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## ASSESSMENT CERTIFICATE

## CERTIFICATE NUMBER

148/08

## DATE OF ISSUE

December 2008

## PRODUCT

U FOIL VBF VENTED FOIL BUBBLE

## SUPPLIED BY

Euroform Products Limited

The Heliport

Lyncastle Road

Appleton

Warrington

WA4 4SN

Tel: +44 (0)1925 860999

Fax: +44 (0) 1925 860066

Email: [sales@euroform.co.uk](mailto:sales@euroform.co.uk)

## SUMMARY

U Foil VBF Vented Foil Bubble is a reflective insulation and vapour open cavity rain barrier and has been assessed to confirm its suitability for use as a thermal isolating layer for improving insulation to external cavity walls of timber frame construction in the United Kingdom. The product consists of an aluminium foil faced polyethylene bubble film laminate. U Foil VBF Vented Foil Bubble is installed against the inner leaf sheathing within the cavity with the foil face on the clear cavity side.

Characteristics of the product and its method of application have been assessed with respect to the Building Regulations current in the United Kingdom. The assessment has referred to British Standards current in August 2007.

The assessment is described in the following pages which form integral parts of this certificate which should be read in its entirety.

## CONDITIONS OF USE

0.1 U Foil VBF Vented Foil Bubble is certified for use in buildings with correctly detailed timber frame construction with masonry or discontinuous weather resisting cladding external cavity walls. A correctly installed vapour control layer shall be provided to the internal face of the timber frame. U Foil VBF Vented Foil Bubble is for use in building construction up to 18 metres above dpc level and where the overall wall thickness allows for a clear cavity, after installation of U Foil VBF Vented Foil Bubble, of a minimum width of 50 mm for masonry construction, or 25mm for discontinuous cladding. The product shall not be exposed to organic solvents or plasticisers.

0.2 As U Foil VBF Vented Foil Bubble cannot be characterised by BS 4016:1997 *Specification for Flexible Building membranes (breather type)* it has not been tested to that standard and is therefore not a breather membrane as defined by BS 5250:2002 *Code of Practice for control of condensation in buildings*. BRE Certification has assessed the ability of U Foil VBF Vented Foil Bubble to perform as described in this certificate by alternative methods. It has been shown when correctly used and installed to improve thermal performance and prevent condensation from occurring. Its performance is dependent on the joints at every roll width remaining effectively open.

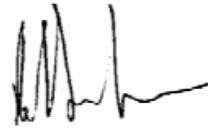
0.3 The performance of U Foil VBF Vented Foil Bubble depends on correct installation. It shall be installed strictly in accordance with the manufacturer's instructions, as inspected by BRE Certification, and the requirements of this certificate. Whilst those instructions have been examined to establish that they can be followed and installation on site has been observed, the quality of installation achieved on specific site is not covered by this certificate. Therefore it is recommended that the quality of installation and workmanship is subject to appropriate checks by a competent person.

#### STATEMENT

It is the opinion of BRE Certification that U Foil VBF Vented Foil Bubble is satisfactory for use within the stated limitations provided it is used in accordance with the manufacturer's specifications, their instructions and the requirements of this certificate.

#### CONFIRMATION

For and on behalf of BRE Certification

A handwritten signature in black ink, consisting of several vertical strokes followed by a horizontal line.

Date: 10 December 2008

## 1. TECHNICAL SPECIFICATION

### 1.1 Description of Product

1.1.1 U Foil VBF Vented Foil Bubble is a nominal 4 mm thick foil faced polyethylene bubble film laminate with a castellated bubble film configuration to allow water vapour diffusion. It is produced in rolls 1350 mm wide in 25m and 50m lengths.

1.1.2 Aluminium foil faced adhesive tape for repair and detailing of the product. This product is outside the scope of this certificate.

### 1.2 Product Performance

1.2.1 U Foil VBF Vented Foil Bubble is intended to provide a method to enhance the thermal insulation and act as a vapour open membrane (by means of open joints at every 1350mm roll width) within external cavity walls with a timber frame inner leaf. Walls incorporating the insulation can be constructed to give a U-value below 0.35 W/m<sup>2</sup>K. The thermal resistance of the product and associated clear cavity is given in Table 1.

1.2.2 When installed in accordance with this certificate the U Foil VBF Vented Foil Bubble will not promote surface or interstitial condensation. Condensation is considered to be unlikely to occur with the constructions specified in this certificate.

1.2.3 U Foil VBF Vented Foil Bubble presents no significant risk of water penetration provided that masonry cavity walls are designed and constructed to the requirements of BS 5628 Part 3 *Code of practice for the use of masonry: materials and components, design and workmanship* to prevent moisture penetration, that discontinuous cladding has appropriate laps and due attention is made of the building exposure rating. Where the clear cavity, after the introduction of U Foil VBF Vented Foil Bubble, exceeds 50 mm the product can be used in any exposure zone. Reference shall also be made to BRE report BR262 *Thermal insulation - avoiding risks*.

1.2.4 U Foil VBF Vented Foil Bubble does not absorb water by capillarity. Where U Foil VBF Vented Foil Bubble bridges dpc level, water is not transferred from the ground to the construction.

1.2.5 U Foil VBF Vented Foil Bubble will not contribute to the fire resistance performance of the walls and is considered to be unlikely to affect their fire performance. However since the insulation is not 'non-combustible' it shall be adequately separated from: heat producing appliances, incinerators, hearths, ductwork for high temperature gases, flues, chimneys and fire places or recesses (see Section 2 below) and cannot be used in external walls of buildings having a storey 18m or more above ground level. When tested to BS 476 Part 7 *Fire tests on building materials and structures: method of test to determine the surface spread of flame of products* U Foil VBF Vented Foil Bubble is designated Class 1.

1.2.6 U Foil VBF Vented Foil Bubble should remain effective for the design life of the construction for which it is specified, where the insulation remains protected within the external wall cavity, and provided it is installed and maintained in accordance with the manufacturer's instructions and the requirements of this certificate.

## 2. BUILDING REGULATIONS

2.1 U Foil VBF Vented Foil Bubble when used in appropriately detailed and erected constructions in accordance with this certificate can help to comply with specific requirements of the building regulations as listed below:

### 2.2 Justification for compliance with relevant Building Regulations

#### 2.2.1 Internal Fire Spread (Structure/Cavities)

Country	Req.	Compliance
E & W	B3(4)	U Foil VBF Vented Foil Bubble has a Class 1 surface spread of flame rating. Materials which are not 'non-combustible' are permitted by the regulations unless the building has a storey height 18m or more above ground level. Reference should be made to the guidance documents supporting these regulations to identify any further requirements for specific wall constructions.
Scotland	2.4	
N. I.	E4	

#### 2.2.2 Resistance to Moisture

Country	Req.	Compliance
E & W	C2	External walls, above over site DPC level and over site ground floors, can be designed and constructed in accordance with BS 5628:Part 3 incorporating U Foil VBF Vented Foil Bubble reflective insulation in accordance with the requirements of this certificate, to prevent the passage of moisture or water vapour and to prevent any harmful effect from moisture in the form of interstitial condensation.
Scotland	3.4; 3.10; 3.15	
N. I.	C4; C5	

#### 2.2.3 Protection from heat producing appliances

Country	Req.	Compliance
E & W	J3	U Foil VBF Vented Foil Bubble insulation is not 'non-combustible' and so shall be adequately separated or shielded from a chimney, fireplace recess, hearth, flue of a gas-fired, or solid fuel, or oil-fired heat-producing appliance or incinerator. The separations recommended, where appropriate, are given in the guidance documents supporting these regulations.
Scotland	3.17; 3.18; 3.19	
N. I.	F2	

#### 2.2.4 Conservation of Fuel and Power

Country	Req.	Compliance
E & W	L1	External cavity walls using U Foil VBF Vented Foil Bubble Insulation between a timber frame construction and a masonry or discontinuous weather resisting external cladding can be designed and constructed to have a U-value no greater than 0.35 W/m <sup>2</sup> K. The calculated U-value for specific wall constructions will need to be inserted into SAP 2005 or SBEM methodology in order to demonstrate compliance with these regulations.
Scotland	6.2	
N. I.	L2	

#### 2.2.5 Materials and Workmanship

Country	Req.	Compliance
E & W	Regulation 7	U Foil VBF Vented Foil Bubble for use as cavity wall insulation for an external wall is manufactured from materials considered to be adequately safe and acceptable for the intended application and to be adequately resistant to deterioration and wear under normal service conditions, provided that it is installed and maintained in accordance with the requirements of this certificate.
Scotland	Regulation 8 (1)	
N. I.	B2, B3	

### 3. INSTALLATION/PRACTICAL APPLICATION (Informative)

#### 3.1 Identification

3.1.1 U Foil VBF Vented Foil Bubble is delivered to site in rolls wrapped in polyethylene. Each roll is supplied with a label marked U Foil VBF Vented Foil Bubble, the date of manufacture, coverage in square metres, the identity code of the packer and an instruction leaflet.

#### 3.2 Storage and Handling

3.2.1 The rolls of insulation shall be stored on a firm level dry base stacked on end, away from excessive heat and be fully supported.

3.2.2 The product is easily handled on site and may be readily cut or trimmed with a sharp knife. Reasonable precautions should be taken to prevent damage to the U Foil VBF Vented Foil Bubble before, during or subsequent to installation. U Foil VBF Vented Foil Bubble shall not be directly exposed to any plastics material incorporating plasticizers, or to volatile organic solvents.

#### 3.3 Installation

3.3.1 The performance of U Foil VBF Vented Foil Bubble depends on correct installation. It shall be installed in accordance with the requirements of the manufacturer's instructions and this certificate. The manufacturer's handling and installation instructions have been inspected during the assessment. They provide satisfactory guidance for users of the product, however the quality of installation achieved on site is not covered by this certificate. Therefore it is recommended that the quality of installation and workmanship is subject to appropriate checks by a competent person.

3.3.2 U Foil VBF Vented Foil Bubble shall be applied to the inner leaf timber frame sheathing with the foil face of the bubble film facing outwards into the cavity, ensuring 75 mm horizontal overlaps are positioned to create a waterproofing lap. The U Foil VBF Vented Foil Bubble is to be fixed with staples and secured with wall ties.

3.3.3 The outer leaf shall be built ensuring that the designed minimum clear cavity is maintained. After raising each masonry section, loose mortar shall be cleaned from the insulation, not allowing mortar into the cavity.

3.3.4 At external and internal corners U Foil VBF Vented Foil Bubble should be laid with a minimum 150mm overlap. It should be wrapped around the corner and the overlap secured with staples.

3.3.5 Around openings the insulation shall be carefully cut in the required positions

3.3.6 At ground level U Foil VBF Vented Foil Bubble shall extend below the level of internal flooring insulation. The installation of U Foil VBF Vented Foil Bubble should be carried out to the highest level of each wall.

3.3.7 During construction U Foil VBF Vented Foil Bubble will provide a temporary rainscreen, but the external cladding should be completed as soon as possible. In exposed conditions the vertical laps shall be secured with battens.

3.3.8 No maintenance of the insulation is required for the design life of the building provided that it remains installed strictly in accordance with the requirements of this certificate and of the manufacturer.

3.3.9 The manufacturer shall continue to provide a technical consulting service.

## 4. TECHNICAL APPRAISAL

### 4.1 Performance Tests

4.1.1 Assessment and site inspections have been effected to assess the procedures and practicality of installation in the UK. Tests and investigations have been undertaken to determine the properties of U Foil VBF Vented Foil Bubble including:-

- dimensional tolerances
- thermal properties
- resistance to water penetration
- air permeability
- condensation risk
- hygrothermal performance.

Some of the results are given in Table 1.

Table 1 Typical Properties of U Foil VBF Vented Foil Bubble

Property	Result
Thermal resistance of foil, bubble film laminate and minimum 20mm clear cavity Rg ISO 8302 and BS EN ISO 6946 Annex B (unventilated air space as defined in BS EN ISO 6946) -	0.790m <sup>2</sup> K/W
Hemispherical thermal emittance of foil face -	0.05
Thermal resistance, bubble film laminate only ISO 8302 -	0.125 m <sup>2</sup> K/W
Nail tear resistance BS 4016 (wet & dry) -	min 70N
Installed air permeability at 50 Pa BS EN 12153 –	36 m <sup>3</sup> /m <sup>2</sup> /day

### 4.2 Quality Control

4.2.1 U Foil VBF Vented Foil Bubble is manufactured under a quality system independently certificated to BS EN ISO 9001. The manufacturer carries out quality control tests and inspections at regular intervals, including checks on appearance, dimensions and adequacy of bond to ensure that the finished product conforms to BSK Materials Ltd specification. Tests or inspections are carried out on the carrier materials and protective coating. In addition, BRE Certification undertakes monitoring of the product by auditing at regular intervals against a Quality Plan prepared and maintained specifically for this product.

4.2.2 Traceable quality records are maintained by the manufacturer. The materials used and the quality control procedures of the manufacturer are suitable for the product.

#### 4.3 British Standards and other Documentation

The following British Standards and other documentation has been referred to for this assessment:-

ISO 8302: 1991	Thermal insulation – Determination of steady state thermal resistance and related properties - Guarded hot plate apparatus.
BS 476:Part 7:1997	Fire tests on building materials and structures: method for classification of the surface spread of flame of products.
BS 4016:1997	Specification for flexible building membranes (breather type).
BS 5250:2002	Code of practice for control of condensation in buildings.
BS 5268 -6.1: 1996	Structural use of timber – 6.1 Code of practice for timber frame walls – Dwellings not exceeding 4 storeys
BS 5268 -6.2: 2001	Structural use of timber – 6.1 Code of practice for timber frame walls – Buildings other than dwellings not exceeding 4 storeys
BS 5628:Part 3:2005	Code of practice for the use of masonry: materials and components, design and workmanship.
BS 8000:Part 3:2001	Workmanship on building sites: code of practice for masonry.
BS 8000:Part 4:1989	Workmanship on building sites: code of practice for waterproofing.
BS EN ISO 6946:1997	Building components and building elements. Thermal resistance and thermal transmittance. Calculation method.
BS EN 12153:2000	Curtain walling. Air permeability. Test method.
NHBC	Technical Requirements.
Zurich Municipal	Technical Standards.
BR 262: 2002	Thermal Insulation: Avoiding risks, BRE

## 5. CONDITIONS OF CERTIFICATE ISSUE

### 5.1 Validity

This certificate will be valid until August 2010. It will remain valid in so far as:

- a) The materials and methods of manufacture are unchanged or BRE Certification has assessed any changes and found them to be satisfactory.
- b) The designs and specifications are unaltered from those examined by BRE Certification
- c) The certificate holder continues to have the product checked by BRE Certification

### 5.2 Health and Safety

This certificate and the recommendations herein do not purport in any way to restate the requirements of the Health and Safety at Work Act 1974 or any statutory or common law duty of care which exists now or in future; nor is compliance with these recommendations to be assumed as satisfying the requirements of the said Act or any existing or future statutory or common law duty of care.

### 5.3 Reference to other Documentation

Where reference is made in this certificate to any Act of Parliament, Regulation, Code of Practice, British or other Standard or other publications, it shall be construed as reference to such publication in the form in which it is in force at the date of the certificate.

### 5.4 Patents

BRE Certification makes no representational warranty that any patent or similar industrial property right is valid or that the manufacture, use, sale, lease or any other dealing or disposition of the products in whole or in part is not an infringement of any patent or industrial property right not owned by the certificate holder.

Confirmation that a certificate is current may be obtained from the BRE Certification web-site [www.RedBookLive.com](http://www.RedBookLive.com)

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