

# British Board of Agrément

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## Electronic Copy

Authorised and notified according to Article 10 of the Council Directive (89/106/EEC) of 21 December 1988 on the approximation of laws, regulations and administrative provisions of Member States relating to construction products.



## European Technical Approval ETA-06/0266

### Trade name:

weber.therm XM (EPS) External Wall Insulation

### Holder of approval:

Saint-Gobain Weber Ltd  
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### Generic type and use of construction product:

External Thermal Insulation Composite System (ETICS) with rendering on polystyrene for use as external insulation to the walls of buildings

### Valid from: to:

2nd October 2006  
31st October 2011

### Manufacturing plant:

weber Building Solutions  
The Old Paper Mill  
Ballyclare  
Co Antrim BT39 9EB  
United Kingdom

### This European Technical Approval contains:

Eight pages including two Annexes which form an integral part of the document



European Organisation for Technical Approvals

## I LEGAL BASES AND GENERAL CONDITIONS

1 This European Technical Approval is issued by the British Board of Agrément in accordance with:

- Council Directive 89/106/EEC of 21 December 1988 [Construction Products Directive (CPD)] on the approximation of laws, regulations and administrative provisions of Member States relating to construction products<sup>(1)</sup>, modified by the Council Directive 93/68/EEC of 22 July 1993<sup>(2)</sup>.
- UK implementation of CPD Statutory Instruments 1991, No 1620. The Building and Building Construction Products Regulations 1991 — made 15 July 1991, laid before Parliament 22 July 1991, coming into force 27 December 1991, and amended by the Construction Products (Amendment) Regulations 1994 (Statutory Instruments 1994, No 3051).
- Common Procedural Rules for Requesting, Preparing and the Granting of European Technical Approvals set out in the Annex to Commission Decision 94/23/EC<sup>(3)</sup>.
- Guideline for European Technical Approval of *External Thermal Insulation Composite Systems with Rendering* ETAG 004, Edition 2000.

2 The British Board of Agrément is authorised to check whether the provisions of this European Technical Approval are met. Checking may take place in the manufacturing plant. Nevertheless, the responsibility for the conformity of the products to the European Technical Approval and for their fitness for the intended use remains with the holder of the European Technical Approval.

3 This European Technical Approval is not to be transferred to manufacturers or agents of manufacturers other than those indicated on page 1, or manufacturing plants other than those indicated on page 1 of this European Technical Approval.

4 This European Technical Approval may be withdrawn by the British Board of Agrément, in particular after information by the Commission on the basis of Article 5(1) of Council Directive 89/106/EEC.

5 Reproduction of this European Technical Approval, including transmission by electronic means, shall be in full. However, partial reproduction can be made with the written consent of the British Board of Agrément. In this case partial reproduction has to be designated as such. Texts and drawings of advertising brochures shall not contradict or misuse the European Technical Approval.

6 The European Technical Approval is issued by the approval body in its official language. This version should correspond to the version circulated within EOTA. Translations into other languages have to be designated as such.

(1) Official Journal of the European Communities No L40, 11.2.1989, p12.

(2) Official Journal of the European Communities No L220, 30.8.1993, p1.

(3) Official Journal of the European Communities No L17, 20.1.1994, p34.

## II SPECIFIC CONDITIONS OF THE EUROPEAN TECHNICAL APPROVAL

### 1 Definition of product and intended use

#### 1.1 Product

weber.therm XM (EPS) External Wall Insulation is an External Thermal Insulation Composite System (ETICS) designed and installed in accordance with the Certificate holder's instructions<sup>(4)</sup>. Components of the system are factory-produced by the ETA holder or its approved suppliers, and include:

- weber.rend LAC — a cement-based, polymer-modified mortar supplied as a powder to which water is added. It can be used as an adhesive or a basecoat with respective nominal coverage rates (as stated by the manufacturer) and thicknesses of:
  - adhesive —  $3 \text{ kgm}^{-2}$  and 25 mm to 30 mm
  - basecoat —  $6.5 \text{ kgm}^{-2}$  and 6 mm.
- Polyplank EPS insulation board — expanded polystyrene EPS 70, to BS EN 13163 : 2001 and reaction-to-fire classification of Class E, to BS EN 13501-1 : 2002, with a nominal density of  $15 \text{ kgm}^{-3}$  and available in thicknesses from 30 mm to 100 mm and plain edges.
- weber EPS insulation board — as Polyplank but available in thicknesses from 30 mm to 200 mm<sup>(5)</sup>.
- weber Fibreglass Meshcloth — a woven glassfibre reinforcing mesh with a polymer coating, a nominal weight of  $160 \text{ kgm}^{-3}$  and a mesh size of 3.5 mm by 3.5 mm with a residual strength after ageing of at least  $20 \text{ Nmm}^{-2}$  in both the warp and the weft, retaining at least 60% of this strength when delivered (as stated by the manufacturer).
- weber PR310 primer — a ready-to-use, styrene-acrylic resin-based emulsion, containing fine fillers, pigment and a coalescing agent, and applied at a coverage rate of  $0.25 \text{ lm}^{-2}$  (as stated by the manufacturer).
- weber.rend PTC finish coat — a cement-based polymer-modified mortar, containing limestone sand, fibres, and polymers. It is supplied as a powder to which water is added, and is applied at a nominal coverage rate (as stated by the manufacturer) of  $10 \text{ kgm}^{-2}$  and at a nominal thickness of 6 mm.
- weber dry dash — a natural-coloured aggregate with a maximum size of 6 mm used with weber.rend PTC.
- weber.plast TF finish coat — a ready-to-use, acrylic bonded textured plaster supplied as a paste containing aggregate with a maximum size of either 1.5 mm or 3 mm, and available in a range of colours. With the 1.5 mm aggregate, it is applied at a nominal coverage rate (as stated by the manufacturer) of  $2.8 \text{ kgm}^{-2}$  and nominal thickness of 1.5 mm and with the 3 mm aggregate at  $6 \text{ kgm}^{-2}$  and 3 mm respectively.
- weber.plast DF finish coat — a ready-to-use, resin-based composite supplied as a paste containing

(4) A copy is held by the BBA.

(5) It is also available in a reduced thickness of 15 mm for use in such features as window reveals.

limestone sand, whiting, fillers, pigment and natural white limestone aggregate with a maximum size of either 1 mm or 3 mm. With the 1 mm aggregate, it is applied at a nominal coverage rate (as stated by the manufacturer) of  $1.5 \text{ kgm}^{-2}$  and nominal thickness of 1 mm and with the 3 mm aggregate at  $3.8 \text{ kgm}^{-2}$  and 3 mm respectively.

- weber.sil TF finish coat — a ready-to-use, silicon-bonded textured plaster supplied as a paste containing aggregate with a maximum size of either 1.5 mm or 3 mm and available in a range of colours. With the 1.5 mm aggregate, it is applied at a nominal coverage rate (as stated by the manufacturer) of  $2.9 \text{ kgm}^{-2}$  and nominal thickness of 1.5 mm and with the 3 mm aggregate at  $4.8 \text{ kgm}^{-2}$  and 3 mm respectively.
- supplementary fixings — these should be covered by an ETA and, depending on the fixing type and substrate have a minimum pull-out strength of 500 N, 600 N or 1000 N.

Ancillary components include:

- weber profiles — a range of stainless steel and galvanized steel standard profiles (see Annex 2) for use in such details as wall base, end stop, corner mesh, and expansion joint. Stainless steel is to BS EN 10088-1 : 2005, No 1.4301, and galvanized steel strip is to BS EN 10327 : 2004, with or without a polyester powder paint finish to BS 6497 : 1984. Aluminium and rigid PVC profiles are also available, as are aluminium and rigid plastic beads.
- fixings for weber profiles — galvanized, plated or stainless steel screws, driven pins with plastic expansion sleeves, or integral plastic-finned nails with mushroom heads.
- sealant — Silicone sealant for joining details between the systems and other building components, such as windows.

## 1.2 Intended use

The product is for use as external insulation on new or existing vertical masonry and concrete walls<sup>(6)</sup>, where masonry includes brickwork, blockwork or concrete either cast on site or as precast panels. The walls must have a minimum reaction-to-fire classification of A1 or A2-s2, d0 in accordance with BS EN 13501-1 : 2002 and a minimum density of  $820 \text{ kgm}^{-3}$  or designation A1 in accordance with EC decision 96/603/EC (as amended).

The product is non-loadbearing and does not contribute directly to the stability of the wall to which it is applied, but it can contribute to durability by providing enhanced protection from the effect of weathering.

The product does not affect the airtightness or otherwise of the building to which it is applied.

The choice of fixing method depends on the characteristics of the substrate. Should the wall need preparation (see ETAG 004 : 2000, section 7.2.1), it must be

undertaken in accordance with the usual practice. The provisions made in this ETA are based on an assumed intended working life of at least 25 years, provided that the conditions given in sections 4.2, 5.1 and 5.2 (for packaging, transport, storage, installation, appropriate use, maintenance and repair) are met. The indications given on the working life cannot be interpreted as a guarantee given by the manufacturer or the British Board of Agrément, but are to be used as a means for selecting the appropriate product in relation to the expected economically reasonable working life of the works.

## 2 Characteristics of product and methods of verification

### 2.1 General

Identification tests and the assessment of fitness for the intended use were carried out in accordance with ETAG 004 : 2000 and MOAT No 22 : 1998, Section 3.1 *Product identification*.

### 2.2 Characteristics

#### 2.2.1 Reaction to fire

The ETICS is Euroclass F No Performance Determined (NPD) in accordance with EN 13501-1 : 2002.

#### 2.2.2 Water absorption (capillary test)

weber.rend LAC as a basecoat was found to have a water absorption after one hour of less than  $1 \text{ kgm}^{-2}$  and after 24 hours less than  $0.5 \text{ kgm}^{-2}$ .

The finish coats applied over a basecoat and primer, after 24 hours, had water absorption (in  $\text{kgm}^{-2}$ ) of:

- weber.plast TF 0.17
- weber.sil TF 0.16.

#### 2.2.3 Hygrothermal behaviour

A sample of the ETICS successfully resisted the effects of testing to hygrothermal cycling in accordance with MOAT No 22 : 1998, Section 3.3.2.

#### 2.2.4 Behaviour under freeze/thaw conditions

The rendering systems with the finishes stated in section 2.2.2 give water absorption rates less than  $0.5 \text{ kgm}^{-2}$  after 24 hours, therefore, the configurations meet the requirements of ETAG 004 : 2000 for freeze/thaw resistance.

The rendering systems with the finishes given in section 2.2.2 have been assessed as being resistant to freeze/thaw conditions in accordance with MOAT No 22 : 1998, Section 3.3.2.

#### 2.2.5 Impact resistance

The rendering systems with the finishes given in section 2.2.2 incorporating double standard mesh or reinforced mesh with standard mesh have NPD, but with a single standard mesh, and tested for hard body impacts (3 J and 10 J), gave results of:

- weber.rend PTC use Category III
- weber.plast TF use Category III
- weber.plast DF use Category III
- weber.sil TF use Category III.

(6) The product can be used on horizontal or inclined surfaces not exposed to precipitation.

## 2.2.6 Water vapour permeability

The rendering systems with the finishes given in section 2.2.2 have an equivalent air thickness (m) of:

- weber.rend PTC 0.204
- weber.plast TF 0.935
- weber.plast DF 0.790
- weber.sil TF 0.574.

## 2.2.7 Dangerous substances

According to the manufacturer's declaration, the product specification has been compared with the dangerous substances detailed in Council Directive 76/769/EEC (as amended) and listed on the database established on the EC construction website to verify that it does not contain such substances above the acceptable limits.

In addition to the specific clauses relating to dangerous substances contained in this ETA, there may be other requirements applicable to the product (eg transposed European legislation and national laws, regulations and administrative provisions). To meet the requirements of the CPD, these requirements must be complied with wherever they apply.

## 2.2.8 Safety in use

### 2.2.8.1 Bond strength

For weber.rend LAC as a basecoat applied to expanded polystyrene, bond strength tests indicate that, in its initial state and after ageing, failure occurred 100% within the EPS or above the required MPa level (see below).

- 0.08 MPa in initial state
- 0.03 MPa when conditioned by immersion in water for 48 hours followed by two hours at 23°C/50% RH
- 0.08 MPa when conditioned by immersion in water for 48 hours followed by seven days at 23°C/50% RH.

For weber.rend LAC as an adhesive applied to a concrete substrate and expanded polystyrene, bond strength tests indicate that on concrete it met all the requirements, ie achieving:

- 0.25 MPa in initial state
- 0.08 MPa when conditioned by immersion in water for 48 hours followed by two hours at 23°C/50% RH
- 0.25 MPa when conditioned by immersion in water for 48 hours followed by seven days at 23°C/50% RH.

### 2.2.8.2 Fixing strength

Fixings are only used as a supplement to the adhesive. The strength has not been determined.

### 2.2.8.3 Wind load resistance

As above, no strength has been determined (see ETAG 004 : 2000, section 5.1.4, Table 3).

## 2.2.9 Thermal resistance

The additional thermal resistance provided by the ETICS to the substrate wall is calculated in accordance with EN ISO 6946 : 1996. See Annex 2.

## 3 Evaluation of Conformity and CE Marking

### 3.1 Attestation of Conformity system

The system of attestation applied to this product shall be that laid down in the CPD, Annex III, 2(i) (referred to as System 2+) and, where reaction to fire has to be accounted for, Systems 1 and 2+.

### 3.2 Responsibilities

#### 3.2.1 Tasks for the manufacturer

##### 3.2.1.1 Factory production control

The manufacturer continues to operate a factory production control (FPC) system. All elements, requirements and provisions adopted by the manufacturer are documented. This ensures the product conforms with this ETA.

The manufacturer shall only use raw materials supplied with the relevant inspection documents as laid down in the prescribed control plan<sup>(7)</sup>. The raw materials/ components shall be subject to controls and tests by the manufacturer before acceptance. Checks on incoming materials shall include control of the certificates of conformity presented by the suppliers (comparison with nominal values) by verifying dimensions and determining material properties.

For components not manufactured by the ETA holder, it is the ETA holder's responsibility to ensure that the factory production control for these components meets the requirements of this ETA.

The frequency of controls and tests conducted during production and on the assembled product is laid down in the prescribed control plan, taking account of the manufacturing process of the product.

The results of factory production control are recorded and evaluated in accordance with the prescribed control plan.

The records shall be presented to the inspection body involved in the continuous surveillance.

Details of the extent, nature and frequency of testing and controls to be performed within the factory production control shall correspond to the prescribed control plan included in the technical documentation of this ETA.

##### 3.2.1.2 Initial type-testing of the product (system 2+ only)

For initial type-testing, the results of the tests performed as part of the assessment for the ETA may be used unless there are changes in the production line or plant. In such cases, the initial type-testing has to be agreed between the British Board of Agrément and the manufacturer.

##### 3.2.1.3 Declaration of conformity

The manufacturer shall make a declaration in accordance with the requirements of this European Technical Approval.

#### 3.2.2 Tasks for the approved bodies

##### 3.2.2.1 Product certification and initial type-testing of the product (system 1 only)

<sup>(7)</sup> The prescribed control plan is deposited with the British Board of Agrément and is made available to the approved bodies involved in the conformity attestation process.

For initial type-testing, the results of the tests performed as part of the assessment for the ETA may be used unless there are changes in the production line or plant. In such cases the necessary type-testing has to be agreed between the British Board of Agrément and the approved body involved.

### 3.2.2.2 Initial inspection of factory and of factory production control

The approved body shall ascertain that, in accordance with the prescribed control plan, the factory, in particular the staff and equipment, and the factory production control, are suitable to ensure a continuous and orderly manufacturing of the components with the specifications given in Part II, section 2.

### 3.2.2.3 Continuous surveillance

The approved body shall make surveillance inspections at the factory. It is recommended that surveillance inspections be conducted at least twice a year or at least once a year for manufacturers having an FPC system which complies with EN ISO 9000, after verification that the manufacturing of the ETICS components is covered by the EN ISO system. It shall be verified that the system of factory production control and the specified manufacturing processes are maintained taking account of the prescribed control plan.

The results of product certification and continuous surveillance shall be made available on demand by the certification body to the British Board of Agrément. Where the provisions of the ETA and the prescribed test plan are no longer fulfilled, the certificate of conformity shall be withdrawn by the certification body.

## 3.3 CE Marking

The CE Marking shall be affixed to the product itself, a label attached to it, the packaging, or on the commercial documents accompanying the components. The CE symbol shall be accompanied by the following information:

- identification of the certification body
- last two digits of the year in which the CE Marking was affixed
- for System 2+, number of the certificate of conformity for factory production control
- for System 1, number of the certificate of conformity for the product
- ETA number
- identification of the product
- ETAG number.

## 4 Assumptions under which the fitness of the product for the intended use was favourably assessed

### 4.1 Manufacturing

The product is manufactured in accordance with the provisions of this ETA using the manufacturing processes as identified in the inspection of the plant by the British

Board of Agrément and the approved body and laid down in the technical documentation. Changes to the product or the processes should be notified to the British Board of Agrément who will decide whether the ETA is affected and if alterations are required to the ETA.

## 4.2 Installation

### 4.2.1 General

It is the responsibility of the ETA holder to ensure that information about design and installation are easily accessible by the appropriate people. All necessary information about the installation shall be clearly indicated on the packaging or on enclosed instruction sheets (incorporating one or more illustrations).

Any installation must use only the components described in this ETA and comply with building regulation requirements concerning fire and wind-load resistance, and be in accordance with ETAG 004 : 2000, chapter 7.

### 4.2.2 Design

The method of bonding and the minimum area to be bonded (never below 20% of the surface area) must comply with this ETA and the requirements of the national building regulations.

The selection and amount of supplementary fixings used must take into account the design wind load under suction and the national building regulations, and incorporating such features as national safety factors, design rules, etc. The pull-out strength of the fixing must accord with the type of substrate involved.

### 4.2.3 Procedure

The substrate must be prepared in accordance with the requirements of ETAG 004 : 2000 (removal of existing paint finishes and organic renders).

The product must be installed following the ETA holder's instructions, in particular in respect of the thickness of rendering and the drying periods between layers.

## 5 Responsibility of the manufacturer

It is the ETA holder's responsibility to ensure that the operatives involved with the following details have access to the necessary instructions and requirements.

During transit and storage, the components must be protected from moisture and damage.

The finishing coat should be regularly repaired and washed to ensure that the product retains its performance and appearance. Repairs should be carried out soon after damage occurs using suitable products, and should be made good to match the overall appearance.

## ANNEX 1 TYPICAL DETAILS OF WEBER.THERM XM (EPS) EXTERNAL WALL INSULATION

Figure 1 weber.therm XM (EPS) External Wall Insulation System

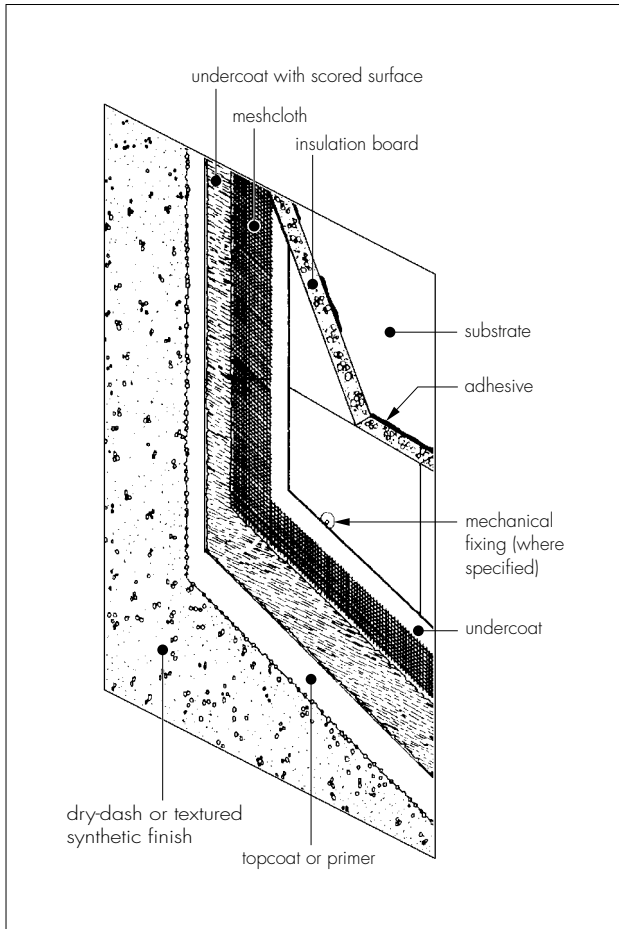


Figure 2 Typical section at base level

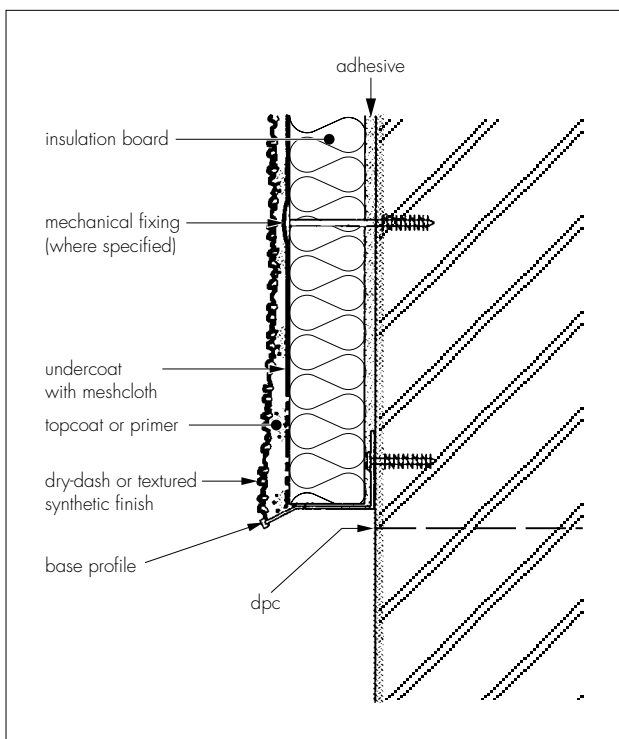


Figure 3 Typical weber insulation adhesive pattern

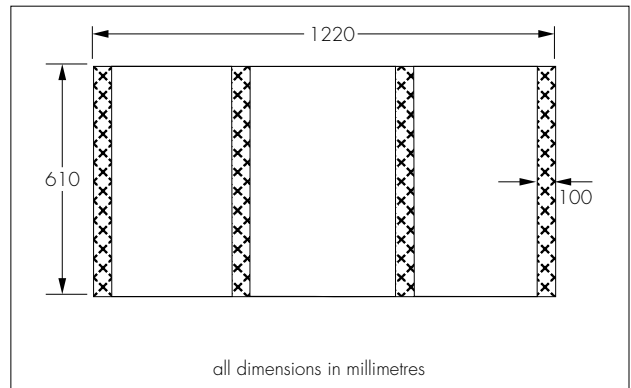


Figure 4 Arrangement of insulation boards

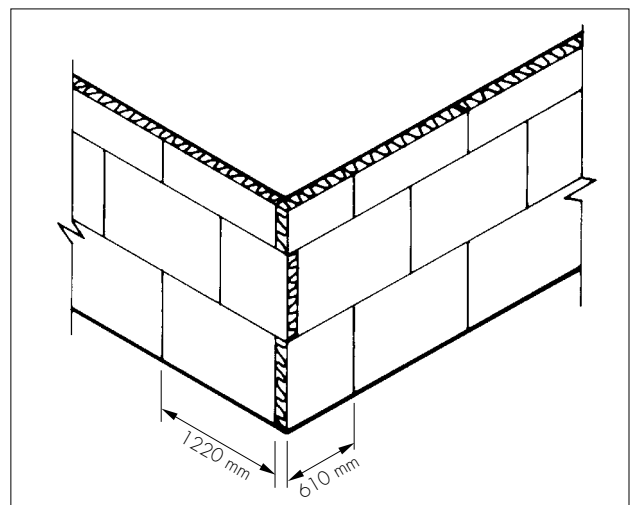


Figure 5 Vertical movement joint

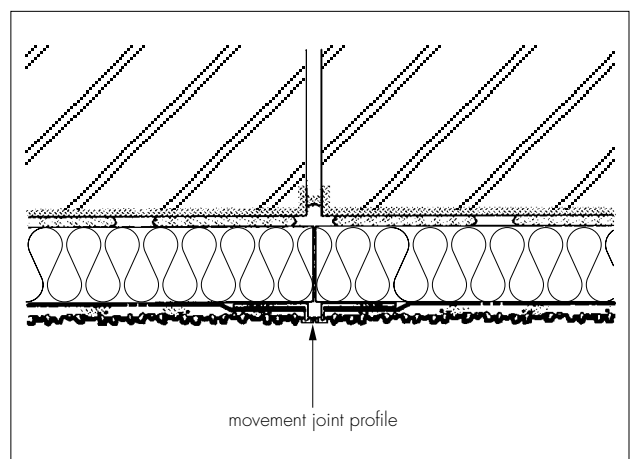


Figure 6 Additional reinforcement at openings

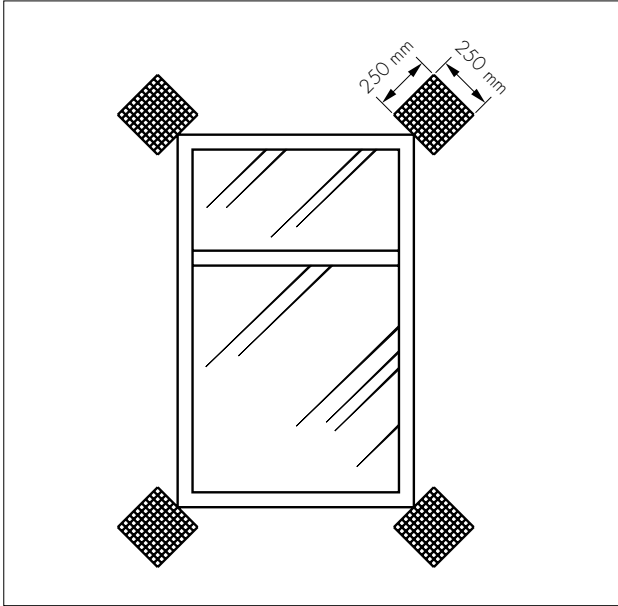


Figure 7 Eaves detail — pitched roof

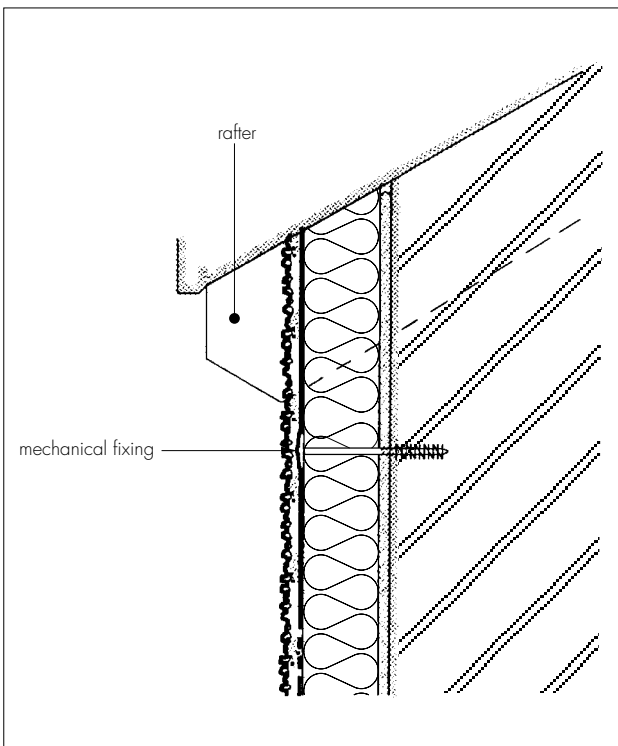
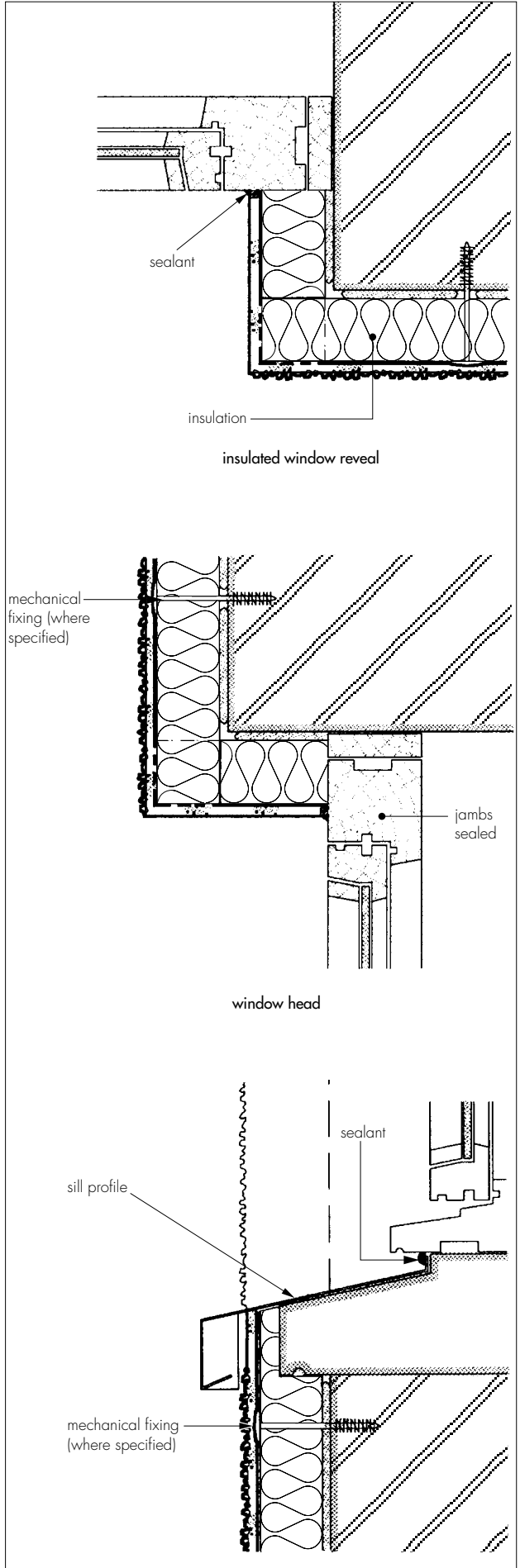


Figure 8 Window details



## ANNEX 2 ADDITIONAL THERMAL RESISTANCE PROVIDED BY THE ETICS

The additional thermal resistance provided by the ETICS to the substrate wall is calculated in accordance with EN ISO 6946 : 1996.

$$R = R_{ins} + R_{render} - \frac{1}{\chi_p n}$$

Where  $\frac{1}{\chi_p n}$  has only to be taken into account if it is greater than  $0.04 \text{ Wm}^{-2}\text{K}^{-1}$ .

$R_{ins}$  = Thermal resistance to the insulation products (see CE Marking with reference to EN 13163 : 2001).

Render = Thermal resistance of the render.

$n$  = Number of fixings per  $\text{m}^2$ .

$\chi_p$  = Local influence of thermal bridge caused by an anchor.

Typical  $0.02 \text{ WK}^{-1}$  for anchors with a stainless steel screw covered by plastic anchors and for anchors with an air gap at the head of the screw.

or

$0.04 \text{ WK}^{-1}$  for anchors with a galvanized steel screw with the head not covered by a plastic material.

The effect of anchors with plastic nails will be less than those mentioned above.



On behalf of the British Board of Agrément

Date of issue: 2nd October 2006

A handwritten signature in black ink, appearing to read 'G. A. Cooper'.

Chief Executive



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