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BBA APPROVAL INSPECTION TESTING CERTIFICATION
TECHNICAL APPROVALS FOR CONSTRUCTION

Agrément Certificate
96/3226
Product Sheet 1

MANTHORPE CAVITY CLOSERS

MANTHORPE THERMAL CAVITY CLOSER

This Agrément Certificate Product Sheet(1) relates to the Manthorpe Thermal Cavity Closer, for use as a cavity closer and to form an opening in masonry cavity walls.

(1) Hereinafter referred to as 'Certificate'.

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 cavity closers meet and exceed the minimum thermal resistance path of 0.45 $W \cdot m^{-2} \cdot K^{-1}$ as required by the Accredited Construction Details (version 1.0) (see section 6).

Weather resistance — the product is 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 7).

Structural stability — in terms of wind loading resistance, the product can be used in all areas of the UK. The product must not be used to support loads from the masonry (see section 8).

Properties in relation to fire — the installed product will not contribute significantly to the growth of a fire. The product does not constitute a cavity barrier (see section 9).

Durability — the product, protected within the cavity, will last the normal expected life of a building (see section 11).

The BBA has awarded this Certificate to the company named above for the product described herein. This product has been assessed by the BBA as being fit for its intended use provided it is installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

Date of Third issue: 24 January 2013

Originally certificated on 27 March 1996

Sean Moriarty — Head of Approvals
Energy and Ventilation

Greg Cooper
Chief Executive

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, the Manthorpe Thermal Cavity Closer, if installed, used and maintained in accordance with the provisions of this Certificate, will meet or contribute to meeting the relevant requirements of the following Building Regulations (the presence of a UK map indicates that the subject is related to the Building Regulations in the region or regions of the UK depicted):

The Building Regulations 2010 (England and Wales) (as amended)

Requirement:	B3(4)	Internal fire spread (structure)
Comment:		The product can be used in constructions that meet this Requirement. See section 9.3 of this Certificate.
Requirement:	C2(b)	Resistance to moisture
Comment:		The product has adequate resistance to the ingress of rain and wind driven spray and so can contribute towards the wall satisfying this Requirement. See sections 7.1 to 7.3 of this Certificate.
Requirement:	C2(c)	Resistance to moisture
Comment:		The product will not constitute a significant condensation risk and so can contribute towards the wall satisfying this Requirement. See sections 6.2 and 6.3 of this Certificate.
Requirement:	L1(a)(i)	Conservation of fuel and power
Requirement:	Regulation 26	CO_2 emission rates for new buildings
Comment:		The product can contribute to minimising heat loss at jambs and sill. See sections 6.1 and 6.2 of this Certificate.
Requirement:	Regulation 7	Materials and workmanship
Comment:		The product is acceptable. See section 11 and the *Installation* part of this Certificate.

The Building (Scotland) Regulations 2004 (as amended)

Regulation:	8(1)	Fitness and durability of materials and workmanship
Comment:		The product can contribute to a construction satisfying this Regulation. See section 11 and the *Installation* part of this Certificate.
Regulation:	9	Building standards applicable to construction
Standard:	3.10	Precipitation
Comment:		The product has adequate resistance to the ingress of rain and wind driven spray and so can contribute towards the wall satisfying this Standard, with reference to clauses 3.10.1[(1)(2)] and 3.10.3[(1)(2)]. See sections 7.1 to 7.3 of this Certificate.
Standard:	3.15	Condensation
Comment:		The product will not constitute a significant condensation risk and so can contribute towards the wall satisfying this Standard, with reference to clauses 3.15.1[(1)(2)], 3.15.4[(1)(2)] and 3.15.5[(1)(2)]. See sections 6.2 and 6.3 of this Certificate.
Standard:	6.1(b)	Carbon dioxide emissions
Standard:	6.2	Building insulation envelope
Comment:		The product can contribute to minimising heat loss at jambs and sills, with reference to clauses 6.2.3[(1)], 6.2.4[(1)(2)] and 6.2.5[(2)]. See section 6.1 of this Certificate.
Standard:	7.1(a)(b)	Statement of sustainability
Comment:		The product can contribute to meeting the relevant requirements of Regulation 9, Standards 1 to 6 and therefore will contribute to a construction meeting a bronze level of sustainability as defined in this Standard. In addition the product can contribute to a construction meeting a higher level of sustainability as defined in this Standard, with reference to clauses 7.1.4[(1)(2)] [Aspects 1[(1)(2)] and 2[(1)]], 7.1.6[(1)(2)] [Aspects 1[(1)(2)] and 2[(1)]] and 7.1.7[(1)(2)] [Aspect 1[(1)(2)]]. See section 6 of this Certificate.
Regulation:	12	Building standards applicable to conversions
Comment:		All comments given for this product 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) 2012

Regulation:	23(a)(i)(iii)(b)	Fitness of materials and workmanship
Comment:		The product is acceptable. See section 11 and the *Installation* part of this Certificate.
Regulation:	28	Resistance to moisture and weather
Comment:		The product has adequate resistance to the ingress of rain and wind driven spray and so can contribute towards the wall satisfying this Regulation. See sections 7.1 to 7.3 of this Certificate.
Regulation:	29	Condensation
Comment:		The product will not constitute a significant condensation risk and so can contribute towards the wall satisfying this Regulation. See section 6.3 of this Certificate.

Regulation:	39(a)(b)	Conservation measures
Regulation:	40(2)	Target carbon dioxide emission rate
Comment:		The product can contribute to minimising heat loss at jambs and sills. See section 6.1 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.

Additional Information

NHBC Standards 2013

NHBC accepts the use of the Manthorpe Thermal Cavity Closer, when installed and used in accordance with this Certificate, in relation to *NHBC Standards*, Chapter 6.1 *External masonry walls*.

Technical Specification

1 Description

1.1 The Manthorpe Thermal Cavity Closer (see Table 1 and Figure 1) is an insulated, unplasticised polyvinyl chloride (PVC-U) cavity closer, used to form an opening in masonry cavity walls during construction. It comprises a core of grooved polystyrene insulation(1) XPS declared thermal conductivity $\lambda_{90/90}$ 0.036 $W \cdot m^{-1} \cdot K^{-1}$ or EPS 70 declared thermal conductivity $\lambda_{90/90}$ 0.038 $W \cdot m^{-1} \cdot K^{-1}$, 27 mm thick for rigid, 24 mm thick for flexible) with extruded PVC-U sections push-fitted either one or both sides. The PVC-U sections incorporate fixing channels and those with ribbed flanges include fixing holes in the flanges.

(1) Including fire-retardant additive.

Table 1 Closer Profiles

	Width (mm)							
	50	65	75	85	90	100	150	350
Rigid								
G240 double extrusion — double flange	✓	✓	✓		✓	✓	✓	✓
G241 single extrusion — single flange	✓	✓	✓		✓	✓		
G241M single extrusion — single flange, multi-width	✓	✓	✓	✓	✓	✓		
G242 double extrusion — single flange	✓	✓	✓		✓	✓	✓	✓
G247 single extrusion — double flange	✓	✓	✓		✓	✓		
G247M single extrusion — double flange, multi-width	✓	✓	✓	✓	✓	✓		
Flexible								
G243 double extrusion — double flange	✓	✓	✓		✓	✓	✓	✓
G244 double extrusion — single flange	✓	✓	✓		✓	✓	✓	✓

1.2 Profiles G240, G242, G243 and G244 are available in 2.5 m lengths and various widths (see Table 1), dependent on the width of the polystyrene insulation block. Intermediate sizes between 50 mm and 350 mm are available to order. Profiles G241 and G247 are available in 2.44 m lengths and various widths, dependent on the width of the polystyrene insulation block. Profiles G241M and G247M multi-width are available in 2.44 m lengths and have a polystyrene insulation block 100 mm wide that is pre-notched at 50 mm, 65 mm, 75 mm and 85 mm intervals for cutting to size on site.

1.3 The flexible types (G243 and G244) are used for forming closers in circular and arched openings (diameter greater than 500 mm) and are manufactured from the rigid types (G240 and G242 respectively) by cutting 3 mm wide grooves across the PVC-U sections at 25 mm centres. Rubber bands at 500 mm centres are used to hold the profile together prior to installation.

1.4 Polypropylene ties, manufactured by standard injection-moulded techniques (straight — G245, right-angled — G246) are used for fixing and for jointing profiles (see Figure 2).

Figure 1 Closer profiles

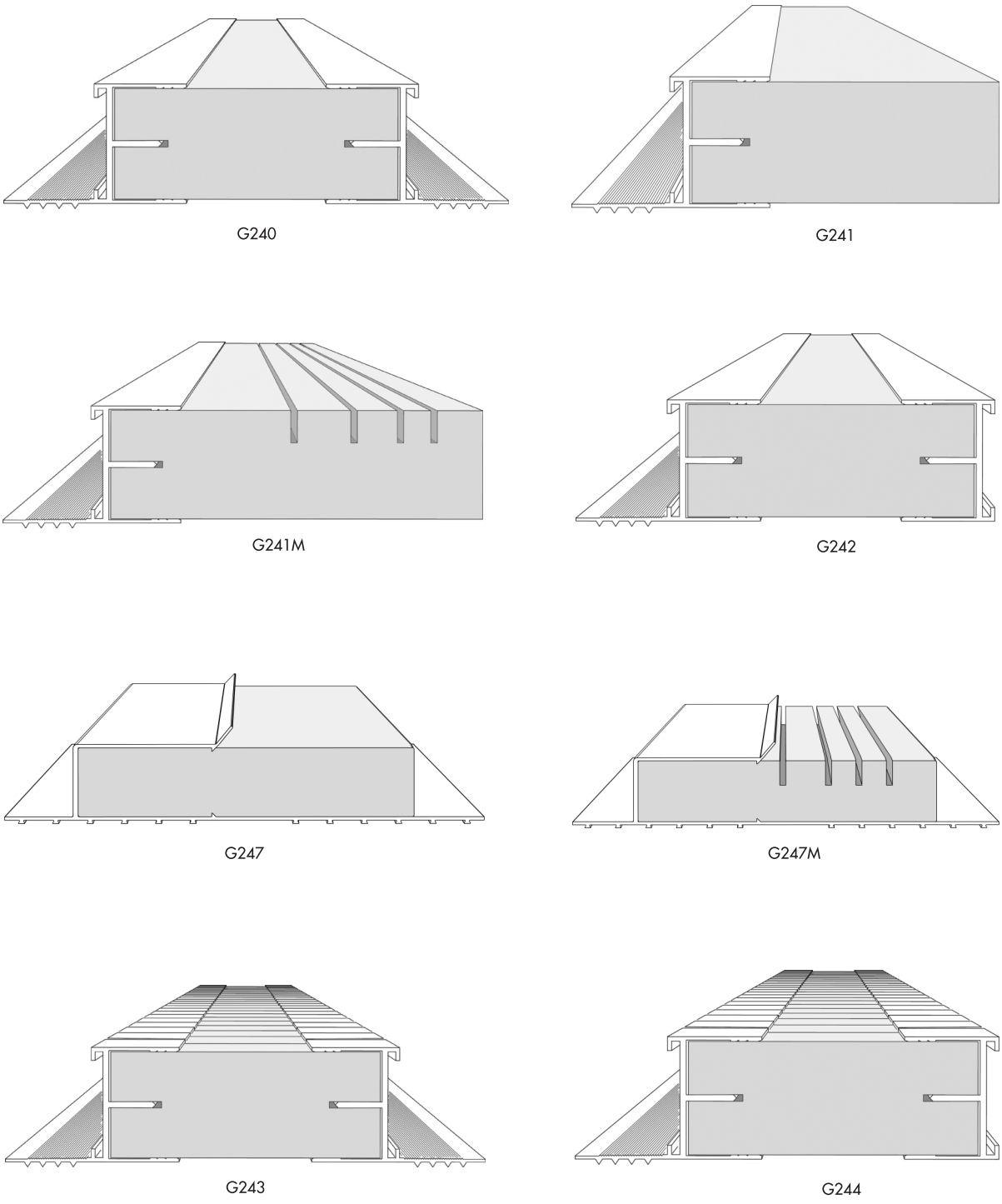
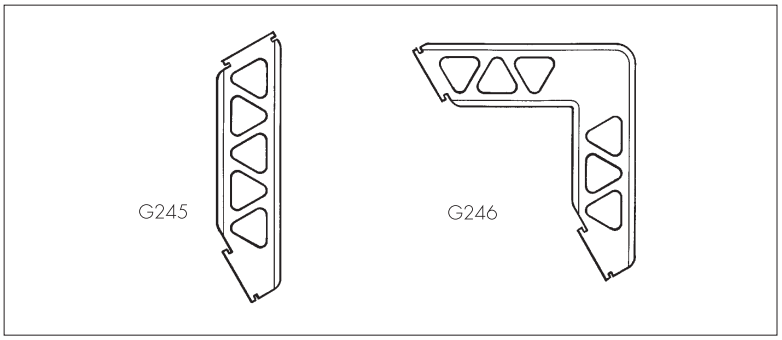


Figure 2 Ties



2 Manufacture

2.1 The cavity closer unplasticised polyvinyl chloride (PVC-U) profiles are produced by conventional extrusion techniques.

2.2 As part of the assessment and ongoing surveillance of product quality, the BBA has:

- agreed with the manufacturer the quality control procedures and product testing to be undertaken
- assessed and agreed the quality control operated over batches of incoming materials
- monitored the production process and verified that it is in accordance with the documented process
- evaluated the process for management of nonconformities
- checked that equipment has been properly tested and calibrated
- undertaken to carry out the above measures on a regular basis through a surveillance process, to verify that the specifications and quality control operated by the manufacturer are being maintained.

2.3 The management system of Manthorpe Building Products Limited has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2008 by SGS UK Ltd (Certificate GB12/84769).

3 Delivery and site handling

3.1 The closer profiles are delivered to site in polythene sleeves, each bearing a product identification label and containing six lengths of profile, and a copy of the installation instructions. Ties are supplied separately in bags of 100 (G245) and 50 (G246).

3.2 The profiles should be stored flat, away from direct sunlight and excessive heat and supported along their length to prevent distortion or damage. The 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 the Manthorpe Thermal Cavity Closer.

Design Considerations

4 General

4.1 The Manthorpe Thermal Cavity Closer is suitable for use in masonry walls with nominal cavity widths in the range of 50 mm to 350 mm and with window and door frames made from timber, PVC-U, aluminium or steel. It can be used as a template, to form an opening around which a wall can be constructed and to establish the cavity width during construction.

4.2 The product provides a damp-proof barrier between the inner and outer leaves at point of closure, acts as a cavity closer without forming a thermal bridge, and avoids the need for cutting bricks and blocks. It can also be used to form a check reveal where required.

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

- BS EN 1996-1-1 : 2005, BS EN 1996-1-2 : 2005, BS EN 1996-2 : 2006, BS EN 1996-3 : 2006 and their relevant National Annexes
- 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.

4.4 Proprietary window and door frame fixings, which may be recommended by the manufacturer, are outside the scope of this Certificate.

5 Practicability of installation

The product is designed to be installed by a competent general builder, or a contractor, experienced with this type of product.

6 Hygrothermal behaviour

6.1 The product can contribute to maintaining continuity of thermal insulation at jambs and sills in wall openings. The path of minimum thermal resistance through the closers calculated to BRE Information Paper IP 8/08 *Determining the minimum thermal resistance of cavity closers*, is at least 0.45 $m^2 \cdot K \cdot W^{-1}$ when used in jambs and sills with the window/door frame set-back 30 mm or more into the wall cavity (see Figures 3 and 6). Example junction details shown in Figures 3 and 6 are acceptable and the corresponding 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 may be used in carbon emission calculations in Scotland and Northern Ireland. Attention must be given to the correct set-back in order to ensure compliance with these requirements. Detailed guidance on limiting heat loss and air filtration can be found in:

England and Wales — Approved Documents to Part L and, for new thermal elements to existing buildings, Accredited Construction Details (version 1.0). See also SAP 2009 Appendix K and the *iSBEM User Manual* for new-build

Scotland — Accredited Construction Details (Scotland)

Northern Ireland — Accredited Construction Details (version 1.0).

6.2 Jambs and sills incorporating the product in accordance with section 6.1 will adequately limit the risk of local surface condensation.

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

6.4 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 dry lining, to minimise excessive heat loss and the risk of excessive surface condensation.

6.5 The junctions between the wall and the front and back of the window/door frame must be effectively sealed.

7 Weather resistance

7.1 The product is effective as a vertical damp-proof barrier at jambs of window and door openings in masonry constructions, where a brick/block closer and dpc detail would normally be used. The product is also effective as a horizontal damp-proof barrier at the sill or threshold.

7.2 Profiles G240, G243, G247 and G247M with PVC-U flanges extending over both leaves at a flush (in-line) wall opening are suitable for use in the exposure zones 1 (sheltered) and 2 (moderate) as depicted in the map contained in section 3.1 of BRE Report (BR 262 : 2002) *Thermal insulation : avoiding risks*. These profiles may also be considered 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.

7.3 Profiles, G241, G241M, G242, G244 are suitable for use at a rebated opening (check reveal). In this construction, in which the frame is protected by a conventional dpc and positioned in a rebate behind the outer leaf at the jamb, the product is suitable for use in exposure zones up to and including zone 4 (very severe) as depicted in the map contained in section 3.1 of BRE Report (BR 262 : 2002) which covers all exposure zones in the United Kingdom. However, a dpc may be fitted between the closer and outer leaf if required.

8 Structural stability

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

8.2 The product 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 the Standards listed in section 4.3 of this Certificate. Use of the product does not obviate the need for conventional wall ties around the openings.

8.3 Door and window frames should be fixed to the masonry by conventional means in addition to any fixings to the closer.

9 Properties in relation to fire

9.1 The installed product will not contribute significantly to the growth of a fire.

9.2 The product does not constitute a cavity barrier against the penetration of smoke and flame in the context of the Building Regulations.

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

9.4 In Scotland and Northern Ireland, the product is 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.

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

10 Maintenance

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

11 Durability

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

Installation

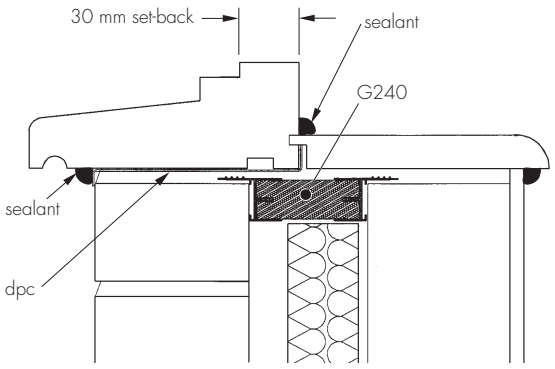
12 General

12.1 Installation of the Manthorpe Thermal Cavity Closer must be carried out in accordance with the manufacturer's installation instructions.

12.2 A cavity barrier may be required (see section 9.2).

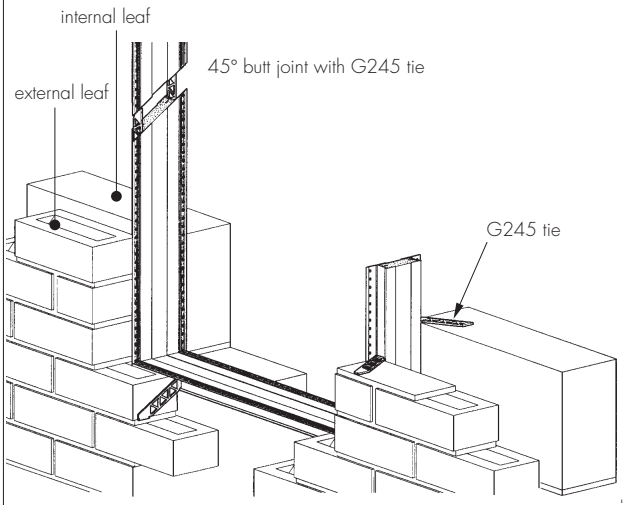
12.3 Reference should be made to the typical installation details shown in Figures 3 to 6, when reading the installation details given in section 13. The windows in these Figures are shown for information only and do not form part of this assessment.

Figure 3 Sill detail



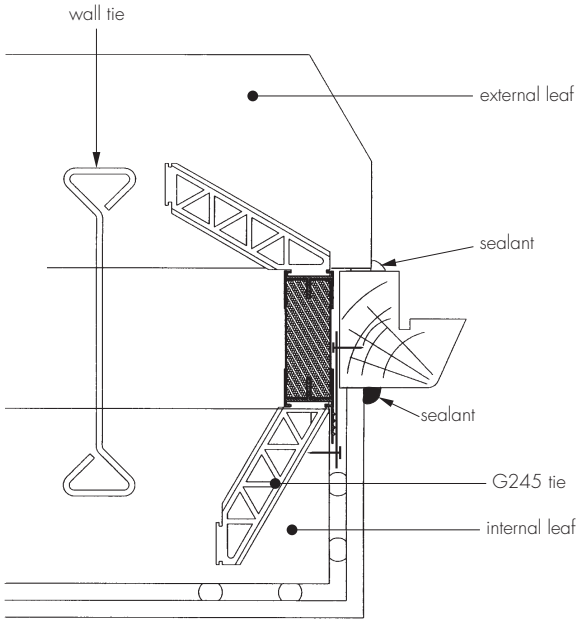
An additional cavity barrier is required in Scotland and Northern Ireland.

Figure 4 G240 closer built in prior to window



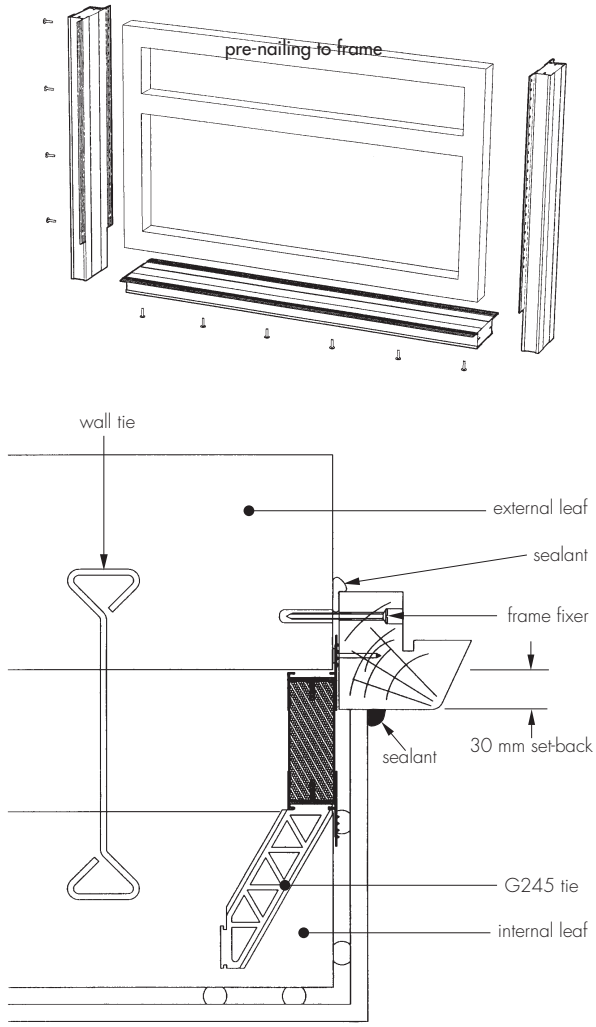
An additional cavity barrier is required in Scotland and Northern Ireland.

Figure 5 Use of G242 closer in check reveal



An additional cavity barrier is required in Scotland and Northern Ireland.

Figure 6 Use of G242 closer jamb detail



completed jamb detail

An additional cavity barrier is required in Scotland and Northern Ireland.

12.4 At the build-in stage, it must be ensured that the sub-frame remains plumb, level and square and with parallel sides.

12.5 When installed in conjunction with the cavity closer, the back edge of the window/door frames should be setback at least 30 mm behind the inner face of the outer leaf to meet thermal requirements (see section 6.1) whilst ensuring that the front edge of the frame remains over the outer leaf.

13 Procedure

Individual closer lengths built in during wall construction and prior to installation of window or door

13.1 The wall is built to sill level, ensuring that the course work is level, flat, and that all excess mortar is removed and the product selected to suit the application and cavity width.

13.2 A length of closer is cut to suit the width of the window and inserted in the cavity at the sill (see Figure 3).

13.3 Two jamb sections of closer are cut to oversail the sill by 75 mm and the flanges are trimmed back by 75 mm so that the closer can sit in the cavity butted up against the sill section (see Figure 4). Props or a dummy frame may be used to keep the jamb sections in position at this stage.

13.4 The wall is built up at the jambs and the closer sections secured by ties (G245) located in the channel in the PVC-U section and resting in the mortar course (see Figure 4), and fixed through the flange holes into mortar courses. Ties should be used as necessary to hold the jamb sections in place prior to the installation of the window or door. A minimum of four ties per vertical member, two near the top (one into each leaf) and two near the bottom, are recommended by the manufacturer.

13.5 The G240, G243, G247, G247M and G243 profile is used where the brickwork and blockwork are in-line (see Figures 3, 4 and 6) and G241/G241M/G242/G244 where the brickwork is rebated to the blockwork (see Figure 5, check reveal).

13.6 Cut lengths may be butted against each other at the jambs provided that they are butted an angle of 45° sloping down to the outer leaf and there is no more than one join per jamb. The joint is secured and aligned by inserting a tie (G245) into the PVC-U section channel and sliding it across the joint (see Figure 4).

13.7 An insulated lintel and ancillary damp-proof protection is fitted at the head and the window/door fixed to the outer leaf by proprietary fixings (outside the scope of this Certificate) ensuring that an effective sealant is applied around the perimeter of a window/door internally prior to applying internal finishes and that the window is weather-proofed externally, using a suitable low modulus flexible sealant.

13.8 In locations where the plaster may be subjected to repeated impact (eg at door reveals from door slamming) it is recommended that wet plaster be reinforced by hessian scrim or, preferably, replaced by dry lining.

Use of preformed closer frame

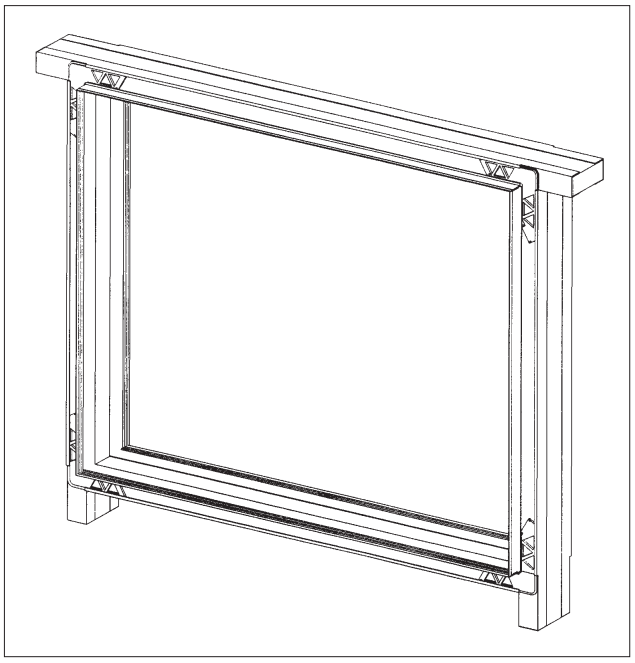
13.9 The closer profiles may be pre-assembled into a closer frame to be used as a former for an opening during the building of a wall.

13.10 Sill and jamb sections are cut as described in sections 13.2 and 13.3. For the construction of a frame, the channels, as well as flanges, need to be trimmed back by 75 mm at the base of the jamb sections.

13.11 To complete the frame a dummy head section is cut 150 mm oversize and flanges/grooves cut back by 75 mm at each end.

13.12 Eight right-angled ties (G246) are pushed into the channels at both sides of the ends of the head and sill sections, and the protruding legs of the ties pushed into the channels of the jamb section (see Figure 7).

Figure 7 Preformed closer frame



13.13 To increase the rigidity of larger frames, horizontal timber braces may be fixed through flange holes across jamb sections, to be removed as the wall is built.

13.14 When the wall approaches head level, the dummy head section and ties are removed, to be used again for another frame.

13.15 The wall is built around the frame as described in section 13.4 and the installation completed as detailed in sections 13.7 and 13.8.

Closer built in with window or door

13.16 The closer sections are cut as described in sections 13.2 and 13.3 and the outer flange secured to the window/door frame through the fixing holes with galvanized clout nails[1] (timber frame) or self-tapping screws[1] (PVC-U or metal frame).

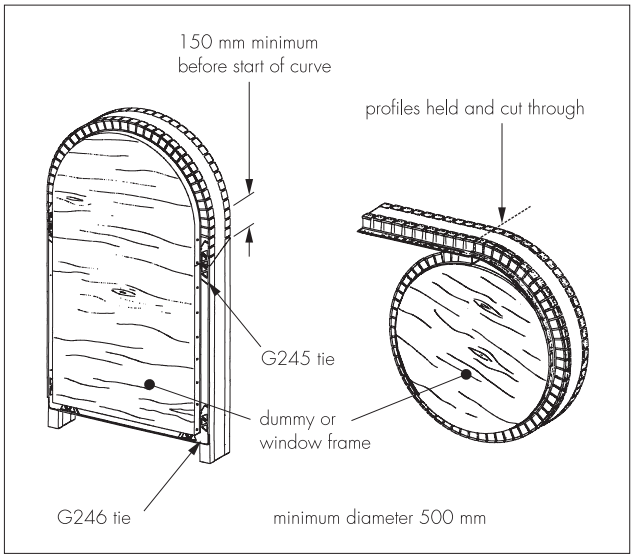
(1) Outside the scope of the Certificate.

13.17 The frame with attached closer is sat on the sill with the sill closer in the cavity, the masonry built up around the jambs, and the installation completed as described in sections 13.7 and 13.8 (see Figure 6).

13.18 Profiles G243 and G244 for use around circular openings are fitted in a similar way. The profiles are shaped around and nailed to a frame (or dummy frame) before the overlapping ends are cut with a fine-toothed saw to give a close fitting butt-joint (see Figure 8). On the larger diameter windows profiles may be butt jointed with G245 ties used as described in section 13.6. The assembly is sat on the wall at the base of the window and the masonry built up around the frame following conventional practice for circular windows. Where a dummy frame has been used, retaining nails are removed as the wall is built, and the dummy frame just prior to the installation of the window. To

complete the installation, the frame is fixed to the masonry using traditional or proprietary fixings, a weatherproof sealant incorporated between frame and outer leaf, and wet plaster applied at the internal reveal, taking note of the recommendations in section 13.4. It is recommended that circular profiles be used under a suitable cavity tray to shed water away from the closer, frame and inner leaf at this position.

Figure 8 Assembly of arched and circular closers



13.19 Profiles G243 and G244 may also be used to close archways, following the procedure outlined in section 13.18. In this application the ends of the closer are cut at 45° and butt-jointed with G245 ties to rigid jamb sections as described in section 13.6 (see Figure 8).

Refurbishment

13.20 The product can also be used in refurbishment work. In this application any return brick closer must be removed and the cavity cleared at the opening. In Scotland and Northern Ireland, a suitable cavity barrier will be required in conjunction with the new closer (see section 8.2). The closer sections are cut as described in sections 13.2 and 13.3, inserted into the cavity and screwed to the masonry through the flange holes. The window is then installed and the installation completed as described in sections 13.7 and 13.8.

Technical Investigations

14 Tests

Tests were carried out on the Manthorpe Thermal Cavity Closer in accordance with MOAT No 8 : 1973, MOAT No 17 : 1990 and BS EN 12608 : 2003 on PVC-U extrusions to determine:

- shrinkage on heating
- resistance to cracking in acetone
- changes on heating.

15 Investigations

An assessment was made of:

- heat loss and condensation risk in accordance with the Accredited Construction Details (version 1.0) (England and Wales and Northern Ireland) 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 cavity closer sub-frame
- durability of the components used in the construction of the product
- the manufacture and quality control of the extruded profiles.

Bibliography

BS EN 1996-1-1 : 2005 *Eurocode 6 : Design of masonry structures — General rules for reinforced and unreinforced masonry structures*
NA to BS EN 1996-1-1 : 2005 *UK National Annex to Eurocode 6 : Design of masonry structures — General rules for reinforced and unreinforced masonry structures*
BS EN 1996-1-2 : 2005 *Eurocode 6 : Design of masonry structures — General rules — Structural fire design*
NA to BS EN 1996-1-2 : 2005 UK National Annex to Eurocode 6 : *Design of masonry structures — General rules — Structural fire design*
BS EN 1996-2 : 2006 *Eurocode 6 : Design of masonry structures — Design considerations, selection of materials and execution of masonry*
NA to BS EN 1996-2 : 2006 *UK National Annex to Eurocode 6 : Design of masonry structures — Design considerations, selection of materials and execution of masonry*
BS EN 1996-3 : 2006 *Eurocode 6 : Design of masonry structures : Simplified calculation methods for unreinforced masonry structures*
NA to BS EN 1996-3 : 2006 *UK National Annex to Eurocode 6 : Design of masonry structures : Simplified calculation methods for unreinforced masonry structures*

BS EN 12608 : 2003 *Unplasticized polyvinylchloride (PVC-U) profiles for the fabrication of windows and doors — Classification, requirements and test methods*

BS EN ISO 9001 : 2008 *Quality management systems — Requirements*

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*

16 Conditions

16.1 This Certificate:

- relates only to the product/system that is named and described on the front page
- is issued only to the company, firm, organisation or person named on the front page — no other company, firm, organisation or person may hold or claim that this Certificate has been issued to them
- 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.

16.2 Publications, documents, specifications, legislation, regulations, standards and the like referenced in this Certificate are those that were current and/or deemed relevant by the BBA at the date of issue or reissue of this Certificate.

16.3 This Certificate will remain valid for an unlimited period provided that the product/system and its manufacture and/or fabrication, including all related and relevant parts and 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.

16.4 The BBA has used due skill, care and diligence in preparing this Certificate, but no warranty is provided.

16.5 In issuing this Certificate, the BBA is not responsible and is excluded from any liability to any company, firm, organisation or person, for any matters arising directly or indirectly from:

- 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
- actual installations of the product/system, including their nature, design, methods, performance, workmanship and maintenance
- any works and constructions in which the product/system is installed, including their nature, design, methods, performance, workmanship and maintenance
- any loss or damage, including personal injury, howsoever caused by the product/system, including its manufacture, supply, installation, use, maintenance and removal
- any claims by the manufacturer relating to CE marking.

16.6 Any information relating to the manufacture, supply, installation, use, maintenance and removal 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, maintained and removed. It does not purport in any way to restate the requirements of the Health and Safety at Work etc. Act 1974, or of any other statutory, common law or other duty which may exist at the date of issue or reissue 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.

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