSUMP  
BASEMENT WATER CONTROL SYSTEM**

**DETAIL SHEET 2**

## Product



- THIS DETAIL SHEET RELATES TO THE WATERGUARD AND SUPERSUMP BASEMENT WATER CONTROL SYSTEM, COMPRISING SUMP, DRAINAGE CHANNELS, PUMP(S), FLOAT SWITCH, AUDIBLE ALARM SYSTEM, BATTERY BACKUP, DISCHARGE PIPEWORK AND NON-RETURN FLAP VALVES.

- The system is for use in existing and new basements, or underground structures in combination with other products for the controlling of groundwater ingress.

*This Detail Sheet must be read in conjunction with the Front Sheets, which give the product's position regarding the Building Regulations, and the Conditions of Certification.*

## Technical Specification

### 1 Description

1.1 The WaterGuard and Supersump Basement Water Control System is a subsurface drainage system (see Figure 1) incorporating a sump, drain channels, pump(s), float switch, audible alarm system, battery backup, discharge pipework and non-return flap valves. The system can be used in association with other basement waterproofing or damp-proofing products depending on the type of building or facility requiring remediation.

1.2 Sumps (see Figure 2) can be fitted with various types and combinations of pumps depending on the degree of water ingress. The pump types available and discharge rates are listed in Table 1 and are based on a typical basement installation.

Pump type	litres per second	US gals per hour
Ultrasump (DC)	1.6	1500
U-53 (1/3 hp)	2.3	2200
U-137 (1/2 hp)	6.3	6000

Figure 1 WaterGuard sump and pump and ancillary equipment

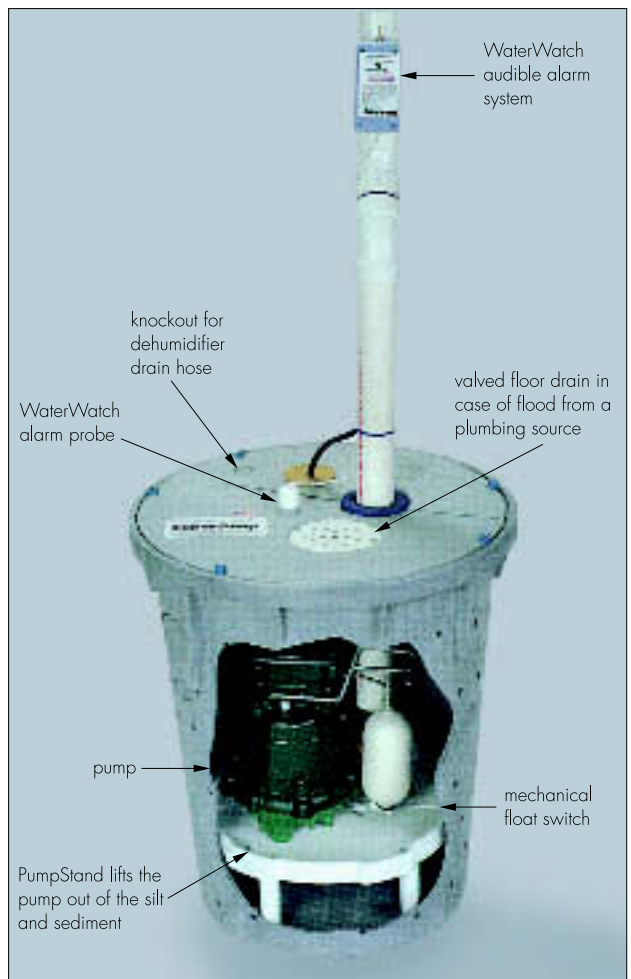
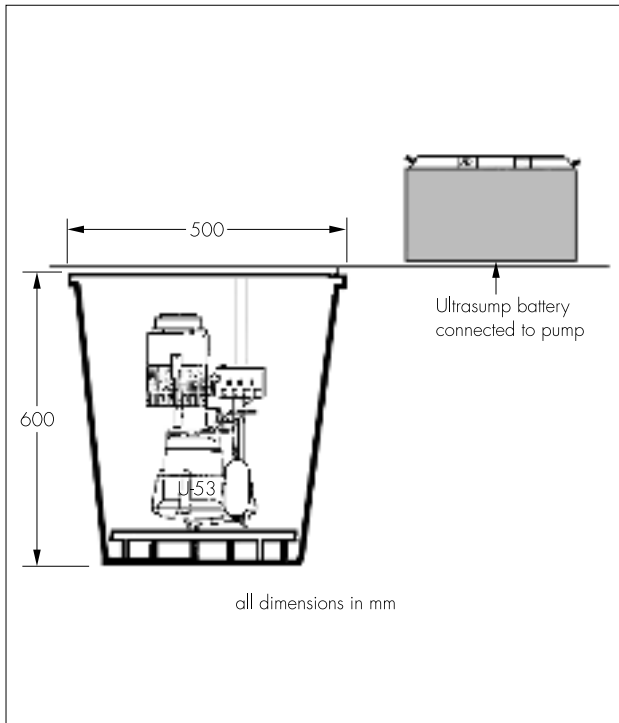
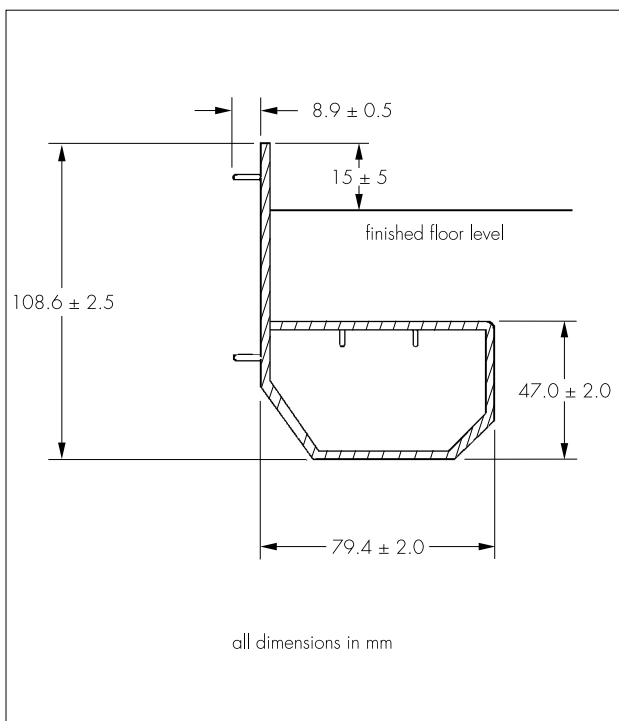


Figure 2 Sump with primary pump and Ultrasump backup system



1.3 The drain channel (see Figure 3) is formed from PVC and is positioned around the periphery of the basement floor to fall naturally into the sump inlet. This generally requires chasing out around the periphery. Drain channels are perforated to allow the ingress of water and are available in standard lengths of 2.3 m. Individual lengths of drain channels, are butted and taped prior to concreting. An invertible corner joint is provided which only requires to be loose fitted and taped prior to concreting.

Figure 3 Cross section of drainage channel



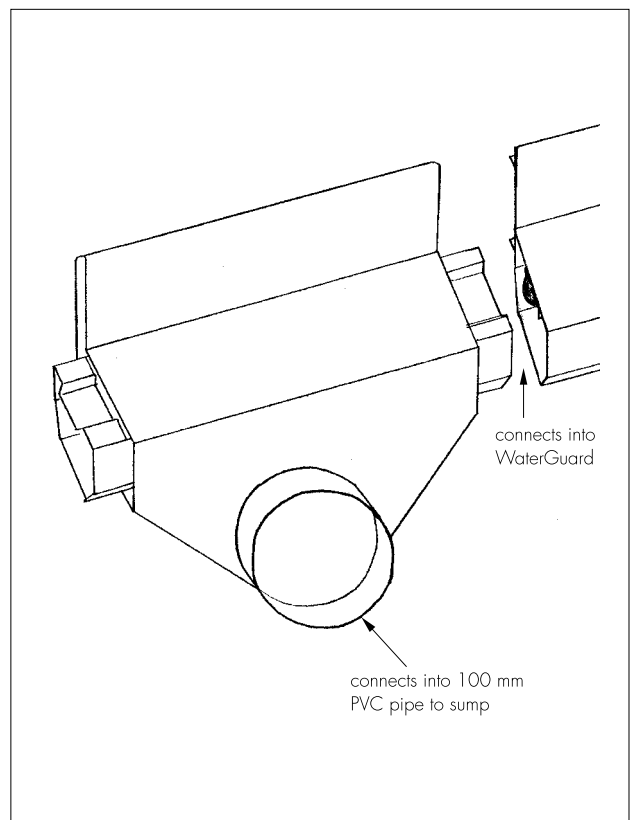
1.4 Should it be necessary to provide separate systems draining into a common sump or form a line beneath the basement floor then a cross floor channel is used (see Table 2). Where the cross channel meets the drain channel a hole is cut in the side of the drain channel and taped.

Table 2 List of components

Component	Description
Drain channel	One-piece extruded PVC, perforated one side
Drain outlet	One-piece extruded PVC construction, for connecting drain channel to sump
Inspection port	Three-piece PVC inserted within the system to act as rodding point for dehumidifying
Corners	90° PVC invertible for use as inside or outside corner
Cross floor channel	One-piece extruded PVC drain channel used across floors to connect into main drain channel
Discharge pipework	PVC pipes to withstand positive pressure up to 14 bar (200 psi) with solvent cemented joints to pump or pumps, to take water to outlet points
Tape	Used as temporary fixing of joints prior to pouring of concrete

1.5 The drain channels are loose connected into the drain outlet (see Figure 4) which, in turn, is connected to the sump.

Figure 4 Drain outlet detail



1.6 Inspection ports (see Figure 5) are provided within the system for rodding where silting can be expected. The number and location depends on individual design considerations.

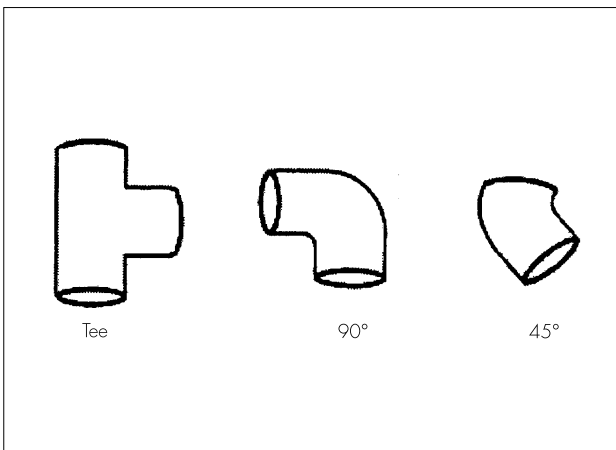
Figure 5 Inspection port detail



1.7 Discharge pipework (PVC) is connected to the pump or pumps and for most circumstances is 38 mm internal diameter<sup>(1)</sup> (48 mm outside diameter). The discharge pipework is capable of withstanding the pump (or pumps) operating pressure and static head of up to 14 bar (200 psi). A non-return flap valve is incorporated close to the pump outlet. The pipework can be routed away from the sump to suit local site conditions. Wherever possible the pipework discharges into the stormwater drainage system. Typical discharge pipework connections are shown in Figure 6.

(1) 38 mm straight pipe is available in 1.2 m and 2.4 m lengths.

Figure 6 Discharge pipework connections



1.8 The sump incorporates a polyethylene plastic lid capable of sustaining a load up to Class A15 as defined in Table 6 of BS EN 124 : 1994. If heavier loads are likely, the sump needs to be set below the finished floor level and a suitable manhole cover and frame provided. The sump should not be located where wheel or point loads will occur.

1.9 Two float switches can be provided to sense water level in the sump. One forms part of the primary pumping system and is located within the sump and activates the Supersump AC pump.

The second, when fitted, is located next to and activates the Ultracump DC pump powered by the standby battery. The Ultracump is intended to operate only when a mains power cut occurs or the Supersump fails. One battery will keep the Ultracump operative for three hours at full pump rate. When mains power is restored the stand-by battery is automatically re-charged.

1.10 An additional audible alarm system is available should both the primary and back-up systems fail. The probe is fitted in the sump lid.

1.11 The Certificate holder will provide Certificates to show that the various electrical components meet the relevant electrical directives and are CE marked.

## 2 Delivery and site handling

2.1 The products must be handled carefully and generally can be lifted by hand.

2.2 Care must be taken in unloading, stacking and storing the components to avoid damage.

## Design Data

### 3 General



3.1 The WaterGuard and Supersump Basement Water Control System has been assessed for use in domestic, commercial and public developments for the removal of groundwater, as permitted to be discharged in public sewers by the Water Industry Act 1991 and surface water and sewerage, as defined by the Sewerage (Scotland) Act 1968 and Water and Sewerage Service (Northern Ireland) Order 1973.



3.2 The general design of the system should be in accordance with BS 8102 : 1990 and BS EN 752-1 to 4 : 1996, 1997, 1997, 1998.

3.3 The selection of pump type and size is carried out by the Certificate holder and depends on:

- the rate of water flow into the basement
- local ground conditions and percolation or porosity characteristics
- a risk assessment based on the present or future use of the basement
- head and distance to outlet and discharge point
- silt content of the in-flowing groundwater.

3.4 The sump is supplied in one size only and, therefore, more than one sump may be required in larger basements or where basement plan or differences in levels necessitate separating the system.

3.5 Depending on flow rates two or more pumps may be required to increase pumping capacity. Increasing pumping capacity also decreases risk depending on the sensitivity of the basement use.

3.6 Due consideration should be given to prevent surcharging of the stormwater system or main sewer.

3.7 The Certificate holder offers clients a maintenance service for regular maintenance of this system. The frequency of servicing depends on local conditions and usage of the system.

### 4 Strength

The Certificate holder's design has been assessed as satisfactory. The sump and lid have adequate strength to resist damage from minor impacts during handling and resist soil loads. Where loading of Class A15 (Table 6 of BS EN 124 : 1994) is expected then the sump and lid should be set down from the finished floor surface and a suitable manhole cover and lid provided. The sump and lid are not designed to resist the surcharge from foot traffic, wheeled traffic or heavy point loads and care should be taken in siting the sump or drain channels to avoid either.

### 5 Resistance to chemicals

The system, when correctly installed, will be unaffected by those types and quantities of chemical likely to be found in groundwater or as defined in section 7.1 of this Certificate.

### 6 Watertightness



The sump and drain channels are specifically designed to allow ingress of groundwater through the loose joints. The discharge pipework from the outflow of the sumps, when correctly installed, will not allow seepage of water.

### 7 Cleaning and maintenance

7.1 The system should be regularly inspected for signs of silt, sand or other debris within the sump. In certain ground conditions where high levels of silting can be expected inspection ports are installed within the drain channel runs for rodding or cleaning out of the system.

7.2 At least once a year the system should be inspected and serviced.

7.3 Components, such as pumps and valves, may need repair or replacement within the life of the system. Any replacements are generally carried out with minimal disturbance to the system.

### 8 Durability



The sump, drain channels, discharge pipework and associated fittings are made from durable materials and with adequate maintenance will continue to be serviceable for the life of the structure in which it is incorporated.

## 9 General



9.1 Installation of the system must be strictly in accordance with the Certificate holder's installation instructions and the recommendations of BS 8102 : 1990 and BS EN 752-1 to 4 : 1996, 1997, 1998.

9.2 Electrical connections must be carried out by a competent person using materials suitable for the purpose.

9.3 Electrical connections must be in strict accordance with the Certificate holder's/ manufacturer's instructions and must comply with the local electricity distribution authority's regulations. Cables must be protected from damage by a suitable conduit or other protection.

9.4 The sump must be sited where access can be made for servicing of the pump(s) and the sound alarm system so positioned as to make the occupants aware at the earliest opportunity of a fault in the system.

9.5 It is essential not to position the sump in a location where heavy foot traffic, wheeled or point loads are expected. If this is unavoidable then the sump should be set down below the finished floor level and a suitable manhole cover, frame and reinforced concrete slab provided. In these situations every care should be taken to ensure that damage to the sump does not occur due to surcharge.

9.6 Normally, only small openings need to be broken through the existing structure. Every care should be taken, though, to ensure that the structural integrity of that part of the building where the WaterGuard and Supersump Basement Water Control System are to be installed, is not compromised. Should larger openings be required in loadbearing elements, then the services of a qualified structural engineer needs to be sought before commencing any breaking out or modification of the structure.

9.7 Every care should be taken to ensure that existing underground electrical cables, foul, storm drain, sewer or service duct are not damaged during the installation of the system. If any existing services are required to be modified or relocated then the appropriate owners or authorities must be consulted prior to the commencement of any works.

9.8 As a guide the required excavated opening for the sump is 200 mm greater than the sump dimensions to allow for the aggregate surround filter medium<sup>(1)</sup>. The required excavation for the drainage channels is 50 mm more than the

section dimensions. Aggregate is introduced to the perforated side of the channel to act as a filter medium.

- (1) The aggregate surround should ideally be from 13 mm to 20 mm clean, crushed stone, but rounded stone of the same size may be used as an alternative.

9.9 The installation of both the WaterGuard channel and sump depends on the location of new or existing foundations to the basement wall. For the purposes of this Certificate, it is assumed that where the wall footing is at or below the underside of a concrete basement floor construction, the installer will initially assess the existing basement construction and vary or modify the installation as required. A de-watering pump may be required to control any groundwater present during the course of the installation.

## 10 Procedure

10.1 The floor slab is chased out around the periphery of the basement down to the sub-base approximately 50 mm wider and deeper than the drainage channel. Any loose debris is removed and the area thoroughly cleaned.

10.2 Drainage channels sections are cut to fit, adjoining lengths butt jointed and taped and corner joints used at changes in direction. Inspection ports are fitted as required. Ends of drainage runs are capped and taped.

10.3 The aggregate is evenly placed in the bottom of the chase and the drainage channel laid on top of the aggregate with the flange against the wall. The base of the channel is fitted approximately 90 mm below finished floor level.

10.4 The aggregate is backfilled around the front of the drainage channel up to the top of the drain conduit and any existing damp-proof membrane made good.

10.5 Obstructions within the drainage conduit are cleared, and all exposed broken concrete is brushed and cleaned, the surface wetted, and the concrete placed, with a float finish, to within 15 mm ( $\pm 5$  mm) of the top of the flange.

10.6 The sump is located at the lowest level in the basement avoiding areas of heavy traffic and obstructions and as near to the discharge point as possible. The existing concrete floor slab is broken

out and the sump installed in a similar manner as for the drainage channels ensuring that the top is flush with the finished floor level. Using the drain outlet section, the channel runs are connected to the back of the sump.

10.7 The pump(s) and any ancillary equipment are installed into the sump.

10.8 Discharge pipework is joined to the pump(s) routing the pipework via 45° bends<sup>(1)</sup> to the nearest wall and thence to the discharge point.

- (1) On occasions, 90° bends may have to be used. The pump(s) selected must be capable of achieving the same flow rate through the restriction.

10.9 The alarm and back-up systems are installed as required and connected to the mains supply.

10.10 All components and ancillary equipment are tested and commissioned.

## Technical Investigations

The following is a summary of the investigations carried out on the WaterGuard and Supersump Basement Water Control System.

### 11 Tests

Tests were carried out to determine:

- dimensions
- imposed load in accordance with BS EN 124 : 1994.

### 12 Investigations

12.1 An evaluation was made of existing data relating to:

- resistance to chemicals
- resistance to foot traffic
- suitability of materials
- performance of pumps
- durability of materials.

12.2 Site visits were carried out to determine the performance in use.

12.3 The receiving and distribution process was examined including the methods adopted for quality control and details were obtained of materials used.

## Bibliography

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

BS EN 124 : 1994 *Gully tops and manhole tops for vehicular and pedestrian areas. Design requirements, type testing, marking, quality control*

BS EN 752-1 : 1996 *Drain and sewer systems outside buildings — Generalities and definitions*

BS EN 752-2 : 1997 *Drain and sewer systems outside buildings — Performance requirements*

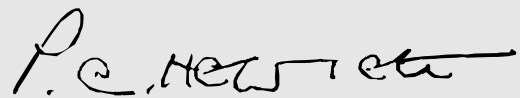
BS EN 752-3 : 1997 *Drain and sewer systems outside buildings — Planning*

BS EN 752-4 : 1998 *Drain and sewer systems outside buildings — Hydraulic design and environmental considerations*



On behalf of the British Board of Agrément

Date of issue: 10th October 2003



Chief Executive



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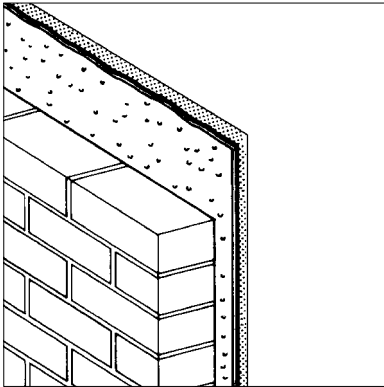
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**DETAIL SHEET 3**

Second issue\*

## THERMALDRY CAVITY DRAINAGE MEMBRANE

### Product



- THIS DETAIL SHEET RELATES TO THERMALDRY CAVITY DRAINAGE MEMBRANE, AN ALUMINIUM-FOIL-FACED, CLOSED AIR CELL, POLYETHYLENE SHEET.
- The product is used to resist moisture ingress and provide thermal insulation in basement or other underground structures.
- The product is for use with the WaterGuard and Supersump Basement Water Control System described in Detail Sheet 2.

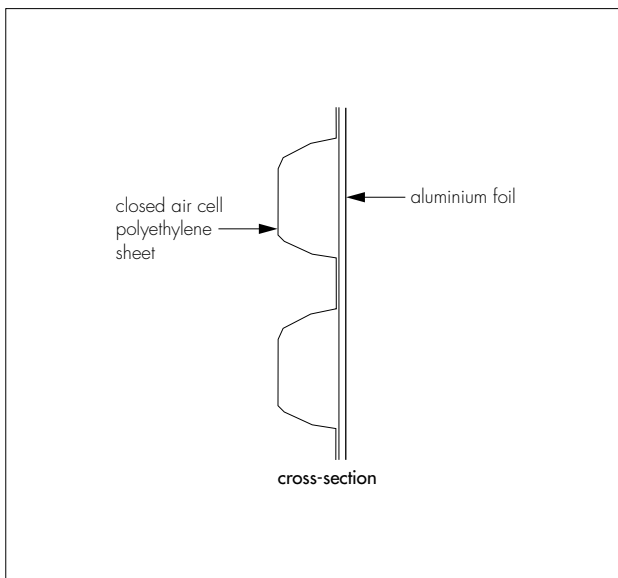
*This Detail Sheet must be read in conjunction with the Front Sheets, which give the products' position regarding the Building Regulations and the Conditions of Certification.*

### Technical Specification

#### 1 Description

1.1 ThermalDry Cavity Drainage Membrane consists of an aluminium foil bonded to a single layer of closed air cell, polyethylene sheet (see Figure 1).

Figure 1 ThermalDry Cavity Drainage Membrane



1.2 The product, when installed in accordance with this Detail Sheet, will resist moisture ingress and can provide thermal insulation.

1.3 The product has a nominal thickness of 4 mm and is supplied in 50 m rolls each 1.35 m wide.

1.4 The product is bought-in to the Certificate holder's specification.

1.5 The product has been assessed for resistance to the ingress of water when used in conjunction with ancillary components:

- grip plug fixings<sup>(1)</sup> — for holding the product to the basement wall
- butyl rope — for applying around the flange of grip plug fixing to form a waterproof seal between fixing and product
- foil tape — for joining adjacent lengths of the product together, either horizontally or vertically.

(1) The mechanical resistance of grip plug fixings will be affected by the nature of the substrate and has not been assessed by the BBA.

#### 2 Delivery and site handling

2.1 ThermalDry Cavity Drainage Membrane is delivered to site in rolls and should be stored in clean, dry conditions.

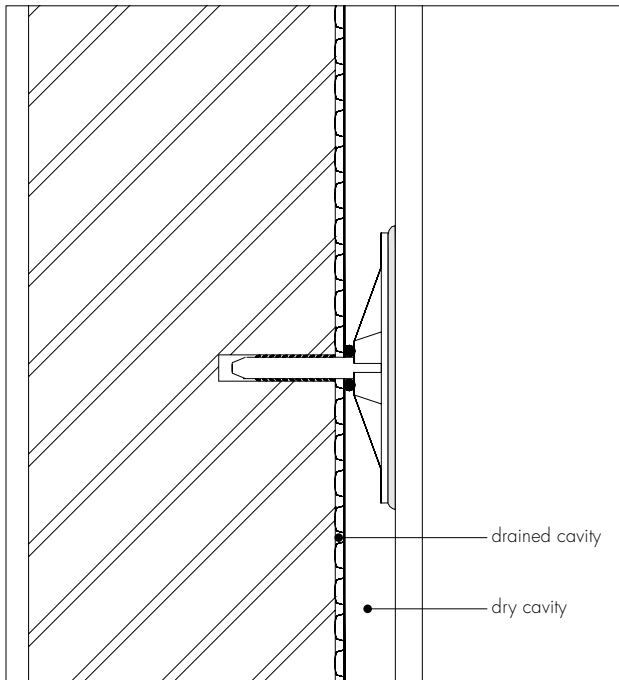
2.2 The product is combustible, therefore care must be exercised when storing large quantities on site. The product must not be exposed to open flame or other ignition sources and must be stored away from flammable material such as paint and solvents.

## Design Data

### 3 General

3.1 ThermalDry Cavity Drainage Membrane, when installed in accordance with the recommendations given in this Certificate, will provide a drained cavity with a minimum water flow path of 750 mm<sup>2</sup> per metre run in new or existing basements or other underground structures (see Figure 2).

Figure 2 Drained and dry cavities



3.2 When used in conjunction with the WaterGuard and Supersump Basement Water Control System (see Detail Sheet 2) designed to cope with the anticipated water ingress, the system will prevent the build-up of hydrostatic pressure in the drained cavity.

3.3 When used in new construction, buildings subject to national Building Regulations should be constructed in accordance with the relevant recommendations of BS 5628-3 : 2001, BS 8000-1 : 1989, BS 8000-2.1 and -2.2 : 1990 and BS 8000-4 : 1989. Other structures not covered by these Regulations should be similarly designed.

3.4 As with all basements, the construction and detailing should comply with good working practice.

3.5 Whether used in new or existing basements it is essential that the following conditions are observed:

- in new construction the basement wall must be given enough time to develop sufficient strength before installing the product
- all wall surfaces to receive the product must be free of sharp protrusions liable to puncture or tear the membrane.

3.6 Vertical and horizontal butt joints are permitted using the approved foil tape. The foil tape can also be used to repair minor cuts and tears as work proceeds.

### 4 Moisture and water penetration

4.1 When installed in accordance with this Certificate, the product (incorporating taped joints, grip plug fixings and butyl rope sealant) will provide an impermeable barrier capable of resisting the passage to the inner lining of:

- moisture that may accumulate on the internal face of the basement wall
- water seepage through joints/minor cracks in basement walls.

4.2 Tests have been carried out to demonstrate that seepage at the rate of 1.33 lm<sup>-2</sup> min<sup>-1</sup> passing down the surface of the wall can be accommodated.

4.3 The use of the product does not preclude the normal precautions against formation of condensation especially in areas expected to have high humidities, as recommended in BS 5250 : 2002.

### 5 Behaviour in relation to fire

5.1 The use of ThermalDry Cavity Drainage Membrane does not prejudice the fire resistance properties for the wall.

5.2 Although the product is combustible, it is difficult to ignite from the foil face and has a Class 1 surface spread of flame rating when tested on the foil face.

5.3 As with other combustible insulation materials, naked flames or sparks should not be allowed near the material either whilst in storage or during installation. If work requiring the use of naked flame, eg a blowtorch, is necessary, this should be carried out at least 300 mm from the installed membrane.

### 6 Thermal insulation

For the purpose of U value calculations to determine if the requirements of the national Building Regulations or Standards are met, a thermal resistance value of 0.125 m<sup>2</sup>KW<sup>-1</sup> may be taken for the ThermalDry Cavity Drainage Membrane only. A thermal resistance value of 0.28 m<sup>2</sup>KW<sup>-1</sup> may be taken for the 20 mm air gap between the membrane and the internal lining board.

### 7 Proximity of flues and appliances

When the product is installed in close proximity to certain flue pipes and/or heat producing appliances, the provisions given in the national Building Regulations must be followed:

**England and Wales**

Approved Document J

## Scotland

Part F Provisions deemed to satisfy the standards

## Northern Ireland

Technical Booklet L.

## 8 Durability



When installed correctly, the product is rot-proof and durable and should remain effective in resisting water ingress and as an insulant for the life of the basement waterproofing system of which it forms part.

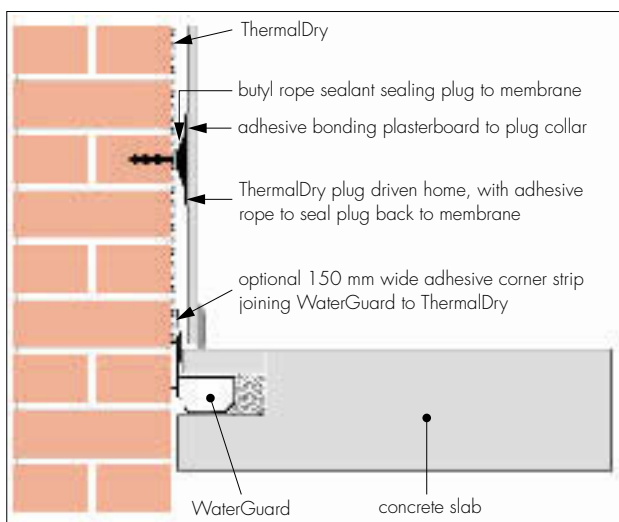
## Installation

### 9 General

9.1 Installation should be in accordance with the Certificate holder's *Installation Manual*.

9.2 The procedures described here relate to ThermalDry Cavity Drainage Membrane and the ancillary components described in section 1.5 of this Detail Sheet, to form the drained cavity. Although not part of the certificated system, the installation typically is designed to receive plasterboard dry lining attached to the flange of the grip plug fixing (see Figure 3). A suitable proprietary plasterboard adhesive can be used for this purpose.

Figure 3 Typical installation



### 10 Procedure

10.1 The basement walls are either constructed or, if existing, made good to receive the membrane. Particular care should be taken to ensure that any sharp protrusions are removed to avoid cutting or tearing of the membrane.

10.2 The first length of membrane is cut from the roll of sufficient single length to stretch from ceiling to behind the WaterGuard flange.

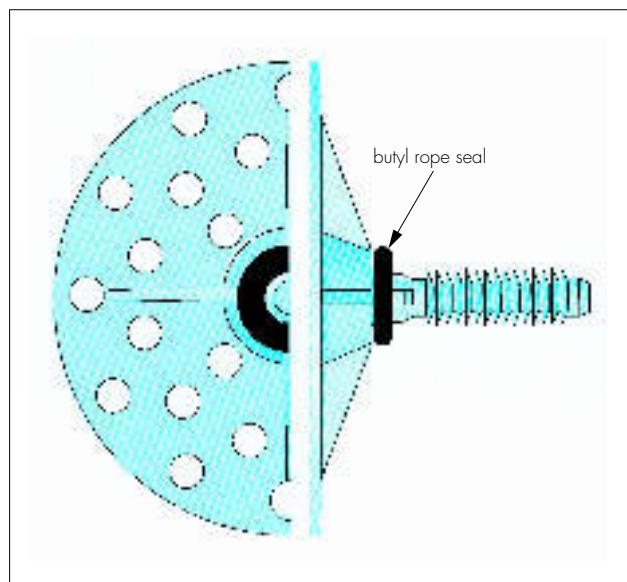
10.3 Starting at the top of the basement wall and using a rotary drill hammer, holes are drilled through the membrane and into the wall using an 11 mm drill bit. The holes should be at least 50 mm deep and at 400 mm horizontal centres.

10.4 Holding the flange of the grip plug fixing, butyl sealing strip is applied around the 20 mm collar. The barbed spike of the fixing is then pushed, under hand pressure, into the drilled hole.

10.5 Once the fixing is sufficiently pushed into the hole by hand pressure, a lump hammer or mallet can be used to gently knock the fixing the full depth of the barbed spike. The hammer or mallet blows should be centralised to avoid damage to the fixing.

10.6 After each fixing is installed, the butyl sealing strip (see Figure 4) should be pressed firmly against the fixing collar and foil layer of the membrane to ensure a continuous seal is made. Fixings should be provided at 400 mm vertical and horizontal centres.

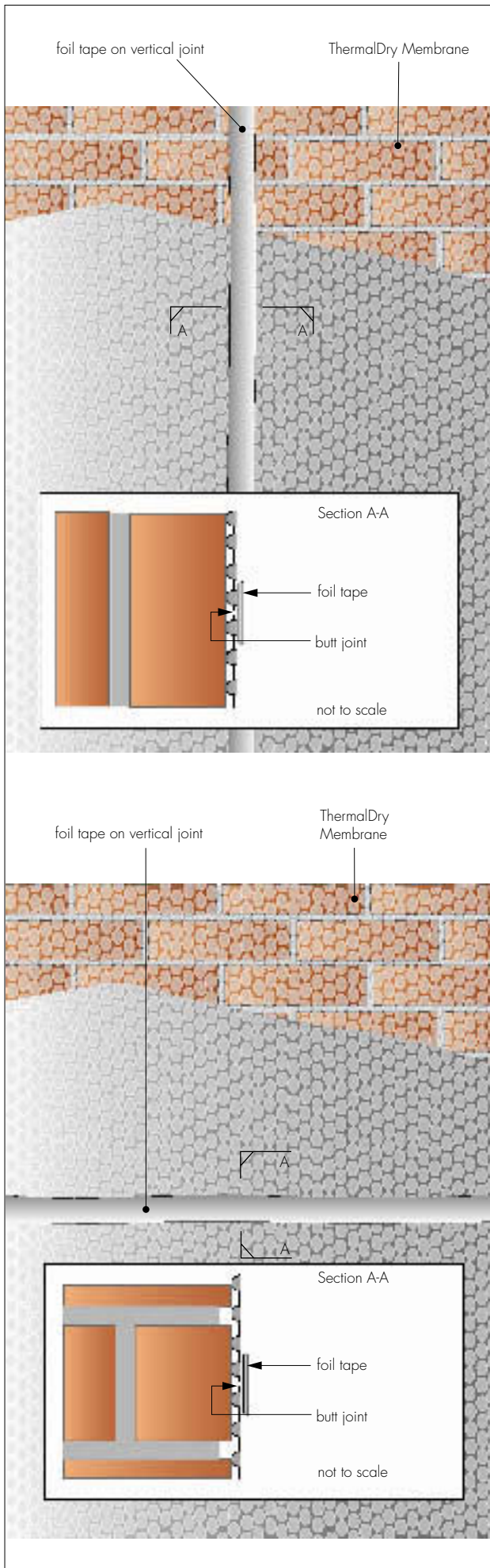
Figure 4 Sealing at plug fixing



10.7 Once the first length of membrane is fixed, the next length is butt jointed to it and sealed with foil tape and the method of fixing repeated (see Figure 5). The same foil tape may be used to seal the bottom of the membrane to the WaterGuard flange if a totally-sealed system is required.

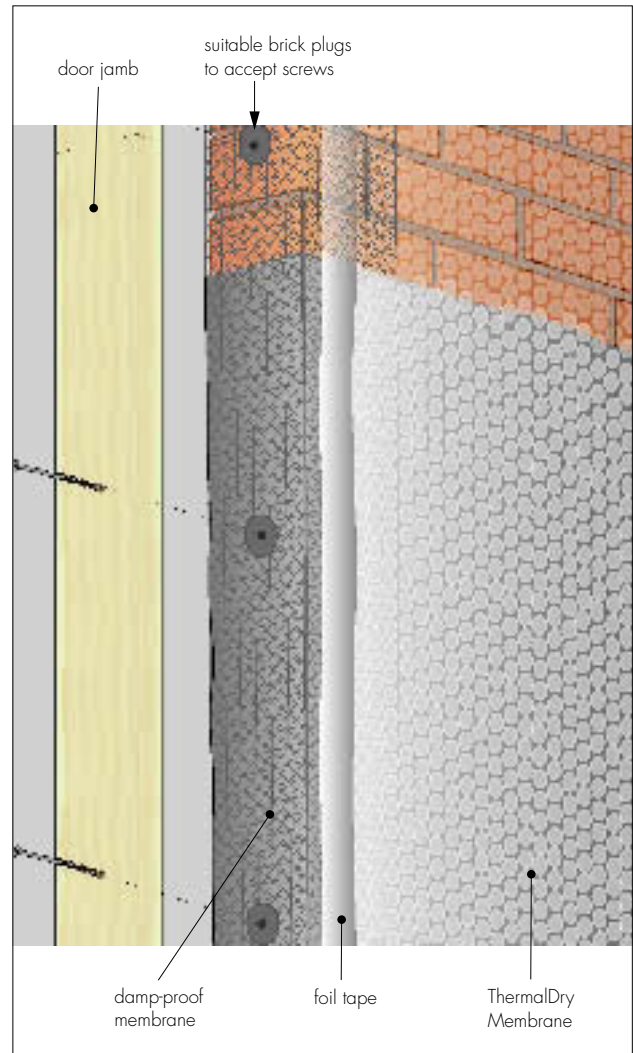
10.8 The process is continued along the basement walls ensuring that the fixings are accurately positioned vertically to receive the dry-lining board.

Figure 5 Butt joint using foil tape



10.9 The membrane can be easily cut with a sharp knife or scissors to fit around doors, apertures or boxed-out services (typical detailing is shown in Figure 6). For dry, sound, painted surfaces, the foil tape can be used to make an effective vapour-proof seal otherwise the Certificate holder should be contacted for technical advice on suitable methods of sealing around openings or protrusions, or sealing around hot water pipes, heating ducts and flues.

Figure 6 Door opening detail



10.10 Should the membrane need to be cut to allow pipework or conduits to pass through, butyl sealant should be applied around the pipe in the same way as for the fixings. Any cuts made in the membrane should be minimal and are to be repaired using the foil tape. Similarly any minor tears or cuts can be repaired using the same tape.

## Technical Investigations

The following is a summary of the technical investigations carried out on ThermalDry Cavity Drainage Membrane.

### 11 Tests

11.1 A full-scale test was undertaken on a panel of ThermalDry Cavity Drainage Membrane, incorporating butt joints, secured to a block wall with the ancillary components described in section 1.5 of this Certificate.

11.2 Water was allowed to flow down the wall and through the drained cavity at the rate of up to 2 litres per minute<sup>(1)</sup> over a period of six days.

(1) Equivalent to 1.33 l m<sup>-2</sup>.

11.3 The membrane, butyl seal to the fixing and foil-taped butt joints remained watertight for the duration of the test.

### 12 Investigations

12.1 An assessment was made on the data relating to the thermal insulation properties of the material and behaviour in fire.

12.2 A site was visited to assess the practicability of installation.

## Bibliography

BS 5250 : 2002 *Code of practice for control of condensation in buildings*

BS 5628-3 : 2001 *Code of practice for use of masonry — Materials and components, design and workmanship*

BS 8000-1 : 1989 *Workmanship on building sites — Code of practice for excavation and filling*  
BS 8000-2.1 : 1990 *Workmanship on building sites — Code of practice for concrete work — Mixing and transporting concrete*

BS 8000-2.2 : 1990 *Workmanship on building sites — Code of practice for concrete work — Sitework with in situ and precast concrete*

BS 8000-4 : 1989 *Workmanship on building sites — Code of practice for waterproofing*



On behalf of the British Board of Agrément

Date of Second issue: 6th February 2004

A handwritten signature in black ink, appearing to read 'P. C. Newson', is written over a light grey background.

Chief Executive

*\*Original Detail Sheet issued 10th October 2003. This revised version includes clarification of the assessed product and additional test data.*





# Electronic Copy

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