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**Agrément Certificate**
**09/4697**
Product Sheet 3

# MAGMATECH LTD

# TEPLO BF AND BFR WALL TIES

This Agrément Certificate Product Sheet(1) relates to Teplo BF and BFR Wall Ties for use in tying masonry to masonry walls with M2 and moderately hydraulic lime mortar, and for Type 1 ties with M2 and M12 mortar in new-build or retrofit constructions with a cavity width up to 450 mm (nominal).

(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**

**Structural performance** — the wall ties can be used in multi-storey buildings and are comparable to ties of Types 1, 2, 3 and 4 as defined in PD 6697 : 2010 (see section 6).

**Behaviour in relation to fire** — the ties are suitable for use in buildings requiring a 120-minute fire-resistance period (see section 7).

**Thermal performance** — the ties have a thermal conductivity in the longitudinal direction of 0.71 $W \cdot m^{-1} \cdot K^{-1}$ and the polymer end piece has a conductivity of 0.22 $W \cdot m^{-1} \cdot K^{-1}$ (see section 8).

**Durability** — the ties will have a service life of not less than 60 years (see section 12).

The BBA has awarded this 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

Date of Second issue: 24 June 2019

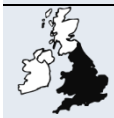
Originally certificated on 25 April 2016

Paul Valentine
Technical Excellence Director

Claire Curtis-Thomas
Chief Executive

## Regulations

In the opinion of the BBA, Teplo BF and BFR Wall Ties, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying 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:** | **A1** | **Loading** |
| Comment: | | Wall ties can contribute to the strength and stability of cavity walls, the products will be satisfactory. See section 6.1 of this Certificate. |
| **Requirement:** | **B3(1)(2)** | **Internal fire spread (structure)** |
| Comment: | | The products will not adversely affect the fire resistance of the wall. See section 7 of this Certificate. |
| **Requirement:** | **C2(b)(c)** | **Resistance to moisture** |
| Comment: | | Wall ties will not adversely affect the resistance of the wall to the passage of moisture, when used in an external cavity wall. See section 10 of this Certificate. |
| **Requirement:** | **L1(a)(i)** | **Conservation of fuel and power** |
| Comment: | | When the wall ties are incorporated into insulated masonry cavity walls, the thermal bridging due to the ties must be taken into account for calculations of the thermal transmittance of the walls. See section 8 of this Certificate. |
| **Regulation:** | **7** | **Materials and workmanship (applicable to Wales only)** |
| **Regulation:** | **7(1)** | **Materials and workmanship (applicable to England only)** |
| Comment: | | The wall ties are acceptable. See section 12 and the *Installation* part of this Certificate. |
| **Regulation:** | **7(2)** | **Materials and workmanship (applicable to England only)** |
| Comment: | | The wall ties are unrestricted by this Regulation. See section 7 of this Certificate. |

### The Building (Scotland) Regulations 2004 (as amended)

| | | |
|---|---|---|
| **Regulation:** | **8(1)** | **Durability, workmanship and fitness of materials** |
| Comment: | | The products can contribute to a construction satisfying this Standard. See section 12 and the *Installation* part of this Certificate. |
| **Regulation:** | **9** | **Building standards applicable to construction** |
| Standard: | 1.1(a)(b) | Structure |
| Comment: | | Wall ties can contribute to the strength and stability of cavity walls, the products will be satisfactory. See section 6.1 of this Certificate. |
| Standard: | 2.3 | Structural protection |
| Standard: | 2.4 | Cavities |
| Comment: | | The products will not adversely affect the fire resistance of the wall. See section 7 of this Certificate. |
| Standard: | 2.6 | Spread to neighbouring buildings |
| Comment: | | The wall ties when used in a masonry cavity wall will provide an equivalent performance to that of a typical steel tie. See section 7 of this Certificate. |
| Standard: | 3.10 | Precipitation |
| Comment: | | The wall ties will not adversely affect the resistance of the wall to the passage of moisture, with reference to clauses 3.10.1$^{(1)(2)}$, 3.10.2$^{(1)(2)}$ and 3.10.3$^{(1)(2)}$. See section 10 of this Certificate. |

| | | |
|---|---|---|
| Standard:<br>Comment: | 6.2 | Building insulation envelope<br>When the wall ties are incorporated into insulated masonry cavity walls, the thermal bridging due to the ties must be taken into account for calculations of the thermal transmittance of the walls. See section 8 of this Certificate. |
| Standard:<br>Comment: | 7.1(a)(b) | Statement of sustainability<br>The ties can contribute to satisfying 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 |
| **Regulation:**<br>Comment: | **12** | **Building standards applicable to conversions**<br>All comments given for the products under Regulation 9, Standards 1 to 6, also apply to this Regulation, with reference to clause 0.12.1[(1)(2)] and Schedule 6[(1)(2)].<br><br>(1) Technical Handbook (Domestic).<br>(2) Technical Handbook (Non-Domestic). |

## The Building Regulations (Northern Ireland) 2012 (as amended)

| | | |
|---|---|---|
| **Regulation:** | **23(a)(i) (iii)(b)(i)** | **Fitness of materials and workmanship** |
| Comment: | | The products are acceptable. See section 12 and the *Installation* part of this Certificate. |
| **Regulation:**<br>Comment: | **28(b)** | **Resistance to moisture and weather**<br>Wall ties will not adversely affect the resistance of the wall to the passage of moisture, when used in an external cavity wall. See section 10 of this Certificate. |
| **Regulation:**<br>Comment: | **30** | **Stability**<br>Wall ties can contribute to the strength and stability of cavity walls. See section 6.1 of this Certificate. |
| **Regulation:**<br>Comment: | **35** | **Internal fire spread — Structure**<br>The products will not adversely affect the fire resistance of the wall. See section 7 of this Certificate. |
| **Regulation:**<br>Comment: | **39(a)(i)** | **Conservation measures**<br>When the wall ties are incorporated into insulated masonry cavity walls, the thermal bridging due to the ties must be taken into account for calculations of the thermal transmittance of the walls. See section 8 of this Certificate. |

# Additional Information

## NHBC Standards 2019

In the opinion of the BBA, Teplo BF and BFR Wall Ties, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements in relation to *NHBC Standards*, Technical Requirement R3 and Chapter 6.1 *External masonry walls*.

# Technical Specification

## 1 Description

1.1 Teplo BF and BFR Wall Ties are a range of composite wall ties comprising pultruded basalt fibres set into a resin matrix. Each BF tie has a moulded polymer piece at each end with a hole on either side, and incorporates an adjustable rubber o-ring fitted in the centre (see Figure 1), which acts as a drip feature to prevent water crossing the cavity, but can be adjusted. BFR ties have a moulded polymer piece at one end only.

*Figure 1 TEPLO BFR and BF*

1.2 The ties are available in the sizes given in Tables 1 and 2 for use in cavity widths from 75 to 450 mm with a minimum design embedment depth of 62.5 mm in the masonry bed joint. The polymer end pieces enable use of the ties with weaker mortar types. Typical examples of the ties in use are shown in Figures 2a and 2b.

*Figure 2a Typical examples of Teplo BF Wall Ties*

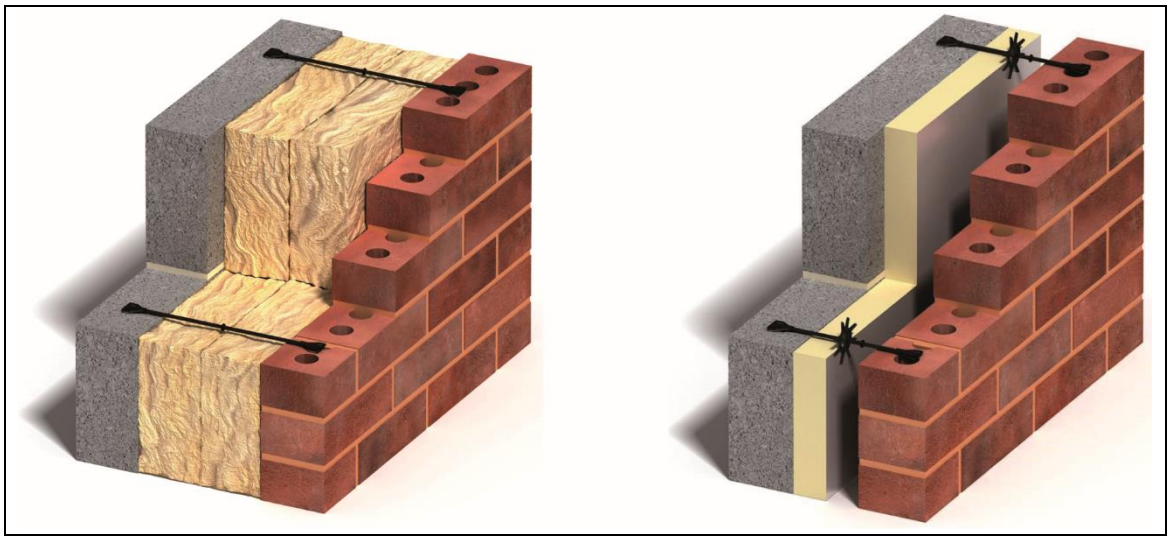


*Figure 2b Typical examples of Teplo BFR Wall Ties*

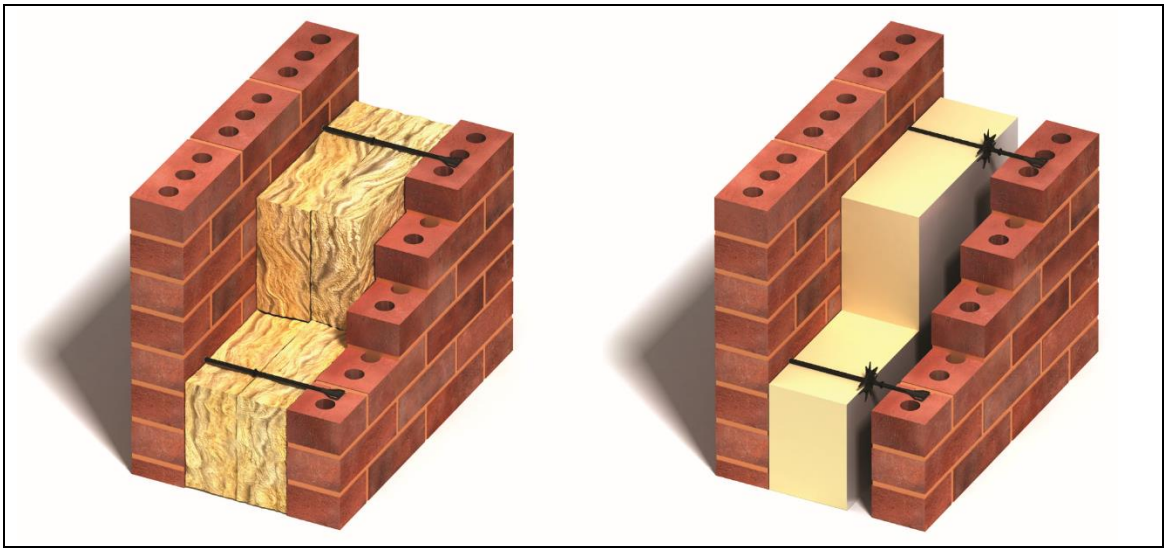


*Table 1 Teplo BF Wall Tie classification and dimensions*

| Name | Wall tie Type[(1)] | Diameter (mm) | Length (mm) | Cavity (mm) |
|---|---|---|---|---|
| TEPLO4 BF 200 | 4 | 4 | 200 | 75 |
| TEPLO4 BF 225 | 4 | 4 | 225 | 100 |
| TEPLO4 BF 250 | 4 | 4 | 250 | 125 |
| TEPLO2 BF 200 | 2 | 5 | 200 | 75 |
| TEPLO2 BF 225 | 2 | 5 | 225 | 100 |
| TEPLO2 BF 250 | 2 | 5 | 250 | 125 |
| TEPLO2 BF 275 | 2 | 6 | 275 | 150 |
| TEPLO2 BF 300 | 2 | 6 | 300 | 175 |
| TEPLO2 BF 325 | 2 | 6 | 325 | 200 |
| TEPLO2 BF 350 | 2 | 7 | 350 | 225 |
| TEPLO2 BF 375 | 2 | 7 | 375 | 250 |
| TEPLO2 BF 400 | 2 | 7 | 400 | 275 |
| TEPLO2 BF 425 | 2 | 7 | 425 | 300 |
| TEPLO3 BF 450 | 3 | 7 | 450 | 325 |
| TEPLO3 BF 475 | 3 | 7 | 475 | 350 |
| TEPLO3 BF 500 | 3 | 7 | 500 | 375 |
| TEPLO3 BF 525 | 3 | 7 | 525 | 400 |
| TEPLO4 BF 550 | 4 | 7 | 550 | 425 |
| TEPLO4 BF 575 | 4 | 7 | 575 | 450 |
| TEPLO1 BF 200 | 1 | 7 | 200 | 75 |
| TEPLO1 BF 225 | 1 | 7 | 225 | 100 |
| TEPLO1 BF 250 | 1 | 7 | 250 | 125 |
| TEPLO1 BF 275 | 1 | 7 | 275 | 150 |

(1) Type classification as defined in PD 6697 : 2010.

*Table 2 Teplo BFR Wall Tie classification and dimensions*

| **Name** | **Diameter** (mm) | **Length** (mm) | **Cavity** (mm) | **Tie Types[(1)] bonded into substrates, with 70 mm embedment in a 10 mm diameter hole** | | | |
|---|---|---|---|---|---|---|---|
| | | | | **Brick (20N/mm²)** | **AAC (3.6N/mm²)** | **AAC (7.3N/mm²)** | **C25/C30 Concrete** |
| TEPLO1 BFR 210 | 7 | 210 | 75 | 1 | 2 | 2 | 1 |
| TEPLO1 BFR 235 | 7 | 235 | 100 | 1 | 2 | 2 | 1 |
| TEPLO1 BFR 260 | 7 | 260 | 125 | 1 | 2 | 2 | 1 |
| TEPLO1 BFR 285 | 7 | 285 | 150 | 1 | 2 | 2 | 1 |
| TEPLO2 BFR 310 | 7 | 310 | 175 | 2 | 2 | 2 | 2 |
| TEPLO2 BFR 335 | 7 | 335 | 200 | 2 | 2 | 2 | 2 |
| TEPLO2 BFR 360 | 7 | 360 | 225 | 2 | 2 | 2 | 2 |
| TEPLO2 BFR 385 | 7 | 385 | 250 | 2 | 2 | 2 | 2 |
| TEPLO2 BFR 410 | 7 | 410 | 275 | 2 | 2 | 2 | 2 |
| TEPLO2 BFR 435 | 7 | 435 | 300 | 2 | 2 | 2 | 2 |
| TEPLO3 BFR 460 | 7 | 460 | 325 | 3 | 3 | 3 | 3 |
| TEPLO3 BFR 485 | 7 | 485 | 350 | 3 | 3 | 3 | 3 |
| TEPLO3 BFR 510 | 7 | 510 | 375 | 3 | 3 | 3 | 3 |
| TEPLO3 BFR 535 | 7 | 535 | 400 | 4 | 4 | 4 | 4 |
| TEPLO4 BFR 560 | 7 | 560 | 425 | 4 | 4 | 4 | 4 |
| TEPLO4 BFR 585 | 7 | 585 | 450 | 4 | 4 | 4 | 4 |

(1) Type classification as defined in PD 6697 : 2010.

1.3 It is possible to increase the number of ties used per $m^2$ to achieve a stronger tie Type in accordance with PD 6697 : 2010. For example, a Type 3 tie may be able to give a performance in accordance with a Type 2 tie by using a greater number of ties per $m^2$. This approach is outside the scope of this Certificate. For more information, the Certificate holder's advice should be sought.

1.4 For bonding BFR plain end ties into the existing masonry or concrete walls, Fischer FIS VT 380C chemical anchor resin must be injected into a 10 mm diameter hole.

## 2 Manufacture

2.1 The ties are formed by a pultrusion process which combines longitudinal fibre with a resin binder. The profile is cut to size and the polymer pieces are moulded at one (BFR) or both ends (BF).

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 the manufacturer has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2015 by IQNet (Certificate RU-18.1901.026) and Polish Chamber of Foreign Trade Certification (Certificate 459/2006).

## 3 Delivery and site handling

The ties are delivered to site in cardboard boxes. Each box includes the installation instructions and carries a label bearing the Certificate holder's name, product details, batch number and box weight.

# Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Teplo BF and BFR Wall Ties.

## Design Considerations

## 4 General

4.1 Teplo BF and BFR Wall Ties are satisfactory for use to tie leaves of masonry walls together in new-build or retrofit constructions in cavity widths from 75 to 450 mm (nominal). Type 1, 2, 3 and 4 wall ties can be used in typical M2 mortar and moderately hydraulic lime mortar; Type 1 ties can also be used in M12 mortar.

4.2 The products must be used in accordance with the requirements of BS EN 1996-1-1 : 2005, BS EN 1996-1-2 : 2005, BS EN 1996-2 : 2006 and BS EN 1996-3 : 2006 and their UK National Annexes and PD 6697 : 2010.

4.3 The masonry wall mortar joint thickness must be a minimum of 10 mm and in accordance with BS EN 845-1 : 2013. If the ties are to be used in mortar joints with a thickness greater than 10 mm, guidance should be sought from the Certificate holder.

4.4 The ties incorporate a drip to prevent water transfer across the tie (see section 10 and Figure 1).

4.5 Masonry walls incorporating the ties 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 and BS EN 1996-3 : 2006 and their UK National Annexes, and PD 6697 : 2010.
- the national Building Regulations:

***England and Wales*** — Approved Document A1/2, Section 0.1c
***Scotland*** — Mandatory Standard 1.1[(1)(2)]

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

***Northern Ireland*** — Technical Booklet D

4.6 Ties should be evenly distributed over the wall area, except around openings, and should preferably be staggered.

4.7 At the vertical edges of an opening, unreturned or unbonded edges and vertical expansion joints, additional ties should be used at a rate of one per 300 mm height, located not more than 225 mm from the edge.

## 5 Practicability of installation

The ties are designed to be installed by a competent general builder or a contractor experienced with these types of products.

## 6 Structural performance

6.1 Tests were carried out generally in accordance with the principles of BS EN 846-6 : 2013; the applications for which the ties are suitable are given in Table 3, below.

*Table 3 Suitable applications[(1)]*

| Tie type | Masonry type |
|---|---|
| 1 | heavy duty |
| 2 | general purpose |
| 3 | basic |
| 4 | light duty |

(1) Type classification as defined in PD 6697 : 2010.

6.2 The products were also tested in moderately hydraulic lime mortar and were found to achieve the same tie Type as when tested in M2 mortar.

6.3 In tension, the products fail by straightening or pull-out from the masonry; in compression, they fail by buckling.

6.4 Teplo BFR ties were tested for pull-out resistance according to BS EN 846-6 : 2013, when bonded into pre-drilled holes using Fischer VT 380C resin with a 70 mm embedment depth. The declared pull-out resistance for each substrate type is given in Table 4.

*Table 4 Pull-out resistance for Teplo BFR ties*

| Substrate type | Tie type |
|---|---|
| | Teplo-7-200 |
| Brick (20 N·mm$^{-2}$) | 4.73 (kN) |
| Aerated concrete block (3.6 N·mm$^{-2}$) | 2.27 (kN) |
| Dense concrete block (C25/30) | 2.29 (kN) |
| Foundation concrete block (7.3 N·mm$^{-2}$) | 11.9 (kN) |

## 7 Behaviour in relation to fire

7.1 The effectiveness of the installed ties in fire is assessed as being equivalent to that of typical steel ties. Guidance on the fire resistance of cavity walls is given in BS EN 1996-1-1 : 2005, BS EN 1996-1-2 : 2005, BS EN 1996-2 : 2006 and BS EN 1996-3 : 2006 and their UK national Annexes, and PD 6697 : 2010.

7.2 Based upon an evaluation of test data generally to BS EN 846-6 : 2013 and fire test data, the ties are suitable for use in buildings requiring a fire-resistance period of 120 minutes. Designers should refer to the fire test BRE Global Report Number P-100399-1064 and BRE Report Number 247031, available from the Certificate holder.

## 8 Thermal performance

The U value of a completed cavity wall will depend on the selected insulation thickness, the insulating value of the substrate masonry and its internal finish. Calculations of thermal transmittance (U value), including corrections for wall ties if required, should be carried out in accordance with BS EN ISO 6946 : 2017 and BRE Report 443 : 2006 using a thermal conductivity of 0.71 $W \cdot m^{-1} \cdot K^{-1}$ for the basalt fibre rod and 0.22 $W \cdot m^{-1} \cdot K^{-1}$ for the polymer end. Teplo BF and BFR Wall Ties have a low thermal conductivity in comparison with both galvanized and stainless steel ties.

## 9 Condensation risk

Walls must be designed to limit the risk of interstitial and surface condensation. Guidance is available in BS 5250 : 2011 and BRE Report 262 : 2002.

## 10 Weathertightness

The water-shedding details of the ties are effective in preventing the transfer of water across the ties to the inner leaf. The drip should be located so that it is in the centre of the wall cavity or residual cavity between the insulation and the external leaf of the wall.

## 11 Maintenance

As the ties are contained within walls, maintenance is not required.

## 12 Durability

12.1 The profiles and fixings will not be adversely affected by mortar (including mortar incorporating conventional mortar admixtures) or cavity insulation materials.

12.2 The ties will not be impaired by contact with conventional cavity insulation materials or mortar admixtures and will have a service life of not less than 60 years.

# Installation

## 13 General

Teplo BF and BFR Wall Ties should be installed in accordance with the requirements of BS EN 1996-1-1 : 2005, BS EN 1996-1-2 : 2005, BS EN 1996-2 : 2006, BS EN 1996-3 : 2006 and their UK National Annexes, PD 6697 : 2010, and the Certificate holder's instructions.

## 14 Procedure

14.1 Ideally, the outer leaf brickwork should be kept one course clear during installation of the ties. The first run of ties is to be laid as near as possible to, though not directly on, the damp-proof course, and built into the brickwork and blockwork as construction proceeds.

14.2 The wall ties are sandwiched between brickwork and blockwork within the horizontal bed joint of the mortar. The ties are pressed down and buried within the mortar joint to ensure complete cover. The embedment length of the ties must be 62.5 mm; care must be taken to ensure the drip is at, or close to, the centre of the cavity or residual cavity. For BFR ties, the plain end must be placed as per the manufacturer instruction.

14.3 The ties are placed horizontally or with a slight fall towards the outer leaf, and at right angles to the walls. Care must be taken to ensure the mortar joints are correctly aligned, so that the ties adequately fit into each leaf.

14.4 Installed ties must be clear of mortar droppings to allow the drip to function and to prevent water from crossing to the inner masonry leaf.

## Technical Investigations

## 15 Tests

Tests were conducted and the results assessed to determine:

- tensile performance in M2, M12, lime mortar and Fischer VT 380C resin
- compressive performance in M2, M12 and lime mortar
- performance in shear
- tensile strength
- durability
- fire-resistance.

## 16 Investigations

16.1 Test reports generally in accordance with BS EN 846-5 : 2012 were reviewed in connection with the structural performance of the wall ties.

16.2 Existing information was assessed relating to the products' durability and their compatibility with materials in contact.

16.3 Data was assessed relating to the effects of the products on the weathertightness of cavity walls.

16.4 An assessment was made of the products' performance in fire.

16.5 A thermal assessment was conducted to determine the performance of the products in relation to ageing and conductivity.

16.6 The manufacturing process was evaluated, including the methods adopted for quality control, and details were obtained of the quality and composition of the materials used.

## Bibliography


BRE Report 262 (BR 262 : 2002) *Thermal insulation : avoiding risk*
BRE Report 443 (BR 443 : 2006) *Conventions for U-value calculations*

BS 5250 : 2011 *Code of practice for control of condensation in buildings*

BS EN 845-1 : 2013 *Specification for ancillary components for masonry — Ties, tension straps, hangers and brackets*

BS EN 846-5 : 2012 *Methods of test for ancillary components for masonry — Determination of tensile and compressive load capacity and load displacement characteristics of wall ties (couplet test)*

BS EN 846-6 : 2012 *Methods of test for ancillary components for masonry — Determination of tensile and compressive load capacity and load displacement characteristics of wall ties (single end test)*

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 + A1 : 2012 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 + A1 : 2014 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 ISO 6946 : 2017 *Building components and building elements — Thermal resistance and thermal transmittance — Calculation method*

BS EN ISO 9001 : 2015 *Quality management systems — Requirements*

PD 6697 : 2010 *Recommendations for the design of masonry structures to BS EN 1996-1-1 and BS EN 1996-2*

## 17 Conditions

17.1 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.

17.2 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.

17.3 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.

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

17.5 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.

17.6 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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