SureCav Ltd
Holbrook Lodge
Holbrook
Wincanton
Somerset BA9 8BT
Tel: 01963 34660 Fax: 01963 32441
e-mail: info@surecav.co.uk
website: www.surecav.co.uk

BBA APPROVAL INSPECTION TESTING CERTIFICATION
TECHNICAL APPROVALS FOR CONSTRUCTION

Agrément Certificate
04/4154
Product Sheet 1

SURECAV CAVITY WALL SYSTEM

SURECAV CAVITY WALL SPACER SYSTEM

This Agrément Certificate Product Sheet(1) relates to SureCav Cavity Wall Spacer System, an injection moulded recycled polypropylene panel with spacer protrusions and joining strips. The system is used to form a consistent cavity width in new, masonry or timber-frame constructed cavity walls of domestic and non-domestic buildings.

(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

Behaviour in relation to fire — use of the system does not prejudice the fire resistance properties of the wall (see section 6).

Water resistance — the system will resist the transfer of water across the cavity to the inner leaf (see section 8).

Condensation risk — the risk of interstitial condensation occurring within a wall will depend on the thermal properties and vapour resistance of the other materials used in the construction, and the internal and external conditions (see section 9).

Durability — the system is durable, rot-proof, water resistant and sufficiently stable to remain effective for the life of the building (see section 11).

The BBA has awarded this Certificate to the company named above for the system described herein. This system 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 Fifth issue: 29 April 2015

Originally certificated on 18 November 2004

John Albon — Head of Approvals
Construction Products

Claire Curtis-Thomas
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.

Regulations

In the opinion of the BBA, the SureCav Cavity Wall Spacer System, 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:	C2(a)	Resistance to moisture
Comment:		Walls incorporating the system can satisfy this Requirement. See section 8.1 of this Certificate.
Requirement:	C2(b)	Resistance to moisture
Comment:		Walls incorporating the system can satisfy this Requirement. See section 8.2 of this Certificate.
Regulation:	7	Materials and workmanship
Comment:		The system is acceptable. See section 11 and the *Installation* part of this Certificate.

The Building (Scotland) Regulations 2004 (as amended)

Regulation:	8(1)	Durability, workmanship and fitness of materials
Comment:		The system 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:	3.4	Moisture from the ground
Comment:		Walls incorporating the system can satisfy this Standard, with reference to clause 3.4.1[1][2]. See section 8.1 of this Certificate.
Standard:	3.10	Precipitation
Comment:		Walls incorporating the system can satisfy this Standard, with reference to clauses 3.10.1[1][2], 3.10.3[1][2], 3.10.5[1][2] and 3.10.6[1][2]. See section 8.2 of this Certificate.

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

The Building Regulations (Northern Ireland) 2012

Regulation:	23	Fitness of materials and workmanship
Comment:		The system is acceptable. See section 11 and the *Installation* part of this Certificate.
Regulation:	28(a)	Resistance to moisture and weather
Comment:		Walls incorporating the system can satisfy this Regulation. See section 8.1 of this Certificate.
Regulation:	28(b)	Resistance to moisture and weather
Comment:		Walls incorporating the system can satisfy this Regulation. See section 8.2 of this Certificate.

Construction (Design and Management) Regulations 2015

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

Information in this Certificate may assist the client, Principal Designer/CDM co-ordinator, designer and contractors to address their obligations under these Regulations.

See section: 3 *Delivery and site handling* (3.5 and 3.6) of this Certificate.

Additional Information

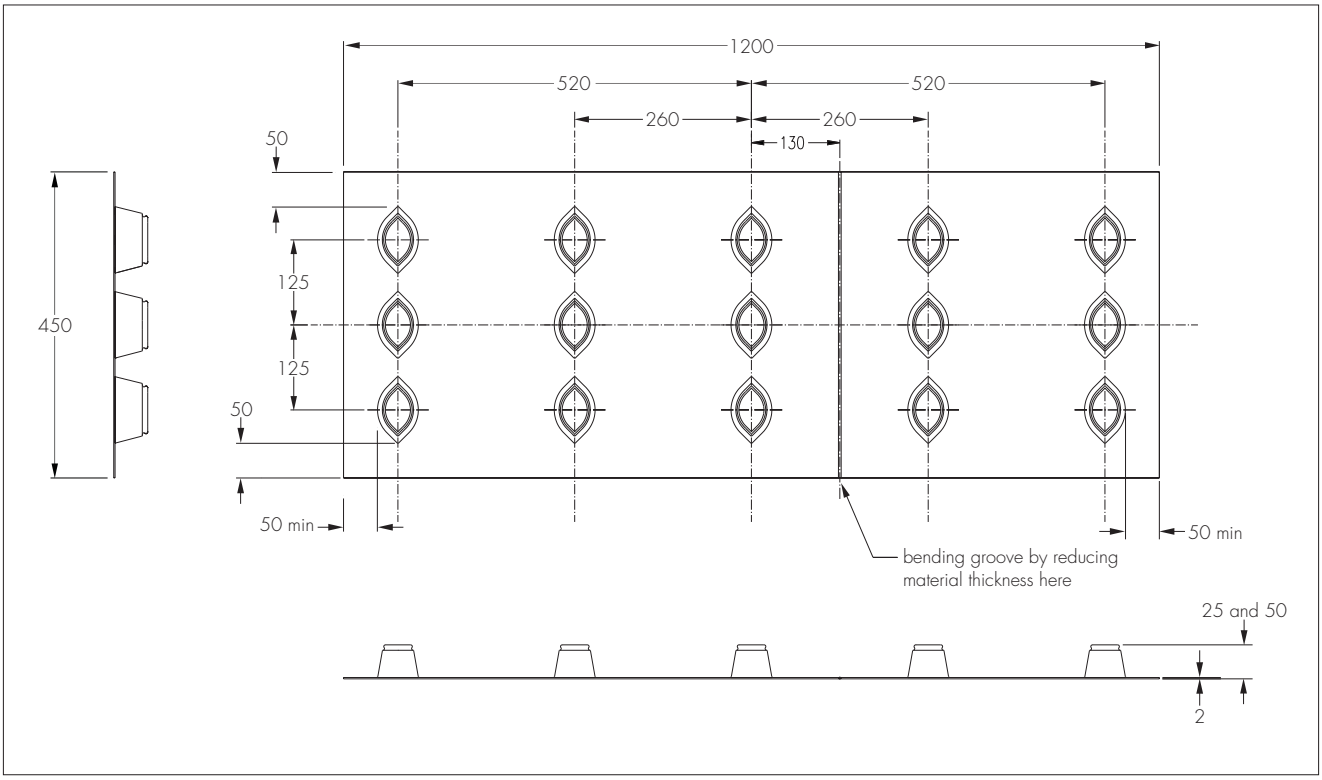
NHBC Standards 2014

Subject to the 50 mm SureCav panels being used, NHBC accepts the use of the SureCav Cavity Wall Spacer System, provided it is installed, used and maintained in accordance with this Certificate, in relation to *NHBC Standards*, Chapter 6.1 *External masonry walls* or Chapter 6.2 *External timber-framed walls*.

1 Description

1.1 The SureCav Cavity Wall Spacer System is a black, recycled polypropylene sheet, with raised spacer protrusions at 260 mm centres (see Figure 1). The sheets interlock via black PVC-U joining H-section profile strips at all edges when installed.

Figure 1 Panel detail (all dimensions in mm)



1.2 The system has characteristics shown in Table 1.

Table 1 Nominal characteristics

Component		Dimensions (mm)
Panel	Length	1200
	Width	450
	Total thickness	25 and 50
	Sheet thickness	2
	Spacer height	23 and 48
Joining strips	Horizontal strips length	900
	Vertical face strips length	400

1.3 Ancillary items used with the system include:

- retaining clips
- proprietary steel wire wall ties.

1.4 Additional vertical twist ties in accordance with DD 140-2 : 1987 or BS EN 845-1 : 2013 may be required for structural stability in accordance with PD 6697 : 2010, where the overall cavity width exceeds 75 mm (see section 14.13).

2 Manufacture

2.1 The SureCav Cavity Wall Spacer sheets are injection moulded, and joining strips are extruded.

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.

3 Delivery and site handling

3.1 The panels are delivered to site in packs of 10, wrapped in polythene. A label bears the product and manufacturer's name, and the BBA identification mark incorporating the number of this Certificate.

3.2 Joining strips are packed in bundles of 12 and wrapped in polythene.

3.3 The backing boards should be stored flat.

3.4 The system components must be stored under cover and protected from direct sunlight, high temperatures and mechanical damage.

3.5 The system components must not be allowed to come into direct contact with petrol, mineral oil, turpentine, bituminous or similar products.

3.6 The system components must not be exposed to open flame or other ignition sources.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on the SureCav Cavity Wall Spacer System.

Design Considerations

4 Use

4.1 The SureCav Cavity Wall Spacer System is satisfactory for use in new external cavity wall constructions in domestic and non-domestic buildings. The system ensures a minimum cavity width of 25 mm when using natural or reconstituted stone outer leafs in conjunction with:

- conventional masonry inner leafs, with or without partial fill cavity wall insulation (masonry includes clay, calcium silicate, concrete and stone units)
- timber-frame inner leaf.

4.2 The system may also be used with conventional clay and calcium silicate brick and concrete block outer leafs.

4.3 It is effective in maintaining a residual cavity width in new external cavity walls. However, it is essential that such walls are designed and constructed to incorporate the normal precautions to prevent moisture penetration.

4.4 Buildings subject to national Building Regulations should be constructed in accordance with the relevant recommendations of:

- BS 8000-3 : 2001
- 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 respective UK National Annexes.

4.5 Where applicable, construction should be in accordance with the relevant clauses of *NHBC Standards*.

4.6 As with all cavity walls, the construction and detailing should comply with good practice as described in the Standards given in section 4.4.

4.7 The system is restricted to a maximum height of 12 metres, where the 25 mm SureCav panels are used. However, where the 50 mm SureCav panels are used, there is no height restriction.

4.8 The system can be used in any exposure zone, however, the use of the system does not preclude the need to apply any external render coat or other suitable finish in severe exposure zones where such application would be normal practice.

4.9 Other new buildings not subject to any of the above should also be built in accordance with the Standards identified in section 4.4.

5 Practicability of installation

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

6 Behaviour in relation to fire

6.1 The use of the system does not prejudice the fire resistance properties of the wall.

6.2 The requirements of the Building Regulations relating to fire spread in cavity walls can be met in buildings of all purpose groups without the need for cavity barriers, provided the construction complies with the provisions detailed in:

England and Wales — Approved Document B, Volume 1, Diagram 13 and Volume 2, Diagram 34

Northern Ireland — Technical Booklet E, Diagram 4.5.

6.3 For buildings subject to the Building Standards in Scotland, cavity barriers are not required to limit the area of a cavity or at junctions with other wall cavities, but they are required around openings, penetrations and at junctions with roof or floor cavities, with reference to clauses 2.4.1[1][2], 2.4.2[1][2], 2.6.5[1] and 2.6.6[2].

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

6.4 For constructions not covered by sections 6.2 and 6.3, cavity barriers must be provided to comply with:

England and Wales — Approved Document B, Volume 1, Section 6 and Volume 2, Section 9

Scotland — Mandatory Standards 2.4 and 2.6, clauses 2.4.1[1][2], 2.4.2[1][2], 2.4.7[1], 2.4.9[2], 2.6.5[1] and 2.6.6[2]

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

Northern Ireland — Technical Booklet E, Paragraphs 4.36 to 4.39.

7 Proximity of flues and appliances

When installing the system in close proximity to certain flue pipes and/or heat-producing appliances, the following provisions to the national Building Regulations are applicable.

England and Wales — Approved Document J

Scotland — Mandatory Standard 3.19, clause 3.19.1[1]

(1) Technical Handbook (Domestic).

Northern Ireland — Technical Booklet L.

8 Water resistance

8.1 The system can be used in situations where it bridges the damp-proof course (dpc) in walls; dampness from the ground will not pass through to the inner leaf provided the wall is detailed in accordance with the requirements and provisions of the national Building Regulations:

England and Wales — Approved Document C, Section 5

Scotland — Mandatory Standard 3.4, clauses 3.4.1[1][2]

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

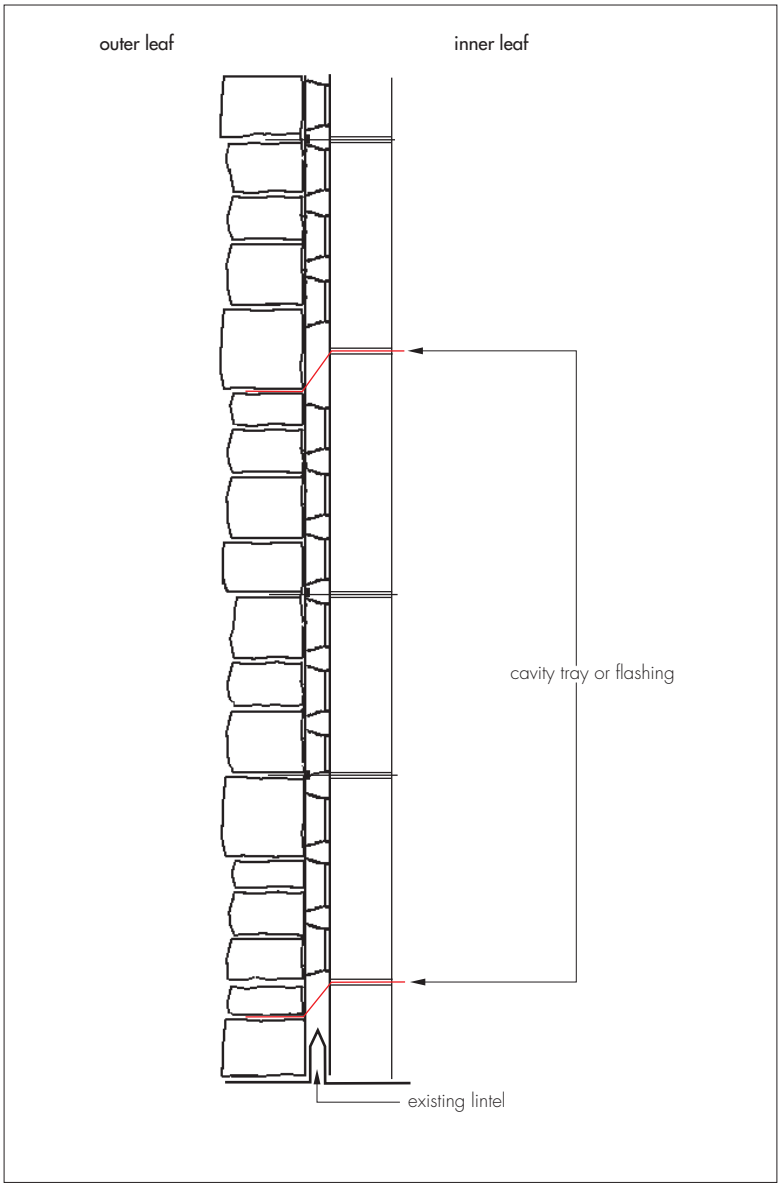
Northern Ireland — Technical Booklet C, Sections 6.3 to 6.6.

8.2 When the system is properly installed in accordance with this Certificate, it will resist any water transfer across the cavity to the inner leaf.

8.3 In all situations it is important to ensure during installation that:

- wall ties and fixings are installed correctly and are clean
- excess mortar is cleaned from the cavity face of the leading leaf and debris removed from the cavity
- installation is carried out to the highest level on each wall or the top edge of the panel is protected by a cavity tray
- at lintel level, a cavity tray, stopends and weepholes are provided (see Figure 2). The cavity tray is fitted with stop ends to prevent water being discharged into the cavity.

Figure 2 Cavity tray detail



9 Condensation risk

9.1 Walls incorporating the system will limit the risk of interstitial condensation adequately when they are designed and constructed in accordance with BS 5250 : 2011 (Annex D and G).

9.2 It is essential that the cavity behind the panel is drained and well ventilated to the outside with openings equivalent to 1500 $mm^2 \cdot m^{-1}$. This ventilation can be provided by air bricks, air vents, open brick perpends and weepholes at cavity trays. The panels must be cut accordingly to accommodate these openings, but care should be taken to minimise the risk of rain ingress. For timber-frame walls, the openings should be below the lowest timber. Timber-frame walls must also include a VCL (vapour control layer) and a breather membrane.

9.3 If the system is to be used in the external walls of rooms expected to have high humidity, care must be taken to ensure adequate ventilation provision is available to avoid possible problems from the formation of interstitial condensation in the internal wall leaf.

10 Maintenance

As the system is confined within the wall cavity and has suitable durability (see section 11), maintenance is not required.

11 Durability

The system is unaffected by the normal conditions in a wall and is durable, rot-proof, water resistant and sufficiently stable to remain effective for the life of the building.

12 Reuse and recyclability

The system components are made from polypropylene and PVC-U, which can be recycled.

13 General

13.1 Walls are constructed with the SureCav Cavity Wall Spacer System panel fixed to the cavity face of the inner leaf in accordance with the Certificate holder's instructions.

13.2 The panel should always be placed lengthways with the flat face outermost and the protrusions in contact with the inner leaf.

13.3 The panels are joined together horizontally and vertically with joining strips between all edges.

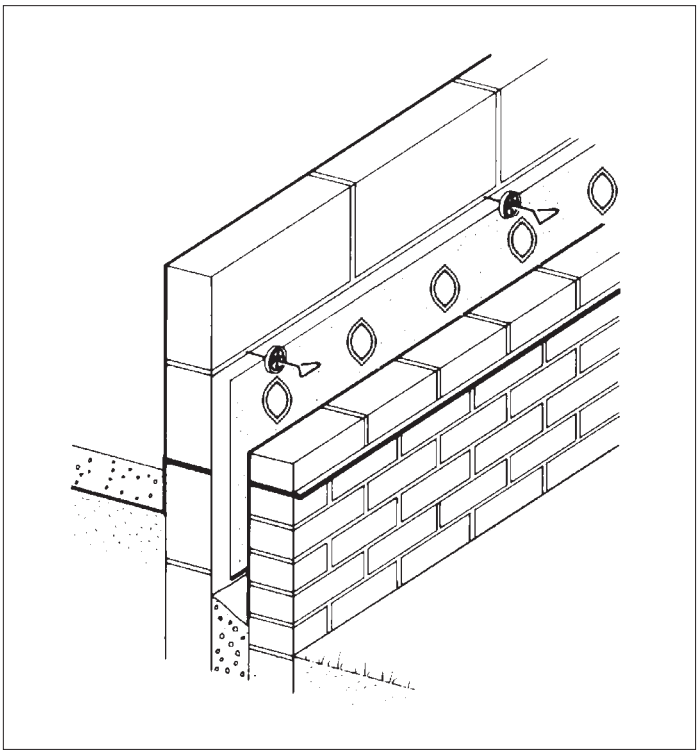
13.4 It is essential that the spacing of the wall ties/clips allows the long edge of each panel to be secured at a minimum of two points.

13.5 The panels can be sawn to fit around openings and corners.

14 Procedure

14.1 A section of the inner leaf is built with the first row of wall ties, at approximately 900 mm horizontal spacing, where the panel is to begin. It is recommended that the wall ties are not placed directly on the dpc. The first run of panels may commence below dpc level (see Figure 3).

Figure 3 First run of panels



14.2 The inner leading leaf is built up to the required height, with the second row of wall ties placed at a vertical spacing of 450 mm, ensuring the drip of the tie is located halfway across the residual cavity width.

14.3 Excess mortar is cleaned from the cavity face of the leading leaf, and the panels are placed between the wall ties, behind the retaining clips. Vertical joining strips lock the panels together.

14.4 It is essential that all wall ties slope downwards towards the outer leaf and do not cut through protrusions.

14.5 The horizontal spacing of wall ties should be 900 mm or 600 mm, depending on the thickness of the thinner leaf. Additional ties may be required to satisfy the structural requirements of PD 6697 : 2010 and/or to ensure adequate retention of the panels.

14.6 The outer leaf is then built up to the level of the top of the panels.

14.7 The inner leaf is built up and the second row of panels interlocked via joining strips with the panels below. It is important to ensure that horizontal joining strips fit between ties leaving the diameter of the tie the only space in the horizontal joint.

14.8 All panels and wall ties should be staggered as construction proceeds and carried up to the highest level of wall, except where protected by a cavity tray (see Figure 4 and Figure 5).

Figure 4 Typical details of block and natural stone outer leaf wall with partial fill insulation

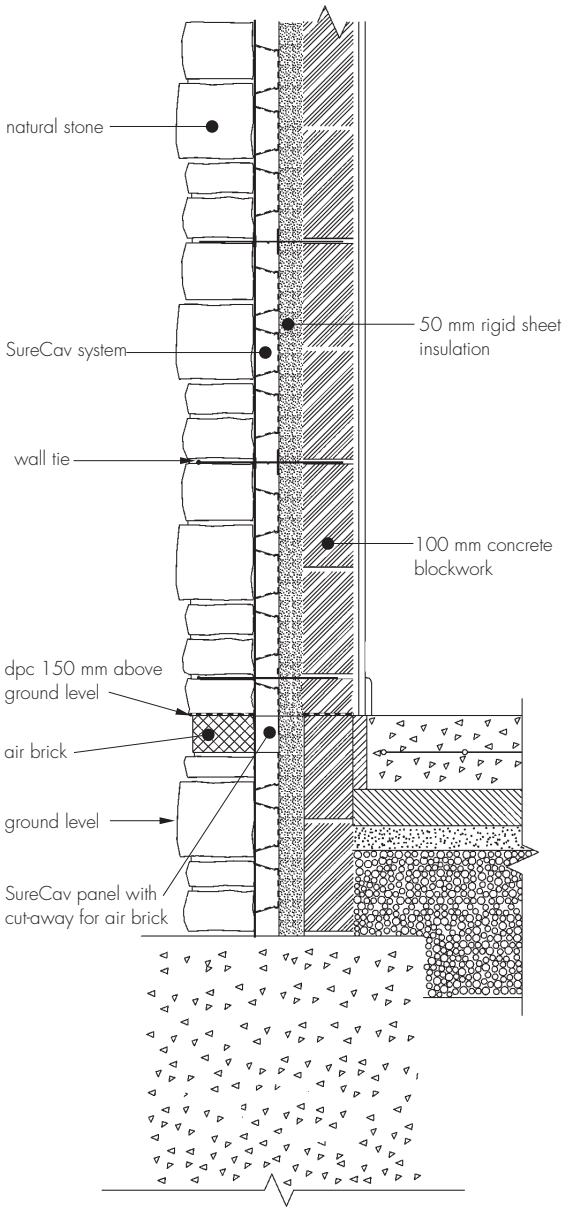
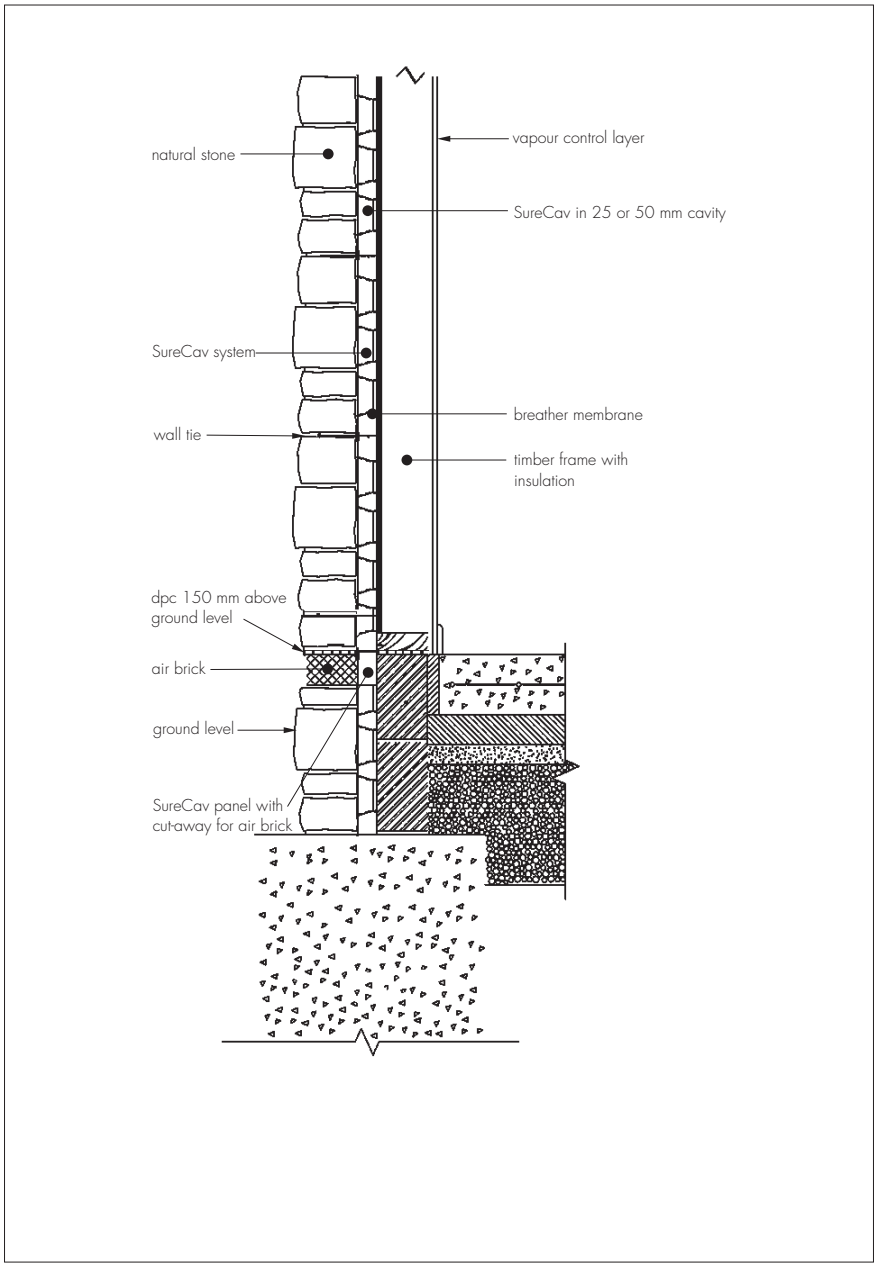


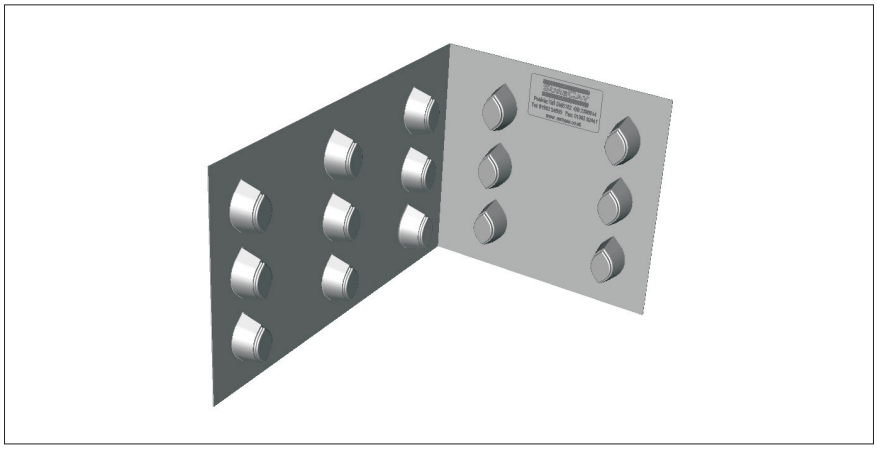
Figure 5 Typical detail of timber frame with brick or stone outer leaf wall



14.9 If a wall tie coincides with a column of protrusions, the point of penetration around the wall tie must be sealed.

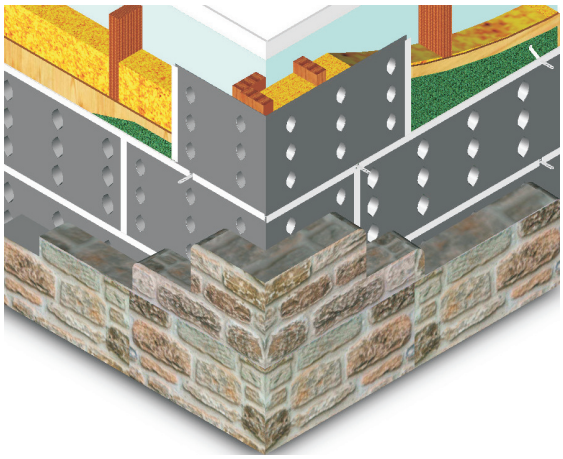
14.10 The panels can be cut to size and bent along the integral fold line to fit around corners (see Figure 6).

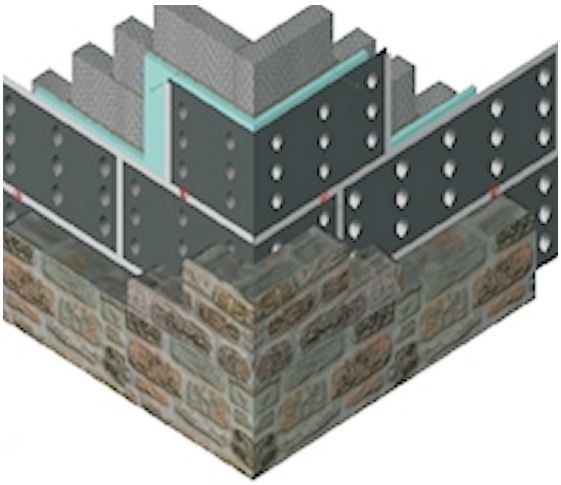
Figure 6 Panels bent along fold line



14.11 The outer leaf is completed by building against the panels up to the level required (see Figure 7).

Figure 7 Installed panel and strips





Wall openings

14.12 Where openings such as doors and windows are in close proximity, it is recommended that a continuous lintel or cavity tray is used. Individual lintels or cavity trays should have stop ends and be adequately drained.

14.13 At the vertical edges of openings and at vertical unreturned or unbonded edges, additional ties should be used at a rate of one tie per 300 mm height or equivalent, and placed not more than 225 mm from the edge. Slots are cut into the panels at every 230 mm and the ties inserted. However, where this would involve piercing the product and introducing an unacceptable risk of water penetration, it is suggested that an additional wall tie is included within 225 mm of the opening on each board course level to satisfy the structural requirements of the wall.

Timber-frame walls

14.14 The installation procedure is as described in sections 14.1 to 14.13 except that the panels are cut and air bricks inserted if necessary below the dpc, before building the outer leaf (see Figure 5).

Technical Investigations

15 Tests

Results of tests were assessed to determine:

- durability
- flexibility
- weathertightness.

16 Investigations

16.1 An assessment of the practicability of installation was carried out.

16.2 A condensation risk was carried out.

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

Bibliography

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

BS 8000-3 : 2001 *Workmanship on building sites — Code of practice for masonry*

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

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*

DD 140-2 : 1987 *Wall ties — Recommendations for design of wall ties*

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.

British Board of Agrément
Bucknalls Lane
Watford
Herts WD25 9BA

tel: 01923 665300
fax: 01923 665301
clientservices@bba.star.co.uk
www.bbacerts.co.uk