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Agrément Certificate

98/3474

Product Sheet 3

DACATIE INSULATED PVC-U CAVITY CLOSERS

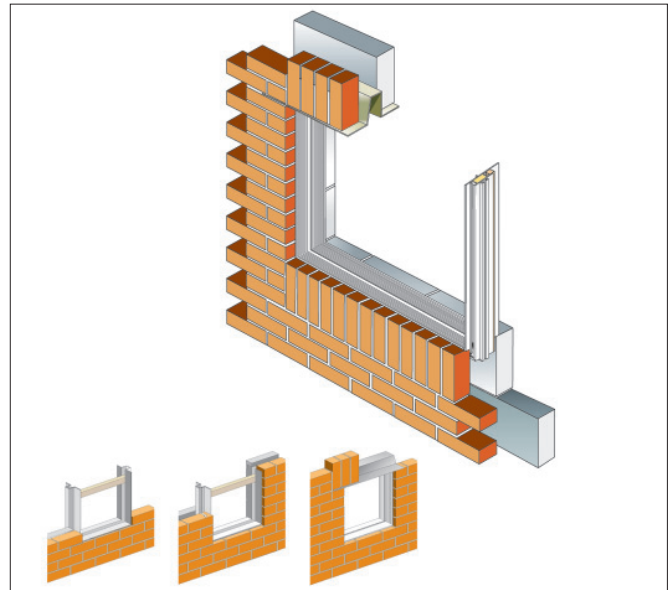
DACATIE FF4000 AND FF5000 INSULATED PVC-U CAVITY CLOSERS

PRODUCT SCOPE AND SUMMARY OF CERTIFICATE

This Certificate relates to the Dacatie FF4000 and FF5000 Insulated PVC-U Cavity Closers for use as cavity closers suitable for cavity width 75 mm to 110 mm (FF4000) and 110 mm to 160 mm (FF5000) and to form an opening in masonry walls.

AGRÉMENT CERTIFICATION INCLUDES:

- factors relating to compliance with Building Regulations where applicable
- factors relating to additional non-regulatory information where applicable
- independently verified technical specification
- assessment criteria and technical investigations
- design considerations
- installation guidance
- regular surveillance of production
- formal three-yearly review.



KEY FACTORS ASSESSED

Hygrothermal behaviour — the products meet the minimum thermal resistance path of $0.45 \text{ m}^2\text{KW}^{-1}$ as required by the Accredited Construction Details (version 1.0). Default ψ -values in IP1/06 may therefore be used for jamb and sill junctions in SAP or SBEM (see section 5).

Weather resistance — the products are effective as a damp-proof barrier and when used in a suitable wall construction will resist the passage of water into the interior of the building in flush and check reveal installations (see section 6).

Structural stability — in terms of wind loading resistance, the products can be used in all areas of the UK. The products must not be used to support loads from the masonry (see section 7).

Properties in relation to fire — the installed products will not contribute significantly to the growth of a fire. The products do not constitute a cavity barrier (see section 8).

Durability — the products, protected within the cavity, will last the normal expected life of a building (see section 10).

The BBA has awarded this Agrément Certificate to the company named above for the products described herein. These products have been assessed by the BBA as being fit for their intended use provided they are installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

Chris Hunt
Head of Approvals — Physics

Greg Cooper
Chief Executive

Date of First issue: 30 June 2009

The BBA is a UKAS accredited certification body — Number 113. The schedule of the current scope of accreditation for product certification is available in pdf format via the UKAS link on the BBA website at www.bbacerts.co.uk

Readers are advised to check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA direct.

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Regulations

In the opinion of the BBA, Dacatie FF4000 and FF5000 Insulated PVC-U Cavity Closers, if used in accordance with the provisions of this Certificate, will meet or contribute to meeting the relevant requirements of the following Building Regulations:



The Building Regulations 2000 (as amended) (England and Wales)

Requirement:	B3(4)	Internal fire spread (structure)
Comment:		The products can be used in constructions that meet this Requirement. See section 8.3 of this Certificate.
Requirement:	C2(b)	Resistance to moisture
Comment:		The products prevent the passage of moisture from the outer leaf to the inner leaf of a cavity wall at window or door openings. See sections 6.1 to 6.3 of this Certificate.
Requirement:	C2(c)	Resistance to moisture
Comment:		The products can contribute to minimising the risk of condensation. See sections 5.2 and 5.3 of this Certificate.
Requirement:	L1(a)(i)	Conservation of fuel and power
Comment:		The products can contribute to minimising heat loss at jambs and sills. See section 5.1 of this Certificate.
Requirement:	Regulation 7	Materials and workmanship
Comment:		The products are acceptable. See section 10 and the <i>Installation</i> part of this Certificate.



The Building (Scotland) Regulations 2004 (as amended)

Regulation:	8(1)(2)	Fitness and durability of materials and workmanship
Comment:		The products can contribute to a construction satisfying this Regulation. See sections 9 and 10 and the <i>Installation</i> part of this Certificate.
Regulation:	9	Building standards – construction
Standard:	3.10	Precipitation
Comment:		Walls incorporating the products can satisfy this Standard, with reference to clauses 3.10.1 ⁽¹⁾⁽²⁾ and 3.10.3 ⁽¹⁾⁽²⁾ . See sections 6.1 to 6.3 of this Certificate.
Standard:	3.15	Condensation
Comment:		The products can contribute to minimising the risk of condensation, with reference to clauses 3.15.1 ⁽¹⁾ , 3.15.4 ⁽¹⁾ and 3.15.5 ⁽¹⁾ . See sections 5.2 and 5.3 of this Certificate.
Standard:	6.1(b)	Carbon dioxide emissions
Standard:	6.2	Building insulation envelope
Comment:		The products can contribute to minimising heat loss at jambs and sill, with reference to clauses 6.2.3 ⁽¹⁾ , 6.2.4 ⁽¹⁾⁽²⁾ and 6.2.5 ⁽²⁾ . See section 5.1 of this Certificate.
Regulation:	12	Building standards – conversions
Comment:		All comments given for this system under Regulation 9, also apply to this Regulation, with reference to clause 0.12.1 ⁽¹⁾⁽²⁾ and Schedule 6 ⁽¹⁾⁽²⁾ . (1) Technical Handbook (Domestic). (2) Technical Handbook (Non-Domestic).



The Building Regulations (Northern Ireland) 2000 (as amended)

Regulation:	B2	Fitness of materials and workmanship
Comment:		The products are acceptable. See section 10 and the <i>Installation</i> part of this Certificate.
Regulation:	B3(2)	Suitability of certain materials
Comment:		The products are acceptable. See section 9 of this Certificate.
Regulation:	C4(b)	Resistance to ground moisture and weather
Comment:		Walls incorporating the products can contribute to meeting this Regulation. The cavity closers can be used where checked reveals are required. See sections 6.1 to 6.3 of this Certificate.
Regulation:	C5	Condensation
Comment:		The products can contribute to minimising the risk of condensation. See section 5.3 of this Certificate.
Regulation:	F2(a)(i)	Conservation measures
Regulation:	F3(2)	Target carbon dioxide Emissions Rate
Comment:		The products can contribute to minimising heat loss at jambs and sill. See section 5.1 of this Certificate.

Construction (Design and Management) Regulations 2007

Construction (Design and Management) Regulations (Northern Ireland) 2007

In the opinion of the BBA, there is no information in this Certificate which relates to the obligations of the client, CDM co-ordinator, designer and contractors under these Regulations.

Non-regulatory Information

NHBC Standards 2008

NHBC accepts the use of Dacatie FF4000 and FF5000 Insulated PVC-U Cavity Closers, when installed and used in accordance with this Certificate, in relation to *NHBC Standards*, Chapter 6.1 *External masonry walls*.

Zurich Building Guarantee Technical Manual 2007

In the opinion of the BBA, Dacatie FF4000 and FF5000 Insulated PVC-U Cavity Closers, when installed and used in accordance with this Certificate, satisfies the requirements of the *Zurich Building Guarantee Technical Manual*, Section 4 *Superstructure*, Sub-section *External walls – thermal insulation*.

General

This Certificate relates to the Dacatie FF4000 and FF5000 Insulated Cavity Closers for use in masonry walls with cavity widths in the range 75 mm to 110 mm (FF4000) and 110 mm to 160 mm (FF5000).

The products close the cavity at openings without forming a thermal bridge, provide a damp-proof barrier between inner and outer wall leaves at the point of closure, and can be used to establish the cavity width and to form an opening. They can be used in check reveal installations.

The products are suitable for use with timber, PVC-U, aluminium or steel window and door frames. The closers are non-loadbearing and window and door frames must be fixed independently to the masonry. Proprietary frame fixings, which may be recommended by the manufacturer for this purpose are outside the scope of this Certificate.

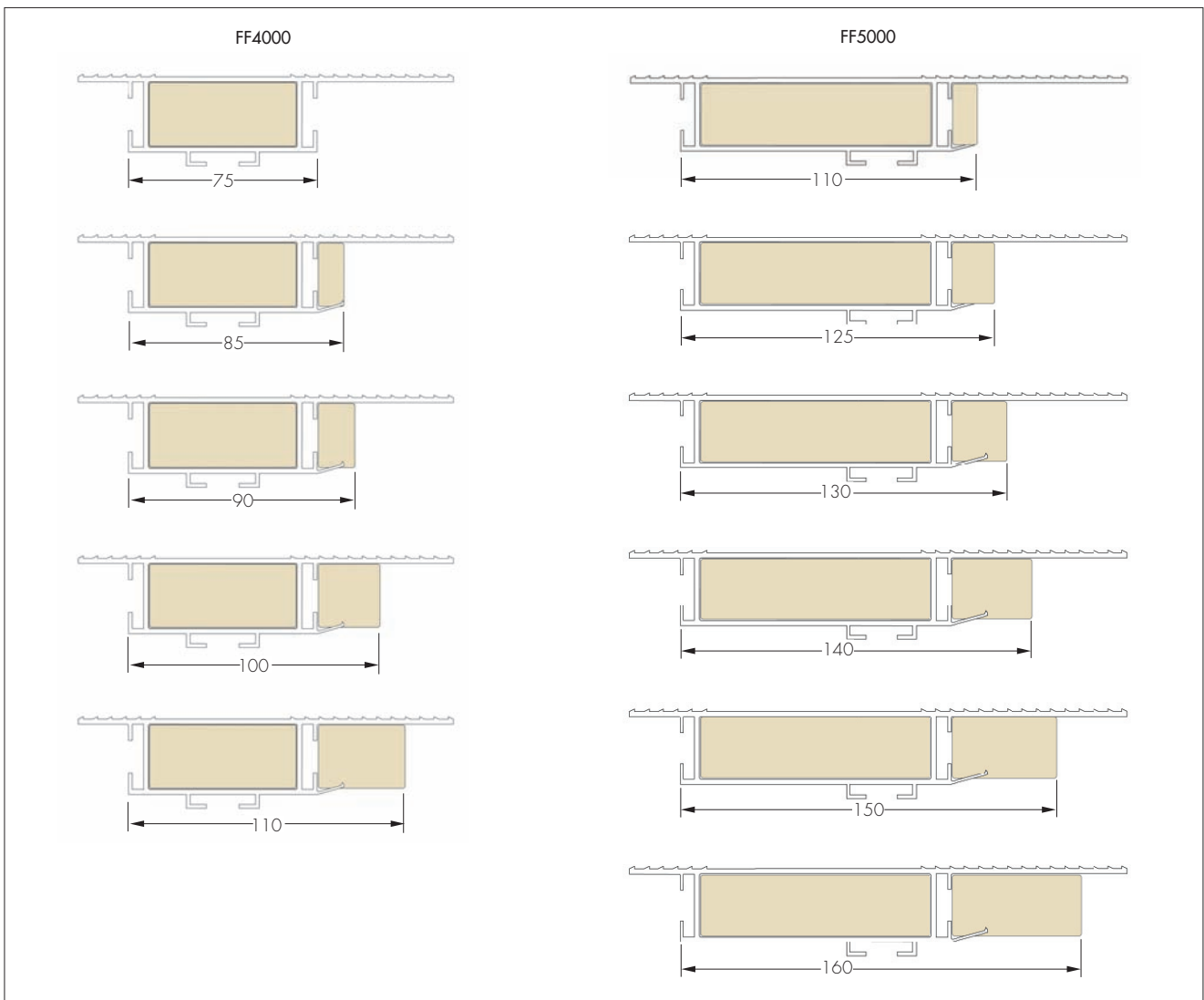
It is important that the designers, planners, contractors and/or installers ensure that the products are installed and used in accordance with the Certificate holder's instructions and the information given in this Certificate.

Technical Specification

1 Description

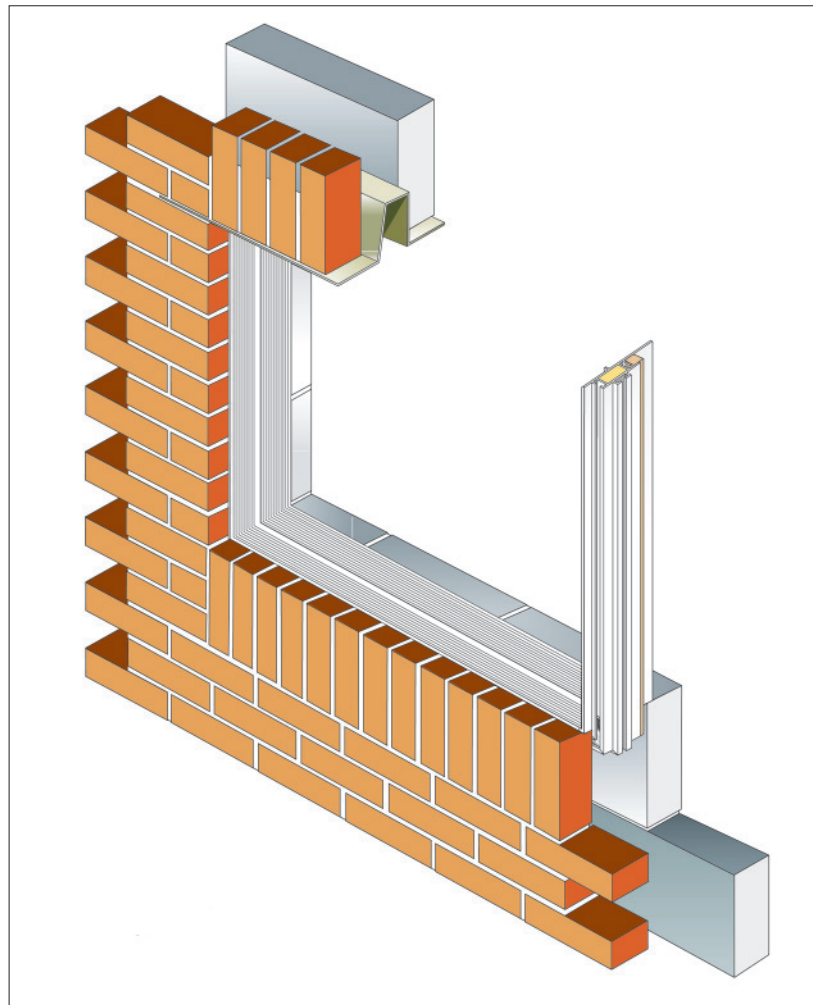
1.1 Dacatie FF4000 and FF5000 Insulated PVC-U Cavity Closers (see Figure 1) are available in lengths between 1.0 m and 6.0 m. Cavity widths covered by Dacatie FF4000 are 75 mm, 85 mm, 90 mm, 100 mm and 110 mm. Cavity widths covered by Dacatie FF5000 are 110 mm, 125 mm, 130 mm, 140 mm and 160 mm. Intermediate sizes are available on request. With the short leg removed the closers (CFF4000 and CFF5000) can be used in checked reveal installations.

Figure 1 FF4000 and FF5000 closers (all dimensions in mm)



1.2 The FF4000 and FF5000 can be supplied factory assembled as a three sided 'U' shaped PVCU frame with a temporary head brace (removed after installation) (see Figure 2). The profiles are connected at the corners with steel corner brackets or alternatively mitre welded. The frame former acts as a brick template for window and door openings.

Figure 2 Frame Former



1.3 The products comprise a PVC-U outer profile, the centre box enclosing a closed cell, CFC-free, polystyrene core (EPS) conforming to BS 3837-1 : 2004 and secondary insulation on box side being XPS conforming to BS EN 13164 : 2001.

1.4 The PVC-U profiles include the following features:

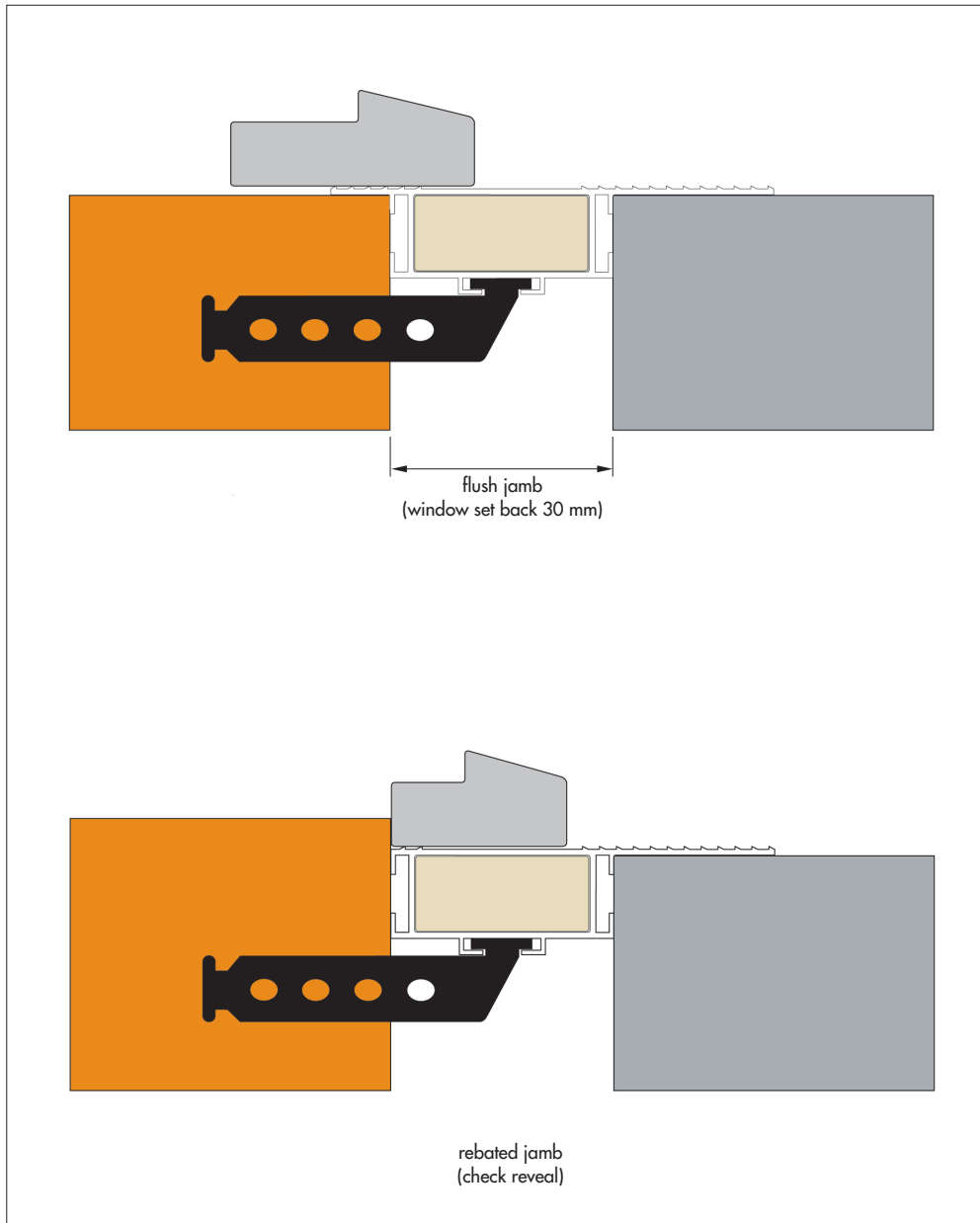
- flanges that fit over both leaves of masonry
- flanges with nibs to resist water tracking from outer to inner leaf, and to aid plaster adhesion
- channels for locating fixing ties
- an optional plaster stop against which the frame and internal plaster are positioned to give a 30 mm frame overlap.

1.5 The PVC-U cavity closer profiles are produced by conventional extrusion techniques. Expanded polystyrene boards are cut to size and fitted into them manually, where necessary with the aid of an acrylic sealant.

1.6 An injection-moulded polypropylene tie (DTU) is available for fixing the closers to the surrounding masonry (see Figure 3).

1.7 Checks are carried out to monitor the quality of extrusions.

Figure 3 Typical jamb details



2 Delivery and site handling

2.1 Cavity closer profiles are delivered in bundles of one type. Each bundle carries an instruction leaflet bearing the marketing company's name and the BBA identification mark incorporating the number of this Certificate.

2.2 Ties, required for use with the closers are delivered in bags of 100.

2.3 Packs of cavity closer profiles should be stored flat, under cover in a clean area away from direct sunlight and excessive heat and supported along their length to prevent distortion or damage. Profiles should be protected from vehicular and pedestrian traffic.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Dacatie FF4000 and FF5000 Insulated PVC-U Cavity Closers.

Design Considerations

3 General

3.1 The FF4000 and FF5000 closers are for use in a flush jamb opening with a flange located over both inner and outer leaves.

3.2 The CFF4000 and CFF5000 are for use in a check reveal detail in which the frame is positioned in a jamb rebate behind the outer leaf (see Figure 3).

3.3 The products provide a damp-proof barrier, act as cavity closers without forming a thermal bridge, and avoid the need for cutting bricks and blocks. The window/door is fitted after completion of the masonry. They can also be used to form a checked reveal where required and to fit the window after completion of the masonry, as is conventional practice in Scotland and Northern Ireland.

3.4 By virtue of the nibs down the length of the PVC-U flange the products can provide an adequate key for traditional plaster finishes (see also section 12.8).

3.5 Masonry walls into which the closers are incorporated must be constructed in accordance with one or more of the following technical specifications:

- BS 5628-1 : 2005 and BS 5628-3 : 2005
- the National Building Regulations:

England and Wales — Approved Document A1/2, Section 1C

Scotland — Mandatory Standard 1.1⁽¹⁾⁽²⁾, *Small Buildings Guide*

(1) Technical Handbook (Domestic).


(2) Technical Handbook (Non-Domestic).

Northern Ireland — Technical Booklet D.


4 Practicability of installation


The products are designed to be installed by tradesmen experienced with these types of products.

5 Hygrothermal behaviour

 5.1 The products have a path of minimum thermal resistance through the closer of at least $0.45 \text{ m}^2\text{KW}^{-1}$ (assuming the insulation within the main chamber has a conductivity of at least $0.060 \text{ Wm}^{-1}\text{K}^{-1}$) when used in jambs and sills with the window/door frame set back 30 mm or more into the wall cavity (see Figure 3). The product can therefore be used in accordance with the *Accredited Construction Details*⁽¹⁾ (version 1.0) to limit heat loss and assign the default heat loss rates (ψ -values) in BRE Information Paper IP 1/06 *Assessing the effects of thermal bridging at junctions and around openings*, Table 3 in SAP and SBEM calculations.


(1) Product assessed to method outlined in IP 8/08 *Determining the Minimum Thermal Resistance of Cavity Closers*.

 5.2 Jambs and sills incorporating the product in accordance with section 5.1 will adequately limit the risk of local surface condensation.

 5.3 Under normal domestic conditions the level of interstitial condensation associated with the product will be low and the risk of any resultant damage minimal.

5.4 Door frames installed with proprietary fixings which cannot be set back into the wall cavity by 30 mm may require additional thermal insulation, for example insulated dry lining, to minimise excessive heat loss and the risk of excessive surface condensation.

6 Weather resistance

 6.1 The products are effective as a vertical damp-proof barrier at jambs of window and door openings in masonry constructions, where a brick/block closer and damp-proof course (dpc) detail would normally be used. The closers are also effective as a horizontal damp-proof barrier at the sill/threshold.

6.2 In installations with a flush (in-line) wall opening with a minimum window set back of 30 mm, the FF4000 and FF5000 closers are suitable for use in the 'sheltered', 'moderate' and 'severe' exposure categories, as defined in BS 5628-3 : 2005, Table 11 and depicted as exposure zones 1, 2 and 3 in the map shown in of BRE report (BR 262 : 2002) *Thermal insulation : avoiding risks*, Section 3.1. In this application the closers may also be considered suitable for use in other areas where a conventional return brick/block closer detail with dpc has been found to provide adequate resistance to the penetration of wind-driven rain.

6.3 The CFF4000 and CFF5000 closers are used to construct a check reveal (see Figure 3). In this construction, in which the frame is positioned in a rebate behind the outer leaf of the jamb, the products are suitable for use in exposure categories up to and including 'very severe' as defined in BS 5628-3 : 2005, Table 11 which covers all exposure zones in the United Kingdom. However, a dpc may be fitted between the closer and outer leaf if required.

7 Structural stability

7.1 The products are non-loadbearing and must not be used to support loads from the masonry. Lintels are required above window or door openings.

7.2 The products will not have an adverse effect on the structural stability of brickwork or blockwork walls, constructed in the conventional manner in accordance with normal good practice as defined in BS 5628-1 : 2005 and BS 5628-3 : 2005. Use of the products does not obviate the need for conventional wall ties around the openings.

7.3 FF4000 and FF5000 closers, pre-fixed to window frames (see sections 12.9 to 12.11), will satisfactorily transfer to the structure wind loads likely to be encountered in the UK and impact loads imposed upon frames (eg door slamming). For the FF4000 and FF5000 closers built into the wall prior to the window or door (see sections 12.1 to 12.8), frames must be fixed independently to the masonry. Procedures and fixings for securing frames to the masonry are outside the scope of this Certificate.

8 Properties in relation to fire

8.1 The installed products will not contribute significantly to the growth of a fire.

8.2 The products do not constitute a cavity barrier against the penetration of smoke and flame in the context of the Building Regulations.



8.3 The use of the products is not prevented in England and Wales, where generally cavity barriers are not required around openings in masonry wall construction.

8.4 In Scotland and Northern Ireland, the products are only suitable for use in conjunction with a cavity barrier meeting the performance requirements defined in:

Scotland — Mandatory Standard 2.4, clause 2.4.1⁽¹⁾⁽²⁾ and Annex 2.B⁽¹⁾ or 2.D⁽²⁾

(1) Technical Handbook (Domestic).

(2) Technical Handbook (Non-Domestic).

Northern Ireland — Technical Booklet E, Paragraph 3.37.

8.5 The use of the products does not preclude the need to provide suitable fire protection to steel lintels where this is necessary to satisfy the Building Regulations.

9 Maintenance



To ensure the maximum weathertightness, the silicone seal between window or door frames and masonry must be checked regularly and repairs or renewal carried out promptly.

10 Durability



The products are durable when installed in accordance with this Certificate and will not suffer significant degradation when protected within the cavity. The products will last the normal expected life of a building.

Installation

11 General

11.1 Installation of the Dacatie FF4000 and FF5000 Insulated PVC-U Cavity Closers must be carried out in accordance with the manufacturer's instructions.

11.2 A cavity barrier may be required (see section 8.2).

11.3 The appropriate closer is selected for the job (see sections 3.1, 3.2, 6.2 and 6.3).

11.4 When installing the products, the exposed insulation should always be positioned against the inner leaf (see Figure 3).

11.5 In cutting the products to length, care should be taken to achieve clean, flat, square ends.

11.6 Window/door frames must be setback at least 30 mm behind the outer leaf and the junctions between the wall and the front and back of the window/door frame and sill effectively sealed (see section 5.1).

12 Procedure

Closer built in during construction of wall and prior to installation of window or door

12.1 The wall is built to one course above sill/threshold level.

12.2 A section of closer is cut to length and pushed into the sill cavity.

12.3 The jamb closers are cut to length, to oversail the sill closer by 50 mm. The PVC-U flanges are cut away at the base of the closer, which is subsequently pushed into the cavity, propped in a vertical position and butted against the sill closer with the cut flanges seated on the masonry at sill level.

12.4 As the wall is built up around the jamb closers, ties are located in the closer channels, and one of these fixings embedded in every third mortar course of brickwork and every course of blockwork (see Figure 3).

12.5 The procedures for flush and rebated jambs are essentially the same, as described in sections 12.1 to 12.4. However, for the rebated jambs application the following should be noted:

- there is no flange at the base of the outer PVC-U jamb section to be removed
- the sill section should be cut to sill length plus twice the rebated length
- where a timber window frame is used, a dpc strip should be positioned between the frame and outer leaf.

12.6 Appropriate insulated lintels and ancillary damp-proof protection are butted onto (but not supported by) the jamb closers at the head, and window/door frames are fixed to the outer leaf with proprietary fixings.

12.7 An effective sealant is applied over a back-up strip between the frame and outer leaf.

12.8 Either wet plaster or a dry lining on plaster dabs is applied to the internal reveal. In locations where the plaster may be subject to repeated impact (eg at door reveals from door slamming) it is recommended that wet plaster be replaced by dry lining.

Closer built in with window or door

12.9 The closers may be incorporated into the wall after pre-fixing to the window or door frame.

12.10 The closer lengths are cut as described in sections 12.2, 12.3 and 12.5 and the closer secured to the frame through the PVC-U flange (or body of the closer), using galvanized or non-ferrous clout nails (timber frame), or self-tapping screws (PVC-U or metal frame).

12.11 The frame with closers attached is sat on the sill with the sill closer in the cavity. The masonry is built up around the frame/jamb closer assembly and the installation completed as described in sections 12.4 to 12.8. Frames installed pre-fixed to FF4000 and FF5000 closers do not require additional fixing to the masonry (see section 7.3).

Closer built in with timber template

12.12 A section of closer is cut to length and pushed into the sill cavity.

12.13 The jamb closers are cut as described in section 12.3 and tacked to the top of the sides of a timber template, cut to the size of the opening.

12.14 The template is sat on the sill with the jamb closers extending into the cavity and the wall built up around the jamb closers as detailed in section 12.4.

12.15 As the wall approaches head height the tacks, and their timber template, are removed.

12.16 The wall is completed around the opening as given in sections 12.6 to 12.8.

Refurbishment

12.17 The closers are suitable for use in refurbishment work. For this application the opening must first be 'cleaned' ready to take the new closer.

12.18 The closer lengths are cut as described in sections 12.2, 12.3 and 12.5, inserted into the cavity (jamb sections before sill) and secured (jamb section only) to the masonry through the flange using galvanized or non-ferrous clout nails.

12.19 The frame is then fixed to masonry and the installation completed as described in sections 12.6 to 12.8.

Closer built in as a frame former

12.20 The Dacatie frame former is suitable for use with all window and door frames, including timber, PVCU and aluminium.

12.21 The wall is built up to sill height and the Dacatie Frame Former is located in the cavity. The frame former is checked for squareness and that it is propped up vertically.

12.22 The courses of brickwork are built up inserting brick ties every 225 mm (every three bricks or every course of block work).

12.23 Brickwork is built up to lintel height and bracing removed (if applicable).

12.24 The lintel is built in and the upper brickwork.

Window and door installation

12.25 The window or door is checked to ensure that it is within tolerances; windows should be 10 mm less than inside width of former and 8mm less than the inside height of the former.

12.26 The window/door is fixed with standard proprietary window fixings (e.g. lugs, reveal straps or bolt fixings). Alternatively if the window is being fitted with a push/clip fit snapper system (outside the scope of this certificate), the snappers are located 150 mm from each corner and then at no more than 600 mm centres.

12.27 For frames over 2.1 m in height and width, mechanical fixings should also be used.

12.28 The use of a snapper system is entirely at the discretion of the installer.

12.29 For a complete and secure fixing, bolts or screws should be used.

13 Tests

Tests were carried out on the Dacatie FF4000 and FF5000 Insulated PVC-U Cavity Closers in accordance with MOAT No 8 : 1973 and MOAT No 17 : 1990 on PVC-U extrusions to determine:

- shrinkage on heating
- gelation by immersion in acetone.

14 Investigations

An assessment was made of:

- heat loss and condensation risk in accordance with the Accredited Construction Details (version 1.0) and the Accredited Construction Details (Scotland)
- the practicability of the installation
- weather resistance of the product when installed in accordance with the manufacturer's instructions
- fire resistance and structural stability of walls incorporating the products
- durability of the components used in the construction of the products
- the manufacture and quality control of the extruded profiles.

Bibliography

BS 3837-1 : 2004 *Expanded polystyrene boards — Boards and blocks manufactured from expandable beads — Requirements and test methods*

BS 5628-1 : 2005 *Code of practice for the use of masonry — Structural use of unreinforced masonry*

BS 5628-3 : 2005 *Code of practice for the use of masonry — Materials and components, design and workmanship*

BS EN 13164 : 2001 *Thermal insulation products for buildings — Factory made products of extruded polystyrene foam (XPS) — Specification*

MOAT No 8 : 1973 *Directive for Rigid PVC Products Used Externally in Building*

MOAT No 17 : 1990 *UEAtc Technical Guide for the Agrément of windows in PVC-U*

15 Conditions

15.1 This Certificate:

- relates only to the product/system that is named and described on the front page
- is granted only to the company, firm or person named on the front page — no other company, firm or person may hold or claim any entitlement to this Certificate
- is valid only within the UK
- has to be read, considered and used as a whole document — it may be misleading and will be incomplete to be selective
- is copyright of the BBA
- is subject to English law.

15.2 Publications and documents referred to in this Certificate are those that the BBA deems to be relevant at the date of issue or re-issue of this Certificate and include any: Act of Parliament; Statutory Instrument; Directive; Regulation; British, European or International Standard; Code of Practice; manufacturers' instructions; or any other publication or document similar or related to the aforementioned.

15.3 This Certificate will remain valid for an unlimited period provided that the product/system and the manufacture and/or fabrication including all related and relevant processes thereof:

- are maintained at or above the levels which have been assessed and found to be satisfactory by the BBA
- continue to be checked as and when deemed appropriate by the BBA under arrangements that it will determine
- are reviewed by the BBA as and when it considers appropriate.

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

- the presence or absence of any patent, intellectual property or similar rights subsisting in the product/system or any other product/system
- the right of the Certificate holder to manufacture, supply, install, maintain or market the product/system
- individual installations of the product/system, including the nature, design, methods and workmanship of or related to the installation
- the actual works in which the product/system is installed, used and maintained, including the nature, design, methods and workmanship of such works.

15.5 Any information relating to the manufacture, supply, installation, use and maintenance of this product/system which is contained or referred to in this Certificate is the minimum required to be met when the product/system is manufactured, supplied, installed, used and maintained. It does 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; nor is conformity with such information to be taken as satisfying the requirements of the 1974 Act or of any 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 manufacture, supply, installation, use and maintenance of this product/system.

