

CN Terracotta (UK) Ltd

Middlecott
Trethurffe
Ladock, Truro
Cornwall TR2 4PU

Tel: +44 (0) 7747 720340

e-mail: roy@cnterraccotta.co.uk

website: www.cnterraccotta.co.uk



Agrément Certificate

23/6849

Product Sheet 1 Issue 1

CN TERRACOTTA CLADDING SYSTEM

CN TERRACOTTA T19 AND T30 CLADDING SYSTEM

This Agrément Certificate Product Sheet⁽¹⁾ relates to CN Terracotta T19 and T30 Cladding System, comprising terracotta panels mechanically fastened to horizontal aluminium rails with clips, for use as part of a back-ventilated and drained rainscreen cladding system, to provide a decorative and protective façade over external masonry, concrete, steel-frame and timber-frame walls of new and existing buildings.

(1) Hereinafter referred to as 'Certificate'.

The assessment includes

Product factors:

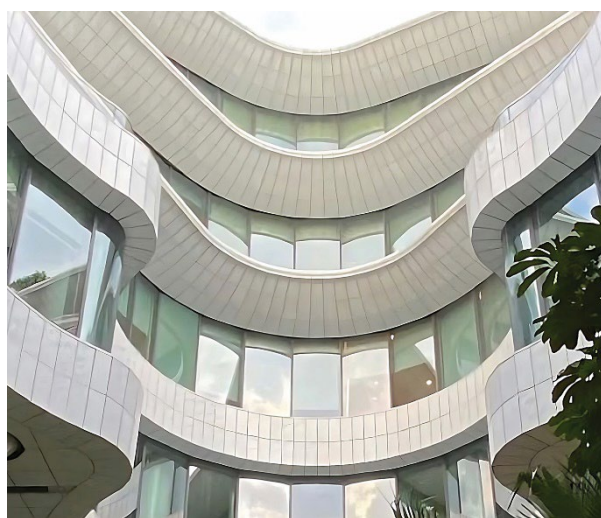
- compliance with Building Regulations
- compliance with additional regulatory or non-regulatory information where applicable
- evaluation against technical specifications
- assessment criteria and technical investigations
- uses and design considerations

Process factors:

- compliance with Scheme requirements
- installation, delivery, handling and storage
- production and quality controls
- maintenance and repair

Ongoing contractual Scheme elements†:

- regular assessment of production
- formal 3-yearly review



KEY FACTORS ASSESSED

- Section 1. Mechanical resistance and stability
- Section 2. Safety in case of fire
- Section 3. Hygiene, health and the environment
- Section 4. Safety and accessibility in use
- Section 5. Protection against noise
- Section 6. Energy economy and heat retention
- Section 7. Sustainable use of natural resources
- Section 8. Durability

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 issue: 2 May 2023

Hardy Giesler
Chief Executive Officer

This BBA Agrément Certificate is issued under the BBA's Inspection Body accreditation to ISO/IEC 17020. Sections marked with † are not issued under accreditation.

The BBA is a UKAS accredited Inspection Body (No. 4345), Certification Body (No. 0113) and Testing Laboratory (No. 3537).

Readers MUST check that this is the latest issue of this Agrément Certificate by either referring to the BBA website or contacting the BBA directly.

The Certificate should be read in full as it may be misleading to read clauses in isolation.

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

British Board of Agrément

1st Floor, Building 3, Hatters Lane
Croxley Park, Watford
Herts WD18 8YG

©2023

tel: 01923 665300
clientservices@bbacerts.co.uk
www.bbacerts.co.uk

SUMMARY OF ASSESSMENT AND COMPLIANCE

This section provides a summary of the assessment conclusions; readers should refer to the later sections of this Certificate for information about the assessments carried out.

Compliance with Regulations

Having assessed the key factors, the opinion of the BBA is that CN Terracotta T19 and T30 Cladding 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 Building Regulations 2010 (England and Wales) (as amended)

Requirement:	A1	Loading
Comment:		The system is acceptable for use. See section 1 of this Certificate.
Requirement:	B3(4)	Internal fire spread (structure)
Comment:		The system can contribute to satisfying this Requirement. See section 2 of this Certificate.
Requirement:	B4(1)	External fire spread
Comment:		The system is unrestricted by this Requirement. See section 2 of this Certificate.
Requirement:	C2(b)	Resistance to moisture
Comment:		The system is not designed to be watertight but will limit the passage of rainwater to the supporting structure. See section 3 of this Certificate.
Regulation:	7(1)	Materials and workmanship
Comment:		The system is acceptable. See sections 8 and 9 of this Certificate.
Regulation:	7(2)	Materials and workmanship
Comment:		The system is unrestricted by this Regulation. See section 2 of this Certificate.



The Building (Scotland) Regulations 2004 (as amended)

Regulation:	8(1)(2)	Fitness and durability of materials and workmanship
Comment:		The system can contribute to a construction satisfying this Regulation. See sections 8 and 9 of this Certificate.
Regulation:	8(3)	Fitness and durability of materials and workmanship
Comment:		The system is unrestricted by this Regulation. See section 2 of this Certificate.
Regulation:	9	Building standards applicable to construction
Standard:	1.1(a)(b)	Structure
Comment:		The system is acceptable, with reference to clause 1.1.1 ⁽¹⁾⁽²⁾ of this Standard. See section 1 of this Certificate.
Standard:	2.4	Cavities
Comment:		The system can contribute to satisfying this Standard, with reference to clause 2.4.2 ⁽¹⁾⁽²⁾ . See section 2 of this Certificate.
Standard:	2.6	Spread to neighbouring buildings
Comment:		The system is unrestricted by this Standard, with reference to clauses 2.6.4 ⁽¹⁾⁽²⁾ , 2.6.5 ⁽¹⁾ and 2.6.6 ⁽²⁾ . See section 2 of this Certificate.

Standard:	2.7	Spread on external walls
Comment:		The system is unrestricted by this Standard, with reference to clause 2.7.1 ⁽¹⁾⁽²⁾ . See section 2 of this Certificate.
Standard:	3.10	Precipitation
Comment:		The system can contribute to satisfying this Standard, with reference to clauses 3.10.1 ⁽¹⁾⁽²⁾ , 3.10.5 ⁽¹⁾⁽²⁾ and 3.10.6 ⁽¹⁾⁽²⁾ . See section 3 of this Certificate.
Standard:	7.1(a)	Statement of sustainability
Comment:		The system 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 system 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 system is acceptable. See sections 8 and 9 of this Certificate.
Regulation:	23(2)	Fitness of materials and workmanship
Comment:		The system is unrestricted by this Regulation. See section 2 of this Certificate.
Regulation:	28(b)	Resistance to moisture and weather
Comment:		The system can contribute to satisfying this Regulation. See section 3 of this Certificate.
Regulation:	30	Stability
Comment:		The system is acceptable. See section 1 of this Certificate.
Regulation:	35(4)	Internal fire spread – Structure
Comment:		The system can contribute to satisfying this Regulation. See section 2 of this Certificate.
Regulation:	36(a)	External fire spread
Comment:		The system is unrestricted by this Regulation. See section 2 of this Certificate.

Additional Information

NHBC Standards 2023

In the opinion of the BBA, CN Terracotta T19 and T30 Cladding System, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements in relation to *NHBC Standards, Part 6 Superstructure (excluding roofs), Chapter 6.9 Curtain walling and cladding*.

Fulfilment of Requirements

The BBA has judged CN Terracotta T19 and T30 Cladding System to be satisfactory for use as described in this Certificate. The system has been assessed as back-ventilated and drained rainscreen cladding, to provide a decorative and protective façade over vertical external masonry, concrete, timber- or steel-frame walls of new and existing buildings.

ASSESSMENT

Product description and intended use

The Certificate holder provided the following description for the system under assessment. CN Terracotta T19 and T30 Cladding System consist of:

- terracotta panels
- panel support clips
- horizontal rail profile.

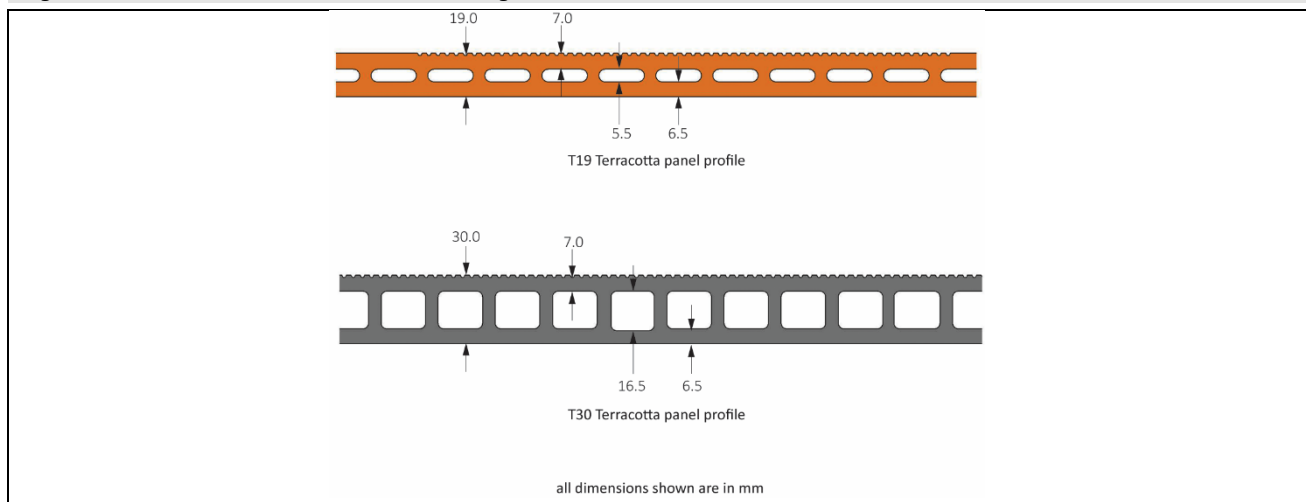
Terracotta panels

- the panels are available in two designs, T19 and T30 as shown in Figure 1, and can be installed vertically or horizontally
- the panels are manufactured by extrusion of a single blend of clay paste in a hollow, double-wall design, to the nominal dimensions and characteristics detailed in Table 1.

Table 1 Nominal characteristics

Characteristic (unit)	Panel type	
	T19	T30
Overall thickness (mm)	19 (max tolerance $\pm 10\%$)	30 (max tolerance $\pm 10\%$)
Mass per unit area ($\text{kg}\cdot\text{m}^{-2}$)	35	45
Standard width (mm)	444 (max tolerance ± 2)	
Standard length (mm)	600 – 1200 (max tolerance ± 2)	900 (max tolerance ± 2)
Surface finish	Glazed and unglazed	
Colours	Various	
Panel classification (to BS EN 14411 : 2016)	Group All _{a-1}	Group All _{a-1}

Figure 1 CN Terracotta T19 and T30 Cladding Panels



Panel support clip

- the clips are manufactured from aluminium alloy 6063 T6 with 25 micron anodised coating to BS EN ISO 7599 : 2018, and are used to support the panels in a horizontal (landscape) or vertical (portrait) orientation (see Figure 5). They have a protruding tab to fit into the groove/core on the underside of the panel above, and a downward tongue to hook onto the groove/core of the top of the adjacent panel below (see Figure 3)
- the clips come with an integral 5.5 mm shaft diameter x 10 mm long x 8 mm head diameter self-drilling stainless steel screw of grade A4-70 to BS EN 10088-3 : 2014, used to correctly adjust and stabilise the clips to the horizontal rail profile, and EPDM bearing gaskets to support and protect the panel backside.

Figure 2 Panel support clip

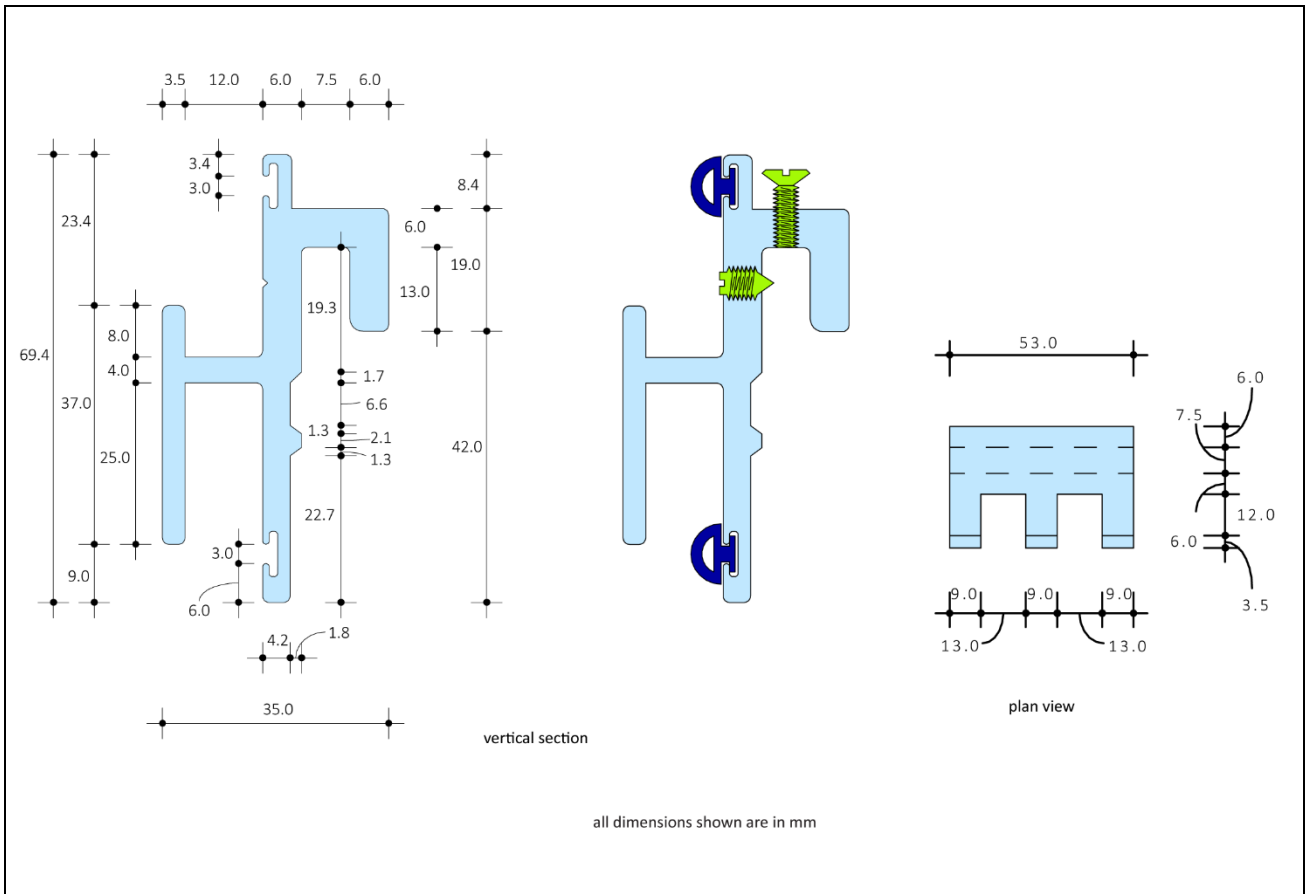
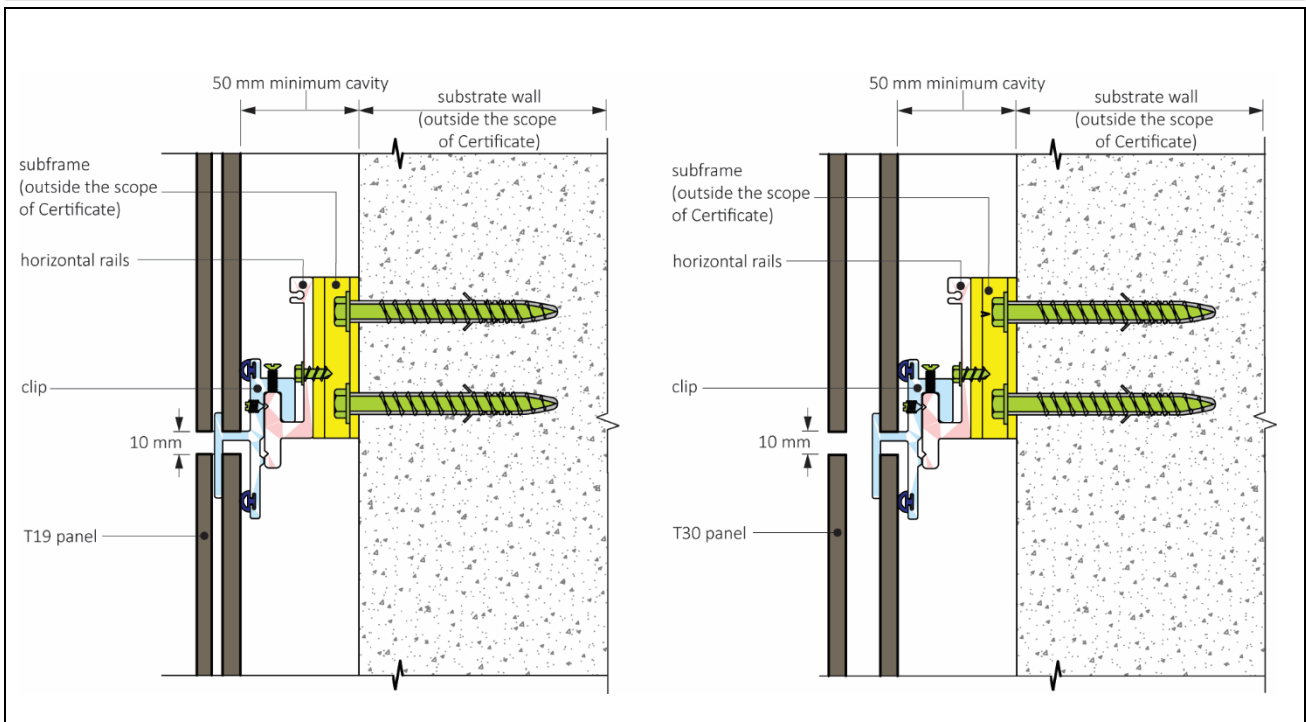


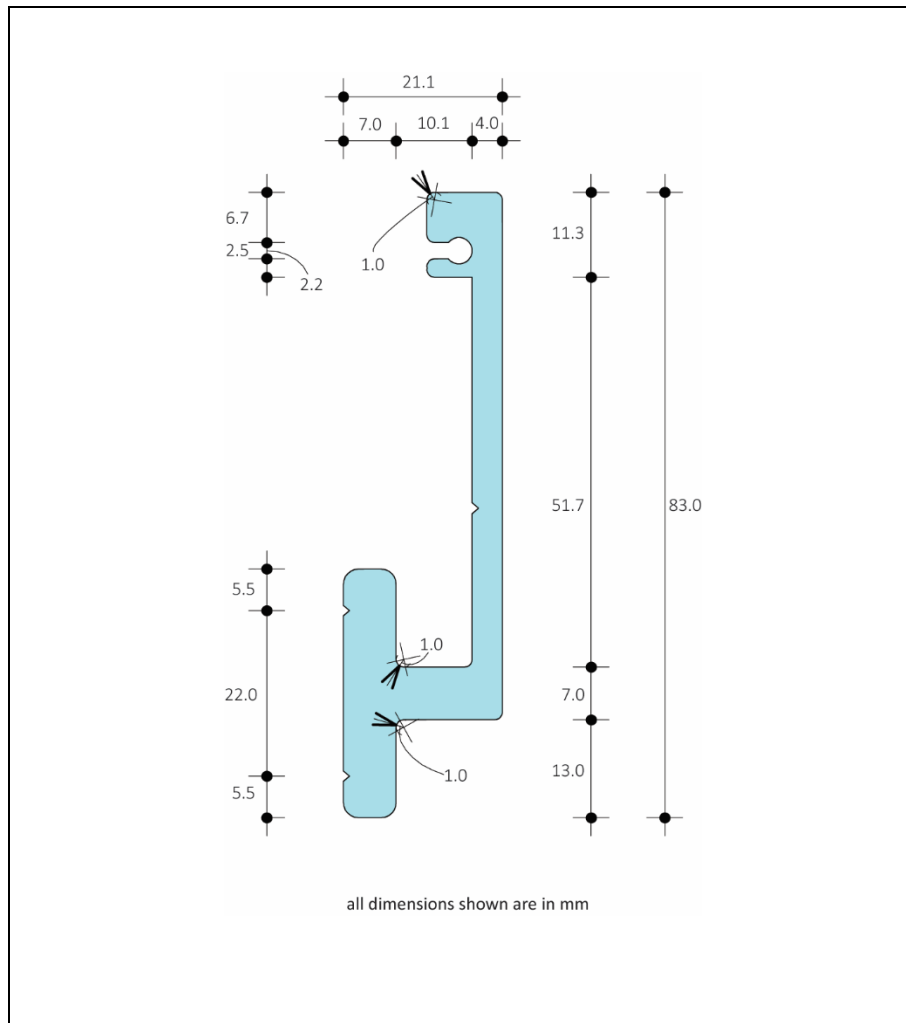
Figure 3 Vertical sections of vertically installed panels



Horizontal rail profile

- the horizontal rail profile is manufactured from extruded aluminium alloy EN AW 6063 (to BS EN 573-3 : 2019) T6 (to BS EN 755-2 : 2016), with 25 micron anodised coating to BS EN ISO 7599 : 2018. It is available in lengths to suit each project requirement and has the dimensions as shown in Figure 4.

Figure 4 Horizontal rail



Ancillary Items

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

- subframe – designed on a project-specific basis to attach the horizontal rail to the substrate wall as per Figure 5
- anchor fixings – for fixing the subframe to the substrate wall
- fixings attaching the horizontal rail profile to the subframe
- insulation within the cavity (specified on a project-specific basis)
- perforated aluminium angle cavity bottom closure/ mesh
- sill/ head flashing
- EPDM baffle/ gasket spacer
- breather membrane.

Product assessment – key factors

The system was assessed for the following key factors, and the outcomes of the assessments are shown below. Conclusions relating to the Building Regulations apply to the whole of the UK unless otherwise stated.

1 Mechanical resistance and stability

Data were assessed for the following characteristics.

1.1 Behaviour under loading

1.1.1 The resistance of the horizontal support rails to vertical loading due to the system's self-weight was assessed against the requirements of BS EN 1999-1-1 : 2007. The rails have adequate resistance.

1.2 Structural performance

1.2.1 Data were assessed for the following, as shown in Table 2.

Table 2 Characteristic resistance of grooved cladding element

Product assessed	Assessment method	Requirement	Result
Terracotta T19 panel and clip ⁽¹⁾ (at longitudinal panel edge)	EAD 090062-00-0404, Annex H	Value achieved	0.464 kN

(1) Note: Terracotta T19 panel and clip taken as the worst case; Terracotta T30 and clip will achieve a performance at least equal to this.

1.2.2 Data were assessed for the following, as shown in Table 3.

Table 3 Characteristic resistance of cladding element at core hole

Product assessed	Assessment method	Requirement	Result
Terracotta T19 panel and clip ⁽¹⁾ (at transverse panel edge)	EAD 090062-00-0404, Clause 2.2.12.3	Value achieved	1.396 kN

(1) Note: Terracotta T19 panel and clip taken as the worst case; Terracotta T30 and clip will achieve a performance at least equal to this.

1.2.3 Data were assessed for the following, as shown in Table 4.

Table 4 Panel modulus of rupture and breaking strength

Product assessed	Assessment method	Requirement	Result
Terracotta T19 panel ⁽¹⁾	Modulus of rupture to BS EN ISO 10545-4 : 2019	BS EN 14411 : 2016 ≥ 20 N.mm ⁻² (average minimum) ≥ 18 N.mm ⁻² (individual minimum)	Pass
Terracotta T19 panel ⁽¹⁾	Breaking strength to BS EN ISO 10545-4 : 2019	BS EN 14411 : 2016 ≥ 950 N	Pass

(1) Note: Terracotta T19 panel taken as the worst case; Terracotta T30 panel will achieve a performance at least equal to this.

1.2.4 The panel clip and horizontal support rail were assessed as having the properties shown in Table 5.

Table 5 Properties of support profiles

Component	Cross-sectional area	Moment of inertia about x-axis	Moment of inertia about y-axis
	(mm ²)	I_{xx} (cm ⁴)	I_{yy} (cm ⁴)
Clip	657.90	18.08	6.36
Horizontal rail	628.07	37.84	3.25

2 Safety in case of fire

Data were assessed for the following characteristics.

2.1 Reaction to fire

2.1.1 The panels, clips, and horizontal rails are classified as A1 reaction to fire in accordance with EU decision 96/603/EC.

2.1.2 The panels, clips and horizontal rails are not subject to any restriction on building height or proximity to a boundary.

2.1.6 Designers must refer to the relevant national Building Regulations guidance for detailed conditions of use, particularly in respect of requirements for substrate fire performance, service penetrations and combustibility limitations for other materials and components used in the overall wall.

2.2 Resistance to fire

2.2.1 Where a wall incorporating the system is required to achieve a period of fire resistance, its performance must be confirmed by a suitably qualified and experienced individual or by a test from a suitably accredited laboratory.

3 Hygiene, health and the environment

Data were assessed for the following characteristics.

3.1 Weathertightness

3.1.1 Data were assessed for the following, as shown in Table 6.

Table 6 Mean water absorption

Product assessed	Assessment method	Requirement	Result
Terracotta T19 panel ⁽¹⁾ (Black polished finish)	BS EN ISO 10545-3 : 2018	3% < E _b ≤ 6% (for group All _a panels) to BS ISO 13006 : 2018	Pass

(1) Note: Terracotta T19 panel taken as the worst case; Terracotta T30 will achieve a performance at least equal to this.

3.1.1.1 The panels have been assessed as satisfying the requirement for All_{a-1} classification with respect to water absorption.

3.1.2 Data were assessed for the following, as shown in Table 7.

Table 7 Impermeability

Product assessed	Assessment method	Requirement	Result
Terracotta T19 panel ⁽¹⁾ (black polished finish)	BS EN 539-1 : 2005, Method 2	Impermeability category to BS EN 1304 : 2013, clause 4.4.1	Category 2

(1) Note: Terracotta T19 panel taken as the worst case; Terracotta T30 will achieve a performance at least equal to this.

3.1.3 The system is not designed to be airtight or watertight, but intentionally open-jointed, back-ventilated and drained. Any water passing through the panel joints and collecting in the cavity owing to rain or condensation will be removed by drainage and ventilation.

3.1.4 The substrate wall to which the cladding is fixed must be weathertight and reasonably airtight, to satisfy the requirements of the relevant national Building Regulations and Standards.

4 Safety and accessibility in use

Not applicable.

5 Protection against noise

Not applicable.

6 Energy economy and heat retention

Not applicable.

7 Sustainable use of natural resources

Data were assessed for the following characteristics.

7.1 Reuse and recyclability

7.1.1 The terracotta panels and the aluminium rails and clips are produced from materials that can be recycled.

8 Durability

8.1 The potential mechanisms for degradation and the known performance characteristics of the materials in this system were assessed.

8.2 Specific test data were assessed for the following, as shown in Table 8.

Table 8 Durability tests

Product assessed	Assessment method	Requirement	Result	
CN Terracotta T19 cladding	Hygrothermal behaviour to EAD 090062-00-0404, Clause 2.2.15.1	<ul style="list-style-type: none"> No deterioration such as cracking or delamination of the cladding element that allows water penetration No detachment of cladding element No irreversible deformation 	Pass	
Terracotta T19 panel (black polished finish)	Frost resistance to BS EN 1304 : 2013, Clause 4.4.3	BS EN 539-2 : 2013 – no surface crack or damage, no structural crack, no break, no delamination	Level 3 classification	
Terracotta T19 panel (black polished finish)	Resistance to staining to BS EN ISO 10545-14 : 2015	BS EN 14411 : 2016, Table B.1, Section C.1	<ul style="list-style-type: none"> Class 2 – for film stains Class 5 – for paste and chemical/oxidising stains 	
Terracotta T19 panel (black polished finish, and red rough finish)	BS 3900–D9 : 1986 Determination of colour and colour difference	No significant colour change	Pass	
T19 Terracotta panel (black polished finish)	Resistance to chemicals to BS EN ISO 10545-13 : 2016	Classification to BS EN ISO 10545-13 : 2016	Chemical	Resistance classification
			Ammonium chloride solution, 100 g.l	A
			Sodium hypochlorite solution, 20 mg.l	A
			Hydrochloric acid solution, 3 % (V/V)	LB
			Citric acid solution, 100 g.l	LA
			Potassium hydroxide solution, 30 g.l	LB
			Hydrochloric acid solution, 18 % (V/V)	HB
			Lactic acid solution, 5 % (V/V)	HA
			Potassium hydroxide solution, 100 g.l ⁻¹	HB

8.3 Service life

8.3.1 Under normal service conditions, the system will perform effectively as a cladding with a service life of at least 35 years provided it is designed, installed and maintained in accordance with this Certificate and the Certificate holder's instructions.

PROCESS ASSESSMENT

Information provided by the Certificate holder was assessed for the following factors:

9 Design, installation, workmanship and maintenance

9.1 Design

9.1.1 The design process was assessed by the BBA, and the following requirements apply in order to satisfy the performance assessed in this Certificate.

9.1.2 Design wind actions must be calculated by a suitably experienced and competent individual in accordance with BS EN 1991-1-4 : 2005 and its UK National Annex. Due consideration must be given to the higher-pressure coefficients applicable to corners of the building as recommended in this Standard (see section A.1 of this Certificate).

9.1.3 The adequacy of the substrate wall to which the system is fixed is outside the scope of this Certificate and must be verified by a suitably qualified and experienced individual. It must have sufficient strength to resist independently the loads imparted directly by the system and wind actions normally experienced in the UK, as well as any in-plane force effects. It must be weathertight and reasonably airtight and designed and constructed in accordance with the requirements of the national Building Regulations and Standards given below. The contribution of the system to the stability of the substrate wall is assumed to be negligible:

- masonry walls must be designed and constructed in accordance with the relevant recommendations 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, PD 6697 : 2019, and BS 8000-0 : 2014 and BS 8000-3 : 2020
- concrete walls must be designed and constructed in accordance with BS EN 1992-1-1 : 2004 and BS EN 1992-1-2 : 2004, and their UK National Annexes
- steel-frame walls must be structurally sound, and designed and constructed in accordance with BS EN 1993-1-1 : 2005, BS EN 1993-1-2 : 2005 and BS EN 1993-1-3 : 2006, and their UK National Annexes
- timber-frame walls must be designed and constructed in accordance with PD 6693-1 : 2019, BS EN 1995-1-1 : 2004 and BS EN 1995-1-2 : 2004 and their UK National Annexes, with workmanship in accordance with BS 8000-5 : 1990, and preservative-treated in accordance with BS EN 351-1 : 2007 and BS 8417 : 2011.

9.1.4 The subframe profiles and distances between the supports are determined with regard to the maximum deflection, acceptable tensions, wind zone, terrain category and exposure of the façade surface (location, façade height and form parameters). The subframe must be able to transmit the loads (self-weight of the panels and rails, and wind actions) to the substrate wall. The supporting subframe must have sufficient stiffness, such that its deformation does not affect the performance of the panels. The system does not enhance the structural performance of the wall. The adequacy of the subframe and its fixings to the substrate wall are outside the scope of this Certificate and must be verified by a suitably qualified and experienced individual.

9.1.5 The designer must ensure that:

- the sub-frame is designed in accordance with the relevant codes and Standards, has adequate resistance to the applied actions and is such as to limit mid-span deflections to span/200 and cantilever deflections to span /150 for the metal support sub-frame, and span/500 for the panels
- the panels are fixed to the subframe using the specified fixing mechanism.
- the specified fixings of the panel to the sub-frame, and between subframe members must have adequate resistance to the applied actions
- the fixing of the subframe support to the supporting wall has adequate tensile pull-out strength and corrosion resistance (outside the scope of this Certificate). An appropriate number of site-specific pull-out tests must be conducted on the wall as appropriate to determine the minimum pull-out resistance to failure of the fixings, as well as their characteristic pull-out resistance in accordance with the guidance given in BS EN 1990 : 2002.

9.1.6 The panels must be mounted to allow for thermal expansion movement. To allow for longitudinal expansion, a minimum gap of 10 mm between adjacent support rails must be provided. The panels must not straddle this gap.

9.1.7 Ventilation and drainage must be provided behind the panels. As the panels are open-jointed, the clear cavity between the back of the panel and the substrate wall (or insulation if installed on the external face of the substrate wall) must be at least 50 mm wide, and to ensure that a minimum ventilation area of 5000 mm² per metre run is provided at the building base point and at the roof edge. Horizontal and vertical joint gaps between the panels must be a minimum of 10 mm wide. All ventilation openings around the periphery of a cladding system must be suitably protected with a mesh or a perforated metal sheet or similar, to prevent the ingress of birds, vermin and insects.

9.1.8 As the panels are open-jointed, any insulation installed in the cavity behind the cladding must be suitably fixed to the supporting wall to resist forces generated by wind actions and insulation self-weight. Insulation must be of a rigid or semi-rigid type (eg boards) and must be resistant to or be protected from weather conditions during the complete life cycle of the façade cladding panels and, where its performance could be diminished by moisture, a suitable breather membrane must be provided over its outer face. The performance of these ancillary components is outside the scope of this Certificate.

9.1.9 The designer must ensure the cladding system is designed with appropriate compartmentation of the cavity, and in accordance with the requirements of the *NHBC Standards 2023*, Chapter 6.9.

9.2 Installation

9.2.1 Installation instructions provided by the Certificate holder were assessed and judged to be appropriate and adequate.

9.2.2 Installation must be carried out in accordance with this Certificate and the Certificate holder's instructions. A summary of instructions and guidance are provided in Annex A.

9.2.3 Based on a preliminary survey of the wall and architectural/structural design, a grid layout for the supporting frame is first prepared. Accurate grid positioning and installation of the supporting frame are essential.

9.2.4 The panels are secured to the horizontal rail profiles with the clips. The panels are hung by the grooves along the longitudinal edge (for landscape panel installation), or the core holes along the transverse edge (for portrait panel installation) directly onto the protruding holding clips attached to the rail and secured with the stabilizing clip fixings.

9.2.5 The 10 mm vertical joints between panels can be open, and must align with expansion joints in the substrate wall where present. Panels must not cover expansion joints in the substrate wall or aluminium supporting subframe.

9.2.6 Typical installation details are given in Figures 5 and 6.

Figure 5 Typical arrangement of components

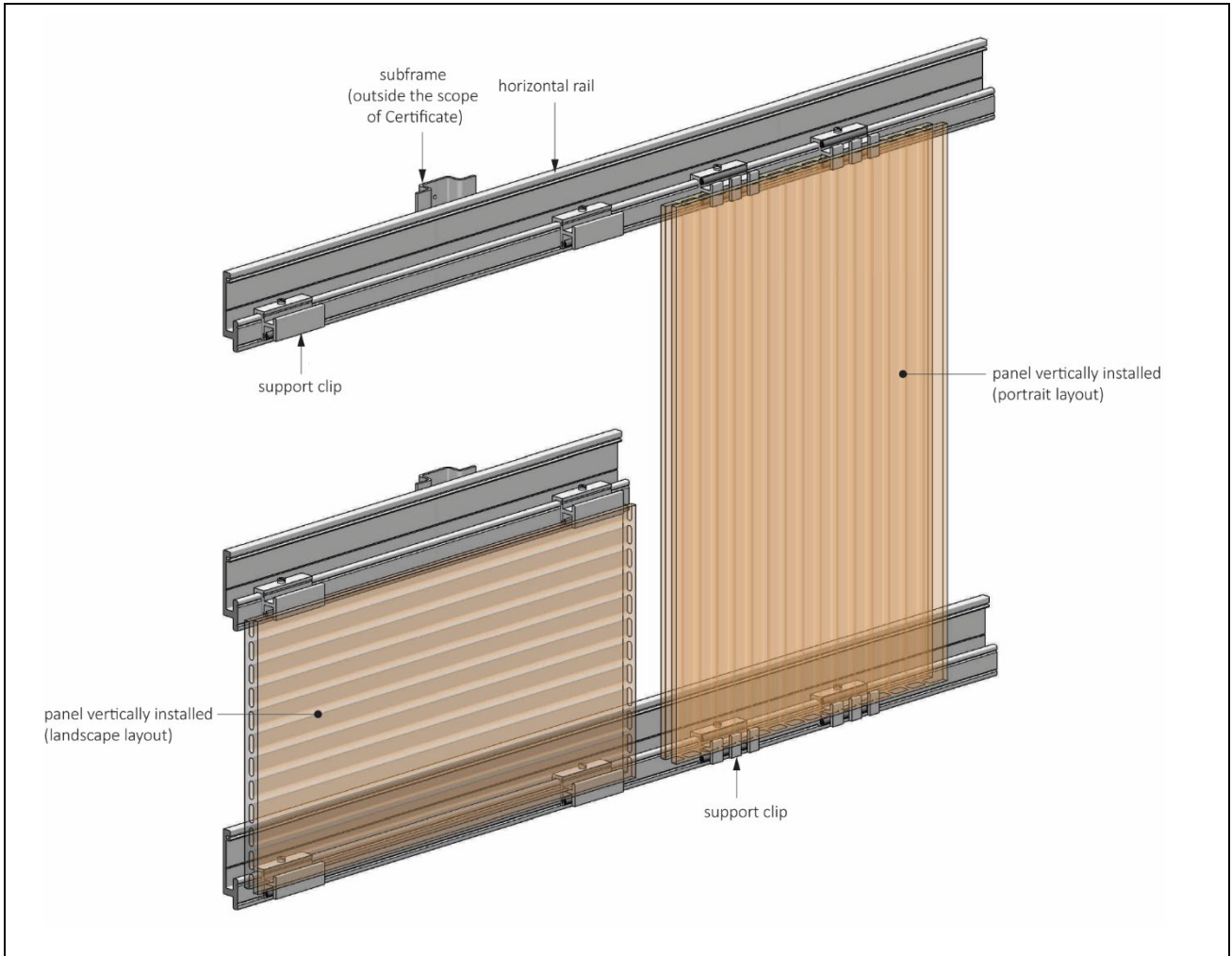


Figure 6 Typical vertical (portrait) panel installation details

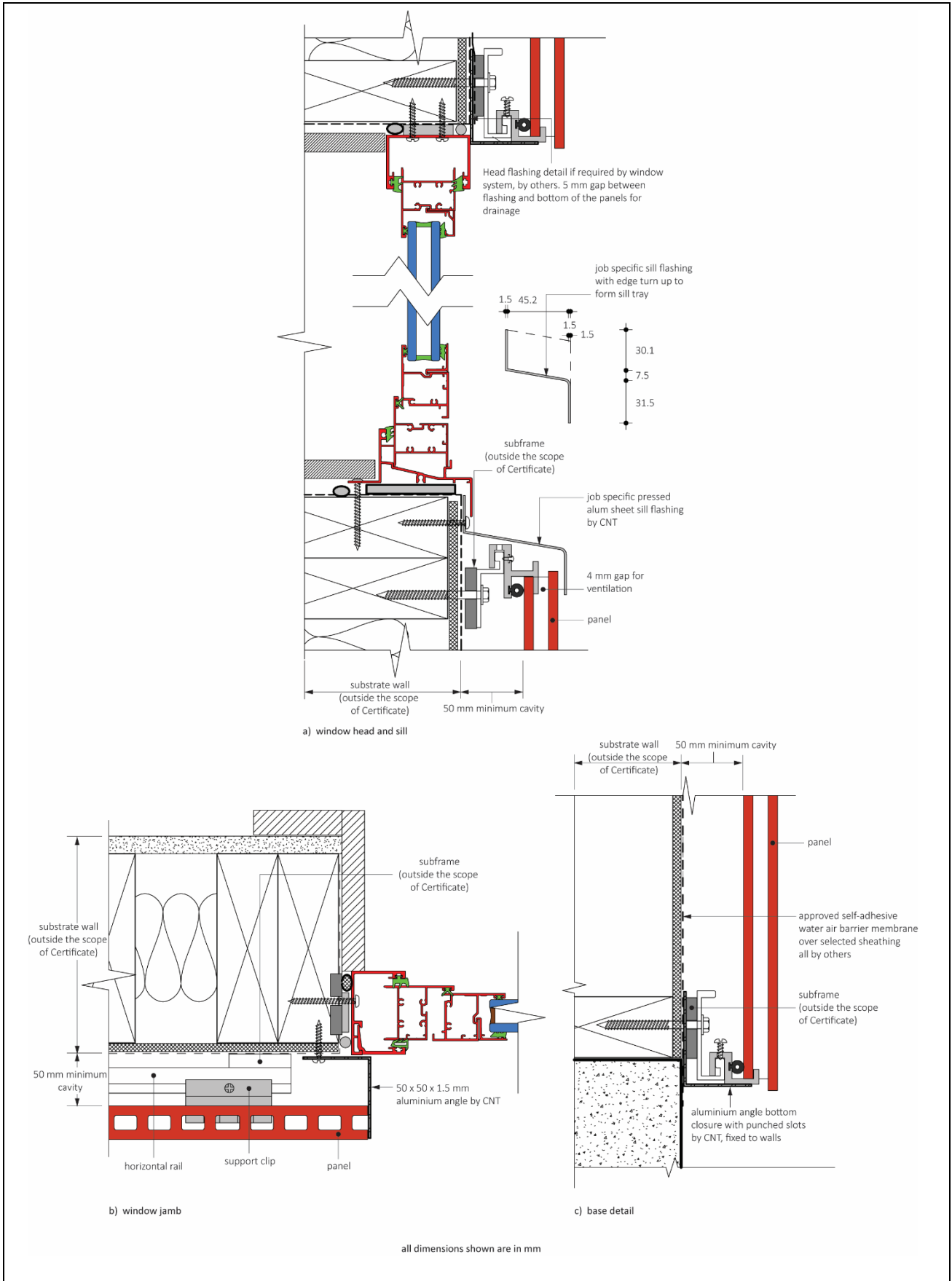
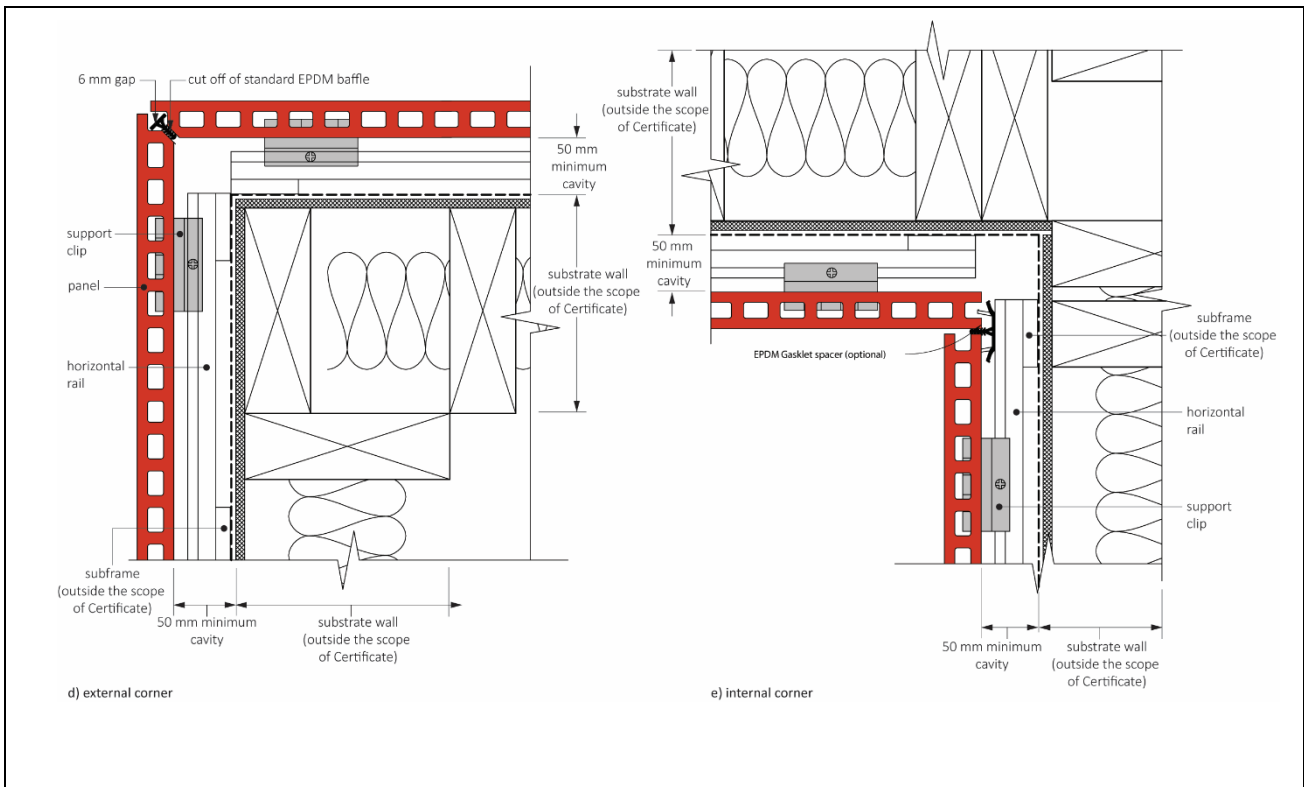


Figure 6 Typical vertical (portrait) panel installation details (continued)



9.3 Workmanship

Practicability of installation was assessed by the BBA, on the basis of Certificate holder's information and a site visit to witness an installation in progress. To achieve the performance described in this Certificate, installation of the system must be carried out by cladding contractors provided they have undergone suitable training by the Certificate holder.

9.4 Maintenance and repair

9.4.1 Ongoing satisfactory performance of the system in use requires that it is suitably maintained. The guidance provided by the Certificate holder was assessed by the BBA and found to be appropriate and adequate.

9.4.2 The following requirements apply in order to satisfy the performance assessed in this Certificate:

9.4.2.1 Cleaning at regular intervals must be undertaken. For normal soiling, the surface may be cleaned using a hot water/household detergent mixture, applied with a suitable cleaning pad or sponge. For more difficult chemical soiling, the manufacturer's specialist advice must be sought, but such advice is outside the scope of this Certificate.

9.2.2 Annual maintenance inspections must be carried out to ensure that all drainage channels are in good order and that the panels, flashings and seals are in place and are secure.

9.4.2.3 Damaged panels must be replaced as soon as practicable following the manufacturer's instructions and observing all necessary health and safety regulations. Individual panels can be replaced without disturbing adjacent panels. The damaged panel is removed by cutting the panel. Replacement clips need to be fitted in the new panel, which is then positioned on the support rail, and the clips secured.

10 Manufacture

10.1 The production processes for the system have been assessed, and provide assurance that the quality controls are satisfactory according to the following factors:

10.1.1 The panels are manufactured by extrusion of a single blend of clay paste in a hollow, double-wall design. The metal profiles are manufactured from extruded aluminium alloy and anodized.

10.1.2 The manufacturer has provided documented information on the materials, processes, testing and control factors.

10.1.3 The quality control operated over batches of incoming materials has been assessed and deemed appropriate and adequate.

10.1.4 The quality control procedures and testing to be undertaken have been assessed and deemed appropriate and adequate.

10.1.5 The process for management of non-conformities has been assessed and deemed appropriate and adequate an audit of each production location was undertaken, and it was confirmed that the production process was in accordance with the documented process, and that equipment has been properly tested and calibrated.

†10.1.6 The BBA has undertaken to review 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.

11 Delivery and site handling

11.1 The Certificate holder stated that the panels are delivered to site in packaging bearing product details such as type, size, nominal thickness, quantity and date of manufacture. Each panel is additionally marked with an identification code including manufacturing references and colour. The aluminium support profiles are supplied in cardboard boxes each with an identification label.

11.2 Delivery and site handling must be performed in accordance with the Certificate holder's instructions and this Certificate, including:

11.2.1 Panels are supplied in cardboard boxes, shrink-wrapped in groups, depending on the panel size. They are delivered to site polythene wrapped and stored on wooden pallets. Pallets must be stored on level ground and not stacked.

11.2.2 The panels must be packed to ensure they are protected from movements that could cause damage during transit and when delivered on site they must be unloaded as close as possible to the point of use to avoid unnecessary movements, and handled with care to avoid damage or breakage. To avoid surface damage, panels must be lifted off, rather than slid across, other panels.

11.2.3 Packs of aluminium profiles must be stacked horizontally on sufficient bearers to prevent distortion, to a maximum height of 1 m. Other components must be stored safely in separate cardboard boxes, until ready for use.

11.2.4 Care is required when handling long lengths of aluminium profiles, particularly at height.

11.2.5 Care must be exercised when handling panels and rails to avoid injury from sharp edges. Protective clothing must be worn, and all health and safety rules must be observed.

Supporting information in this Annex is relevant to the system but has not formed part of the material assessed for the 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.

Management Systems Certification for production

The management system of the panel manufacturer has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2015 by China Quality Certification Centre (Certificate 00119Q35637R1M/3200).

Additional Guidance

A.1 In accordance with BS EN 1990 : 2002 and its UK National Annex, it is recommended that a partial load factor of 1.5 is applied to the calculated wind actions to determine the design wind load to be resisted by the cladding system (see section 9.1.2 of this Certificate).

A.2 Depending on design requirements, the horizontal rail is installed and fastened to the subframe with the use of screws, in accordance with the Certificate holder's instructions.

A.3 The designer must ensure that a cladding system has adequate hard and soft body impact resistance for the intended use. Hard body and soft body impact resistance is a function of the panels, its sub-frame/support to the wall and their configuration, and must be evaluated through testing by a suitably accredited laboratory (accredited for the test), in accordance with EAD 090062-00-0404, and the appropriate impact Use Category classification determined in accordance with the same Standard. The classification will establish the areas where the completed cladding system can be used (see EAD 090062-00-0404, Table G.2).

A.4 It is essential that the system is installed and maintained in accordance with the conditions set out in this Certificate. The fixing of rainwater goods, satellite dishes, clothes lines, hanging baskets and similar items is outside the scope of this Certificate. In all cases the Certificate holder's advice must be sought, but such advice is outside the scope of this Certificate.

Bibliography

BS 3900-D9 : 1986 *Determination of colour and colour difference – measurement*

BS 8000-0 : 2014 *Workmanship on construction sites — Introduction and general principles*

BS 8000-3 : 2020 *Workmanship on building sites — Code of practice for masonry*

BS 8000-5 : 1990 *Workmanship on building sites – Code of practice for carpentry, joinery and general fixings*

BS 8417 : 2011 + A1 : 2014 *Preservation of wood – Code of practice*

BS EN 351-1 : 2007 *Durability of wood and wood-based products — Preservative-treated solid wood — Classification of preservative penetration and retention*

BS EN 539-1 : 2005 *Clay roofing tiles for discontinuous laying – Determination of physical characteristics – Impermeability test*

BS EN 539-2 : 2013 *Clay roofing tiles for discontinuous laying – Determination of physical characteristics – Test for frost resistance*

BS EN 573-3 : 2019 + A1 : 2022 *Aluminium and aluminium alloys — Chemical composition and form of wrought products — Chemical composition and form of products*

BS EN 755-2 : 2016 *Aluminium and aluminium alloys — Extruded rod/bar, tube and profiles — Mechanical properties*

BS EN 1304 : 2013 *Clay roofing tiles and fittings – Product definitions and specifications*

BS EN 1990 : 2002 + A1 : 2005 *Eurocode — Basis of structural design*

NA to BS EN 1990 : 2002 + A1 : 2005 *UK National Annex for Eurocode — Basis of structural design*

BS EN 1991-1-4 : 2005 + A1 : 2010 *Eurocode 1 – Actions on structures — General actions — Wind actions*

NA to BS EN 1991-1-4 : 2005 + A1 : 2010 *UK National Annex to Eurocode 1 – Actions on structures — General actions — Wind actions*

BS EN 1992-1-1 : 2004 + A1 : 2014 *Eurocode 2 — Design of concrete structures — General rules and rules for buildings*

NA + A2 : 2014 to BS EN 1992-1-1 : 2004 + A1 : 2014 *UK National Annex to Eurocode 2 — Design of concrete structures — General rules and rules for buildings*

BS EN 1992-1-2 : 2004 + A1 : 2019 *Eurocode 2 — Design of concrete structures — General rules — Structural fire design*

NA to BS EN 1992-1-2 : 2004 *UK National Annex to Eurocode 2 — Design of concrete structures — General rules — Structural fire design*

BS EN 1993-1-1 : 2005 + A1 : 2014 *Eurocode 3 — Design of steel structures – General rules and rules for buildings*

NA + A1 : 2014 to BS EN 1993-1-1 : 2005 + A1 : 2014 *UK National Annex to Eurocode 3 — Design of steel structures — General rules and rules for buildings*

BS EN 1993-1-2 : 2005 *Eurocode 3 — Design of steel structures – General rules – Structural fire design*

NA to BS EN 1993-1-2 : 2005 *UK National Annex to Eurocode 3 — Design of steel structures — General rules - Structural fire design*

BS EN 1993-1-3 : 2006 *Eurocode 3 — Design of steel structures — General rules – Supplementary rules for cold-formed members and sheeting*

NA to BS EN 1993-1-3 : 2006 *UK National Annex to Eurocode 3 — Design of steel structures — General rules - Supplementary rules for cold-formed members and sheeting*

BS EN 1995-1-1 : 2004 + A2 : 2014 *Eurocode 5 — Design of timber structures — General — Common rules and rules for buildings*

NA to BS EN 1995-1-1 : 2004 + A2 : 2014 *UK National Annex to Eurocode 5 — Design of timber structures — General — Common rules and rules for buildings*

BS EN 1995-1-2 : 2004 *Eurocode 5 — Design of timber structures — General — Structural fire design*

NA to BS EN 1995-1-2 : 2004 *UK National Annex to Eurocode 5 — Design of timber structures — General — Structural fire design*

BS EN 1996-1-1 : 2005 + A1 : 2012 *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 calculations 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 calculations methods for unreinforced masonry structures*

BS EN 1999-1-1 : 2007 + A2 : 2013 Eurocode 9 — *Design of aluminium structures — General structural rules*

BS EN 10088-3 : 2014 *Stainless steels — Technical delivery conditions for semi-finished products, bars, rods, wire, sections and bright products of corrosion resisting steels for general purposes*

BS EN 14411 : 2016 *Ceramic tiles — Definitions, classification, characteristics, assessment and verification of constancy of performance and marking*

BS EN ISO 7599 : 2018 *Anodizing of aluminium and its alloys — Method for specifying decorative and protective anodic oxidation coatings on aluminium*

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

BS EN ISO 10545-3 : 2018 *Ceramic tiles — Determination of water absorption, apparent porosity, apparent relative density and bulk density*

BS EN ISO 10545-4 : 2019 *Ceramic tiles — Determination of modulus of rupture and breaking strength*

BS EN ISO 10545-13 : 2016 *Ceramic tiles — Determination of chemical resistance*

BS EN ISO 10545-14 : 2015 *Ceramic tiles — Determination of resistance to stains*

BS ISO 13006 : 2018 *Ceramic tiles — Definitions, classification, characteristics and marking*

EAD 090062-00-0404 July 2018 *Kits for external wall cladding mechanically fixed*

PD 6693-1 : 2019 *Recommendations for the design of timber structures to Eurocode 5: Design of timber structures – General – Common rules and rules for building*

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

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Conditions

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British Board of Agrément

1st Floor, Building 3, Hatters Lane
Croxley Park, Watford
Herts WD18 8YG

©2023

tel: 01923 665300
clientservices@bbacerts.co.uk
www.bbacerts.co.uk