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**Agrément
Certificate
No 05/4206**

Designated by Government
to issue
European Technical
Approvals

ENVIROWALL EXTERNAL WALL INSULATION SYSTEMS

Système d'isolation pour murs extérieurs
Wärmedämmung für Außenwand

Product




• THIS CERTIFICATE RELATES TO ENVIROWALL EXTERNAL WALL INSULATION SYSTEMS.

- The systems comprise insulation material with reinforcement and render finishes as described in the accompanying Detail Sheets.
- The systems are applied to the outside of external walls of masonry or dense concrete construction and are suitable for use on new or existing buildings.
- Application and maintenance must be carried out strictly in accordance with the Design Data and Installation parts of this Certificate and the marketing company's instructions by operatives trained and approved by the Certificate holder.

continued

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 to be used by the BBA in assessing the compliance of external wall insulation with the Building Regulations. In the opinion of the BBA, Envirowall External Wall Insulation Systems, if used in accordance with the provisions of this Certificate, will meet or contribute to meeting the relevant requirements.

| | |
|----------------------------------|---|
| Requirement: B4(1) | External fire spread |
| Comment: | The systems are classified Class 0 and therefore can meet this Requirement. See the relevant tinted areas in the <i>Properties in relation to fire</i> section of these Front Sheets. |
| Requirement: C2(c) | Resistance to moisture |
| Comment: | Walls insulated with the systems will meet this Requirement. See the relevant tinted area in the <i>General</i> section of these Front Sheets. |
| Requirement: L1(a)(i) | Dwellings |
| Requirement: L2(a) | Buildings other than dwellings |
| Comment: | The systems will enable, or contribute to enabling, a wall to meet the U value requirement. See the tinted areas in the <i>Thermal insulation</i> section of these Front Sheets. |
| Requirement: Regulation 7 | Materials and workmanship |
| Comment: | The systems are acceptable. See the tinted area in the <i>Durability</i> section of these Front Sheets. |

continued

- The systems are marketed by the Certificate holder.
- The system components are obtained from manufacturers approved by the Certificate holder and the BBA.

These Front Sheets must be read in conjunction with the relevant accompanying Detail Sheets, which provide information specific to insulation systems.

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2 The Building (Scotland) Regulations 2004



In the opinion of the BBA, Envirowall External Wall Insulation Systems, if used in accordance with the provisions of this Certificate, will satisfy or contribute to satisfying the various Regulations and related Mandatory Standards as listed below.

| | | |
|-------------|------|--|
| Regulation: | 8 | Fitness and durability of materials and workmanship |
| Regulation: | 8(1) | Fitness and durability of materials and workmanship |
| Comment: | | The systems can contribute to a construction satisfying this Regulation. See the tinted area in the <i>Durability</i> section and the <i>Installation</i> part of this Certificate. |
| Regulation: | 9 | Building standards — construction |
| Standard: | 2.6 | Spread to neighbouring building |
| Comment: | | The systems have a 'low risk' surface classification. The systems incorporate insulation which would not be classed as 'non-combustible'. Completed walls would therefore be regarded as unprotected areas as defined in Clause 2.6.2 ⁽¹⁾⁽²⁾ and 2.6.4 ⁽¹⁾⁽²⁾ of this Standard. Other relevant Clauses are 2.6.1 ⁽¹⁾⁽²⁾ , 2.6.3 ⁽¹⁾⁽²⁾ , 2.6.5 ⁽¹⁾ and 2.6.6 ⁽²⁾ . See the tinted area (7.1) in the <i>Properties in relation to fire</i> section of these Front Sheets. |
| Standard: | 2.7 | Spread on external walls |
| Comment: | | The systems incorporate insulation which would not be classed as 'non-combustible' and, therefore, should not be used on walls one metre or less from a boundary [Clauses 2.7.1 ⁽¹⁾⁽²⁾ and 2.7.2 ⁽²⁾] but see the relevant tinted area in the <i>Properties in relation to fire</i> section of these Front Sheets. |
| Standard: | 3.10 | Precipitation |
| Comment: | | Walls insulated with the systems will contribute to a construction satisfying Clause 3.10.1 ⁽¹⁾⁽²⁾ of this Standard. See the relevant tinted area (6.4) in the <i>General</i> section of these Front Sheets. |
| Standard: | 3.15 | Condensation |
| Comment: | | Walls insulated with the systems will satisfy the requirements of Clauses 3.15.1 ⁽¹⁾ , 3.15.3 ⁽¹⁾ and 3.15.4 ⁽¹⁾ of this Standard. See the relevant tinted area (6.6) in the <i>General</i> section and the <i>Risk of interstitial condensation</i> section of these Front Sheets. |
| Standard: | 6.2 | Buildings insulation envelope |
| Comment: | | The systems will enable, or contribute to enabling, a wall to meet Clauses 6.2.0 ⁽¹⁾⁽²⁾ , 6.2.4 ⁽¹⁾⁽²⁾ and 6.2.5 ⁽²⁾ of this Standard. See the tinted areas in the <i>Thermal insulation</i> section of these Front Sheets. |

(1) Technical Handbook (Domestic)
(2) Technical Handbook (Non-Domestic)

3 The Building Regulations (Northern Ireland) 2000



In the opinion of the BBA, Envirowall External Wall Insulation Systems, 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 systems are acceptable. See the tinted area in the <i>Durability</i> section of these Front Sheets. |
| Regulation: | C4 | Resistance to ground moisture and weather |
| Comment: | | Walls insulated with the systems will satisfy this Regulation. See the relevant tinted area (6.4) in the <i>General</i> section of these Front Sheets. |
| Regulation: | C5 | Condensation |
| Comment: | | Walls insulated with the systems will satisfy the requirements of this Regulation. See the relevant tinted area (6.6) in the <i>General</i> section and the <i>Risk of interstitial condensation</i> section of these Front Sheets. |
| Regulation: | E5 | External fire spread |
| Comment: | | The systems have a Class O surface and can satisfy this Regulation. See the relevant tinted area in the <i>Properties in relation to fire</i> section of these Front Sheets. |
| Regulation: | F2 | Building fabric |
| Comment: | | The systems will enable, or contribute to enabling, a wall to meet this Regulation. See the tinted areas in the <i>Thermal insulation</i> section of these Front Sheets. |

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

See section:

5 Delivery and site storage (5.1 and 5.4) of these Front Sheets.

Technical Specification

5 Delivery and site storage

5.1 Components of Envirowall External Wall Insulation Systems are delivered to site in the packaging and quantities as listed in Table 1.

5.2 The insulation should be stored on a firm, clean, level base, off the ground and under cover until required for use.

5.3 The expanded polystyrene and phenolic insulation must be protected from prolonged exposure to sunlight either by storing opened packs under cover or re-covering with opaque polythene sheeting.

Table 1 Component supply details

| Component | Quantity and packaging |
|-----------------------------------|-------------------------|
| Insulation | wrapped in plastic film |
| EnviroMesh | 1 m wide roll |
| Basecoats/dash receiver/Brickrend | 25 kg bag |
| Grand Silicon Render KR/Granol KR | 25 kg tub |
| Mechanical fixings | boxed by manufacturer |

5.4 Care must be taken when handling the insulation boards to avoid both damage and contact with solvents or bitumen products. The boards must not be exposed to open flame or other ignition sources.

5.5 The basecoat, dash receiver and Brickrend must be stored in dry conditions, off the ground, and protected from moisture.


Design Data

6 General

6.1 Envirowall External Wall Insulation Systems, are effective in reducing the thermal transmittance (U value) of the walls of new and existing buildings. It is essential that the detailing techniques specified in this Certificate are carried out to a high standard if the ingress of water into the insulation is to be avoided and the full thermal benefit obtained from treatment with the systems.


6.2 The systems will improve the weather resistance of a wall and provide a decorative finish. However, they may only be installed where there are no signs of dampness on the inner surface of the wall other than those caused solely by condensation.

6.3 Existing buildings, subject to national Building Regulations, should have wall surfaces in accordance with the relevant sections of the Detail Sheets.


 6.4 New buildings, subject to national Building Regulations, should be constructed in accordance with the relevant recommendations of:

- BS 5628-3 : 2001. In particular Clause 5.5.2 of the Code of Practice *Rain penetration* should be followed in that the designer should select a construction appropriate to the local wind-driven rain index, paying due regard to the design detailing, workmanship and materials to be used
- BS 8000-3 : 2001.

6.5 Other new buildings, not subject to any of the previous requirements, should also be built in accordance with BS 5628-3 : 2001.

 6.6 When using the system, consideration must be given to the overall design to minimise the risk of condensation and the recommendations of BS 5250 : 2002 should be followed.

7 Properties in relation to fire

 7.1 The external surfaces of the systems are classified as Class 0 or 'low risk' as defined in the documents supporting the national Building Regulations. The systems may therefore be used in accordance with the provisions of:

England and Wales

Approved Document B, paragraph 13.5

Scotland

Mandatory Standard 2.6

Northern Ireland

Technical Booklet E, paragraph 4.3.



7.2 To limit the risk of fire spread between floors in building subject to the Building Regulations in England and Wales, fire barriers should be installed at each floor level above the first floor level (ie starting with the second storey).

7.3 In buildings not subject to the England and Wales Building Regulations (ie Scotland or Northern Ireland) it is recommended that designers should consider the use of the guidance given in section 7.2.



7.4 With regard to fire stopping of cavities in limitations on the use of combustible materials, walls must comply with the following provisions:

England and Wales

Approved Document B, Section 10, paragraph 13.5 and 13.7

Scotland

Mandatory Standards 2.4 Clauses 2.4.1⁽¹⁾⁽²⁾, 2.4.2⁽¹⁾⁽²⁾, 2.4.7⁽¹⁾ and 2.4.9⁽²⁾, 2.6 and 2.7

Northern Ireland

Technical Booklet E, paragraph 3.27 to 3.33 and Section 4.

(1) Technical Handbook (Domestic).

(2) Technical Handbook (Non-Domestic).

8 Thermal insulation

8.1 For the purpose of U value calculations to determine if the requirements of the Building (or other statutory) Regulations are met, the thermal conductivity (λ value) as stated by the insulation manufacturers may be taken as listed in Table 2.

Table 2 Thermal conductivity values

| Insulation | λ values ($Wm^{-1}K^{-1}$) | |
|----------------------|---|-------|
| Expanded polystyrene | 0.038 | |
| Mineral wool | 0.036 | |
| Phenolic | 20–24 mm | 0.024 |
| | 25–44 mm | 0.023 |
| | 45–80 mm | 0.021 |



8.2 The requirement for limiting the heat loss through the building fabric will be satisfied if the U values of the building elements, including thermal bridging, do not exceed the maximum values in the relevant Elemental Approach given in:

England and Wales

Approved Document L1 or L2, Table 1

Scotland

Mandatory Standard 6.2

Northern Ireland

Technical Booklet F, Table 1.2 or 1.4.

8.3 Guidance is also given in these documents on selecting the thickness of insulation required to enable a wall to achieve the desired U value. Alternative approaches are described which allow for some flexibility in design of U values for individual constructional elements.

8.4 Where insulation boards have not been continued into window or door reveals due to a lack of clearance, there will be a risk of cold bridging at these points. Where door and window frames are to be replaced, it is recommended that their size be adjusted to permit the reveals to be insulated.

8.5 Depending on constructional details, cold bridging can also occur at the eaves and at ground-floor level, and care should be taken to minimise this, eg roof or loft insulations should continue over the wall head. Care should be taken to ensure that ventilation openings are not obstructed.

9 Proximity of flues and appliances

When the systems are installed in close proximity to certain flue pipes the relevant provisions of the national Building Regulations should be met:

England and Wales

Approved Document J

Scotland

Mandatory Standard 3.19

Northern Ireland

Technical Booklet L.

10 Moisture penetration

Tests and site examinations show that the systems will resist the passage of moisture.

11 Risk of interstitial condensation



11.1 The components of the systems have a water vapour resistance such that, under the adverse conditions likely to be found in dwellings in the United Kingdom, interstitial condensation should not occur within the insulation.

11.2 If the systems are to be used on the external walls of rooms expected to have continuous high humidities, care must be taken in the design of the rooms to avoid possible problems from the formation of interstitial condensation in the wall.

12 Maintenance

12.1 Regular checks should be made on the installed system, particularly at joints, to ensure that ingress of water does not occur. Necessary repairs should be effected immediately.

12.2 Damaged areas must be repaired using the appropriate Envirowall components and the procedures detailed in the Certificate holder's installation instructions.

13 Strength and stability

13.1 The systems have adequate resistance to impact and abrasion where walls are exposed and have some protection, eg walls of private dwellings and walls of communal dwellings above ground-floor level. In other situations, where the system may be exposed to severe impact, eg walls of public buildings, at ground-floor level, precautions, eg supplementary reinforcement; introduction of planting areas to restrict access should be considered to reduce the risk of damage. Further information may be obtained from BRE Current Paper CP 6 : 81 *Assessment of external walls – Hard Body Impact Resistance*.

13.2 The systems as specified in the Detail Sheets can be designed to withstand the thermal stresses and wind pressures (including suction) normally experienced in the United Kingdom. The system can also be designed in accordance with BS 6399-2 : 1997 to withstand the increased wind loads associated with tall buildings (greater than 12 metres) and areas of high exposure. This may require the use of a greater number of fixings per unit area (see section 15.3).

14 Durability



14.1 The results of accelerated ageing tests in accordance with MOAT No 22 : 1988 indicate that the systems are durable. The system should remain effective for at least 30 years, provided any damage to the surface finish is repaired immediately, and regular maintenance is undertaken, including checks on joints in the systems and external plumbing fittings to identify leakage of rainwater into the system, enabling steps to be taken to correct the defects.

14.2 A spardash finish will break up the flow of water on the surface and reduce the risk of discoloration by water runs. The finish may become discoloured with time, the rate depending on the initial colour, the degree of exposure and atmospheric pollution, as well as the design and detailing of the wall. In common with traditional renders, discoloration by algae and lichens may occur in wet areas.

14.3 Render containing Portland cement may be subject to lime bloom. The occurrence of this may be reduced by avoiding application in adverse weather conditions. The effect is less noticeable on lighter colours.

15 Site survey and preliminary work

15.1 Before application of an Envirowall External Wall Insulation System, a survey of the property is carried out to determine:

- suitability for treatment
- necessary repairs required to the building structure before installation can commence.

15.2 A specification is prepared for each elevation of the building indicating:

- position of beads
- position and amount of reinforcement
- additional reinforcement at corners of openings
- detailing around windows, doors and at eaves
- dpc level
- exact position of expansion joints
- areas where flexible sealants must be used
- position of external plumbing
- where required, the position of fire barriers.

15.3 The survey should include tests conducted on the walls of the building by the Certificate holder or their approved suppliers to determine the pull-out resistance of the mechanical fixings. A Chartered Structural Engineer or similarly competent person with experience of fixings should carry out an assessment and make recommendations concerning the type and number of fixings required to withstand the building's expected wind loading. This should be based on calculations using the test data, the relevant wind speed data for the site, and in the absence of a formal requirement, a safety factor of 3 should be used.

15.4 All necessary repairs to the building structure must be completed before installation of the system.

15.5 Surfaces should be sound, clean, and free from loose material. The flatness of surfaces must be checked; this may be achieved using a straight edge spanning the storey height. Any excessive irregularities, ie greater than 10 mm, must be made good prior to installation to ensure that the insulation boards or slabs are installed with a smooth, in-plane finished surface.

15.6 Where surfaces are covered with an existing rendering it is essential that the bond between the background and the render is adequate. All loose areas should be hacked off and reinstated.

15.7 On existing buildings, purpose-made sills must be fitted to extend beyond the finished face of the system. New buildings should incorporate suitable sills.

15.8 It is recommended that external plumbing be removed and alterations made to underground drainage, where appropriate, to accommodate repositioning on the finished face of the systems.

15.9 New buildings should be of sound masonry or dense concrete construction.

15.10 Internal wet work, eg screeding or plastering, should be completed and allowed to dry prior to the application of a system.

16 Approved installers

Application of the systems, within the context of this Certificate, is carried out by approved installers. An approved installer is a company:

- employing operatives who have been trained and approved by the Certificate holder to install the systems and who have been issued with appropriate training cards by the Certificate holder
- having undertaken to comply with the Certificate holder's application procedure, containing the requirement for each application team to include at least one member with a training card, and
- subject to supervision by the Certificate holder, including site inspections.

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 6399-2 : 1997 *Loading for buildings — Code of practice for wind loads*

BS 8000-3 : 2001 *Workmanship on building sites — Code of practice for masonry*

MOAT No 22 : 1988 *Directives for the Assessment of External Insulation Systems for Walls (Expanded Polystyrene Insulation Faced with a Thin Rendering)*

Conditions of Certification

17 Conditions

17.1 This Certificate:

- (a) relates only to the product that is named, 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) is valid only within the UK;
- (d) has to be read, considered and used as a whole document — it may be misleading and will be incomplete to be selective;
- (e) is copyright of the BBA;
- (f) is subject to English law.

17.2 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, are references to such publication in the form in which it was current at the date of this Certificate.

17.3 This Certificate will remain valid for an unlimited period provided that the product and the manufacture and/or fabrication including all related and relevant processes 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.

17.4 In granting this Certificate, the BBA is not responsible for:

- (a) the presence or absence of any patent, intellectual property 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 actual works in which the product is installed, used and maintained, including the nature, design, methods and workmanship of such works.

17.5 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, Envirowall External Wall Insulation Systems are fit for their intended use provided they are installed, used and maintained as set out in this Certificate. Certificate No 05/4206 is accordingly awarded to Envirowall Limited.

On behalf of the British Board of Agrément

Date of issue: 10th May 2005

Chief Executive

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British Board of Agrément

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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.



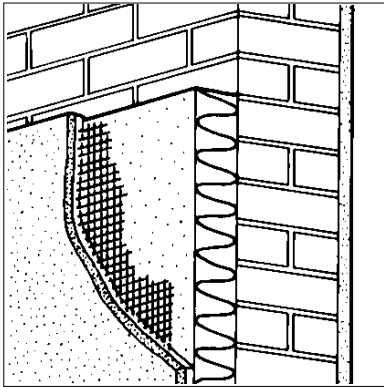
Envirowall Limited

Certificate No 05/4206

ENVIROWALL EPS EXTERNAL WALL INSULATION SYSTEM

DETAIL SHEET 2

Product



• THIS DETAIL SHEET RELATES TO THE ENVIROWALL EPS EXTERNAL WALL INSULATION SYSTEM, A SYSTEM EMPLOYING EXPANDED POLYSTYRENE WITH A GLASS-FIBRE REINFORCING MESH AND RENDER FINISHES.

- The system is applied to the outside of external walls of masonry or dense concrete construction and is suitable for new or existing buildings.
- It is essential that the system is installed and maintained in accordance with the conditions set out in the Design Data part of the Front Sheets and Installation parts of this Detail Sheet.

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

Technical Specification

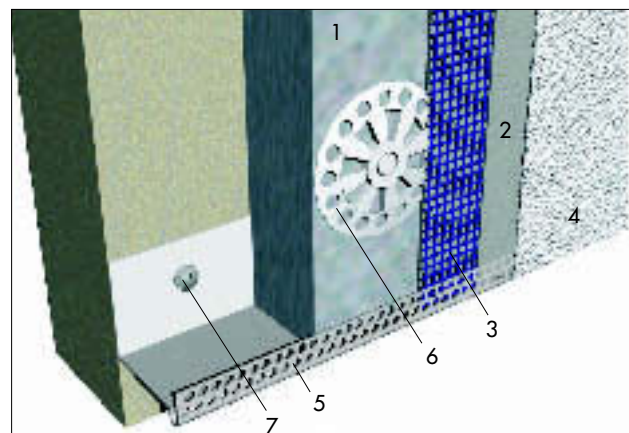
1 Description

1.1 The Envirowall EPS External Wall Insulation System (see Figure 1) comprises:

- expanded polystyrene insulation boards — 1200 mm by 600 mm in a range of thicknesses between 40 mm and 200 mm. The boards are manufactured to grade EPS 70 Class F to BS EN 13163 : 2001
- EnviroRend Basecoat Render — polymer-modified cementitious render supplied as a powder to which clean water is added
- EnviroMesh — glass-fibre reinforcing mesh with a nominal weight per unit area of 165 gm⁻²
- EnviroRend Dash Receiver — polymer-modified cementitious render supplied as a powder to which clean water is added
- EnviroBrick — polymer-modified, two-coat render system designed to simulate conventional brickwork
- Granol KR — acrylic-based render finish supplied pre-mixed in a range of colours
- Ancillary materials:
 - mechanical fixings — See section 1.5.3 of the Front Sheets of this Certificate
 - profiles — a range of standard profiles, typically for wall base, end stop, corner mesh and expansion joint. Profiles are available in aluminium, powder-coated aluminium and powder-coated galvanized steel
 - profile fixings

- sealant
- aggregate as approved by the Certificate holder.

Figure 1 Envirowall EPS External Wall Insulation System — base level



Key

- 1 expanded polystyrene insulation board
- 2 EnviroRend Basecoat Render
- 3 reinforcement mesh
- 4 Granol KR
- 5 base bead profile
- 6 insulation fixing
- 7 base bead profile fixing

1.2 The insulation boards are mechanically fastened to the external surfaces of walls. The EnviroMesh is placed against the boards and secured in position with EnviroRend Basecoat Render (see Figure 1). The EnviroRend Basecoat Render is trowel applied to a thickness of between 3 mm and 6 mm, allowing sufficient drying time before applying the finish coat.

2 General

2.1 Application of the Envirowall EPS External Wall Insulation System is carried out in accordance with the Certificate holder's current installation instructions.

2.2 Application of coating materials must not be carried out at temperatures below 5°C or above 35°C, nor if exposure to frost is likely, and the coating must be protected from rapid drying. Weather conditions therefore should be monitored to ensure correct curing conditions.

2.3 All rendering should be in accordance with the relevant recommendations of BS 5262 : 1991 and BS 8000-10 : 1995.

3 Procedure

Positioning and securing insulation boards or slabs

3.1 The base profile is secured to the external wall above the damp-proof course using the approved profile fixings at approximately 300 mm centres.

3.2 The first run of insulation boards is positioned on the base profile. Holes are drilled into the substrate to a minimum depth of 50 mm through each board in accordance with the fixing pattern shown in Figure 2. The mechanical fixings are inserted and tapped firmly into place, securing the insulation board to the substrate. Subsequent rows of boards are positioned so that the joints are staggered and overlapped at the building corners (see Figure 3).

Figure 2 Arrangement of insulation boards

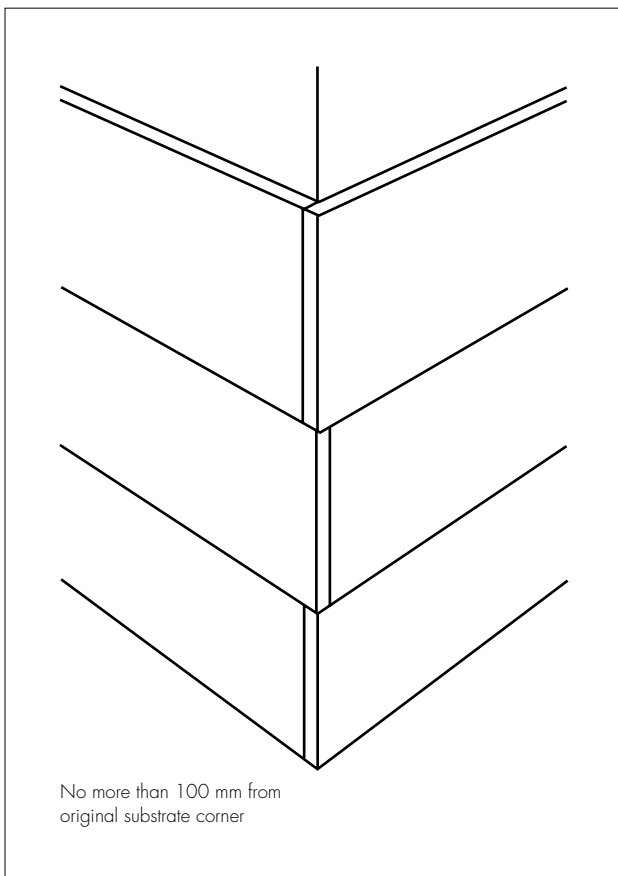
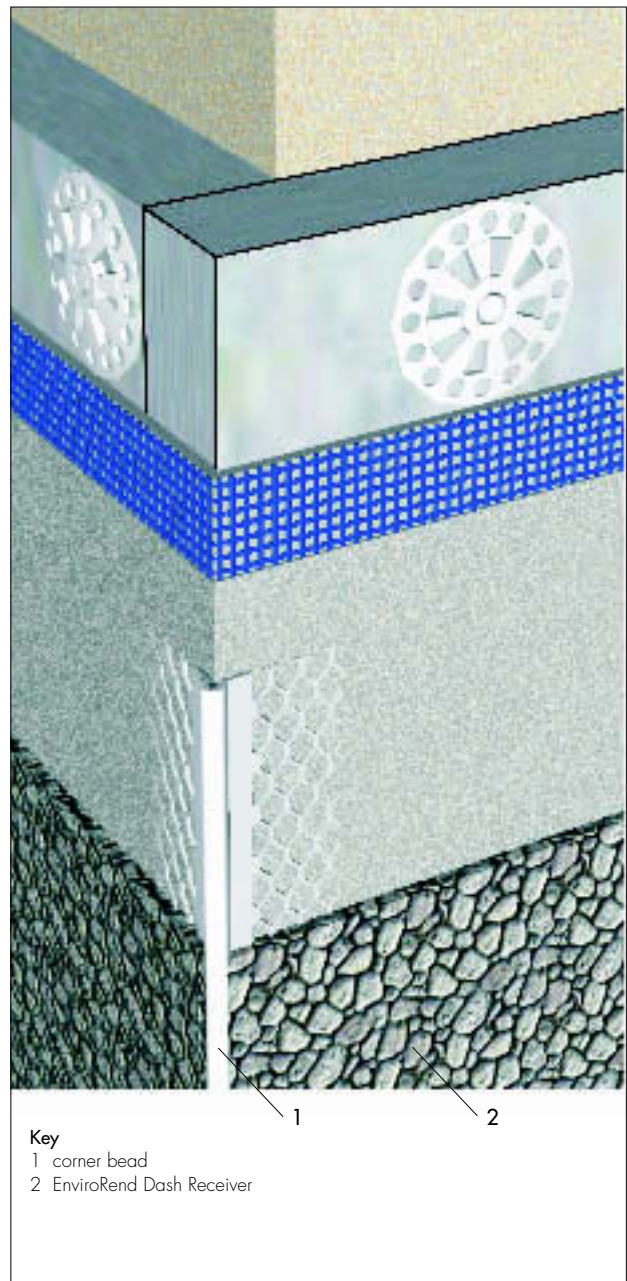


Figure 3 Corner detail



3.3 Mechanical fixings are spaced at 300 mm around openings (eg for windows and doors) and vertically at corners.

3.4 Care must be taken to ensure that all board edges are butted tightly together, and alignment should be checked as work proceeds. High spots or irregularities should be removed by lightly planing with a rasp.

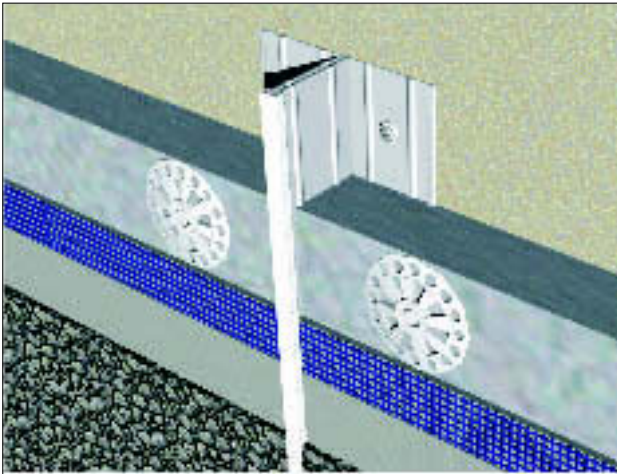
3.5 To fit around details such as doors and windows, insulation boards may be cut with a sharp knife or a fine-tooth saw. If required, purpose-made window-sills are fitted. They are designed to prevent water ingress and incorporate drips to shed water clear of the system.

3.6 Installation continues until the whole wall is completely covered including, where appropriate, the building soffits.

Movement joints

3.7 Movement joints in the substrate must be continued through the system. The joint detail using purpose-made trims is illustrated in Figure 4.

Figure 4 Vertical movement joint



3.8 Expansion beads are fixed vertically in agreed positions where necessary, along the building depending on the individual requirements of each job.

Basecoat

3.9 Prior to the render coat, a bead of silicone sealant is applied to window and door frames, overhanging eaves, gas and electric meter boxes, wall vents or where the render abuts any other building material or surface.

3.10 EnviroRend Basecoat Render is prepared by thoroughly mixing the contents of a 25 kg bag with between 4 litres and 5 litres of clean water, in a paddle mixer, for five minutes or until the correct workability is achieved.

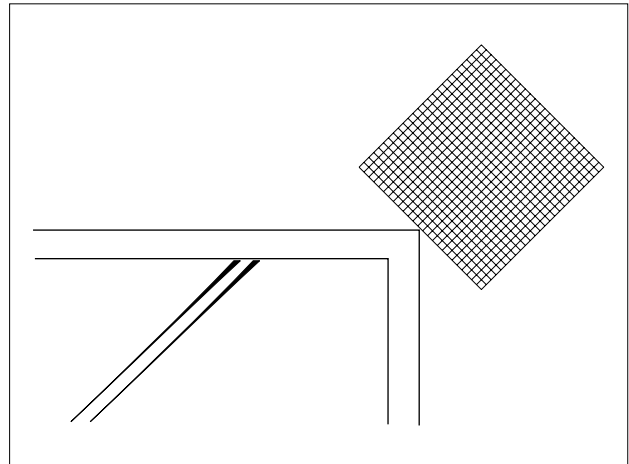
3.11 The basecoat is trowelled onto the surface of the insulation boards to a thickness of between 3 mm and 6 mm, ensuring it is butted against details (eg under window sills), and trowelled smooth. The surface is roughened with a notched trowel or comb.

Reinforcement

3.12 EnviroMesh is placed onto the roughened surface of the basecoat, which is then trowelled over to completely cover the mesh. All the rendered surfaces must be reinforced and joints in the mesh must overlap by at least 100 mm.

3.13 Additional reinforcement is required around openings and at corners (see Figure 5). Angle beads and stop beads are positioned in accordance with the Certificate holder's installation instructions.

Figure 5 Additional reinforcement at openings



3.14 The drying period of any render will depend on weather conditions; however, the basecoat must be left to harden for at least two days before applying the relevant finish.

Finishing

EnviroRend Dash Receiver

3.15 The receiver is mixed to until the correct workability is achieved and trowelled onto the basecoat to a thickness of between 6 mm and 10 mm. While still soft, washed aggregate is thrown or sprayed onto the receiver ensuring a uniform covering. Where necessary, the aggregate should be lightly tamped with a wooden float to ensure a good bond is achieved.

EnviroBrick

3.16 The render is applied in two stages. The mortar-coloured coat is trowelled onto the basecoat to a thickness of 8 mm to 10 mm and, when starting to stiffen, the top brick-coloured coat is applied to a thickness of 3 mm to 5 mm. To simulate a brick texture the second coat can be lightly brushed. The simulated mortar courses are made by cutting through the topcoat to expose the lower coat. Spirit levels and straight edges should be used to ensure accuracy when cutting into the surface. Any loose material can be removed with a stiff brush once the cutting process is complete.

Granol Acrylic KR

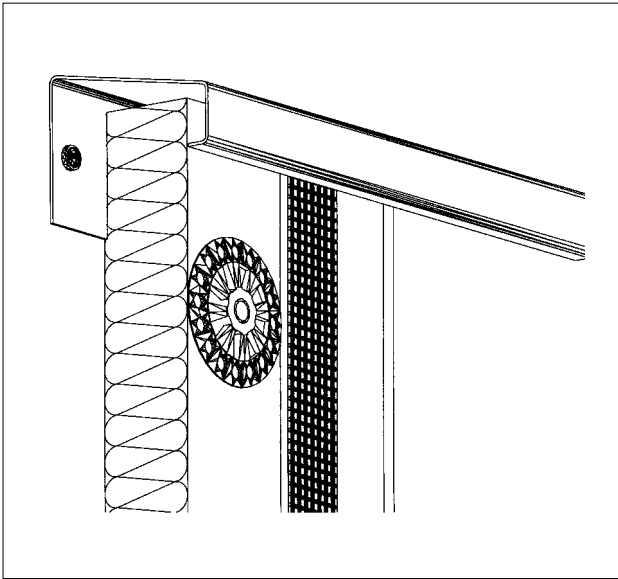
3.17 The render is applied to a thickness of 2 mm to 3 mm. A straight edge can be used to help ensure a flat surface, and specialised tools, supplied by the Certificate holder can be used to create the desired finish.

General

3.18 At the tops of walls the system should be protected by an adequate overhang or by an adequately sealed, purpose-made flashing (see Figure 6).

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Figure 6 Typical wall-top detail

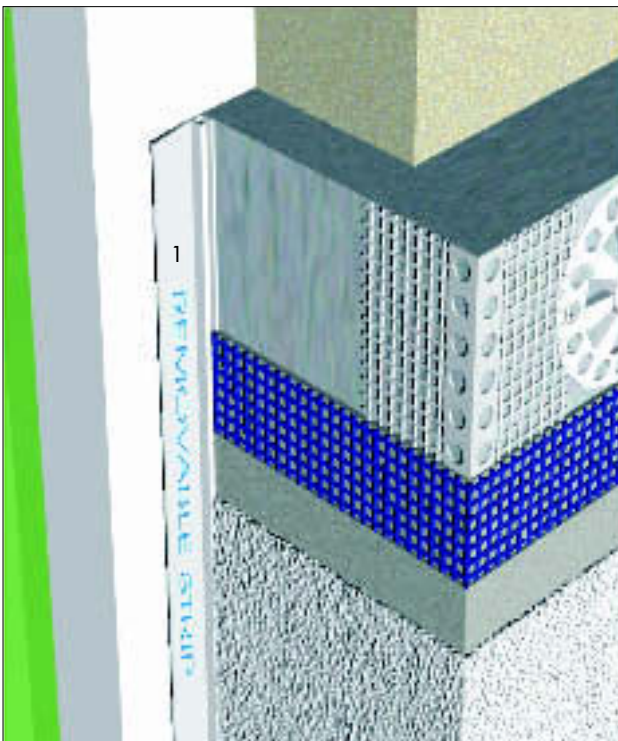


3.19 Care should be taken in the detailing of the system around openings and projections (see Figures 7, 8 and 9).

3.20 On completion of the installation, external fittings, eg rainwater goods, are re-fixed through the system into the substrate.

3.21 Continuous surfaces should be completed without a break.

Figure 7 Insulated window detail



Key
1 stop bead

Figure 8 Window-head detail

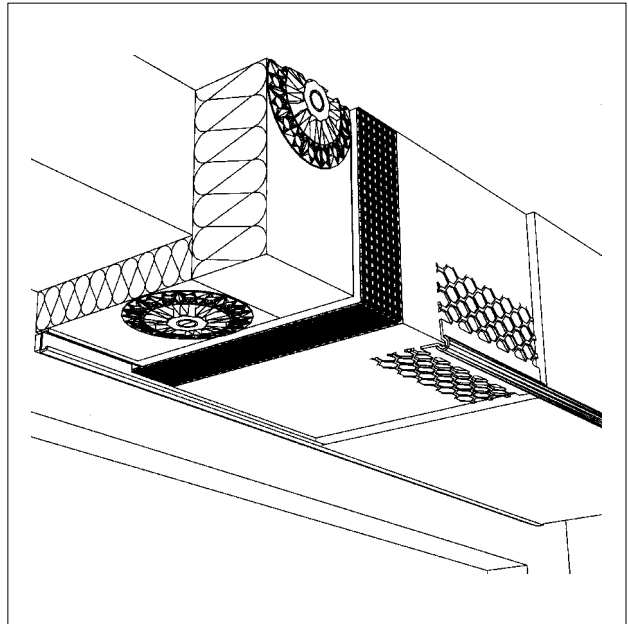
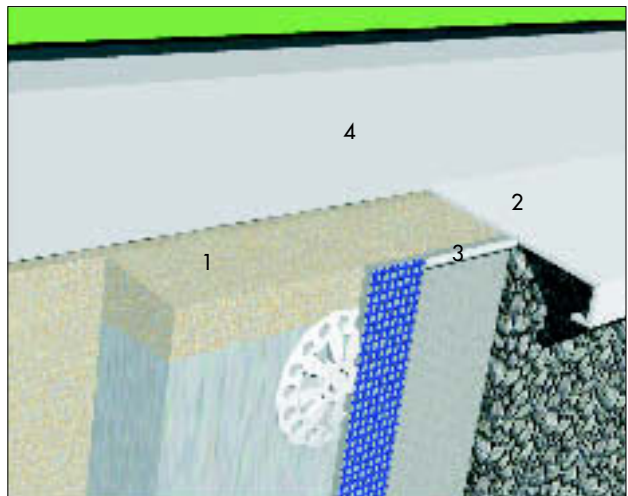


Figure 9 Window-sill detail



Key
1 existing window-sill
2 new oversill
3 sealant
4 window frame

Technical Investigations

The following is a summary of the technical investigations carried out on the Envirowall EPS External Wall Insulation System.

4 Tests

4.1 Tests were carried out in accordance with MOAT No 22 : 1988 to determine:

- component characterisation
- heat/spray cycling
- resistance to freeze/thaw
- impact resistance.

4.2 Tests were carried out in accordance with ETAG 004 : 2000 to determine:

- water vapour resistance of basecoat
- pull-off resistance.

4.3 An examination was made of data relating to:

- water vapour permeability
- fire tests and assessments in accordance with BS 476-6 : 1989 and BS 476-7 : 1997
- pull-out strength of fixings
- durability of finish.

5 Investigations

5.1 The manufacturing process, the methods adopted for quality control of manufactured and bought-in components, and details of the quality and composition of the materials used, were examined.

5.2 An assessment of the risk of interstitial condensation was undertaken.

5.3 The practicability of installation and the effectiveness of detailing techniques were examined.

Bibliography

BS 476-6 : 1989 *Fire tests on building materials and structures — Method of test for fire propagation for products*

BS 476-7 : 1997 *Fire tests on building materials and structures — Method of test to determine the classification of the surface spread of flame of products*

BS 5262 : 1991 *Code of practice for external renderings*

BS 8000-10 : 1995 *Workmanship on building sites — Code of practice for plastering and rendering*

BS EN 13163 : 2001 *Thermal insulation products for buildings — Factory made products of expanded polystyrene (EPS) — Specification*

ETAG 004 : 2000 *External Thermal Insulation Composite Systems with Rendering*

MOAT No 22 : 1988 *Directives for the Assessment of External Insulation Systems for Walls (Expanded Polystyrene Insulation Faced with a Thin Rendering)*



On behalf of the British Board of Agrément

Date of issue: 10th May 2005



Chief Executive

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British Board of Agrément

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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.



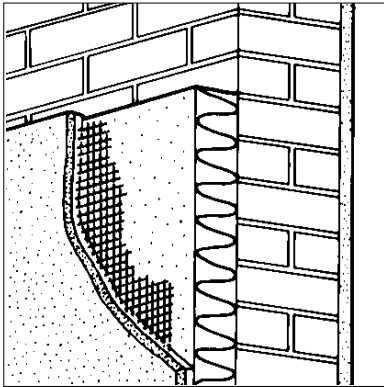
Envirowall Limited

**ENVIROWALL MINERAL WOOL
AND PHENOLIC EXTERNAL WALL
INSULATION SYSTEM**

Certificate No 05/4206

DETAIL SHEET 3

Product



• THIS DETAIL SHEET RELATES TO THE ENVIROWALL MINERAL WOOL AND PHENOLIC EXTERNAL WALL INSULATION SYSTEM, A SYSTEM EMPLOYING MINERAL WOOL OR PHENOLIC INSULATION WITH A GLASS-FIBRE REINFORCING MESH AND RENDER FINISHES.

- The system is applied to the outside of external walls of masonry or dense concrete construction and is suitable for new or existing buildings.
- It is essential that the system is installed and maintained in accordance with the conditions set out in the Design Data part of the Front Sheets and Installation parts of this Detail Sheet.

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

Technical Specification

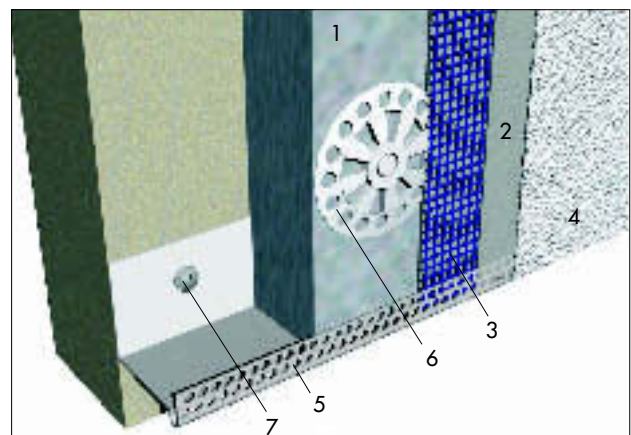
1 Description

1.1 The Envirowall Mineral Wool and Phenolic External Wall Insulation System (see Figure 1) comprises:

- Phenolic insulation boards — 1200 mm by 600 mm in a range of thicknesses between 20 mm and 80 mm. The boards are available with a nominal density of 40 kgm^{-3} and a minimum compression strength of 150 kPa
- Mineral Wool Insulation Slabs — 1200 mm by 600 mm, in a range of thickness between 30 mm and 150 mm nominal density of 140 kgm^{-3} manufactured in accordance with BS EN 13162 : 2001
- EnviroRend Basecoat Render — polymer-modified cementitious render supplied as a powder to which clean water is added
- EnviroMesh — glass-fibre reinforcing mesh with a nominal weight per unit area of 165 gm^{-2}
- EnviroRend Dash Receiver — polymer-modified cementitious render supplied as a powder to which clean water is added
- EnviroBrick — polymer-modified, two-coat render system designed to simulate conventional brickwork
- Granol Silicone Render KR — a silicone-based render finish supplied pre-mixed in a range of colours
- Ancillary materials:
 - mechanical fixings — See section 15.3 of the Front Sheets of this Certificate

- profiles — a range of standard profiles, typically for wall base, end stop, corner mesh and expansion joint. Profiles are available in aluminium, powder-coated aluminium and power-coated galvanized steel
- profile fixings
- sealant
- aggregate as approved by the Certificate holder.

Figure 1 Envirowall Mineral Wool and Phenolic External Wall Insulation System – base level

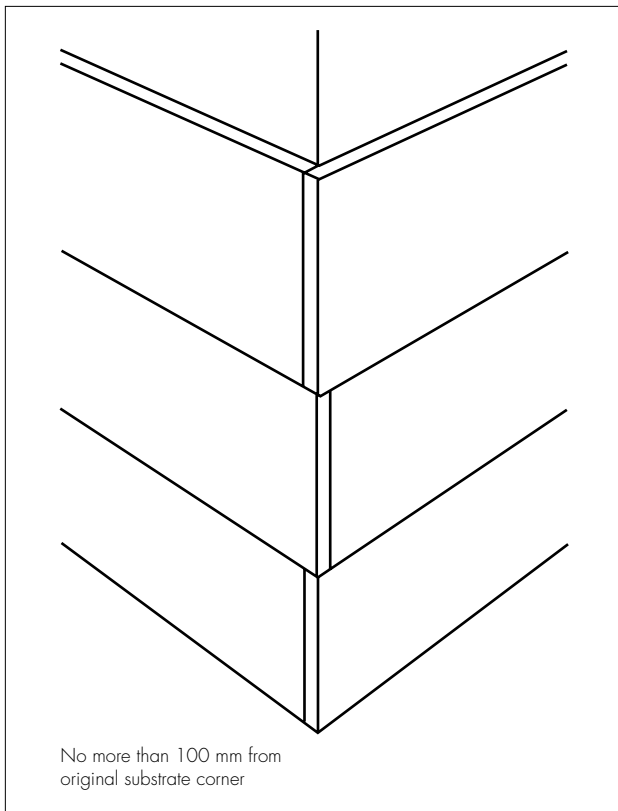


Key

- 1 mineral wool/phenolic insulation board
- 2 EnviroRend Basecoat Render
- 3 reinforcement mesh
- 4 Granol KR
- 5 base bead profile
- 6 insulation fixing
- 7 base bead profile fixing

1.2 The insulation boards are mechanically fastened to the external surfaces of walls. The EnviroMesh is placed against the boards and secured in position with EnviroRend Basecoat Render (see Figure 1). The EnviroRend Basecoat Render is trowel applied to a thickness of between 3 mm and 6 mm, allowing sufficient drying time before applying the finish coat.

Figure 2 Arrangement of insulation boards



Installation

2 General

2.1 Application of the Envirowall Mineral Wool and Phenolic External Wall Insulation System is carried out in accordance with the Certificate holder's current installation instructions.

2.2 Application of coating materials must not be carried out at temperatures below 5°C or above 35°C, nor if exposure to frost is likely, and the coating must be protected from rapid drying. Weather conditions therefore should be monitored to ensure correct curing conditions.

2.3 All rendering should be in accordance with the relevant recommendations of BS 5262 : 1991 and BS 8000-10 : 1995.

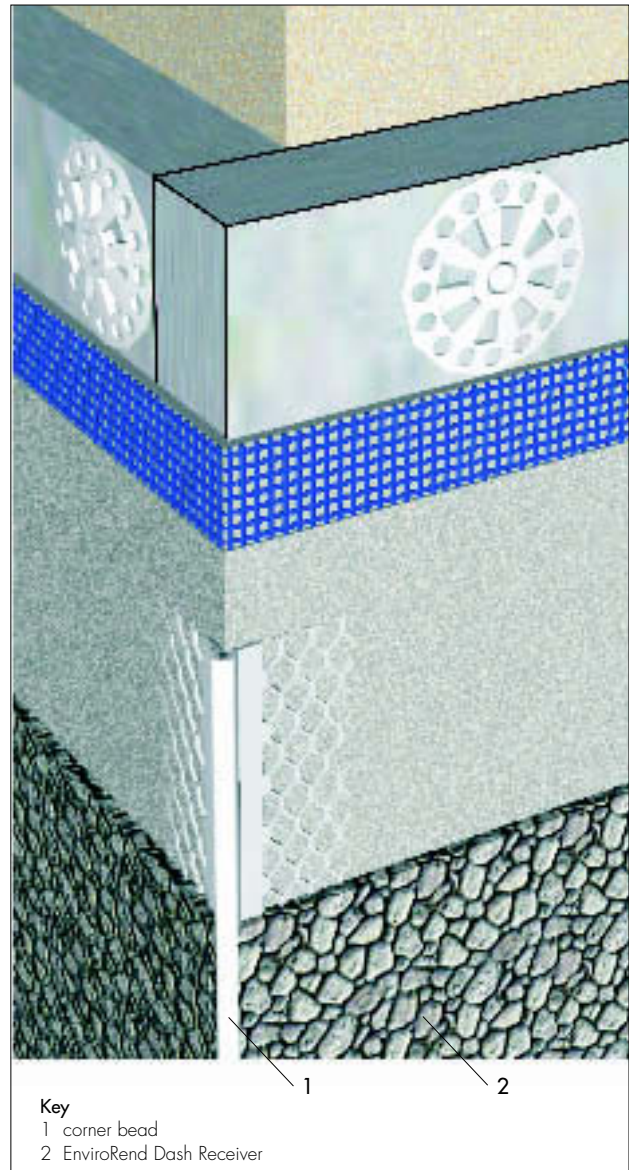
3 Procedure

Positioning and securing insulation boards or slabs

3.1 The base profile is secured to the external wall above the damp-proof course using the approved profile fixings at approximately 300 mm centres.

3.2 The first run of insulation boards is positioned on the base profile. Holes are drilled into the substrate to a minimum depth of 50 mm through each board in accordance with the fixing pattern shown in Figure 2. The mechanical fixings are inserted and tapped firmly into place, securing the insulation board to the substrate. Subsequent rows of boards are positioned so that the joints are staggered and overlapped at the building corners (see Figure 3).

Figure 3 Corner detail



3.3 Mechanical fixings are spaced at 300 mm around openings (eg for windows and doors) and vertically at corners.

3.4 Care must be taken to ensure that all board edges are butted tightly together, and alignment should be checked as work proceeds. High spots or irregularities should be removed by lightly planing with a rasp.

3.5 To fit around details such as doors and windows, insulation boards or slabs may be cut with a sharp knife or a fine-tooth saw. If required, purpose-made window-sills are fitted. They are

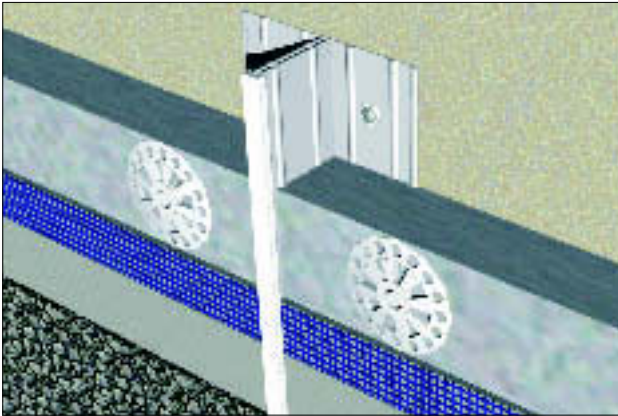
designed to prevent water ingress and incorporate drips to shed water clear of the system.

3.6 Installation continues until the whole wall is completely covered including, where appropriate, the building soffits.

Movement joints

3.7 Movement joints in the substrate must be continued through the system. The joint detail using purpose-made trims is illustrated in Figure 4.

Figure 4 Vertical movement joint



3.8 Expansion beads are fixed vertically in agreed positions where necessary, along a building depending on the individual requirements of each job.

Basecoat

3.9 Prior to the render coat, a bead of silicone sealant is applied to window and door frames, overhanging eaves, gas and electric meter boxes, wall vents or where the render abuts any other building material or surface.

3.10 EnviroRend Basecoat Render is prepared by thoroughly mixing the contents of a 25 kg bag with between 4 litres and 5 litres of clean water, in a paddle mixer, for five minutes or until the correct workability is achieved.

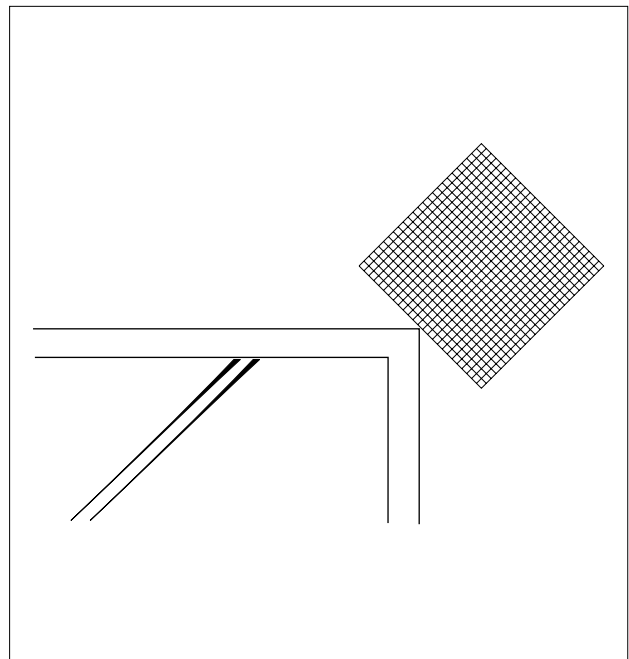
3.11 The basecoat is trowelled onto the surface of the insulation boards to a thickness of between 3 mm and 6 mm, ensuring it is butted against details (eg under window sills), and trowelled smooth. The surface is roughened with a notched trowel or comb.

Reinforcement

3.12 EnviroMesh is placed onto the roughened surface of the basecoat, which is then trowelled over to completely cover the mesh. All the rendered surfaces must be reinforced and joints in the mesh must overlap by at least 100 mm.

3.13 Additional reinforcement is required around openings and at corners (see Figure 5). Angle beads and stop beads are positioned in accordance with the Certificate holder's installation instructions.

Figure 5 Additional reinforcement at openings



3.14 The drying period of any render will depend on weather conditions; however, the basecoat must be left to harden for at least two days before applying the relevant finish.

Finishing

EnviroRend Dash Receiver

3.15 The receiver is mixed to until the correct workability is achieved and trowelled onto the basecoat to a thickness of between 6 mm and 10 mm. While still soft, washed aggregate is thrown or sprayed onto the receiver ensuring a uniform covering. Where necessary, the aggregate should be lightly tamped with a wooden float to ensure a good bond is achieved.

EnviroBrick

3.16 The render is applied in two stages. The mortar-coloured coat is trowelled onto the basecoat to a thickness of 8 mm to 10 mm and, when starting to stiffen, the top brick-coloured coat is applied to a thickness of 3 mm to 5 mm. To simulate a brick texture the second coat can be lightly brushed. The simulated mortar courses are made by cutting through the topcoat to expose the lower coat. Spirit levels and straight edges should be used to ensure accuracy when cutting into the surface. Any loose material can be removed with a stiff brush once the cutting process is complete.

Granol Granosil Silicone KR

3.17 The render is applied to a thickness of 2 mm to 3 mm. A straight edge can be used to help ensure a flat surface, and wet sponges, wooden mortar boards or similar tools can be used to create the desired finish.

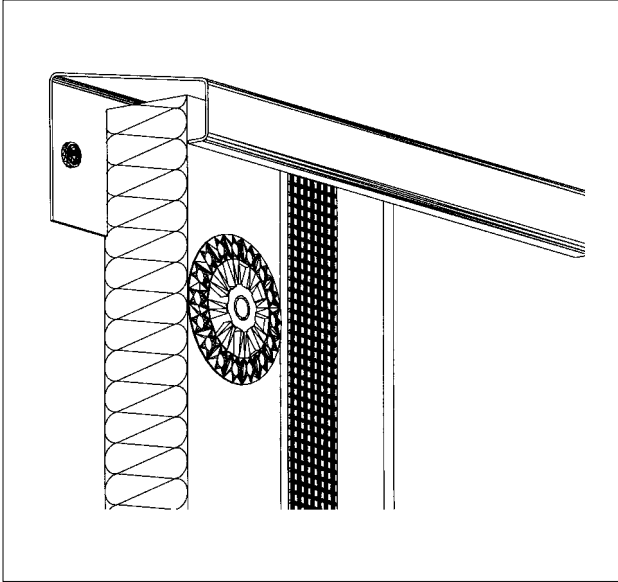
General

3.18 At the tops of walls the system should be protected by an adequate overhang or by an

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adequately sealed, purpose-made flashing (see Figure 6).

Figure 6 Typical wall-top detail

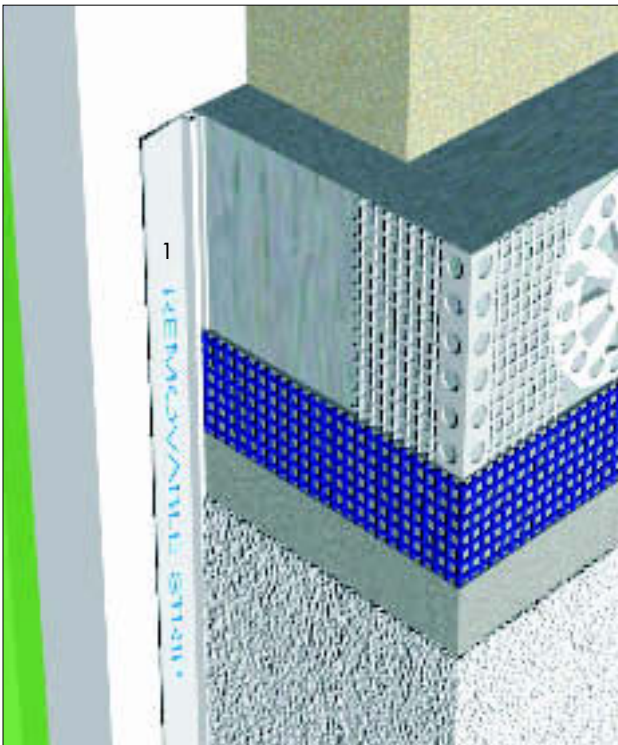


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Figure 7 Insulated window detail



Key
1 stop bead

Figure 8 Window-head detail

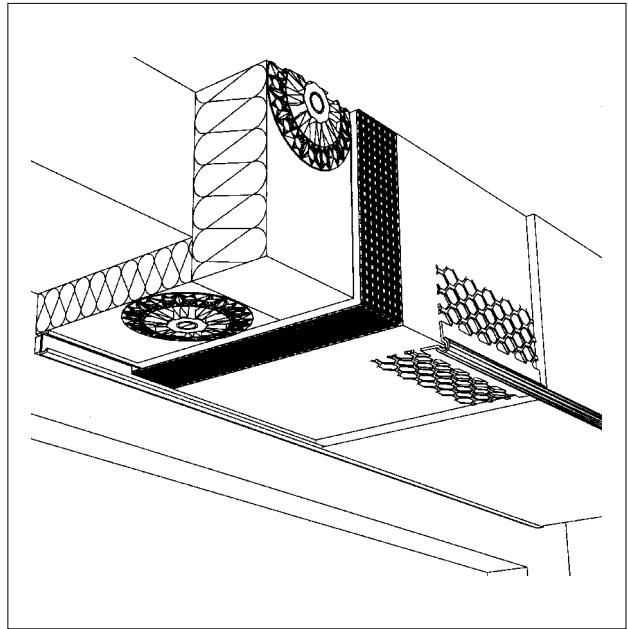
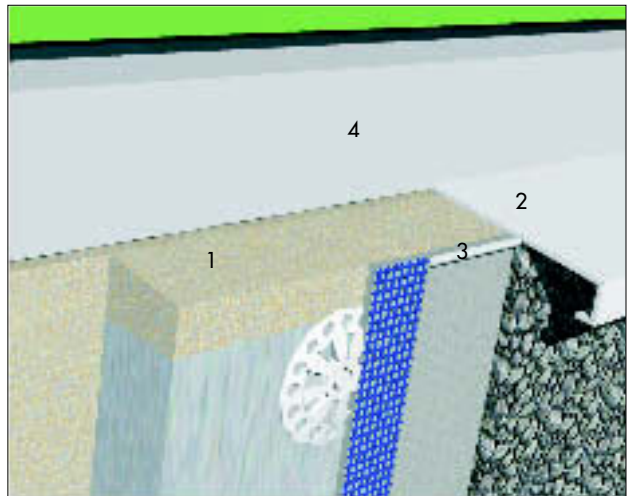


Figure 9 Window-sill detail



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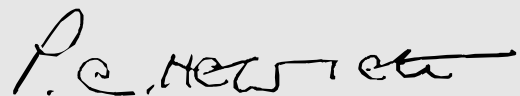
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On behalf of the British Board of Agrément

Date of issue: 10th May 2005



Chief Executive

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