

## Cladmate Facade Systems Ltd

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**Agrément Certificate**

**24/7288**

Product Sheet 1 Issue 1

### CLADMATE CLADDING SYSTEMS

### CLADMATE BRACKETS AND RAILS

This Agrément Certificate Product Sheet<sup>(1)</sup> relates to Cladmate Brackets and Rails, for use as a sub-frame to support cladding as part of back-ventilated and drained rainscreen cladding systems on masonry, concrete, steel-frame and timber-frame external walls of new or existing domestic and non-domestic buildings.

(1) Hereinafter referred to as 'Certificate'.

#### The assessment includes

##### Product factors:

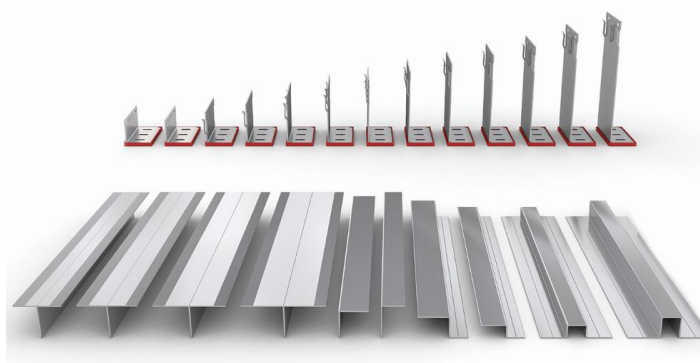
- compliance with Building Regulations
- compliance with additional regulatory or non-regulatory information where applicable
- evaluation against technical specifications
- assessment criteria and technical investigations
- uses and design considerations

##### 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 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 issue: 31 October 2024

  
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. 0357).*

*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.*

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## 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 Cladmate Brackets and Rails, 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)

<b>Requirement:</b>	<b>A1</b>	<b>Loading</b>
Comment:		The products can be designed to adequately transfer the design loads from the cladding to the substrate wall. See section 1 of this Certificate.
<b>Requirement:</b>	<b>B3(4)</b>	<b>Internal fire spread (structure)</b>
Comment:		The products can contribute to satisfying this Requirement. See section 2 of this Certificate.
<b>Requirement:</b>	<b>B4(1)</b>	<b>External fire spread</b>
Comment:		The products are unrestricted by this Requirement. See section 2 of this Certificate.
<b>Regulation:</b>	<b>7(1)</b>	<b>Materials and workmanship</b>
Comment:		The products are acceptable. See sections 8 and 9 of this Certificate.
<b>Regulation:</b>	<b>7(2)</b>	<b>Materials and workmanship</b>
Comment:		The products are unrestricted by this Regulation. See section 2 of this Certificate.



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

<b>Regulation:</b>	<b>8(1)(2)</b>	<b>Fitness and durability of materials and workmanship</b>
Comment:		The products can contribute to a construction satisfying this Regulation. See sections 8 and 9 of this Certificate.
<b>Regulation:</b>	<b>8(3)</b>	<b>Fitness and durability of materials and workmanship</b>
Comment:		The products are unrestricted by this Regulation. See section 2 of this Certificate.
<b>Regulation:</b>	<b>9</b>	<b>Building standards – construction</b>
Comment:	1.1(a)(b)	Structure The products can be designed to adequately transfer the design loads from the cladding to the substrate wall, with reference to clause 1.1.1 <sup>(1)(2)</sup> of this Standard. See section 1 of this Certificate.
Standard:	2.6	Spread to neighbouring buildings
Comment:		The products are unrestricted by this Standard, with reference to clause 2.6.4 <sup>(1)(2)</sup> . See section 2 of this Certificate.
Standard:	2.7	Spread on external walls
Comment:		The products are unrestricted by this Standard, with reference to clause 2.7.1 <sup>(1)(2)</sup> . See section 2 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.

<b>Regulation:</b>	<b>12</b>	<b>Building standards – conversion</b>
<b>Comment:</b>		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 <sup>(1)(2)</sup> and Schedule 6 <sup>(1)(2)</sup> .
		(1) Technical Handbook (Domestic). (2) Technical Handbook (Non-Domestic).



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

<b>Regulation:</b>	<b>23(1)(a)(i)</b>	<b>Fitness of materials and workmanship</b>
<b>Comment:</b>	<b>(iii)(b)(i)</b>	The products are acceptable. See sections 8 and 9 of this Certificate.
<b>Regulation:</b>	<b>23(2)</b>	<b>Fitness of materials and workmanship</b>
<b>Comment:</b>		The products are unrestricted by this Regulation. See section 2 of this Certificate.
<b>Regulation:</b>	<b>30</b>	<b>Stability</b>
<b>Comment:</b>		The products can be designed to adequately transfer the design loads from the cladding to the substrate wall. See section 1 of this Certificate.
<b>Regulation:</b>	<b>35(4)</b>	<b>Internal fire spread – structure</b>
<b>Comment:</b>		The products can contribute to satisfying this Regulation. See section 2 of this Certificate.
<b>Regulation:</b>	<b>36(a)</b>	<b>External fire spread</b>
<b>Comment:</b>		The products are unrestricted by this Regulation. See section 2 of this Certificate.

## Additional Information

### NHBC Standards 2024

In the opinion of the BBA, Cladmate Brackets and Rails, 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 Cladmate Brackets and Rails to be satisfactory for use as described in this Certificate. The products have been assessed as a sub-frame to support cladding as part of back-ventilated and drained rainscreen cladding systems on masonry, concrete, steel-frame and timber-frame external walls of new or existing domestic and non-domestic buildings.

## ASSESSMENT

### Product description and intended use

The Certificate holder provided the following description for the products under assessment. Cladmate Brackets and Rails (see Figure 1) comprise:

- Cladmate Fortis Brackets – L-shaped wall brackets, extruded from aluminium grade 6063-T6 to BS EN 573-3 : 2019, with 10 micron anodised coating to BS EN ISO 7599 : 2018, and in the profile and sizes shown in Figures 2 and 3. They come with an acrylonitrile butadiene styrene thermal isolator pad (outside the scope of this Certificate) at the back of the shorter leg
- T/L Rails — uncoated L- and T-profile vertical rails installed onto the wall brackets, extruded from aluminium grade 6063-T6 to BS EN 573-3 : 2019, in the sizes shown in Figure 4. The rails come in standard 3 and 6 m lengths

- Z/Omega Rails — uncoated vertical rails installed directly onto the substrate wall, extruded from aluminium grade 6063-T6 to BS EN 573-3 : 2019, in the sizes shown in Figure 4. The rails come in standard 3 and 6 m lengths. They act as a support onto which the cladding is attached
- Fixings (T/L rail to wall bracket connection) — Ejot JT4 4 4.8 x 19, stainless steel grade 304 self-drilling screws (2 No. per connection).

Figure 1 Cladmate Brackets and Rails – build-up

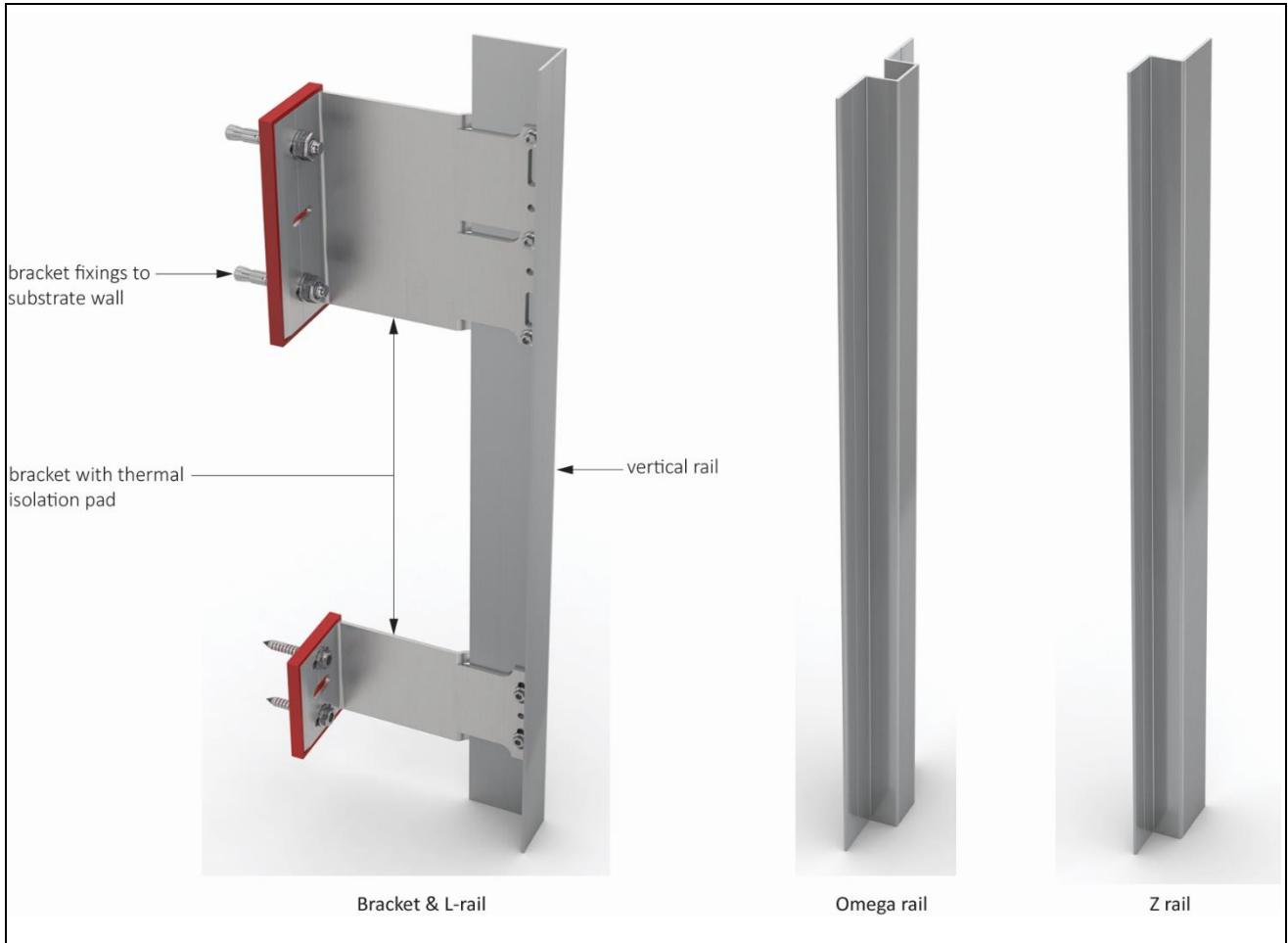


Figure 2 Fortis Single Brackets (all dimensions in mm)

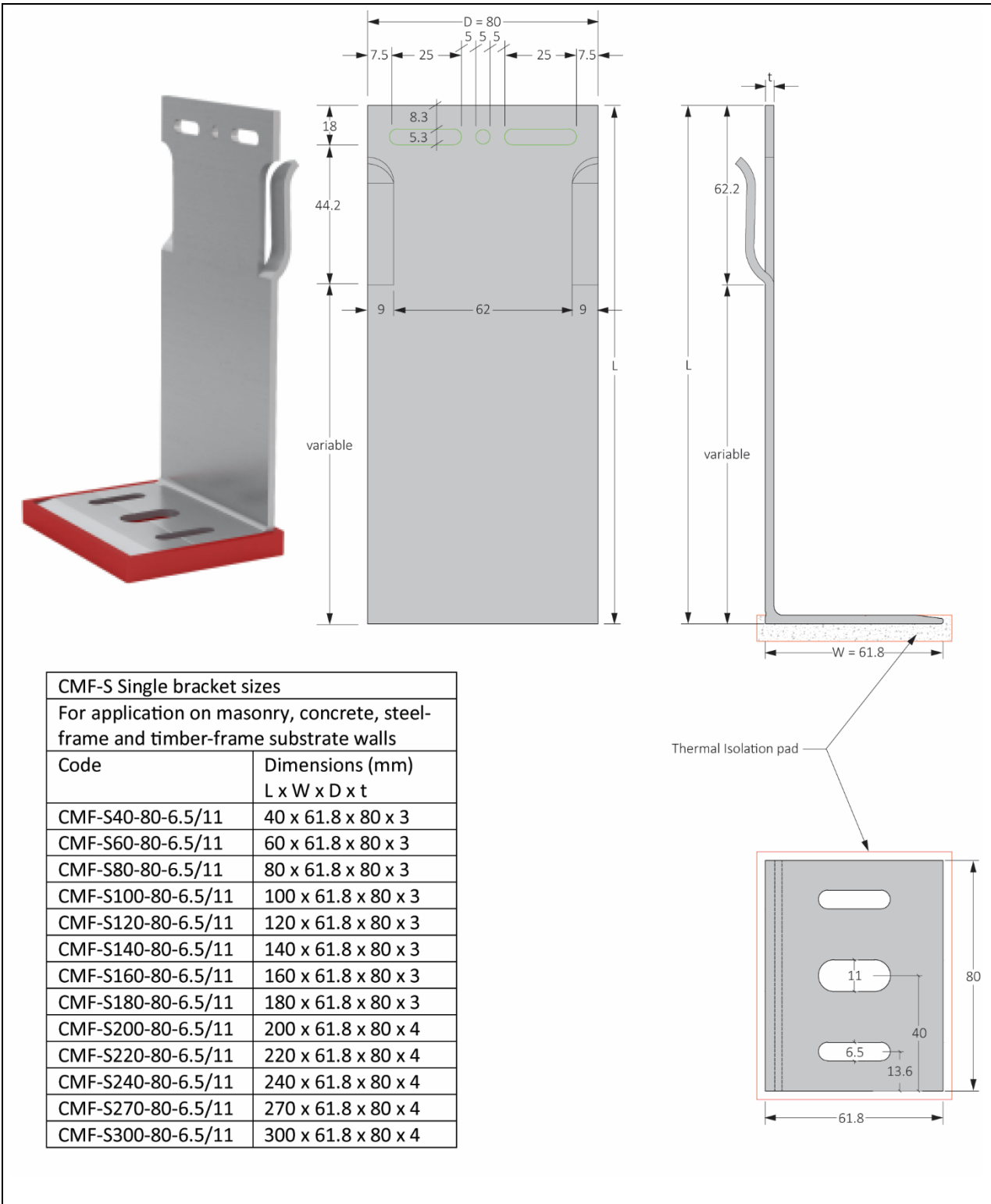


Figure 3 Fortis Double Brackets (all dimensions in mm)

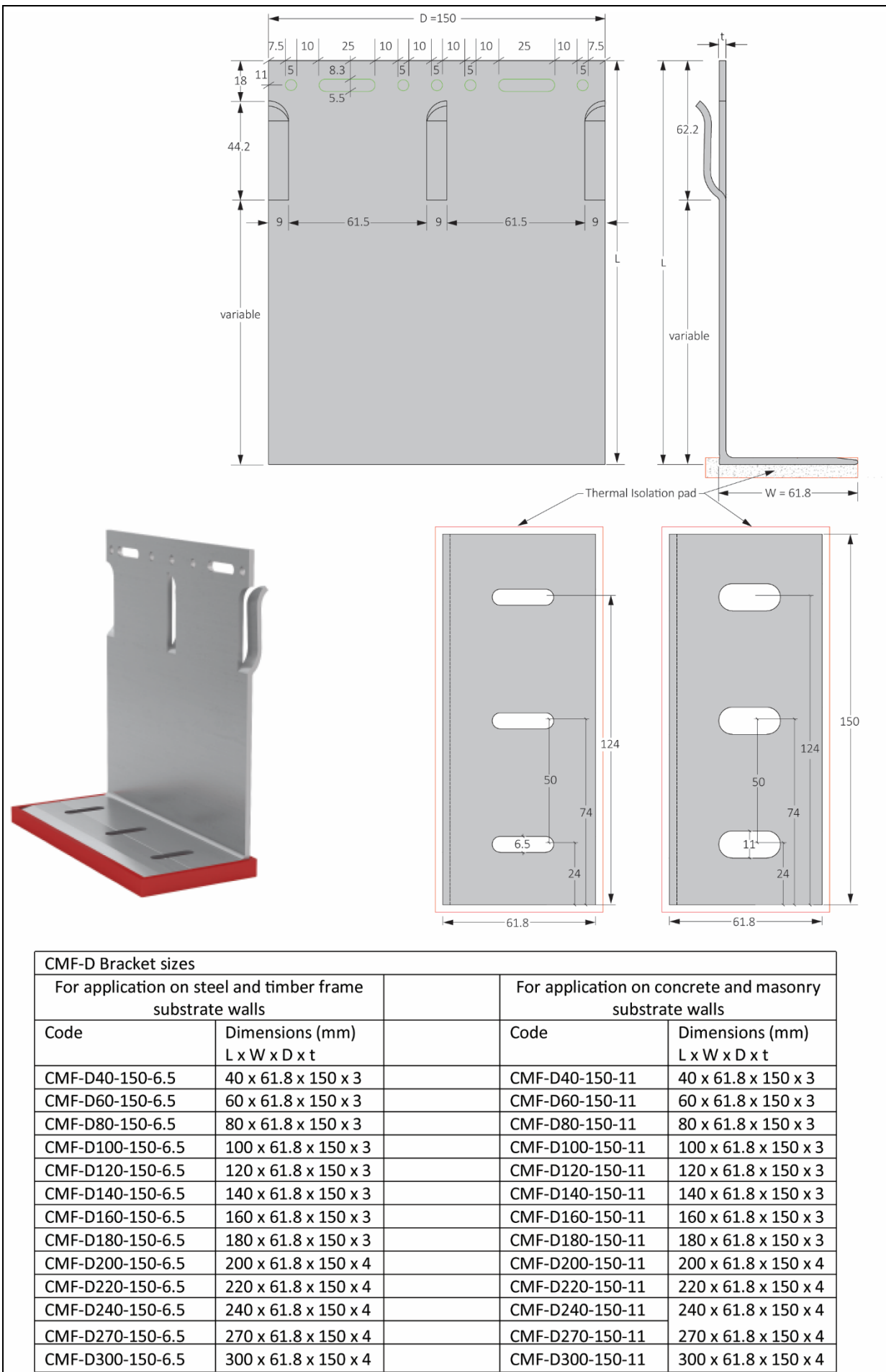
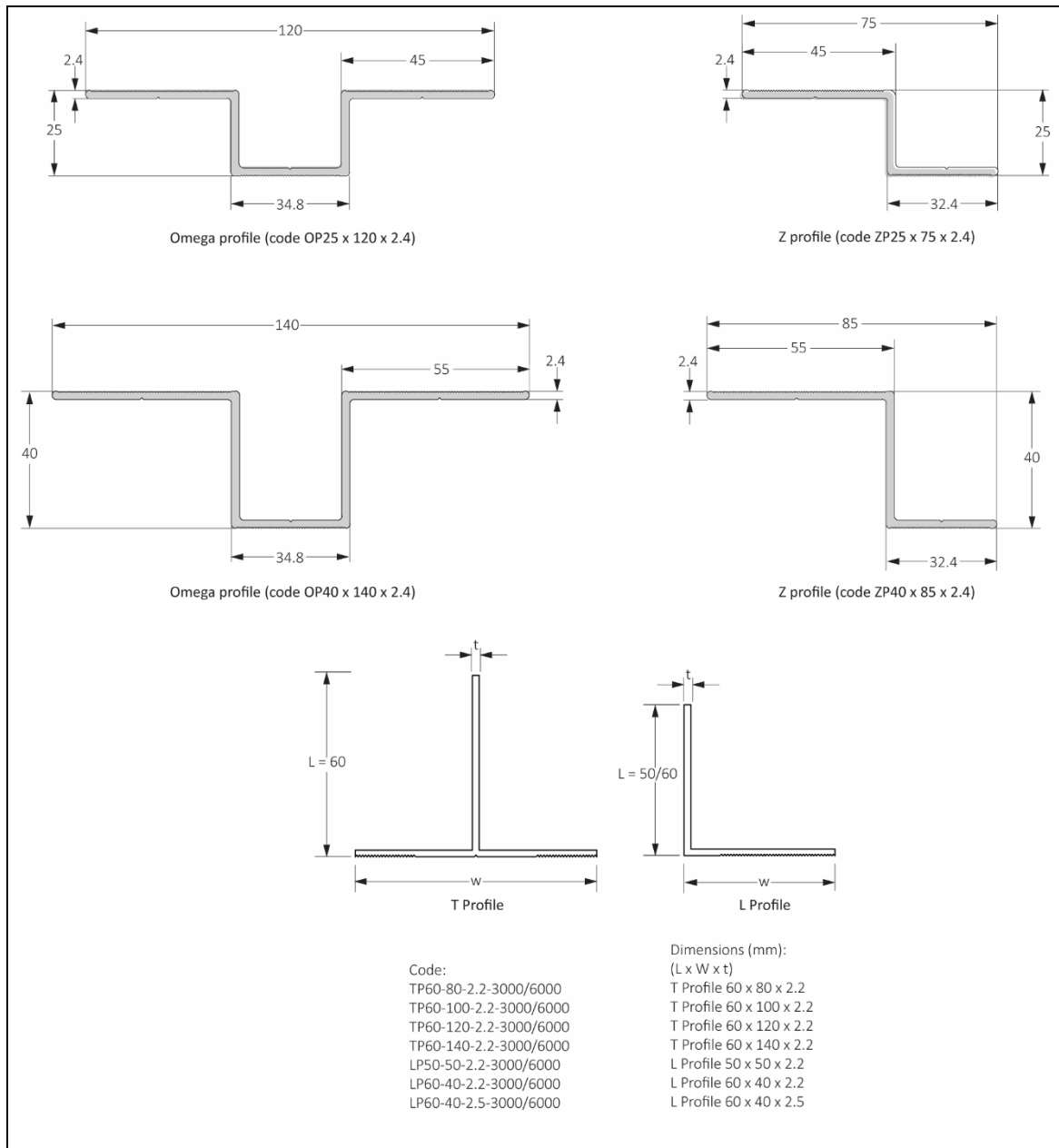


Figure 4 Vertical rails (all dimensions in mm)



### Ancillary Items

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:

- fixings for attaching the brackets to the substrate wall, and to suit the wall in question
- fixings for attaching Z/Omega Rails to the substrate wall, and to suit the wall in question
- thermal isolator pad at the back of the wall brackets
- substrate wall.

### Product assessment – key factors

The products were assessed for the following key factors, and the outcome of the assessments is 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 Results of pull-out resistance tests are given in Table 1.

<i>Table 1 Pull-out resistance</i>			
Product assessed	Assessment method	Requirement	Result
Ejot Super Saphir JT4 4 4.8 x 19 S14 fixings pulled from 60 mm x 40 mm x 2.2 mm L-profile rail of aluminium grade 6063-T6	EAD 090062-00-0404 : 2018	Value achieved	Mean <sup>(1)</sup> = 1.405 kN Standard deviation = 0.053

(1) 5 samples tested

1.1.2 On the basis of the data assessed, the characteristic pull-out resistance of the rail-to-bracket fixings is 1.282kN.

1.1.3 Results of shear load resistance tests are given in Table 2.

<i>Table 2 Shear load resistance of fixings</i>			
Product assessed	Assessment method	Requirement	Result
Ejot Super Saphir JT4 4 4.8 x 19 S14 fixings on 60 mm x 40 mm x 2.2 mm L profile rail and 160 mm x 80 mm x 60 mm x 3 mm L-bracket (both aluminium grade 6063-T6)	EAD 090062-00-0404 : 2018	Value achieved	Mean <sup>(1)</sup> = 4.370 kN Standard deviation = 0.232
Ejot Super Saphir JT4 4 4.8 x 19 S14 fixings on 60 mm x 40 mm x 2.2 mm L-profile rail and 300 mm x 80 mm x 60 mm x 4 mm L-bracket (both aluminium grade 6063-T6)			Mean <sup>(1)</sup> = 3.654 kN Standard deviation = 0.338
Ejot Super Saphir JT4 4 4.8 x 19 S14 fixings on 60 mm x 40 mm x 2.2 mm L profile rail and 160 mm x 150 mm x 60 mm x 3 mm L-bracket (both aluminium grade 6063-T6)			Mean <sup>(1)</sup> = 4.670 kN Standard deviation = 0.266
Ejot Super Saphir JT4 4 4.8 x 19 S14 fixings on 60 mm x 40 mm x 2.2 mm L profile rail and 300 mm x 150 mm x 60 mm x 4 mm L-bracket (both aluminium grade 6063-T6)			Mean <sup>(1)</sup> = 4.018 kN Standard deviation = 0.388

(1) 5 samples tested

1.1.4 On the basis of the data assessed, the characteristic shear load resistance of the rail-to-bracket fixings for the build-ups listed in Table 2 above are 3.83 kN, 2.87 kN, 4.05 kN and 3.11 kN respectively.

## 1.2 Strength and stability

1.2.1 An assessment of sample design calculations against the requirements of BS EN 1999-1-1 : 2023 and its UK National Annex was performed. On the basis of the assessment carried out, the products can be appropriately designed on a project-specific basis to meet the relevant requirements of the Standard.

1.2.2 Design resistance of the brackets is shown in Tables 3 and 4. The design resistance of the connections must be greater than that of the brackets as tabulated.

**Table 3 Design resistance — single brackets (80 mm deep)**

Bracket <sup>(1)</sup> long leg length (mm)	Bracket <sup>(1)</sup> short leg length (mm)	Design resistance (kN) <sup>(2)</sup>	
		Horizontal (axial)	Vertical (shear)
40	61.8	2.99	0.40
60	61.8	2.99	0.40
80	61.8	2.99	0.40
100	61.8	2.99	0.40
120	61.8	2.99	0.40
140	61.8	2.99	0.40
160	61.8	2.99	0.40
180	61.8	1.98	0.09
200	61.8	1.98	0.09
220	61.8	1.98	0.09
240	61.8	1.98	0.09
270	61.8	1.98	0.09
300	61.8	1.98	0.09

(1) See Figure 2 for bracket profiles.

(2) Design resistances calculated according to BS EN 1999-1-1 : 2023, assisted by testing to EAD 090034-00-0404 : 2016.

**Table 4 Design resistance — double brackets (150 mm deep)**

Bracket <sup>(1)</sup> long leg length (mm)	Bracket <sup>(1)</sup> short leg length (mm)	Design resistance (kN) <sup>(2)</sup>	
		Horizontal (axial)	Vertical (shear)
40	61.8	5.01	1.68
60	61.8	5.01	1.68
80	61.8	5.01	1.68
100	61.8	5.01	1.68
120	61.8	5.01	1.68
140	61.8	5.01	1.68
160	61.8	5.01	1.68
180	61.8	4.96	0.97
200	61.8	4.96	0.97
220	61.8	4.96	0.97
240	61.8	4.96	0.97
270	61.8	4.96	0.97
300	61.8	4.96	0.97

(1) See Figure 3 for bracket profiles.

(2) Design resistances calculated according to BS EN 1999-1-1 : 2023, assisted by testing to EAD 090034-00-0404 : 2016.

### 1.3 System design

The rail sections were assessed as having the geometric properties given in Table 5, and are for use in the structural design of the rails.

**Table 5 Rail profile section details**

Product assessed	Assessment method	Requirement	Result <sup>(1)</sup>				
			Area (mm <sup>2</sup> )	Second moment of area		Radius of gyration	
				I <sub>xx</sub> (mm <sup>4</sup> )	I <sub>yy</sub> (mm <sup>4</sup> )	Axis x-x (mm)	Axis y-y (mm)
L 50 x 50 x 2.2	Geometric analysis	Value achieved	209.53	52661.30	51187.90	15.85	15.63
L 60 x 40 x 2.2			209.52	91778.05	28836.00	19.56	11.73
L 60 x 40 x 2.5			238.12	90692.00	32633.00	19.51	11.70
T 60 x 80 x 2.2			295.21	100424.25	86763.12	18.44	17.14
T 60 x 100 x 2.2			339.21	106860.93	170851.57	17.74	22.44
T 60 x 120 x 2.2			383.21	111823.57	297400.09	17.08	27.85
T 60 x 140 x 2.2			427.21	115767.63	475208.67	16.46	33.35
O 25 x 120 x 2.4			373.25	33223.27	344147.13	9.43	30.36
O 40 x 140 x 2.4			489.18	109977.89	549267.89	14.99	33.50
Z 25 x 75 x 2.4			222.10	23154.70	79572.60	10.21	18.92
Z 40 x 85 x 2.4			277.00	73190.00	119721.00	16.24	20.77

(1) with centroid at 0,0,0, UCS

## 2 Safety in case of fire

Data were assessed for the following characteristics.

### 2.1 Reaction to fire

2.1.1 The components of the products have the reaction to fire classification given in Table 6.

**Table 6 Reaction to fire classification**

Product	Construction	Method	Result
Aluminium vertical rails Aluminium wall brackets	—	96/603/EC	A1
Ejot JT4 4 4.8 x 19 screws, stainless steel grade 304	—	96/603/EC	A1

2.1.2 On the basis of data assessed, the brackets, rails and rail-to-bracket fixings are not subject to any restriction on building height or proximity to a relevant boundary.

2.1.3 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

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

## 3 Hygiene, health and the environment

Not applicable.

## 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 characteristic.

### 7.1 Reuse and recyclability

The aluminium and stainless steel components can be recycled.

## 8 Durability

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

### 8.2 Service life

8.2.1 The durability and service life of the products will depend upon the building location, immediate environment and general condition of the components. Under normal service conditions, the cladding support components will have a life in excess of 35 years, provided they are designed, installed and maintained in accordance with this Certificate and the Certificate holder's instructions.

8.2.2 Unprotected aluminium interacts with cement-based materials when in contact, resulting in severe corrosion. Therefore, the aluminium brackets must be installed with the thermal isolator pads (which are supplied with the brackets) and care must be taken not to allow contact with fresh mortar or grout during construction.

## 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 Annex A.1 of this Certificate).

9.1.3 The adequacy of the substrate wall to which the products are fixed is outside the scope of this Certificate and must be verified by a suitably experienced and competent individual. It must have sufficient strength to resist independently the loads imparted directly by the products, cladding panels and wind actions, 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 products 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 : 2022, BS EN 1996-1-2 : 2005, BS EN 1996-2 : 2006 and BS EN 1996-3 : 2023, and their UK National Annexes, PD 6697 : 2019, BS 8000-0 : 2014 and BS 8000-3 : 2020

- concrete walls must be designed and constructed in accordance with BS EN 1992-1-1: 2023 and BS EN 1992-1-2 : 2023, and their UK National Annexes.
- steel-frame walls must be structurally sound, and designed and constructed in accordance with BS EN 1993-1-1 : 2022, 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 BS EN 1995-1-1 : 2004 and BS EN 1995-1-2 : 2004 and their UK National Annexes, and PD 6693-1 : 2019, with workmanship in accordance with BS 8000-5 : 1990, and preservative-treated in accordance with BS EN 351-1 : 2023 and BS 8417 : 2011.

9.1.4 The rails chosen, and distances between the supporting brackets, and Z rails or Omega rails must be determined with regard to the maximum deflection, acceptable tensions, wind zone, terrain category and exposure of the facade surface (location, facade height, form parameters). The products must be able to transmit the loads (self-weight of the products and cladding panels, and wind actions) to the substrate wall. The products must have sufficient stiffness, such that their deformation does not affect the performance of the cladding panels.

9.1.5 The design and installation of the products must be checked by a suitably competent and experienced individual. The designer must ensure that:

- the products and cladding to be supported are compatible
- the products and their associated connections are designed in accordance with the relevant codes and Standards, have adequate resistance to the applied actions and are such as to limit mid-span deflections to span/200 and cantilever deflections to span /150
- the fixings of the cladding panels to the products have adequate resistance to the applied actions.
- the fixings attaching the components (rails and brackets) to each other have adequate resistance to the applied actions
- the fixings of the brackets, Z rails and Omega rails to the supporting wall have 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 : 2023
- the spacing of the wall brackets, Z and Omega rails on the supporting wall are such that they provide adequate resistance to the applied actions
- any thermal expansion effects of both the products and the cladding to be supported are taken into account in the design and detailing
- the width of the clear cavity created by the products between the back of the cladding and the substrate wall (or insulation, where installed within the cavity) meets the minimum size specified in the NHBC Standards.

9.1.6 A combination of horizontal and vertical actions must be checked by a suitably experienced and competent individual, in accordance with BS EN 1999-1-1 : 2023 and BS EN 1999-1-3 : 2023, and their UK National Annexes, in conjunction with BS EN 1990 : 2023 and its UK National Annex.

9.1.7 An appropriate gap must be incorporated between adjacent rails to allow for expansion. The cladding must not be installed across this gap. Reference must be made to the relevant standards for the coefficient of thermal expansion of the rail material. Movement joints in the substrate wall must be maintained through the products.

## 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 is provided in Annex A.

## 9.3 Workmanship

Practicability of installation was assessed by the BBA, on the basis of the Certificate holder's information. To achieve the performance described in this Certificate, installation of the products must only be carried out by a competent general builder, or a contractor, experienced with these types of products.

#### 9.4 Maintenance and repair

As the system is confined within the wall cavity and has suitable durability, maintenance is not required.

### **10 Manufacture**

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

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

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

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

10.1.4 The process for management of non-conformities has been assessed and deemed appropriate and adequate.

10.1.5 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.

† 10.2 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 brackets and rails are delivered to site in packaging bearing the product name and size, quantity, order number, Certificate holder's name and QR code taking the customer to the Cladmate Facade Systems website, batch number, and health and safety information.

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

11.2.1 Rails must be stored horizontally or on bearers. Due to rail lengths, special care must be taken when handling.

11.2.2 Brackets must be handled one box at a time, to ensure correct manual handling procedures can be maintained.

11.2.3 Personal protective equipment (PPE) must be worn at all times when handling the products' components.

Supporting information in this Annex is relevant to the products 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 manufacturer (bracket and rail fabrication) has been assessed and registered as meeting the requirements of EN ISO 9001 : 2015 and EN ISO 14001 : 2015 by QRS Quality (Certificates QMS-22-2804-CLA and EMS-22-2804-CLA respectively).

### Additional Guidance

A.1 In accordance with BS EN 1990 : 2023 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 support system (see section 9.1.2 of this Certificate).

### Additional information on installation

A.2 The products, when incorporated in back ventilated and drained cavity rainscreen cladding systems, will not have an adverse effect on the removal of water from the cavity by drainage and ventilation.

A.3 The support brackets, incorporating the thermal isolator pad, are fixed to the specified location on the substrate wall and fixed using appropriate fixings (outside the scope of this Certificate).

A.4 Vertical T/L rails are secured between support wall brackets. The cladding is attached to the rails.

A.5 Where specified, insulation within the cavity must be tightly butted around the brackets and secured to the substrate wall using appropriate fixings.

A.6 The ventilation pathways behind the cladding/within the products must not be allowed to become blocked, or the insulation dislodged, where it may be vulnerable to wetting.

A.7 When Z or Omega vertical rails are used to support the cladding, the rails are fixed directly onto the substrate wall using appropriate fixings (outside the scope of this Certificate).

## Bibliography

- BS 8000-0 : 2014 *Workmanship on construction sites — Introduction and general principles*  
BS 8000-3 : 2020 *Workmanship on construction sites — Masonry — Code of practice*  
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 : 2023 *Durability of wood and wood-based products — Preservative-treated solid wood — Classification of preservative penetration and retention*
- BS EN 573-3 : 2019 + A1 : 2022 *Aluminium and aluminium alloys — Chemical composition and form of wrought products — Chemical composition and form of products — Part 3: Chemical composition and form of products*
- BS EN 1990 : 2023 *Eurocode — Basis of structural and geotechnical 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 : 2023 *Eurocode 2 — Design of concrete structures — General rules and rules for buildings, bridges and civil engineering structures*  
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 : 2023 *Eurocode 2 — Design of concrete structures — 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 : 2022 *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 : 2022 *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 : 2023 *Eurocode 6 — Design of masonry structures — Simplified calculation methods for unreinforced masonry structures*

NA + A1 : 2014 to BS EN 1996-3 : 2006 UK National Annex to *Eurocode 6 — Design of masonry structures — Simplified calculation methods for unreinforced masonry structures*

BS EN 1999-1-1 : 2023 *Eurocode 9 — Design of aluminium structures — General rules*

NA to BS EN 1999-1-1 : 2007 + A1 : 2009 UK National Annex to *Eurocode 9 — Design of aluminium structures — General structural rules*

BS EN 1999-1-3 : 2023 *Eurocode 9 — Design of aluminium structures — Structures susceptible to fatigue*

NA to BS EN 1999-1-3 : 2007 + A1 : 2011 UK National Annex to *Eurocode 9 — Design of aluminium structures — Structures susceptible to fatigue*

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

EAD 090034-00-0404 : 2016 *Kit composed by subframe and fixings for fastening cladding and external wall elements*

EAD 090062-00-0404 : 2018 *Kits for external wall claddings mechanically fixed*

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

EN ISO 14001 : 2015 *Environmental management systems — Requirements with guidance for use*

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*

EU decision 96/603/EC *Establishing the list of products belonging to Classes A 'No contribution to fire' provided for in Decision 94/611/EC implementing Article 20 of Council Directive 89/106/EEC on construction products.*

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