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Agrément Certificate

22/6533

Product Sheet 1

CODA CAVITY TRAYS

CODA TRAYS

This Agrément Certificate Product Sheet⁽¹⁾ relates to Coda Trays, a range of trays used in the external walls of masonry or steel-frame constructions, with a brickwork outer leaf.

(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

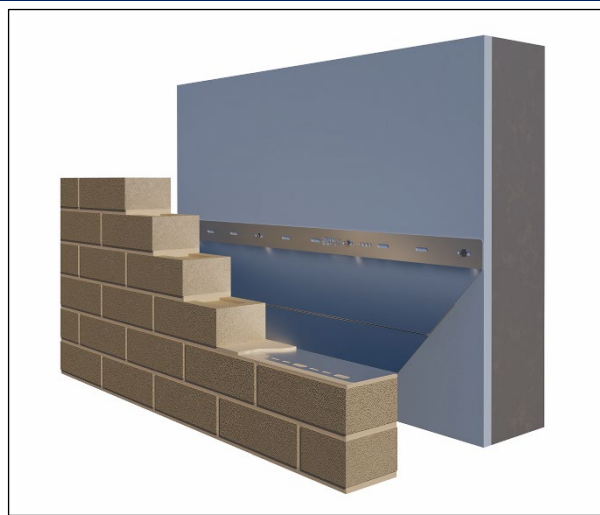
Behaviour in relation to fire — the trays have a reaction to fire classification of A1 without the need for testing, as defined by Commission Decision 96/603/EC and their use is unrestricted by the documents supporting the national Building Regulations (see section 6).

Behaviour under load — the products will not adversely affect the ability of the wall to sustain and transmit compressive loads (see section 7).

Resistance to passage of water — the products will provide an effective barrier against liquid water above the ground damp-proof course (dpc) level (see section 8).

Use with cavity wall insulation — the products are compatible with A1 fire-rated materials currently used as cavity wall insulation (see section 9).

Durability — under normal service conditions, the products will remain effective for the lifetime of the building in which they are installed (see section 11).



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 First issue: 29 November 2022

Hardy Giesler
Chief Executive Officer

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 MUST check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA directly.

Any photographs are for illustrative purposes only, do not constitute advice and should not be relied upon.

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Regulations

In the opinion of the BBA, Coda Trays, 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:		The products can contribute to satisfying this Requirement when properly installed. The presence of a dpc, however, can reduce the shear and tensile strength of a wall at that location. See section 7 of this Certificate.
Requirement:	B4(1)	External fire spread
Comment:		The products are unrestricted under this Requirement. See section 6 of this Certificate.
Requirement:	C2(b)	Resistance to moisture
Comment:		The products can contribute to satisfying this Requirement. See section 8 of this Certificate.
Regulation:	7(1)	Materials and workmanship
Comment:		The products are acceptable. See section 11 and the <i>Installation</i> part of this Certificate.
Regulation:	7(2)	Materials and workmanship
Comment:		The products are unrestricted by this Regulation. See section 6 of this Certificate.



The Building (Scotland) Regulations 2004 (as amended)

Regulation:	8(1)	Fitness and durability of materials and workmanship
Comment:		The use of the products can contribute to a construction satisfying this Regulation. See section 11 and the <i>Installation</i> part of this Certificate.
Regulation:	9	Building standards applicable to construction
Standard:	1.1(a)(b)	Structure
Comment:		The products can contribute to a construction satisfying this Standard, with reference to clause 1.1.1 ⁽¹⁾⁽²⁾ . The presence of a dpc, however, can reduce the shear and tensile strength of a wall at that location. See section 7 of this Certificate.
Standard:	2.6	Spread on external walls
Comment:		The products are unrestricted under this Standard, with reference to clauses 2.6.5 ⁽¹⁾ and 2.6.6 ⁽²⁾ . See section 6 of this Certificate.
Standard:	3.1	Precipitation
Comment:		The products can contribute to a construction satisfying this Standard, with reference to clauses 3.10.1 and 3.10.4. See section 8 of this Certificate.
Standard:	7.1(a)	Statement of sustainability
Comment:		The products 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:	12	Building standards applicable to conversions
Comment:		Comments in relation to 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⁾ .

(1) Technical Handbook (Domestic).

(2) Technical Handbook (Non-Domestic).



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

Regulation:	23(1)(a)(i)	Fitness of materials and workmanship
Comment:	(iii)(b)(i)	The products are acceptable. See section 11 and the <i>Installation</i> part of this Certificate.
Regulation:	23(2)	Fitness of materials and workmanship
Comment:		The products are unrestricted by this Regulation. See section 6 of this Certificate.
Regulation:	28(b)	Resistance to moisture
Comment:		The products can contribute to satisfying this Regulation. See section 8 of this Certificate.
Regulation:	30	Stability
Comment:		The products can contribute to satisfying this Regulation. The presence of a dpc, however, can reduce the shear and tensile strength of a wall at that location. See section 7 of this Certificate.
Regulation:	36(a)	External fire spread
Comment:		The products are unrestricted under this Regulation. See section 6 of this Certificate.

Construction (Design and Management) Regulations 2015

Construction (Design and Management) Regulations (Northern Ireland) 2016

Information in this Certificate may assist the client, designer (including Principal Designer) and contractor (including Principal Contractor) to address their obligations under these Regulations.

See section: 3 *Delivery and site handling* (3.2) of this Certificate.

Additional Information

NHBC Standards 2022

In the opinion of the BBA, Coda Trays, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements in relation to *NHBC Standards*, Chapters 6.1 *External masonry walls* and 6.10 *Light steel framed walls and floors*.

Technical Specification

1 Description

1.1 Coda Trays are formed from 1 mm thick stainless steel grade 1.4301/1.4307 to BS EN 10028-7 : 2016 or BS EN 10088-2 : 2014 (also known as 304 and 304L respectively). The standard trays consist of two components (see Figure 1):

- CT.1 — a sloping sheet which is embedded into fresh mortar in the outer leaf of the building. The tray is manufactured with a row of perforations towards the front of the horizontal part of the tray to provide a key for the mortar course
- CT.2 — a sloping sheet which is attached to the inner leaf of the construction and sheds any water which enters the cavity, draining it into the CT.1 tray

Other variations of the basic products are:

- OC.1 — 1 mm factory-welded corner units, available for both internal and external corners as shown in Figures 2 and 3
- OC.2 — 1 mm factory-welded corner units, available for both internal and external corners as shown in Figures 2 and 3
- Coda Stopends — 1 mm factory-welded, available for both left and right termination of horizontal runs as shown in Figure 4
- Coda site specific shapes — 1 mm factory-welded sections to accommodate non-standard brickwork detailing.

1.2 CT.1 and CT.2 trays available in lengths up to 3000 mm.

1.3 A range of ancillary items is supplied, including:

- Everbuild Everflex AC95 — a sealant for primary sealing of tray joints
- Arbo FR-RS Fire Tape — 50 mm wide single-sided butyl sealing strip for use as edge-sealing on overlaps.

1.4 The Certificate holder recommends the following ancillary items for use with the products, but these materials have not been assessed by the BBA and are outside the scope of this Certificate:

- weeps — for channelling water from the tray to the outside of the brickwork. These should be made using materials which will not have an adverse reaction with stainless steel.

Figure 1 Coda Trays

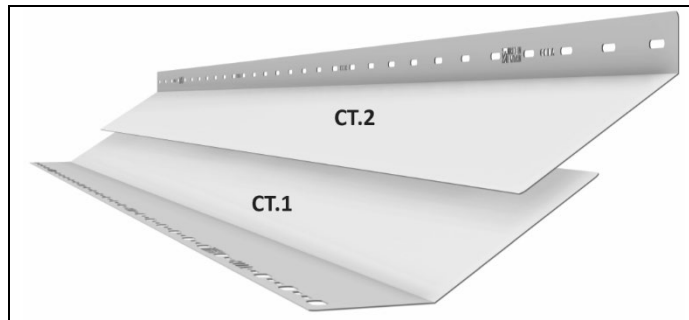


Figure 2 Coda Trays corner — internal

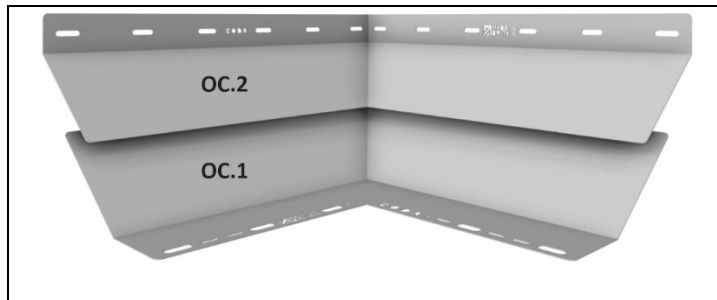


Figure 3 Coda Trays corner — external

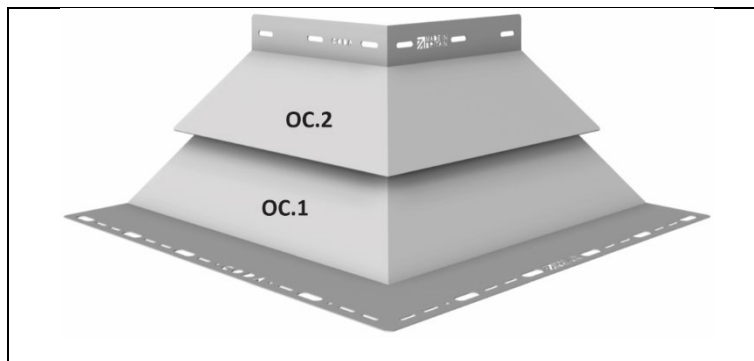
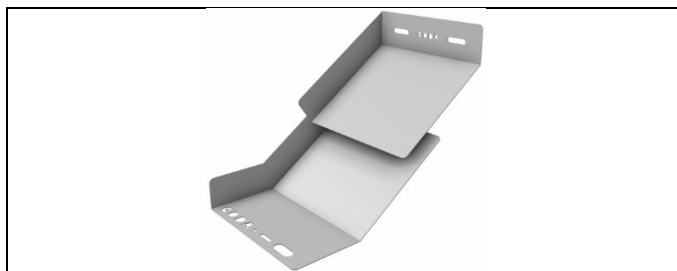


Figure 4 Coda Stopends



2 Manufacture

2.1 The products are factory formed from stainless steel. Corner units and stopends are made to order and welded in the factory to ensure that they are watertight.

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 products are delivered to site shrink-wrapped on pallets. Address labels and delivery notes are attached along with envelopes containing customer drawings.

3.2 The pallets should be unloaded by forklift truck and the products should be stored in a secure place in the original packaging until required for use to prevent damage or surface contamination.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Coda Trays.

Design Considerations

4 General

4.1 Coda Trays and the associated ancillary items, when specified and installed in accordance with this Certificate and generally with the specifications in PD 6697 : 2019, BS EN 1996-1-2 : 2005, BS EN 1996-2 : 2006, BS EN 1996-3 : 2006 and BS 8215 : 1991, are satisfactory for use in external cavity walls with a brick outer leaf and either a steel framing system (SFS) or a concrete/blockwork inner leaf.

4.2 The external leaf of the cavity walls should be built from standard brickwork with a minimum thickness of 102.5 mm.

4.3 The CT.1 tray has perforations through the steel towards the outer face of the external brickwork. These perforations will act as a key to the mortar and improve the bond of the mortar to the steel. Such perforations will, however, tend to transmit rising damp through the mortar if used at the base of a structure. For this reason, the products should not be used as a ground-level dpc.

5 Practicability of installation

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

6 Behaviour in relation to fire



The trays have a reaction to fire classification of A1 without the need for testing, as defined by Commission Decision 96/603/EC and their use is unrestricted by the documents supporting the national Building Regulations.

7 Behaviour under Load



The products will not adversely affect the ability of a wall to sustain and transmit compressive loads. However, the presence of a dpc can reduce the shear and tensile (and therefore bending) strengths of a wall. Test walls⁽¹⁾ incorporating the products and tested to BS EN 1052-4 : 2000 gave a Characteristic Shear Strength of $0.20 \text{ N}\cdot\text{mm}^{-2}$, and when tested to DD86-1 : 1983 gave a Characteristic Internal Angle of Friction of 20.08° . The effect of wind and other horizontal or upward forces should be considered at the design stage.

(1) The test walls in these tests used Sunset Red bricks with a tabulated compressive strength of $63 \text{ N}\cdot\text{mm}^{-2}$ and a 1:1:6 mortar with a compressive strength of $3.25 \text{ N}\cdot\text{mm}^{-2}$.

8 Resistance to passage of water



Coda Trays and associated ancillary items, when sealed together, provide a continuous barrier against liquid water. Water is typically ejected through weepholes or evaporated from the outer skin.

9 Use with cavity wall insulation

Stainless steel has no effect on, and is unaffected by, materials currently used as A1 fire-rated cavity wall insulants. However, where the trays are not bonded to the inner leaf, they do not form a continuous mechanical barrier, and blown or injected insulation may penetrate from the cavity above to below the trays. This possibility must be considered when an in-situ applied cavity insulation is used.

10 Maintenance

As the products are confined within the wall and wall cavity, and have suitable durability (see section 11), maintenance is not required. However, any damage occurring before enclosure must be repaired (see section 15).

11 Durability



Under normal service conditions, the trays will remain effective for the life of the building in which they are installed.

12 Reuse and recyclability

The products comprise steel, which can be recycled.

13 General

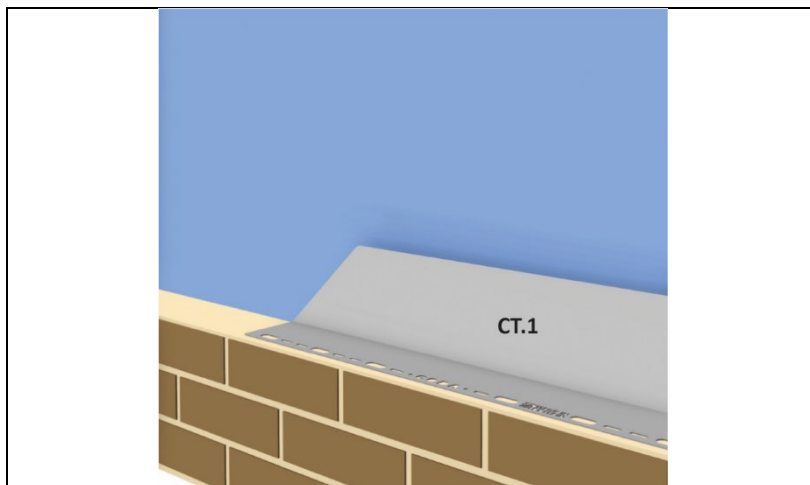
13.1 Coda Trays must be installed in accordance with this Certificate, the Certificate holder's instructions, and generally in accordance with PD 6697 : 2019, BS EN 1996-1-1 : 2006, BS EN 1996-2 : 2005, BS EN 1996-3 : 2006 and BS 8215 : 1991.

13.2 The products may be installed at a minimum temperature of 5°C in any weather that permits bricklaying. All relevant surfaces must be clean and dry prior to installing the products.

14 Procedure

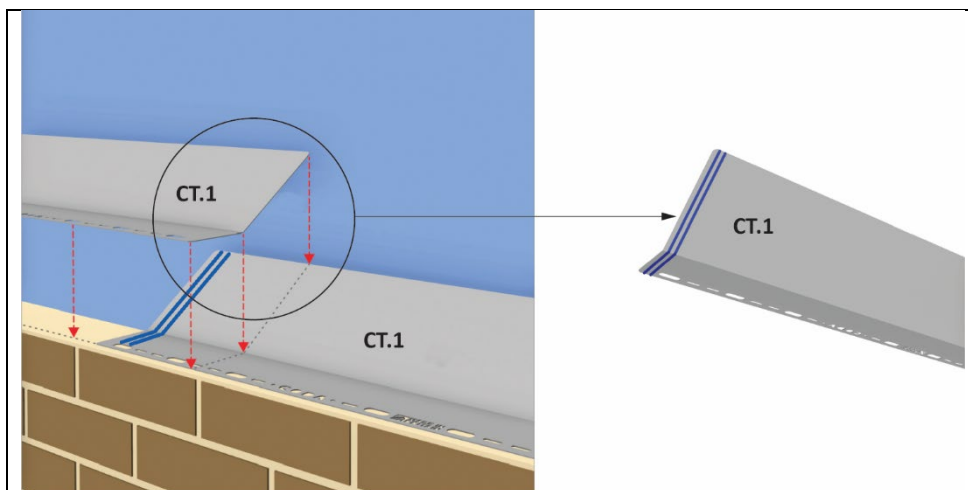
14.1 The trays and variations have a unique reference number which can be cross-referenced to the setting-out documents supplied for each job. This reference number should be checked before laying the tray on a fresh bed of mortar ensuring the outer edge of the tray sits 15 to 20 mm back from the face of wall (see Figure 5). All surfaces for bonding should be cleaned to remove moisture or debris.

Figure 5 Laying the units on a fresh bed of mortar



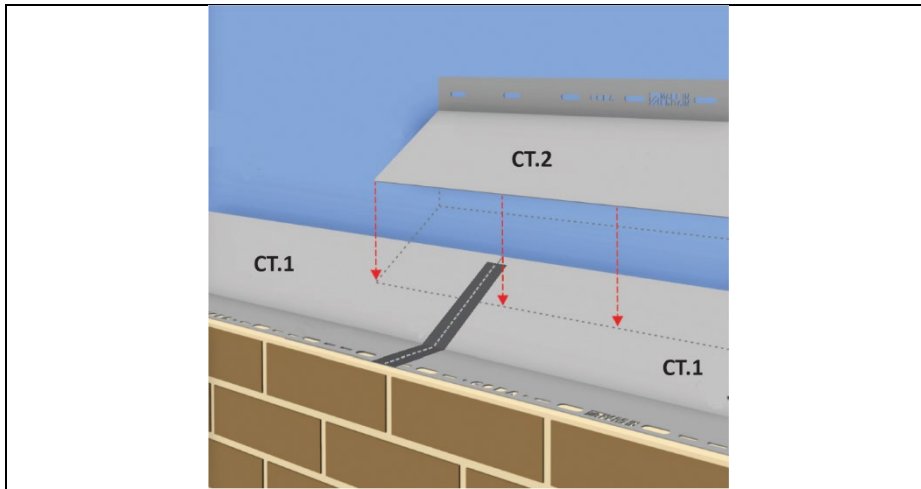
14.2 The CT.1 tray is positioned and fixed with screws on a thin bed of mortar and a 6 mm bead of the primary seal, Everbuild Everflex AC95, is applied in two lines at the side edge of the CT.1 tray that is in place and also on the back of the consecutive CT.1 tray (see Figure 6). The joint is completed by overlapping the two CT.1 trays by a minimum of 150 mm, using firm pressure to ensure close contact between the sealant and the trays.

Figure 6 Application of Everbuild Everflex AC95 to CT.1 trays



14.3 A piece of Arbo FR-RS Fire Tape is placed centrally over the overlap between the CT.1 trays with a minimum length of 160 mm. Care should be taken to press the tape to the steel, especially into the bend in the tray, to eliminate any possibility of leaving pathways for water ingress (see Figure 7).

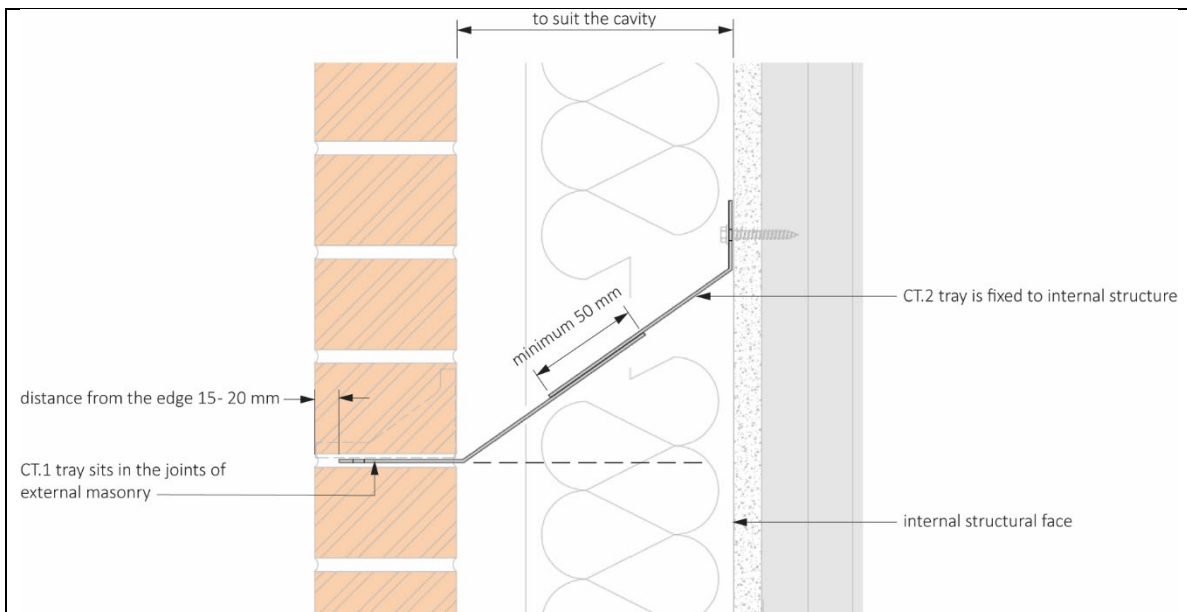
Figure 7 Final joint with Arbo FR-RS Fire Tape applied to CT.1 trays



14.4 Where there is a discontinuity or interruption of the CT.1 trays, Coda Stopends should be used. The positioning of the stopend depends on the position of the vertical perpendicular courses. When the perpendicular course lands outside of the CT.1 tray, then the stopend is placed, using a minimum overlap of 150 mm. The joint is formed in the same way as for standard CT.1 trays, using Everbuild Everflex AC95 as a primary seal between the CT.1 tray and the stopend, plus overlapping strip of Arbo FR-RS Fire Tape.

14.5 In order to install CT.2 trays it is necessary to locate the screws/fixings positions by marking them out on the inner leaf, ensuring a minimum of two screws/fixings to each tray with a maximum of 600 mm centres. The CT.2 tray is placed ensuring a minimum overlap of 50 mm with CT.1 tray so that any water falling onto the CT.2 tray can run onto the CT.1 tray (see Figure 8).

Figure 8 Cross-section showing CT.1 and CT.2 trays



14.6 The joint between the consecutive parts of CT.2 trays is formed in the same way described in sections 14.2 and 14.3 (see Figure 9 and 10).

Figure 9 Application of Everbuild Everflex AC95 to CT.2 trays

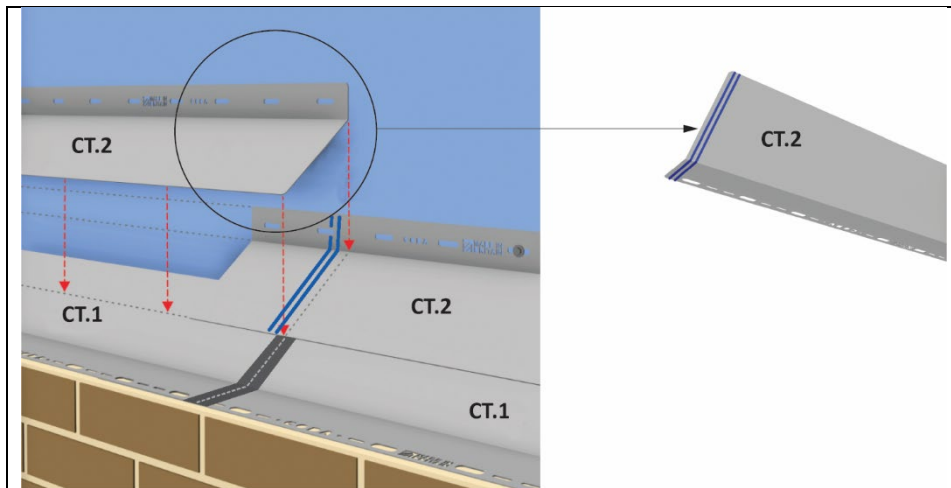
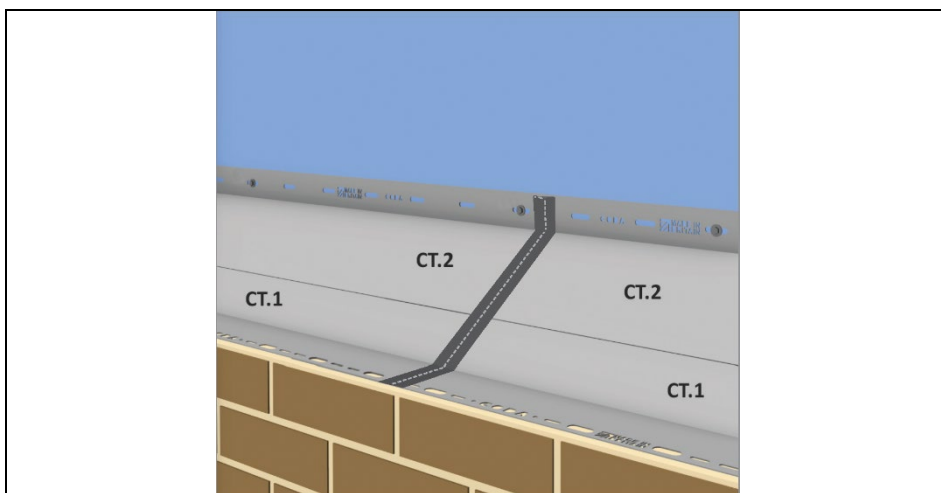


Figure 10 Final joint with Arbo FR-RS Fire Tape applied to CT.2 trays



14.7 OC.1 and OC.2 corner units, which have been factory-welded to make them watertight, are installed at corners using the same method described in sections 14.1 to 14.6.

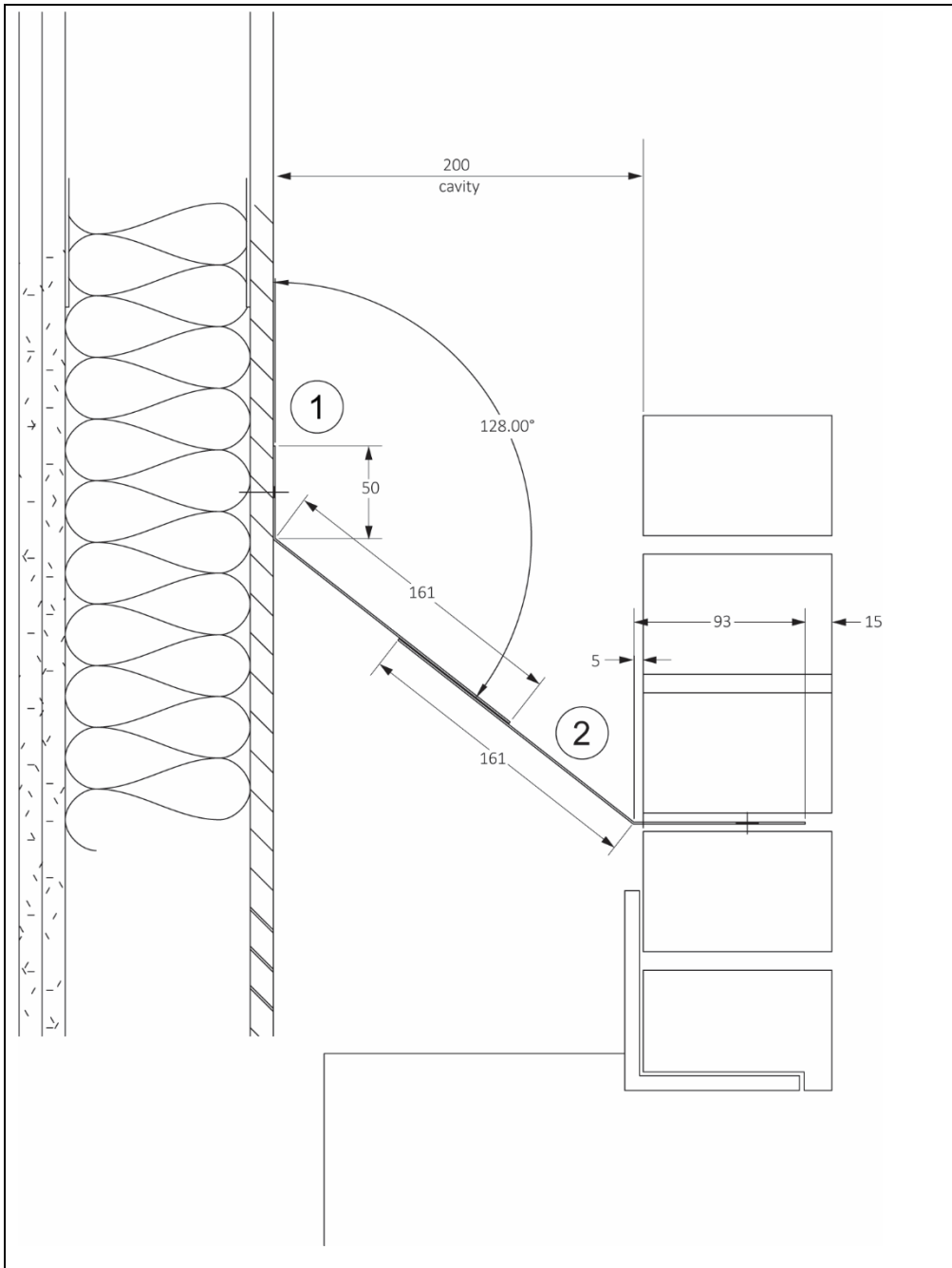
14.8 Steps covered in sections 14.1 to 14.7 are repeated until the installation of the trays is completed.

14.9 A fresh bed of mortar is then applied to the trays and a course of masonry units is bedded onto it. Non-combustible weeps are installed at a maximum spacing of 1 m, unless the trays are used with lintels, in which case they are installed at maximum spacing of 450 mm (with the provision of a minimum number of two per lintel).

14.10 The products are compatible with 'L' type lintels (see Figure 11). A minimum lintel projection beyond the vertical dpc of 25 mm should be observed and stopends should be placed to coincide with perpend joints. Further guidance can be found in *NHBC Standards 2022*, Chapter 6.1 (6.1.17) and Technical Guidance Note 6.1/29 *Forming stopends to cavity trays*, see Figure 11 of this Certificate.

14.11 For installation with 'L' type lintels where the tray is installed 1 to 2 courses of brickwork above the lintel, additional weeps should be placed on the lintel lower edge at maximum spacing of 450 mm (with the proviso of a minimum number of two per lintel).

Figure 11 Use of the products with L-shaped lintel⁽¹⁾



(1) The performance of the lintel is outside of the scope of this Certificate.

15 Repair

Damaged trays should be replaced prior to the installation courses above the tray.

16 Tests

Tests were carried out and the results assessed to determine:

- characteristic shear strength
- characteristic flexural bond strength
- overlap shear strength of cavity trays joints after accelerated ageing
- leakage test carried out on a sample installation
- fatigue cycling.

17 Investigations

17.1 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.

17.2 A visit was carried out to a site-in-progress to assess the practicability of installation.

Bibliography

BS 8215 : 1991 *Code of practice for design and installation of damp-proof courses in masonry construction*

BS EN 1052-4 : 2000 *Methods of test for masonry – Determination of shear strength including damp proof course*

BS EN 1996-1-1 : 2006 + A1 : 2012 *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*

BS EN 1996-2 : 2006 *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 circulation methods for unreinforced masonry structures*

BS EN 10028-7 : 2016 *Flat products made of steels for pressure purposes – Stainless steels*

BS EN 10088-2 : 2014 *Stainless steels – Technical delivery conditions for sheet/plate and strip of corrosion resisting steels for general purposes*

DD86-1 : 1983 *Damp-proof courses – Methods of test for flexural bond strength and short term shear strength*

PD 6697 : 2019 *Recommendations for the design of masonry structures to BS EN 1996-1-1 and BS EN 1996-2*

18 Conditions

18.1 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.

18.2 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.

18.3 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.

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

18.5 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.

18.6 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.