

## Saint-Gobain Construction Products UK Ltd

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## Agrément Certificate

20/5790

Product Sheet 1

### WEBEREND MT SYSTEMS

### WEBEREND MT SYSTEMS APPLIED TO KNAUF AQUAPANEL EXTERIOR CEMENT BOARD

This Agrément Certificate Product Sheet<sup>(1)</sup> relates to weberend MT Systems applied to Knauf Aquapanel Exterior Cement Board, comprising thin coat external renders with a range of finishes, for use as ventilated and drained exterior wall cladding systems on timber- and steel-frame buildings.

(1) Hereinafter referred to as 'Certificate'.

#### CERTIFICATION INCLUDES:

- factors relating to compliance with Building Regulations where applicable
- factors relating to additional non-regulatory information where applicable
- independently verified technical specification
- assessment criteria and technical investigations
- design considerations
- installation guidance
- regular surveillance of production
- formal three-yearly review.

#### KEY FACTORS ASSESSED

**Strength and stability** — the systems can adequately resist the wind loads and impact damage likely to be met in service (see section 6).

**Behaviour in relation to fire** — the render systems have an A2-s1, d0 or a B-s1, d0 reaction to fire classification depending on the finish coat chosen and may be restricted (see section 8).

**Weather resistance** — the systems tend to shed water and will considerably reduce the amount of water penetrating through the substrate (see section 9).

**Durability** — the systems will perform satisfactorily for a period in excess of 30 years (see section 12).



The BBA has awarded this Certificate to the company named above for the systems described herein. These systems have been assessed by the BBA as being fit for their intended use provided they are installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

Date of Second issue: 29 October 2020

Originally certificated on 5 August 2020

Certificate amended on 24 November 2020 to update the company name.

Certificate amended on 23 September 2021 to add further ancillary items.

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](http://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.

#### British Board of Agrément

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## Regulations

In the opinion of the BBA, weberend MT Systems applied to Knauf Aquapanel Exterior Cement Board, 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)

<b>Requirement:</b>	<b>A1(1)</b>	<b>Loading</b>
Comment:	The systems are acceptable. See section 6 of this Certificate.	
<b>Requirement:</b>	<b>B4(1)</b>	<b>External fire spread</b>
Comment:	The systems can satisfy this Requirement. See sections 8.1 to 8.5 of this Certificate.	
<b>Requirement:</b>	<b>C2(b)</b>	<b>Resistance to moisture</b>
Comment:	Walls rendered with the systems can satisfy this Requirement. See section 9.1 of this Certificate.	
<b>Requirement:</b>	<b>7(1)</b>	<b>Materials and workmanship</b>
Comment:	The systems are acceptable. See sections 12.1 and 12.2 and the <i>Installation</i> part of this Certificate.	
<b>Requirement:</b>	<b>7(2)</b>	<b>Materials and workmanship</b>
Comment:	The systems are restricted by this Regulation. See sections 8.1 and 8.5 of this Certificate.	



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

<b>Regulation:</b>	<b>8(1)(2)</b>	<b>Durability, workmanship and fitness of materials</b>
Comment:	Use of the systems satisfies the requirements of this Regulation. See sections 11, 12.1 and 12.2 and the <i>Installation</i> part of this Certificate.	
<b>Regulation:</b>	<b>9</b>	<b>Building standards applicable to construction</b>
Standard:	<b>1.1(a)(b)</b>	<b>Structure</b>
Comment:	The systems are acceptable, with reference to clause 1.1.1 <sup>(1)(2)</sup> of this Standard. See section 6 of this Certificate.	
Standard:	<b>2.6</b>	<b>Spread to neighbouring buildings</b>
Standard:	<b>2.7</b>	<b>Spread on external walls</b>
Comment:	The systems may be restricted by these Standards, with reference to clauses 2.6.4 <sup>(1)(2)</sup> , 2.6.5 <sup>(1)</sup> , 2.6.6 <sup>(2)</sup> and 2.7.1 <sup>(1)(2)</sup> . See sections 8.1 to 8.3, 8.6 and 8.7 of this Certificate.	
Standard:	<b>3.10</b>	<b>Precipitation</b>
Comment:	Walls rendered with the systems can satisfy the requirements of this Standard, with reference to clauses 3.10.1 <sup>(1)(2)</sup> , 3.10.2 <sup>(1)(2)</sup> , 3.10.3 <sup>(1)(2)</sup> and 3.10.5 <sup>(1)(2)</sup> . See section 9.1 of this Certificate.	
Standard:	<b>7.1 (a)</b>	<b>Statement of sustainability</b>
Comment:	The systems can contribute to meeting 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 applicable to conversions</b>
Comment:	Comments in relation to the systems 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(a)(i)</b>	<b>Fitness of materials and workmanship</b>
<b>Comment:</b>	<b>(b)(i)</b>	The systems are acceptable. See sections 12.1 and 12.2 and the <i>Installation</i> part of this Certificate.
<b>Regulation:</b>	<b>28(b)</b>	<b>Resistance to moisture and weather</b>
<b>Comment:</b>		Walls rendered with the systems can satisfy this Regulation. See section 9.1 of this Certificate.
<b>Regulation:</b>	<b>30</b>	<b>Stability</b>
<b>Comment:</b>		The systems are acceptable as set out in section 6 of this Certificate.
<b>Regulation:</b>	<b>36(a)</b>	<b>External fire spread</b>
<b>Comment:</b>		The systems are unrestricted by this Regulation. See section 8.1 to 8.4 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 sections: 1 *Description* (1.2), 3 *Delivery and site handling* (3.2) and 11 *Maintenance* of this Certificate.

## Additional Information

### NHBC Standards 2020

In the opinion of the BBA, weberend MT Systems applied to Knauf Aquapanel Exterior Cement Board, 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)*, Chapters 6.9 *Curtain walling and cladding*, 6.11 *Render*, Clause 6.11.8 *Weather Resistance*, and 9.1 *A consistent approach to finishes*.

## Technical Specification

### 1 Description

1.1 weberend MT Systems applied to Knauf Aquapanel Exterior Cement Board are thin coat renders for use as ventilated and drained exterior wall panel systems on timber- and steel-frame buildings. The systems comprise:

- weberend LAC — a polymer-modified cementitious basecoat/adhesive mortar, supplied as a powder to which 5 litres of clean water is added. Applied in two passes at a coverage of  $6.5 \text{ kg}\cdot\text{m}^{-2}$  and an overall thickness of 6 mm
- weberend LAC Rapid — a polymer-modified cementitious basecoat/adhesive mortar, supplied as a powder to which 5 litres of clean water is added. Applied in two passes at a coverage of  $6.5 \text{ kg}\cdot\text{m}^{-2}$  and an overall thickness of 6 mm
- weberwall brick external adhesive — a factory-batched, polymer-modified basecoat mortar, supplied as a powder, to which only clean water is added
- weber mesh — a 1 m wide, woven glass fibre reinforcing mesh with a polymer coating, with a nominal weight of  $160 \text{ g}\cdot\text{m}^{-2}$
- weber PR310 — a styrene acrylic, resin-based emulsion containing fine fillers, pigment and a coalescing agent, used as a primer and pre-coat to control suction
- weberplast TF — an acrylic-bonded, textured render supplied as a paste containing aggregate of 1.5 mm grain size. It is available in a range of colours, details of which can be obtained from the Certificate holder
- webersil TF — a silicone-bonded, textured render supplied as a paste containing aggregate of 1.5 mm maximum grain size. It is available in a range of colours, details of which can be obtained from the Certificate holder

- weberwall brick — flexible mineral brick slips, typically supplied in standard size of dimensions 65 by 215 by 5 mm with a nominal weight of  $6 \text{ kg}\cdot\text{m}^{-2}$  and are formed of a sheet comprising several brick-slips prepressed on glass fibre mesh-reinforcement. Available as straight brick-slips and corner brick-slips and in a range of colours
- weberwall brick pointing mortar — a polymer-modified, dry powder, cement-based mortar for use with weberwall brick.
- Knauf Aquapanel Exterior Cement Board<sup>(1)</sup> — comprising Portland cement and an aggregate core reinforced with a polymer-coated glass fibre mesh in the back and front surfaces
- Aquapanel Exterior Maxi Screws — corrosion-resistant coated screws. SN25 are for use in steel up to 0.7 mm thick with a single layer of board, SN39 are for use in steel up to 0.7 mm thick with a double layer of board, or in timber-frame construction with a single layer of board, and SB25 are for use in steel from 0.8 mm thick to 2 mm thick with a single layer of board Knauf Aquapanel Fixings — Aquapanel Rustproof Screws — stainless steel screws, SN 40 (length 40 mm, diameter 4.0 mm), for use in timber battens for a single layer of boards
- Aquapanel Rustproof Screws — stainless steel screws. SN40 are for use in timber for a single layer of boards.

(1) The board is supplied by Knauf Drywall and is the subject of BBA Certificate 09/4633.

## 1.2 Knauf Aquapanel Exterior Cement Board has the characteristics of:

Width (mm)	900 <sup>(1)</sup> , 1200 <sup>(2)</sup>
Thickness (mm)	12.5
Approximate mass per unit area ( $\text{kg}\cdot\text{m}^{-2}$ )	14.3
Approximate dry density ( $\text{kg}\cdot\text{m}^{-3}$ )	1150
Modulus of rupture (MPa)	9.6.

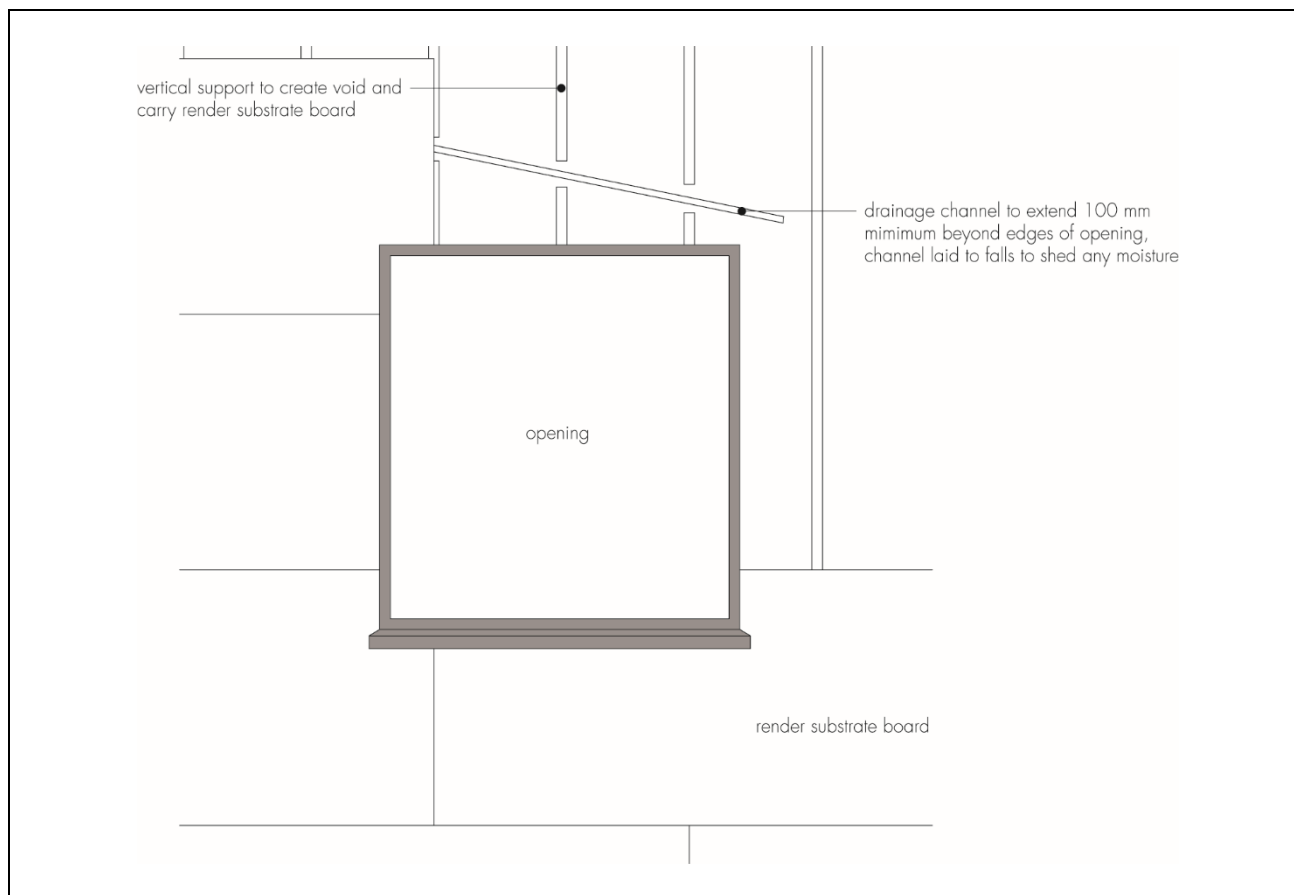
(1) Available in lengths of 1200, 2000, 2400, 2500 and 2800 mm.

(2) Available in lengths of 900, 2000, 2400, 2500, 2800 and 3000 mm.

## 1.3 Ancillary items for use with the systems, but outside the scope of this Certificate, are:

- mesh wing corner, base, stop, corner, horizontal drip and movement beads
- timber sub-frame — for example, minimum 40 mm wide timber treated battens
- metal sub-frame — up to 2 mm thick steel
- supporting rails
- Aquapanel Exterior Joint Filler Grey — a grey, cement-bound filler for application to gaps between boards and for bonding tape or reinforcing tape to board
- Aquapanel Exterior Tape (50 m by 100 mm) — glass fibre, alkali-resistant tape for reinforcing exterior joints by embedding in the Aquapanel Exterior Joint Filler Grey. For use with rendered and alternative finishes
- Aquapanel Exterior Reinforcing Tape (50 m by 200 mm) — glass fibre, alkali-resistant tape for reinforcing exterior joints by embedding in the Aquapanel Exterior Joint Filler Grey. For use when the basecoat is left unfinished or painted only.

**Figure 1 Drainage channel at opening**



## 2 Manufacture

2.1 The render components are manufactured in a batch-blending process. The system components are manufactured by the Certificate holder or bought in from suppliers, to an agreed specification. The board is manufactured from a cement mixture, lightweight core material and water, and is reinforced on both sides with an alkali-resistant glass fibre fabric.

2.2 As part of the assessment and ongoing surveillance of product quality, the BBA has:

- agreed with the manufacturer the quality control procedures and product testing to be undertaken
- assessed and agreed the quality control operated over batches of incoming materials
- monitored the production process and verified that it is in accordance with the documented process
- evaluated the process for management of nonconformities
- checked that equipment has been properly tested and calibrated
- undertaken to carry out the above measures on a regular basis through a surveillance process, to verify that the specifications and quality control operated by the manufacturer are being maintained.

2.3 The management system of Saint-Gobain Construction Products UK Ltd t/a Saint Gobain Weber has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2015 by BSI (Certificate 641234).

## 3 Delivery and site handling

3.1 The render components are delivered on pallets in moisture-resistant bags/containers and plastic pails. The boards are delivered to site shrink-wrapped in polythene packs.

3.2 All other components are delivered to site in the quantities and packages as listed in Table 1. Each package carries the manufacturer's and product's identification, batch number, and the BBA logo incorporating the number of this Certificate.

**Table 1 Component supply details**

Component	Quantity and package
weberend LAC	20 kg bags
weberend LAC Rapid	20 kg bags
weberwall brick external adhesive	20 kg bags
weber PR310	10 litre containers
weberplast TF	15 kg plastic pails
webersil TF	15 kg plastic pails
weberwall brick slips	boxed by manufacturer
weberwall brick pointing mortar	25 kg bags

3.3 weber mesh is 1 m wide and supplied in rolls of 50 m length.

3.4 Powder mortars should be stored in dry conditions, off the ground and protected from frost at all times.

3.5 The primer and textured synthetic coatings should be stored in a safe area, under cover and protected from excessive heat and frost at all times.

## Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on weberend MT Systems applied to Knauf Aquapanel Exterior Cement Board.

## Design Considerations

### 4 Use

4.1 weberend MT Systems applied to Knauf Aquapanel Exterior Cement Board are satisfactory for use as ventilated and drained exterior wall cladding systems on timber- and steel-frame buildings.

4.2 New buildings subject to national Building Regulations should be constructed in accordance with the relevant recommendations of:

- BS EN 13914-1 : 2016
- BS 8000-0 : 2014
- BS EN 1995-1-2 : 2004 and its UK National Annex
- BS EN 338 : 2016
- BS EN 14081-1 : 2016
- BS EN 1993-1-1 : 2005 and its UK National Annex.

4.3 Timber stud walls and timber support work must be structurally sound, designed and constructed in accordance with BS EN 1995-1-1 : 2004 and its UK National Annex, and preservative treated in accordance with BS EN 351-1 : 2007 and BS 8417 : 2011.

4.4 Galvanized steel framework, light steel framed backing wall and steel sub-frame support systems must be structurally sound, designed and constructed in accordance with BS EN 1993-1-3 : 2006 and its UK National Annex.

4.5 It is essential that all new walls are designed and constructed to prevent moisture penetration and the formation of condensation. A breather membrane should be provided to the backing wall.

4.6 The design should include:

- a ventilated and drained cavity in accordance with BS 5250 : 2011, to ensure that the timber-frame structure is protected from moisture from wind-driven rain in the event of unexpected failure of the cladding envelope, and the inclusion of insect guards to all ventilation openings
- effective detailing around all openings to ensure weathertightness of the structure
- an effective breather membrane on the internal face of the cavity to ensure that the frame structure is protected.

4.7 Ventilation and drainage must be provided behind the cladding panels. The clear cavity behind the back of the panel and substrate wall or thermal insulation must be at least 25 mm wide and ensure that a minimum ventilation area of 5000 mm<sup>2</sup> per metre run is provided at the building base point and at the roof edge. All ventilation openings around the periphery of a cladding system incorporating the panels should be suitably protected with a mesh or a perforated sheet or similar, to prevent the ingress of birds, vermin and insects.

## 5 Practicability of installation

The systems should be installed only by approved contractors who have successfully undergone training and registration by the Certificate holder (see section 13).

## 6 Strength and stability



6.1 The systems have adequate strength and can be incorporated in an external cladding system suitably designed to resist the wind loads normally experienced in the UK.

6.2 A suitably competent and experienced individual must check the design and installation of the systems.

6.3 The designer must ensure that:

- the sub-frame and the support rails should be designed to limit mid-span deflections to  $L/200$ , and cantilever deflections to  $L/150$ . Board mid-span deflections should be limited to  $L/500$ . Where  $L$  is the clear span
- the systems attachment to the substrate has adequate fixing pull-out capacity for the calculated loads. An appropriate number of site-specific pull-out tests is conducted on the substrate to determine the minimum pull-out resistance to failure of the fixings. The characteristic pull-out resistance should be determined in accordance with the guidance given in EOTA TR 055 : 2018, using 50% of the mean value of the five smallest measured values at the ultimate load
- the fixings attaching the board to the subframe have adequate pull-out strength from the subframe used
- the maximum centres between the studs supporting the wall is 600 mm
- the spacing of the fixings attaching the board to the sub-frame is to the manufacturer's instructions. This is typically into the batten at 600 mm centre to centre horizontally and 250 mm centre to centre vertically
- the battens are treated timber minimum 40 mm wide with a thickness to suit the required cavity width. Cavity may be formed by timber battens or steel Z sections.

6.4 The supporting wall must be able to take the full wind actions as well as any racking loads. The systems cannot be assumed to contribute in this respect.

6.5 Design wind actions must be calculated in accordance with BS EN 1991-1-4 : 2005 and its UK National Annex. Consideration should be given to higher pressure coefficients applicable to corners of buildings as recommended in this Standard. In accordance with BS EN 1990 : 2002, it is recommended that a partial load factor of 1.5 is used to determine the design wind load to be resisted by the systems.

6.6 The maximum allowable pull-through values (kN) for the stainless steel screws are:

centre	0.42
edge (25 mm min)	0.19
corner (25 mm min)	0.14.

6.7 For design purposes, the board may be assumed to have the following mechanical properties:

allowable flexural stress	$2.4 \text{ N}\cdot\text{mm}^{-2}$
flexural modulus	$4000 \text{ N}\cdot\text{mm}^{-2}$ .

6.8 Wind load testing and supporting calculations were carried out on a full scale wall comprising of weberwall brick on Knauf Aquapanel Exterior Cement Board supported at 600 mm (maximum) centres, and achieving a serviceability and ultimate safety wind pressure of  $0.78 \text{ kN}\cdot\text{m}^{-2}$  and  $1.95 \text{ kN}\cdot\text{m}^{-2}$  respectively.

## Impact resistance

6.9 Hard and soft body impact tests were carried out in the same wind test sample. The systems achieved adequate impact resistance for use in Impact Class 1 and Negligible Risk, as defined in CWCT TN76, Tables 1 and 2, an extract of which is shown in Tables 2 and 3 of this Certificate.

6.10 It is essential that the surface of the boards to be covered is clean and has a sound mechanical key to ensure a satisfactory bond between the backing board and the render.

*Table 2 Classes for serviceability performance (from CWCT TN76)*

Class	Definition	Explanation/Examples
1	No damage	No damage visible from 1 m, and any damage visible from closer than 1 m unlikely to lead to significant deterioration
2	Surface damage of an aesthetic nature which is unlikely to require remedial action	Dents or distortion of panels not visible from more than 5 m (note visibility of damage will depend on surface finish and lighting conditions. Damage will generally be more visible on reflective surfaces), and any damage visible from closer than 5 m unlikely to lead to significant deterioration
3	Damage that may require remedial action or replacement of components to maintain appearance or long term performance but does not require immediate action	Dents or distortion of panels visible from more than 5 m, or spalling of edges of panels of brittle materials, or damage to surface finishes that could lead to deterioration of the substrate.
4	Damage requiring immediate action to maintain appearance or performance. Remedial action may include replacement of panel but does not require dismantling or replacement of supporting structure	Significant cracks in brittle materials, eg cracks that may lead to parts of tile falling away subsequent to test, or fracture of panels causing significant amounts of material to fall away during test
5	Damage requiring more extensive replacement than 4	Buckling of support rails

Note: Classes 3, 4 and 5 shown for information only and not suitable for these systems.

*Table 3 Classes for safety performance (from CWCT TN76)*

Class	Explanation/Examples
Negligible Risk	No material dislodged during test, no damage likely to lead to materials falling subsequent to test, no sharp edges produced that would be likely to cause severe injury to a person during impact, and cladding not penetrated by impactor
Low Risk	Maximum mass of falling particle 50 g, maximum mass of particle that may fall subsequent to impact 50 g, cladding not penetrated by impact, and no sharp edges produced that would be likely to cause severe injury during impact
Moderate Risk	Maximum mass of falling particle less than 500 g, maximum mass of particle that may fall subsequent to impact less than 500 g, cladding not penetrated by impact, and no sharp edges produced that would be likely to cause severe injury during impact
High Risk	Maximum mass of falling particle greater than 500 g, or cladding penetrated by impact, or sharp edges produced that would be likely to cause severe injury during impact

Note: Low, Moderate and High Risk Classes are shown for information only and are not suitable for these systems.

## 7 Water vapour resistance

The equivalent air layer thickness (sd) (for the render systems) are shown in Table 4.



Table 4 Equivalent air layer thickness

	(sd) (m)
LAC basecoat, weberplast TF	0.93
LAC basecoat, webersil TF	0.57
LAC Rapid basecoat, weberplast TF	0.19
LAC Rapid basecoat, webersil TF	0.18
weberwall brick external adhesive (3mm) + weberwall brick + weberwall brick pointing mortar	0.42

## 8 Behaviour in relation to fire



8.1 Knauf Aquapanel Exterior Cement Board has a reaction to fire classification of A1 in accordance with BS EN 13501-1 : 2018.

8.2 The render systems applied over Knauf Aquapanel Exterior Cement Board have the following fire classifications<sup>(1)</sup> in accordance with BS EN 13501-1 : 2018:

- webersil TF A2-s1, d0
- weberplast TF B-s1, d0
- weberwall brick A2-s1, d0.

(1) Test reports WF 427971, WF 428755 and WF 428352, issued by Warringtonfire. Copies of the reports are available from the Certificate holder upon request. The worst-case substrate was tested for fire performance.

### System with A2-s1, d0 reaction to fire classification



8.3 The render system or weberwall brick system are not subject to any restriction on building height or proximity to boundaries.

### System with a B-s1, d0 reaction to fire classification



8.4 In England, Wales and Northern Ireland, the render systems are not classified as non-combustible or of limited combustibility and may be used on buildings at any proximity to a boundary. For buildings with a storey more than 18 m above the ground, designers should consider the impact on the risk of fire spread over the wall. See also section 8.5.



8.5 The render systems should not be used on buildings in England and Wales that have a storey at least 18 m above ground level and contain: one or more dwellings, an institution, a room for residential purposes (excluding any room in a hostel, hotel or boarding house), student accommodation, care homes, sheltered housing, hospitals or dormitories in boarding schools.



8.6 In Scotland, the render systems are not classified as non-combustible, and may be used on buildings more than 1 m from a boundary and, on houses, 1 m or less from a boundary. With minor exceptions, the render systems should be included in calculations of unprotected area, except on houses where the external wall behind has the appropriate fire resistance.

8.7 In Scotland, the render systems should not be used on any building with a storey more than 11 m above the ground, or on any entertainment or assembly building with a total storey area more than 500 m<sup>2</sup>, or on any hospital or residential care building with a total storey area more than 200 m<sup>2</sup>.

8.8 Designers should refer to the relevant national Building Regulations and guidance for detailed conditions of use, particularly in respect of requirements for substrate fire performance, cavity barriers and combustibility limitations for other materials and components used in the overall wall construction, for example, thermal insulation.

8.9 For resistance to fire, the performance of a wall incorporating the systems can only be determined by tests from a suitably accredited laboratory and is outside the scope of this Certificate.

## 9 Weather resistance



9.1 The systems are suitable for use in exposure zones up to and including the 'severe' wind-driven rain index category in accordance with PD 6697 : 2019.

9.2 Knauf Aquapanel Exterior Cement Board to which the render is applied must be designed and constructed in relation to local exposure conditions to minimise the incidence of rain penetration.

9.3 The renders will tend to shed water and will considerably reduce the amount of water absorbed during rain.

## 10 Proximity of flues

When installing the systems in close proximity to certain flue pipes, the following provisions of the national Building Regulations should be satisfied:

**England and Wales** — Approved Document J

**Scotland** — Mandatory Standard 3.19, clauses 3.19.1<sup>(1)(2)</sup> to 3.19.4<sup>(1)(2)</sup> and 3.19.8<sup>(1)(2)</sup>

**Northern Ireland** — Technical Booklet L.

(1) Technical Handbook (Domestic).

(2) Technical Handbook (Non-Domestic).

## 11 Maintenance



11.1 Regular maintenance checks should be carried out on architectural details and on external plumbing and fittings, to ensure that they are functioning correctly and to prevent water damage to the render.

11.2 Damaged render must be repaired as soon as is practicable (see section 14).

## 12 Durability



12.1 The durability and service life of the systems will depend upon the building location, the immediate environment and the intended use of the building.

12.2 Provided regular maintenance is carried out, as described in section 11 and in accordance with the Certificate holder's instructions, the systems will perform satisfactorily for a period in excess of 30 years when used in the normal climatic conditions found in the UK.

12.3 The systems may become discoloured with time, the rate depending on the local environment. Appearance can normally be restored by cleaning with water and mild detergent. In industrial atmospheres light colours should be avoided.

## Installation

## 13 Recommended Contractors

Application of the systems, within the context of this Certificate, must be carried out by contractors recommended or recognised by the Certificate holder. Such a contractor is a company:

- which operate in the specialist field of activity and have been audited
- which have achieved required installation standards consistently to comply with the Certificate holder's application procedure
- subject to at least one inspection per annum by the Certificate holder to ensure suitable site practices are being employed. This may include unannounced site inspections.

## 14 General

14.1 Application of weberend MT Systems applied to Knauf Aquapanel Exterior Cement Board should be carried out strictly in accordance with the Certificate holder's instructions and specifications, and the relevant recommendations of BS EN 13914-1 : 2016.

14.2 Advice concerning site survey and preliminary work is available to the designer or rendering contractor from the Certificate holder.

14.3 A pre-application survey of the property must be carried out to determine the suitability of the substrate to receive the systems, and whether repairs to the building structure are necessary before application. A specification is prepared by the designer or rendering contractor for each elevation indicating:

- preliminary treatment of the background
- position of beads
- detailing around windows, doors and at eaves
- areas where flexible sealants must be used.

14.4 The sub-frame to which the cladding is fixed must be structurally sound and constructed in accordance with the requirements of the relevant national Building Regulations and Standards (see sections 4.6 and 4.7).

14.5 The systems are capable of transmitting their self-weight and wind load to the structure. The adequacy of fixing of the sub-frame to the structural frame for specific installations is outside the scope of this Certificate and must be verified by a suitably qualified engineer. Particular care is required around window and door openings to ensure that the structure is capable of sustaining the additional weight of Knauf Aquapanel Exterior Cement Board.

14.6 Horizontal movement joints must be provided at every floor to accommodate vertical shrinkage of up to 6 mm in the timber-frame and to follow movement joints in the substructure. For steel-frame structures, reference should be made to the Structural Engineer's details for deflection at floor level and movement joints in the substructure.

14.7 Vertical movement joints should be provided at the required intervals. The actual spacing and position of the joints will be determined by the shape of the area to be rendered and should coincide with movement joints in the structure and allow for the same degree of movement.

14.8 The breather membrane must be installed and properly overlapped in accordance with the instructions of the membrane manufacturer and the building designer.

14.9 All window and door openings are sealed strictly in accordance with the Certificate holder's installation instructions to ensure that they are weathertight before application of the systems.

14.10 The renders should not be applied in rain or mist, at temperatures above 30°C or below 5°C, or if exposure to frost is likely to occur during curing.

14.11 In sunny weather, work should commence on the shady side of the building, following the sun round to prevent the rendering drying out too rapidly.

14.12 To minimise colour shade variations and to avoid dry line jointing, continuous surfaces should be completed without a break. If breaks cannot be avoided they should be made where services or architectural features, such as reveals or lines of doors and windows, help mask cold joints. Where long, uninterrupted runs are planned, product from the same batch should be used. Different batch numbers should be checked for colour consistency.

## 15 Procedure

15.1 Knauf Aquapanel Exterior Cement Board should be securely fixed to the framework at maximum 600 mm spacings using the specified fixings (see section 1.1) at maximum 600 mm centre to centre horizontally and maximum 250 mm centre to centre vertically to provide a rigid in-plane surface without deflection or edge protrusions.

15.2 The board is supported on a minimum of three members, the centres of which should be a maximum spacing of 600 mm.

15.3 Screws should be fixed at a minimum of 15 mm from board edges. The spacing for the screws should be no more than 250 mm and they should not be over-tightened.

15.4 If it is necessary to cut board, it should be scored and snapped with a kraft-type knife. Alternatively, a hand-held circular saw with a dust extractor or a pendulum jig saw can be used. The use of a carbide- or diamond-tipped saw blade is recommended.

15.5 It is essential that the board is rested directly on the framework during installation.

15.6 The board is fixed horizontally over supports with gaps between 3 and 5 mm. Successive rows of boards should be installed with vertical joints offset by a minimum of one stud cavity.

15.7 The board is cut to fit up to the head and down to the sill of windows, ensuring that no continuous vertical joint is formed to avoid leakage and cracks.

15.8 Render beads and expansion beads are fixed in accordance with the Certificate holder's instructions.

15.9 weberend LAC or weberend LAC Rapid or weberwall brick external adhesive is mixed using clean water (5 litres of water per 20 kg bag of render) to achieve a thick creamy consistency, and a 3 mm thick layer is applied onto the board.

15.10 weber mesh is laid in the first pass of weberend LAC or weberend LAC Rapid and left to dry for approximately 30 minutes before application of a second pass of 2 to 3 mm minimum, to achieve a minimum total thickness of 6 mm. Using a sponge the surface is rubbed to achieve a float finish and the render allowed to dry for 3 to 7 days.

15.11 A coat of weber PR310 (coverage rate 0.25 litres per m<sup>2</sup>) is applied by roller and the surface left to dry for 24 hours prior to application of the finishing coats when using weberend LAC. Weber PR310 primer is not required with weberend LAC rapid.

### ***Render finishes***

15.12 A finishing coat of either weberplast TF at a coverage rate 2.8 kg·m<sup>-2</sup> or webersil TF at a coverage rate 2.7 kg·m<sup>-2</sup> is applied to a thickness of 1.5 mm using a steel float and hawk. A thin plastic float is used to smooth the surface, ensuring evenness of cover.

### ***weberwall brick slips with weberwall brick pointing mortar***

15.13 For the weberwall brick system, a further 3 mm thick layer of weberwall brick external adhesive is applied over the wet first layer of basecoat to give an overall minimum thickness of 6 mm using a 10 mm square notched trowel to comb through the adhesive to prepare the wet adhesive for application of weberwall brick.

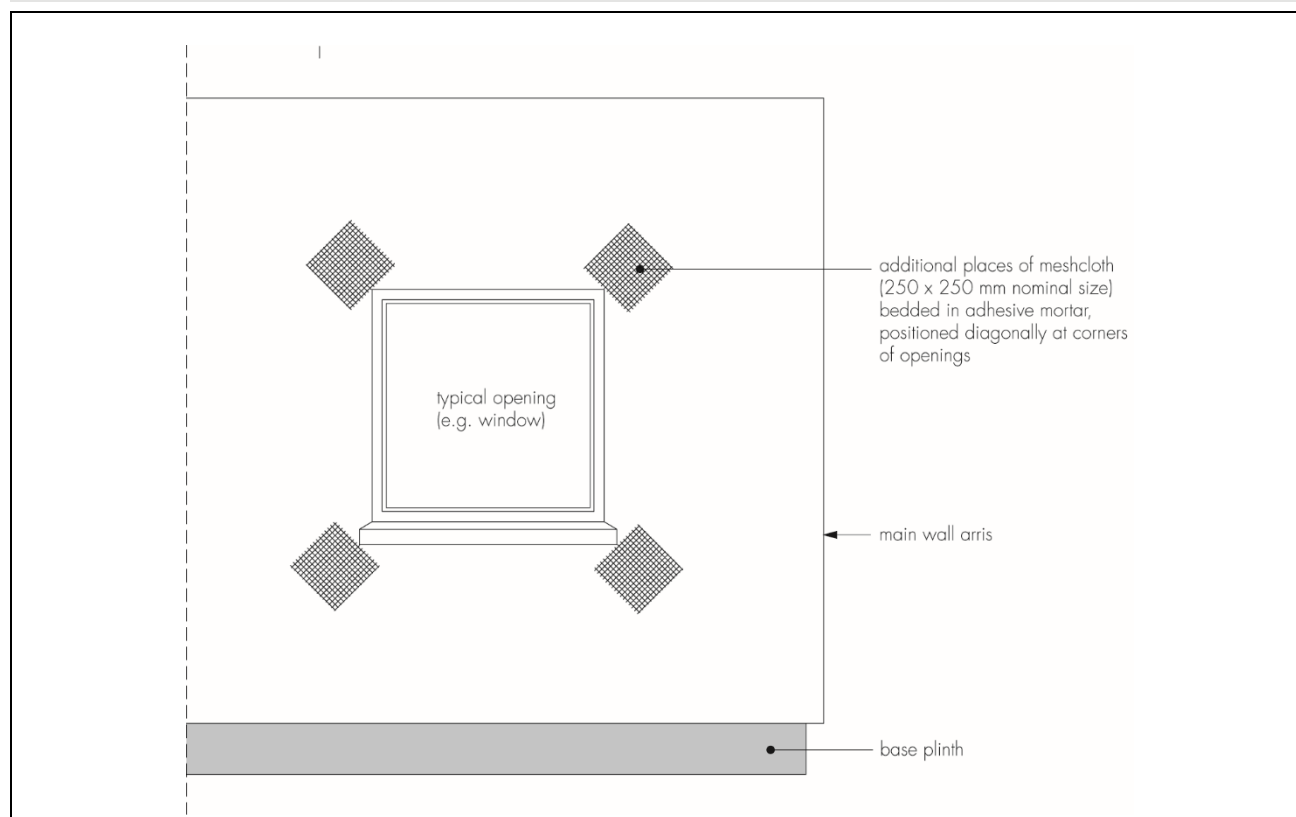
15.14 The weberwall brick is immediately pressed into the wet adhesive, ensuring the mesh is fully immersed in adhesive. Weberwall brick pointing mortar is then applied in joints once the adhesive has set in accordance with the Certificate holder's instructions. Excess mortar is removed with a dry brush.

15.15 Care should be taken in the detailing of the system around features such as openings, projections and at eaves to ensure adequate protection against water ingress and to limit the risk of water penetrating the system.

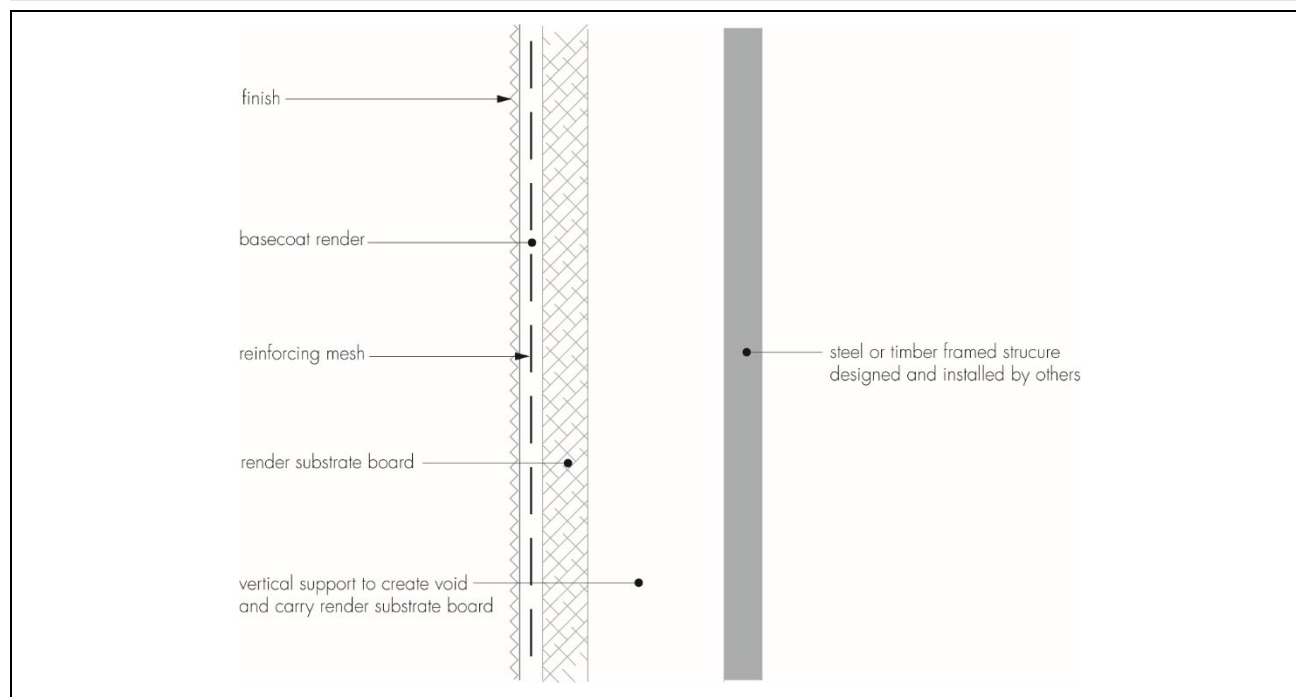
15.16 At the top of walls, the system must be protected by a coping, adequate overhang or adequately sealed, purpose-made flashing.

15.17 A typical wall build up is shown in Figures 2 to 12.

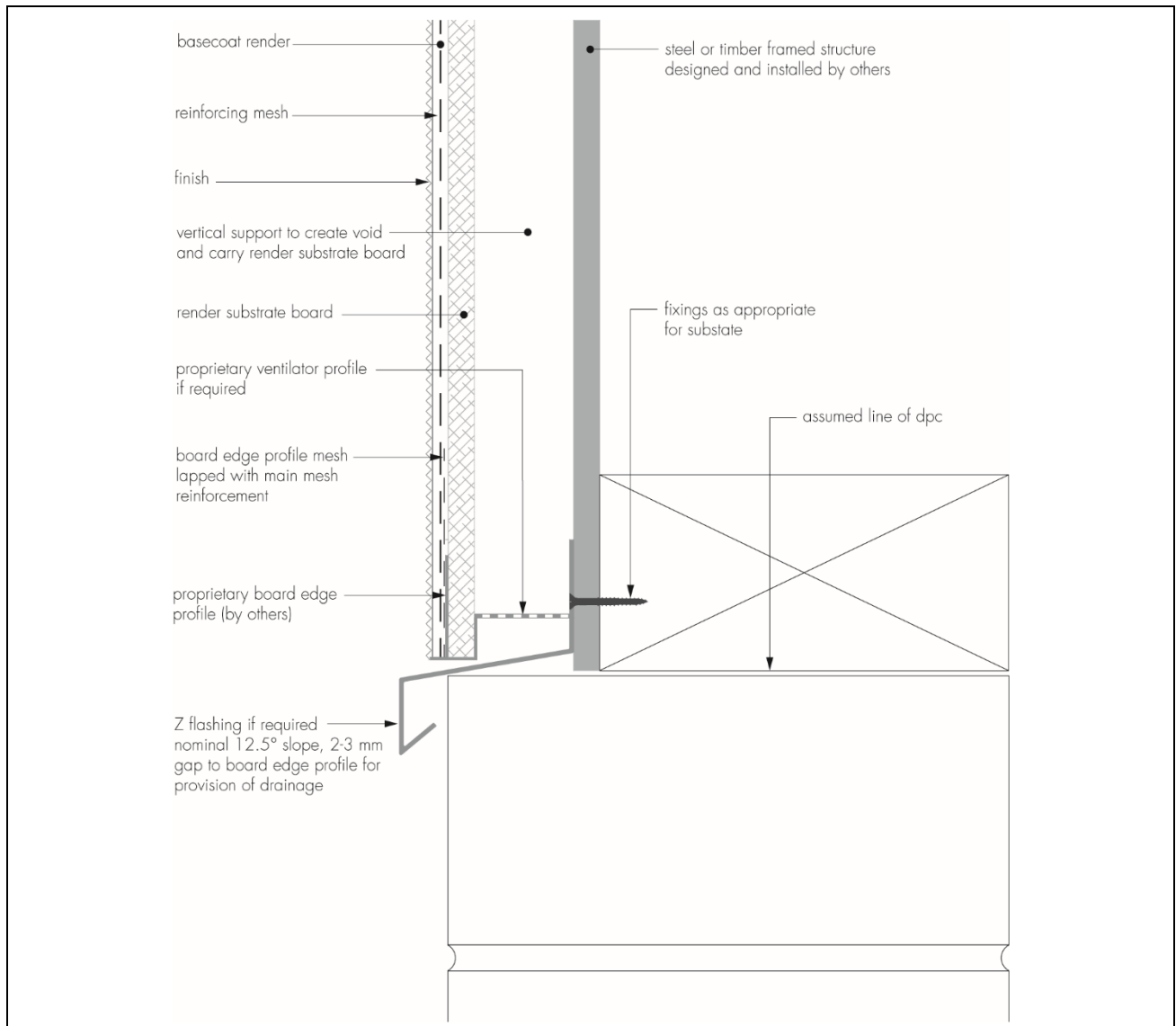
*Figure 2 Mesh reinforcement at opening*



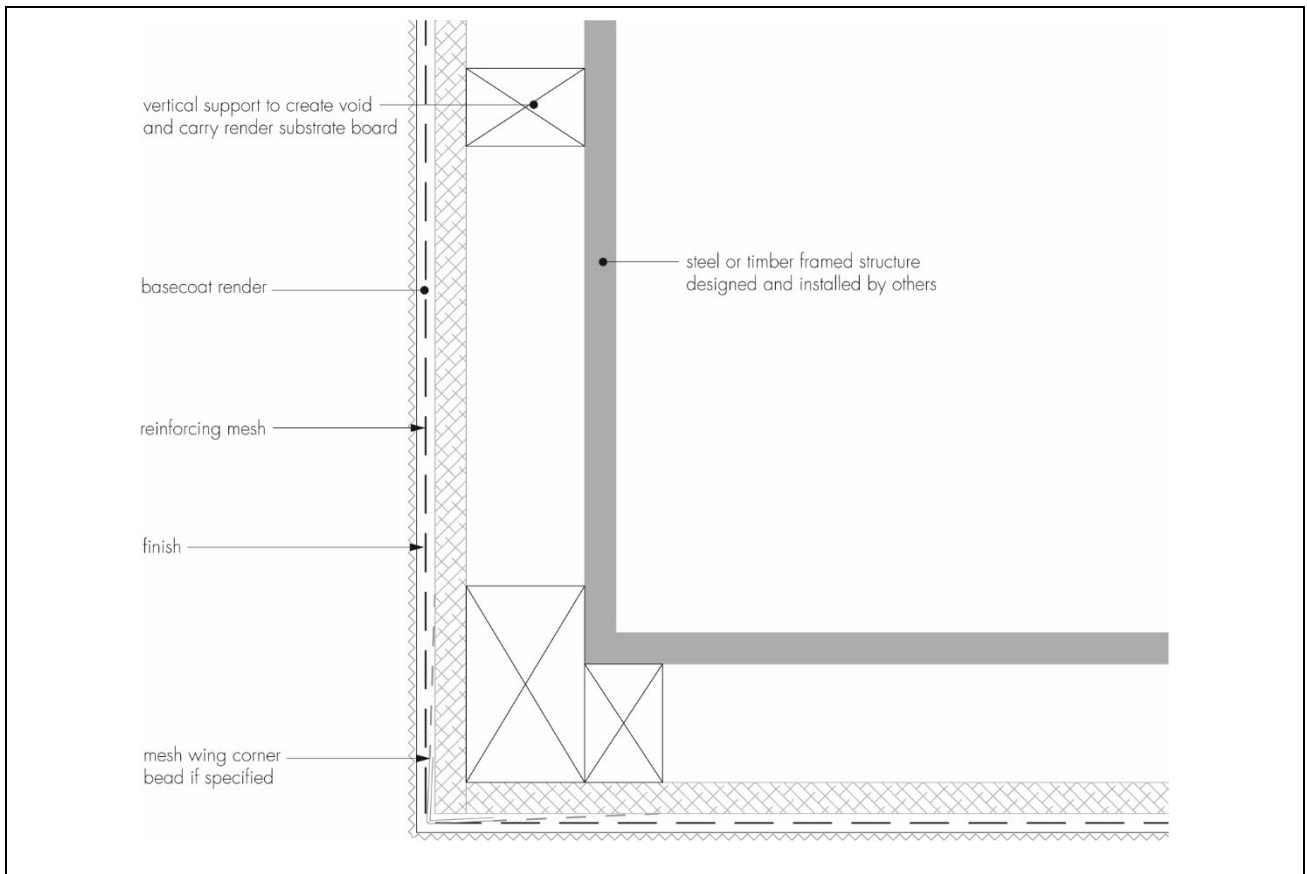
*Figure 3 Detail section – main wall*



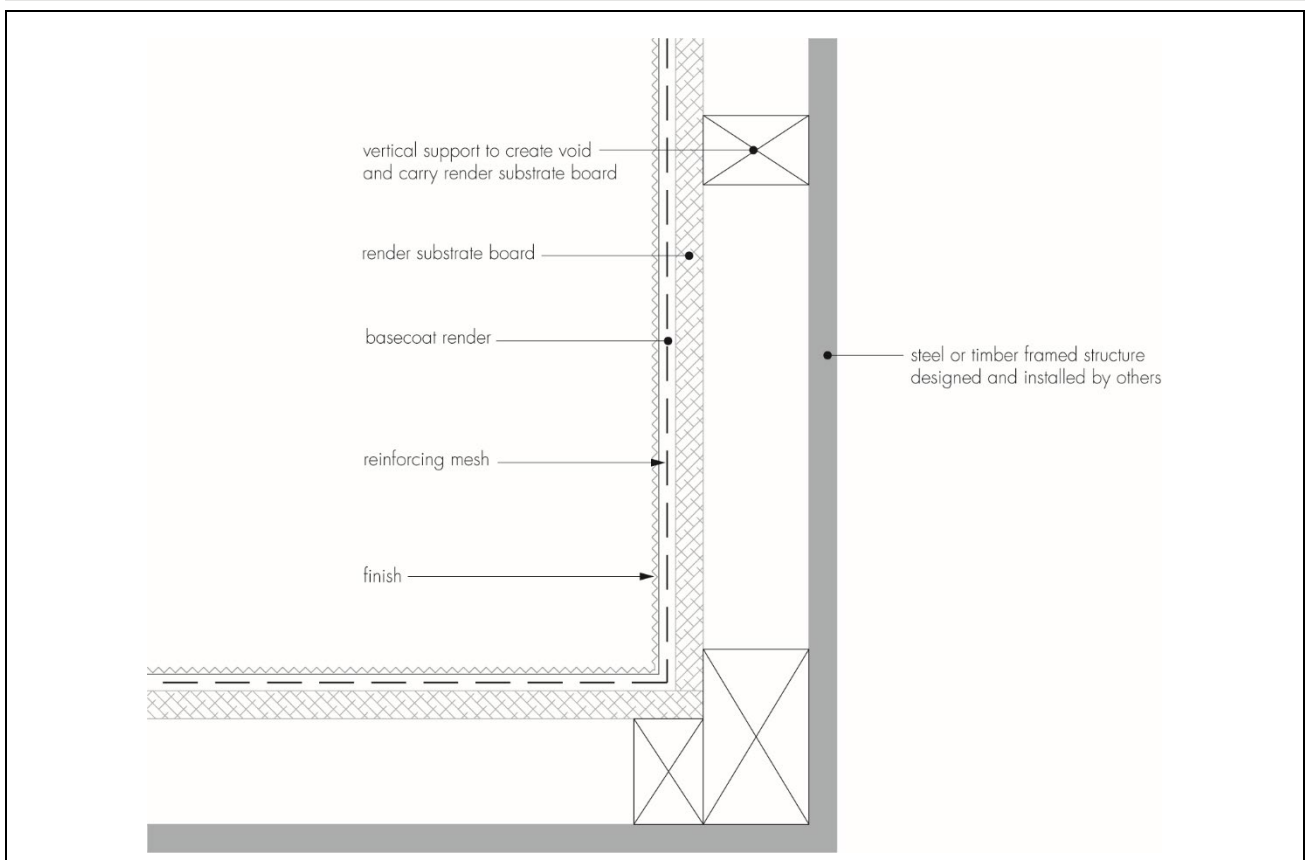
**Figure 4 Detail section – base (Z flashing)**



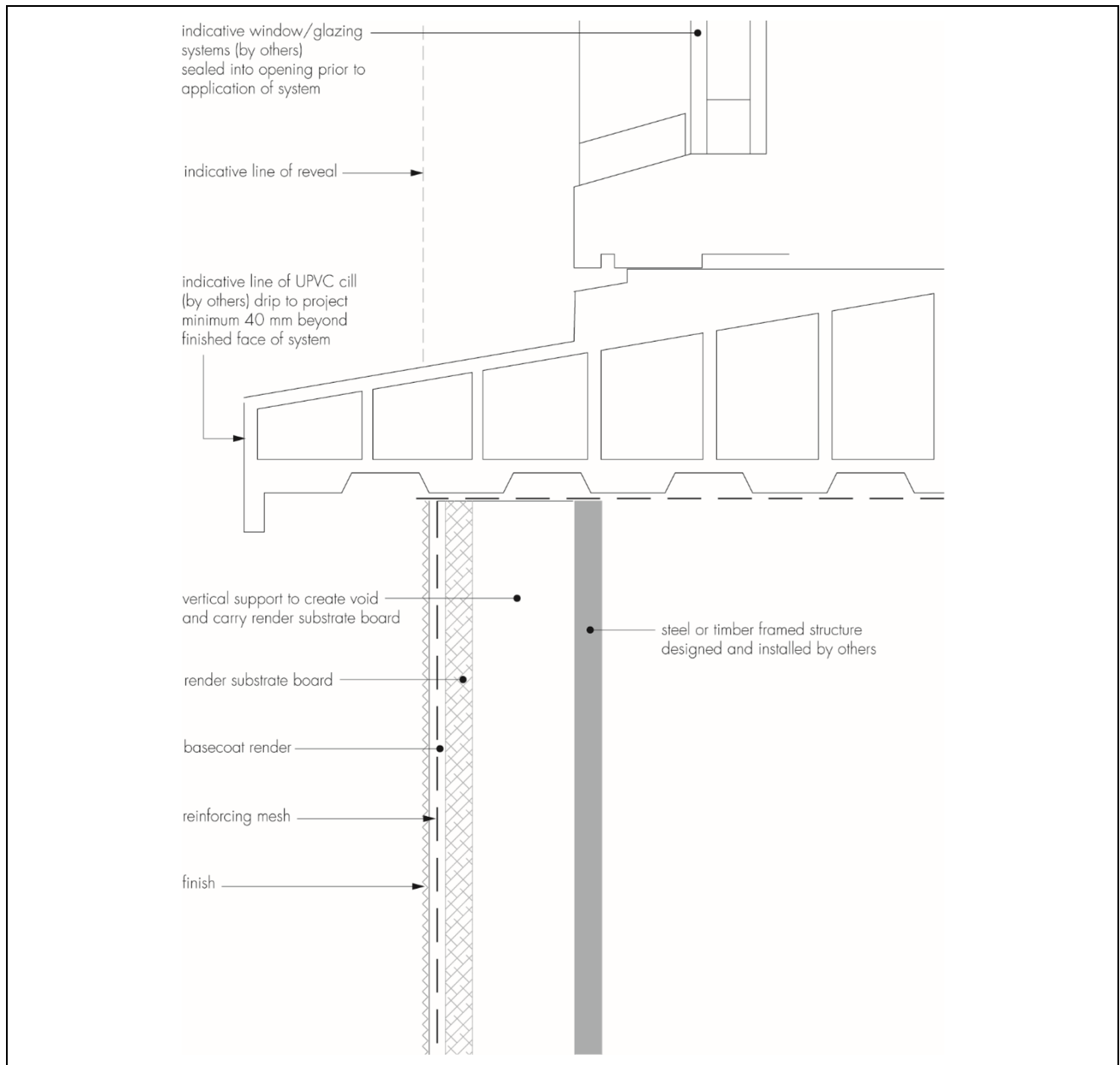
**Figure 5 Detail plan – external corner**



**Figure 6 Detail plan – internal corner**

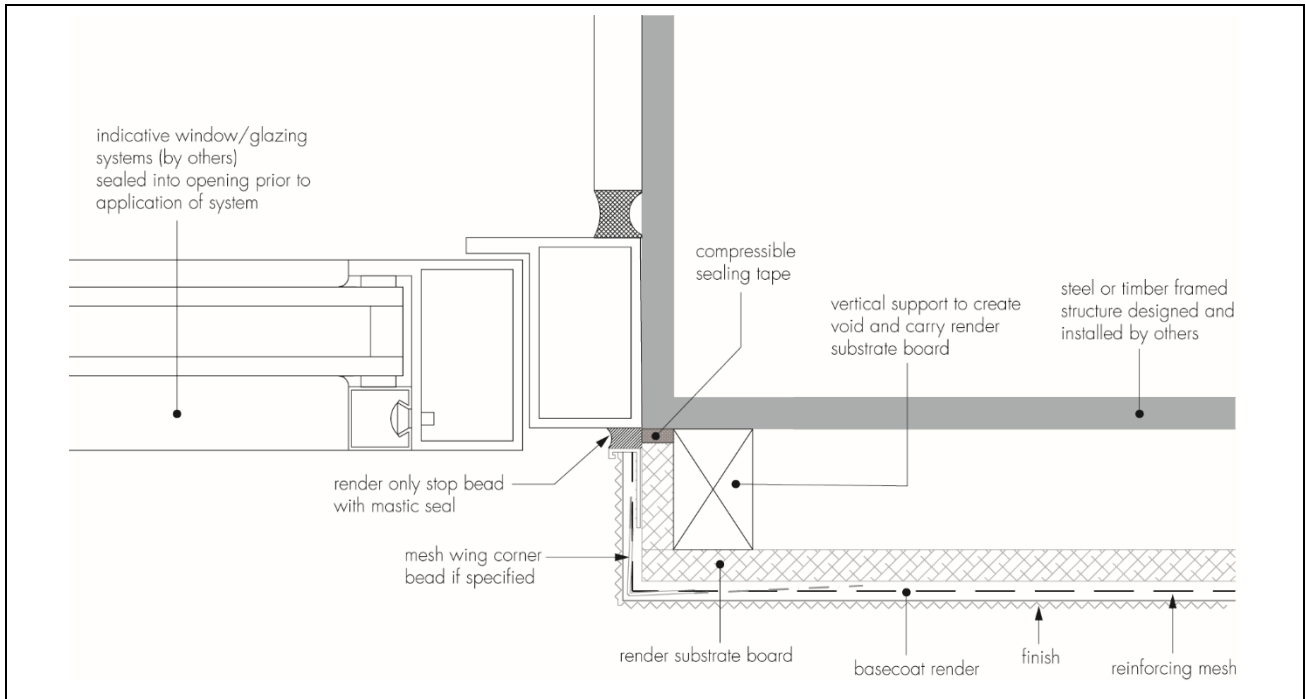


**Figure 7 Detail section – UPVC cill**

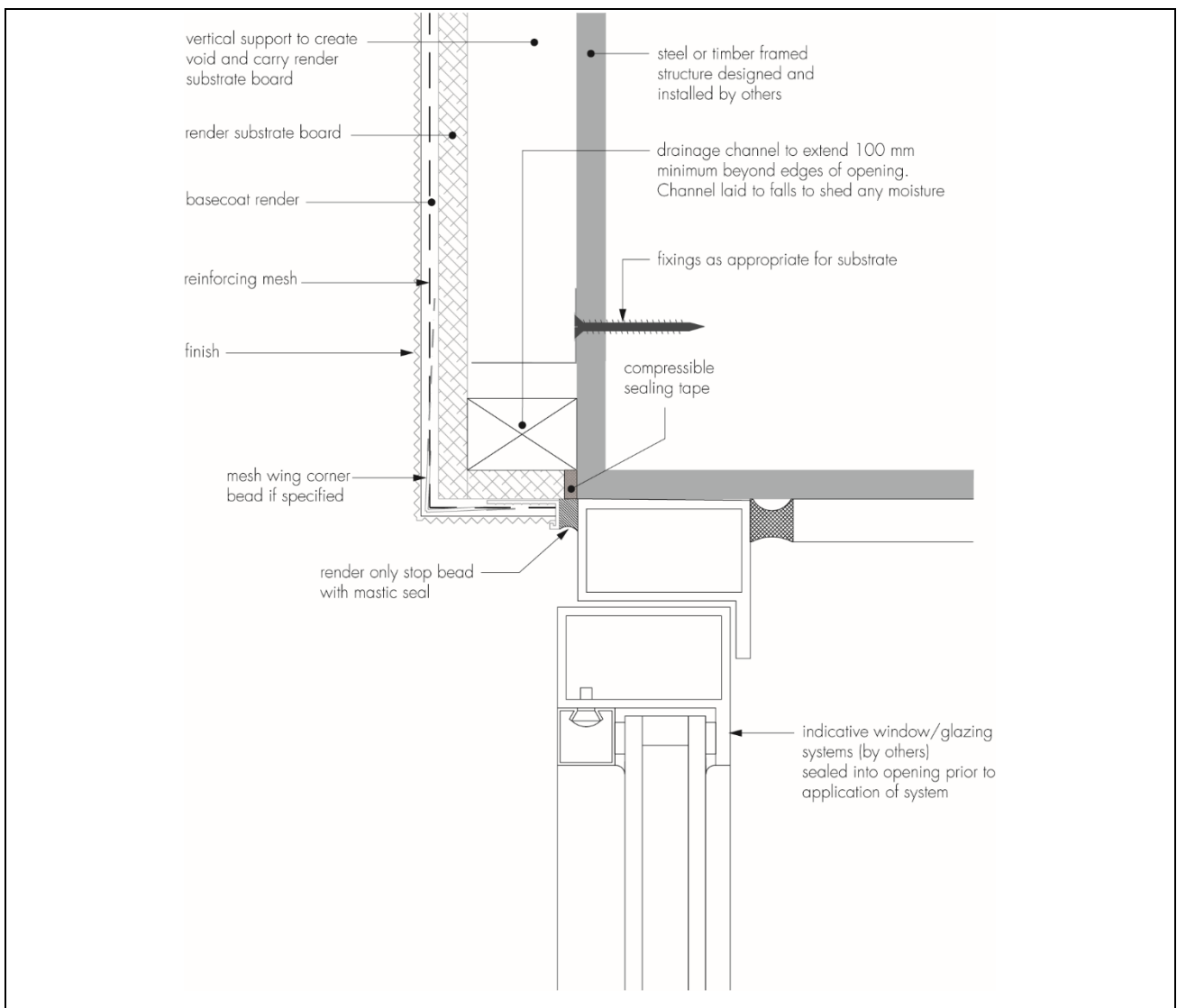




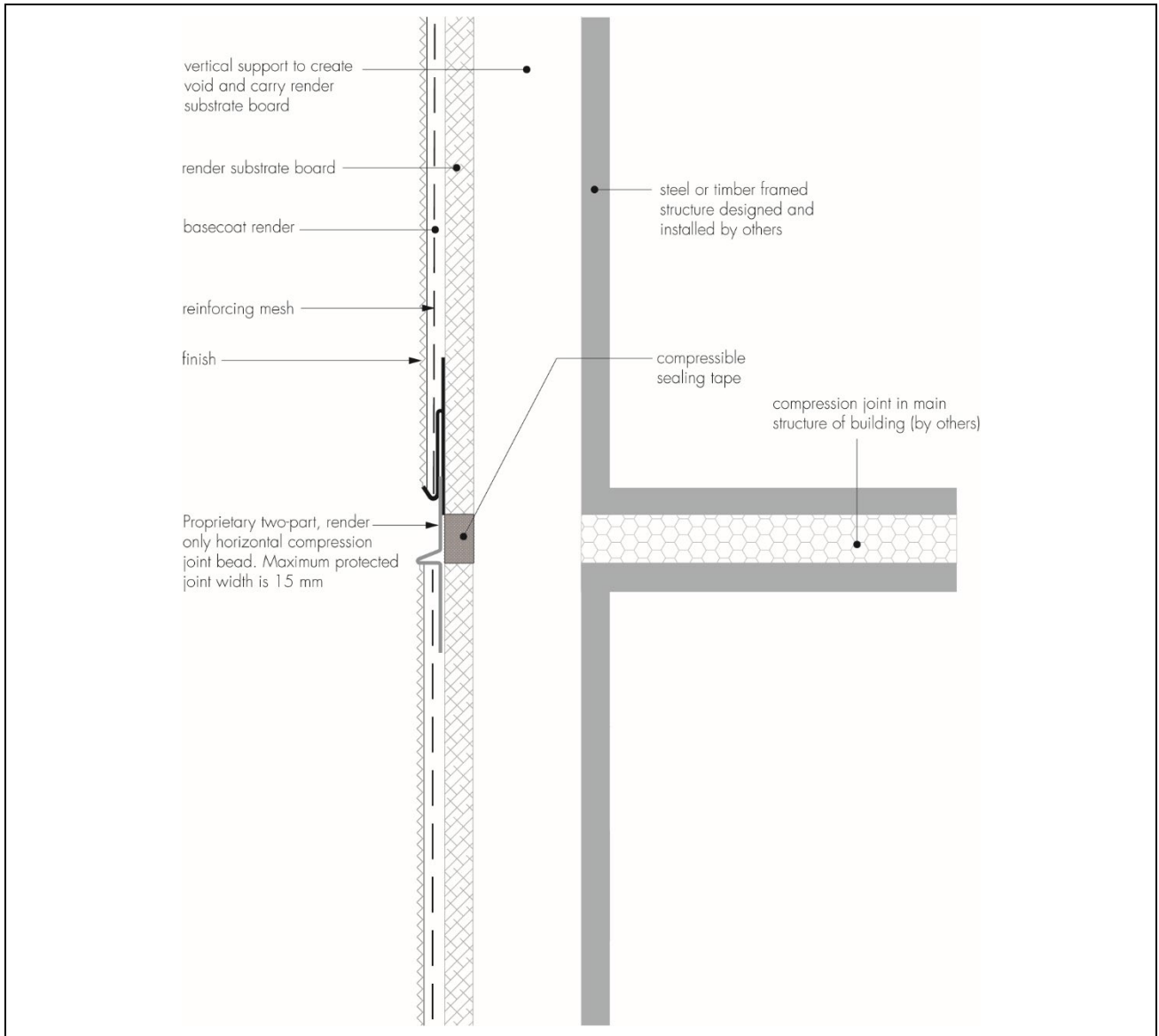
**Figure 8 Detail plan – reveal (bead + mastic)**



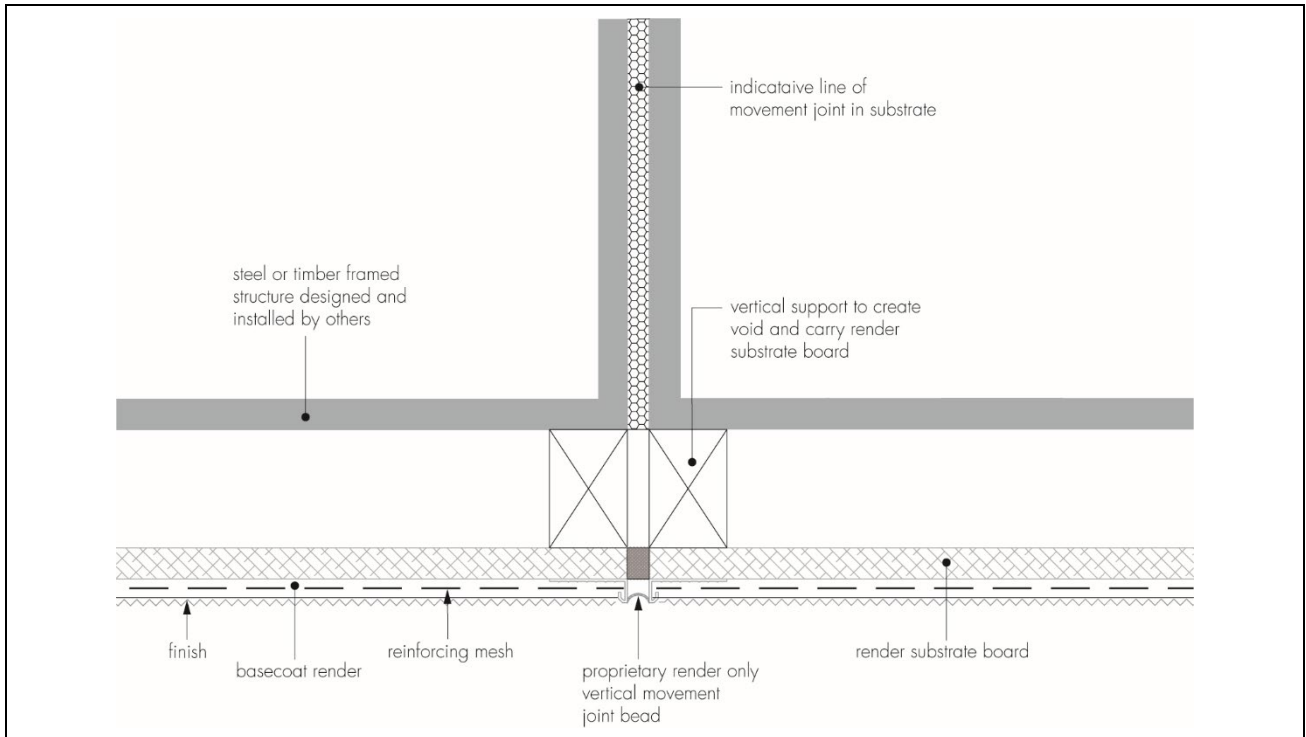
**Figure 9 Detail section – head (bead + mastic)**



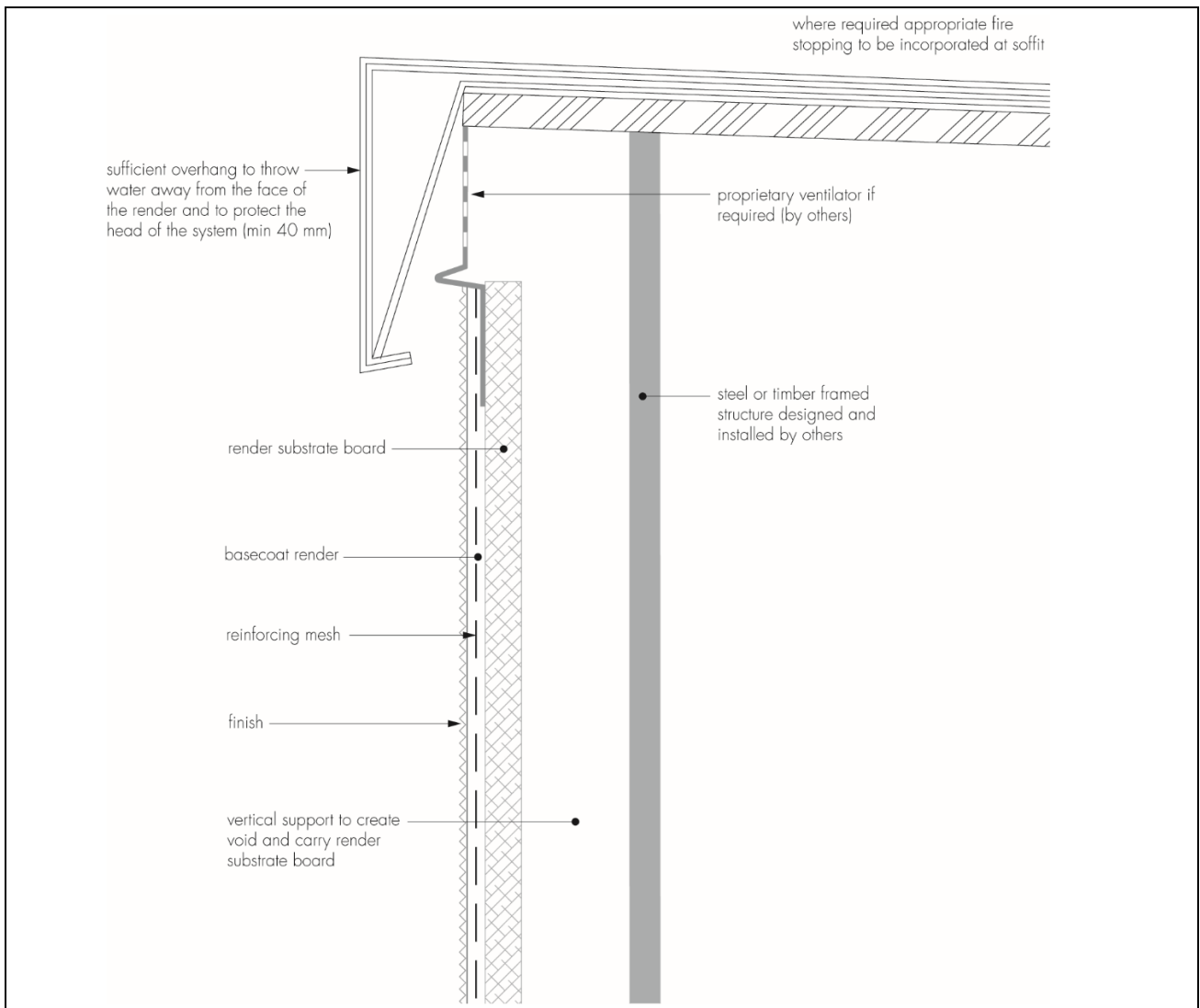
**Figure 10 Detail section – compression joint**



**Figure 11 Detail plan – vertical movement joint (bead)**



**Figure 12 Detail plan – coping trim**



### 16 Tests

16.1 Tests were carried out on weberend MT Systems using weberend LAC applied to Knauf Aquapanel Exterior Cement Board and the results assessed to determine:

- effect of thermal cycling
- effect of freeze/thaw
- effect of accelerated ageing on impact resistance
- effect of accelerated ageing on bond strength.

16.2 Existing data on weberend MT Systems using weberend LAC applied to Knauf Aquapanel Exterior Cement Board were assessed to determine:

- water absorption
- water vapour permeability
- reaction to fire
- flexural strength
- apparent density
- reaction to fire.

16.3 Tests were carried out on weberend MT Systems using weberend LAC Rapid or weberwall brick applied to Knauf Aquapanel Exterior Cement Board and the results assessed to determine:

- effect of thermal cycling
- effect of freeze/thaw
- effect of accelerated ageing on impact resistance
- effect of accelerated ageing on bond strength
- water absorption
- water vapour permeability
- wind uplift to CWCT (Centre for Window & Cladding Technology).

16.4 Existing data on weberend MT Systems using weberend LAC Rapid or weberwall brick pointing mortar applied to Knauf Aquapanel Exterior Cement Board were assessed to determine reaction to fire.

### 17 Investigations

17.1 Installations were witnessed to assess the practicability of the render application to Knauf Aquapanel Exterior Cement Board.

17.2 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.

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### 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:

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- 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.