



**IRISH AGRÉMENT BOARD
CERTIFICATE NO. 09/0338**

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weber.therm XM & XP
External Insulation Systems
Système d'isolation pour murs extérieurs
Wärmedämmung für Außenwand

NSAI Agrément (Irish Agrément Board) is designated by Government to issue European Technical Approvals.

NSAI Agrément Certificates establish proof that the certified products are '**proper materials**' suitable for their intended use under Irish site conditions, and in accordance with the **Building Regulations 1997 to 2017**.



PRODUCT DESCRIPTION:

This Certificate relates to weber.therm XM & XP External Insulation Systems. The systems are comprised of:

- Surface preparation of masonry or concrete substrate;
- Full system beads and render only beads;
- Insulation board (standard white EPS, graphite enhanced EPS, mineral wool, phenolic and PIR);
- Cementitious undercoat incorporating a glass fibre mesh cloth (for XM system);
- Cementitious topcoat (optional);
- Decorative finish (for XM system);
- Polymer-modified, through-coloured mineral one-coat render (for XP system);
- Mechanical fixings;
- Adhesive fixings;
- Weather tight joints;
- Movement joints;

- Provision for limiting cold bridging at external wall/floor junctions in compliance with Acceptable Construction Details published by the DoEHLG.
- Provision for fire stopping at external compartment walls and floors.

The system is designed by Weber on a project specific basis in accordance with an approved design process. The installation of the system is carried out by installers who have been trained by Weber, and are approved by Weber and NSAI Agrément to install the system.

Weber offers a ten-year materials and workmanship guarantee, subject to certain terms and conditions. All component parts shall be supplied by Weber.

Readers are advised to check that this Certificate has not been withdrawn or superseded by a later issue by contacting NSAI Agrément, NSAI, Santry, Dublin 9 or online at <http://www.nsai.ie/modules/certificates/uploads/pdf/IAB090338.pdf>

This Certificate certifies compliance with the requirements of the Building Regulations 1997 to 2017.

USE

The weber.therm XM & XP External Insulation Systems are for the external insulation of:

- a) existing concrete and masonry buildings, up to a maximum of six storeys (18m) in height in purpose groups 1(a), 1(c), 2(a), 2(b), 3, 4(a) and 4(b), and for use up to a maximum of five storeys (15m) in height in purpose group 1(b), as defined in Part B of the Building Regulations 1997 to 2017;
- b) new or existing concrete or masonry commercial or industrial buildings, in purpose groups 2(a), 2(b), 3, 4(a), 4(b), 5, 6, 7(a), 7(b) and 8 as defined in Part B of the Building Regulations 1997 to 2017, which are designed in accordance with the Building Regulations 1997 to 2017.

The systems have not been assessed for use with timber frame or steel frame construction.

In an Irish context, Category II 'Impact Resistance' (see Table 4) excludes any wall at ground level adjacent to a public footpath, but includes one with its own private, walled-in garden. Category III does not include any wall at ground level.

weber.therm XM60 is for the external insulation of new concrete or masonry residential buildings or where a design life of in excess of 30 years is required. For details refer to NSAI Agrément Certificate 06/0260.

MANUFACTURE, DESIGN & MARKETING:

The systems are designed by:

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Enterprise Way,
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Manufacture, project specific design, technical support and applicator approval are performed by:

Weber,
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Old Paper Mill,
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1.1 ASSESSMENT

In the opinion of NSAI Agrément, the weber.therm XM & XP External Insulation Systems if used in accordance with this Certificate can meet the requirements of the Building Regulations 1997 to 2017, as indicated in Section 1.2 of this Agrément Certificate.

1.2 BUILDING REGULATIONS 1997 to 2017**REQUIREMENTS:*****Part D – Materials and Workmanship*****D3 – Proper Materials**

The weber.therm XM & XP External Insulation Systems, as certified in this Certificate, are comprised of 'proper materials' fit for their intended use (see Part 3 and 4 of this Certificate).

D1 – Materials & Workmanship

The weber.therm XM & XP External Insulation Systems, as certified in this Certificate, meet the requirements for workmanship.

Part A - Structure**A1 – Loading**

The weber.therm XM & XP External Insulation Systems, once appropriately designed and installed in accordance with this Certificate, have adequate strength and stability to meet the requirements of this Regulation (see Part 3 of this Certificate).

A2 – Ground Movement

The weber.therm XM & XP External Insulation System can be incorporated into structures that will meet this requirement (see Parts 3 and 4 of this Certificate).

Part B – Fire Safety***Part B Vol 2 – Fire Safety*****B4 & B9 – External Fire Spread**

The weber.therm XM & XP External Insulation System can be incorporated into structures that will meet this requirement (see Part 4 of this Certificate).

Part C – Site Preparation and Resistance to Moisture**C4 – Resistance to Weather and Ground Moisture**

External walls have adequate weather resistance in all exposures to prevent the passage of moisture from the external atmosphere into the building as specified in Parts 3 and 4 of this Certificate.

Part J – Heat Producing Appliances**J3 – Protection of Building**

When the weber.therm XM & XP External Insulation Systems are used in accordance with this Certificate, wall lining, insulation and separation distances meet this requirement (see Part 4 of this Certificate).

Part L – Conservation of Fuel and Energy**L1 – Conservation of Fuel and Energy**

The walls of the weber.therm XM & XP External Insulation Systems can be readily designed to incorporate the required thickness of insulation to meet the Elemental Heat Loss method calculations for walls as recommended in Part L of the Building Regulations 1997 to 2017 (see Part 4 of this Certificate).

2.1 PRODUCT DESCRIPTION

The weber.therm XM & XP External Insulation Systems are available with five insulation options, i.e. standard white or graphite enhanced expanded polystyrene (EPS), mineral fibre board (MFS/MFD), phenolic (PHS) and polyisocyanurate (PIR). The minimum overall thickness (basecoat and textured finish) is 7mm for weber.therm XM and 12 – 15mm for weber.therm XP. Product range and components are detailed in Table 1. Component specifications are detailed in Table 2. Ancillary items are listed in Table 3.

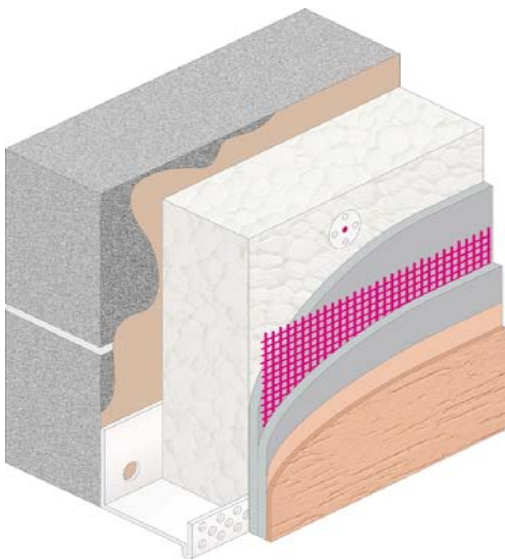


Figure 1: weber.therm XM – Isometric view

2.2 MANUFACTURE, SUPPLY AND INSTALLATION

Weber is responsible for the manufacture and supply of all components to Weber approved specifications, in accordance with the Weber approved supplier system.

The installation of the weber.therm XM & XP External Insulation Systems are carried out by Weber trained and approved installers in accordance with Weber instructions, including the Applications Guide and project specific Site Package. Installers must also be approved and registered by NSAI Agrément under the NSAI Agrément External Thermal Insulating Composite Systems (ETICS) Approval Scheme (See Section 2.4.1 of this Certificate).

2.2.1 Quality Control

The Certificate holder operates a quality management system, and a quality plan is in place for system manufacture, system design and system installation.

2.3 DELIVERY, STORAGE AND HANDLING

The insulation is delivered to site in the quantities and container types listed in Table 2. Each pack is marked with the manufacturer's details, product identification marks and batch numbers. Components are delivered to site as outlined in Tables 2 and 3. Each container bears the manufacturer's and the product's identification marks, batch number and the NSAI Agrément logo incorporating the number of this Certificate.

Insulation should be stored on a firm, clean, dry and level base, which is off the ground. The insulation should be protected from prolonged exposure to sunlight by storing opened packs under cover in dry conditions or by re-covering with opaque polythene sheeting. Mineral fibre board and phenolic board must be protected from moisture prior to and during installation. It may be necessary to remove and replace any unsuitable/wet material. Care must be taken when handling the insulation boards, to avoid damage and contact with solvents or bitumen products. The boards must not be exposed to ignition sources.

Meshcloth, primers, renders, paints, texture synthetic finish coatings and sealants should be stored in accordance with the manufacturer's instructions, in dry conditions, at the required storage temperatures. They should be used within the stated pot life.

2.4 INSTALLATION

2.4.1 Approved Installers

Installation shall be carried out by Weber trained applicators who:

- 1) Are required to meet the requirements of an initial site installation check by NSAI Agrément prior to approval and are subject to the NSAI Agrément ETICS Approval Scheme.
- 2) Are approved by Weber and NSAI Agrément to install the product.
- 3) Have undertaken to comply with the Weber installation procedure.
- 4) Are employing Supervisors and Operatives who have been issued with appropriate identity cards by Weber. Each team must consist of at least one ETICS Operative and ETICS Supervisor (can be the same person).
- 5) Are subject to supervision by Weber, including unannounced site inspections by both the Certificate holder and NSAI Agrément, in accordance with the NSAI Agrément ETICS Approval Scheme.
- 6) Are subject to periodic surveillance by the system manufacturer (Weber) – site visits and office records.

Type	Insulation	Reinforcement	Fixings	Render		Finish			
				Basecoat	Topcoat				
weber.therm XM (EPS)	Expanded polystyrene	Meshcloth	weber.rend LAC or Mechanical	5 to 6mm weber.rend LAC		Primer and Synthetic finish			
					6 to 8mm weber.rend PTC	Dry-dash or Plain finish with Primer and Synthetic finish			
					6 to 8mm weber.rend PTS	Scraped texture			
					5 to 7mm and 2 to 3mm weber.rend RB	Brick effect base			
weber.therm XM (MFS/MFD)	Mineral fibre		Mechanical				Brick effect face		
							Primer and Synthetic finish		
						6 to 8mm weber.rend PTC	Dry-dash or Plain finish with Primer and Synthetic finish		
						6 to 8mm weber.rend PTS	Scraped texture		
weber.therm XM (PHS)	Phenolic foam						5 to 7mm and 2 to 3mm weber.rend RB	Brick effect base	
								Brick effect face	
								Primer and Synthetic finish	
							6 to 8mm weber.rend PTC	Dry-dash or Plain finish with Primer and Synthetic finish	
weber.therm XM (PIR)	Polyiso-cyanurate foam							6 to 8mm weber.rend PTS	Scraped texture
								5 to 7mm and 2 to 3mm weber.rend RB	Brick effect base
									Brick effect face
									Primer and Synthetic finish
							6 to 8mm weber.rend PTC	Dry-dash or Plain finish with Primer and Synthetic finish	
							6 to 8mm weber.rend PTS	Scraped texture	
							5 to 7mm and 2 to 3mm weber.rend RB	Brick effect base	
								Brick effect face	

Notes:

1. Mechanical fixings are provided in accordance with the project specific design requirements based on pullout test results.
2. Where EPS is adhesively bonded, a minimum of two supplementary mechanical fixings per board and one additional stainless steel fire fixing (when specified) per metre squared shall be provided.
3. Where EPS, MFS/MFD, PHS and PIR insulation is mechanically fixed, a minimum of five mechanical fixings per board or seven per meter squared and one additional stainless steel fire fixing (when specified) per metre squared shall be provided.
4. Fire fixings are not required in two-storey single occupancy buildings.
5. Positive fixings must be provided around all window and door openings to ensure adequate and robust edge restraint over the design life.
6. Services/Fittings: Secure supports to be provided for soil and rainwater pipe brackets, aerals, lighting, cameras, signage etc. in accordance with the project specific design as appropriate.
7. Synthetic finishes include the following options: weber.plast TF/DF, weber.sil TF, weber.plast P or weber.sil P.

Table 1a: weber.therm XM Product Range, Components & Fixing Requirements

Type	Insulation	Reinforcement	Fixings	Render	Finish (Optional): Spray Roughcast
weber.therm XP (EPS)	Expanded polystyrene	Meshcloth	Mechanical	weber.therm M1	weber dry-dash
weber.therm XP (MFS/MFD)	Mineral fibre				
weber.therm XP (PHS)	Phenolic foam				
weber.therm XP (PIR)	Polyiso-cyanurate foam				
Notes: 1. Mechanical fixings are provided in accordance with the project specific design requirements based on pullout test results. 2. EPS, MFS/MFD, PHS and PIR insulation is mechanically fixed, a minimum of five mechanical fixings per board or seven per meter squared and one additional stainless steel fire fixing (when specified) per metre squared shall be provided. 3. Fire fixings are not required in two-storey single occupancy buildings. 4. Positive fixings must be provided around all window and door openings to ensure adequate and robust edge restraint over the design life. 5. Services/Fittings: Secure supports to be provided for soil and rainwater pipe brackets, aerals, lighting, cameras, signage etc. in accordance with the project specific design as appropriate.					

Table 1b: weber.therm XP Product Range, Components & Fixing Requirements

Component	Description	Dimensions/Quantity	Container
Insulation			
EPS	Grade: SD/FRA, CFC/HCFC-free to IS EN 13163:2001 EPS-EN 13163-T2-L2-W2-S2-P4-DS(N)2-TR100 Density 15kg/m ³	Size: 1200 x 600mm Thickness: 30 to 200mm	Polythene shrink wrapped package
MFS/MFD	Grade: CFC/HCFC-free to IS EN 13162:2001 MW-EN 13162-T5-CS(10/Y)10-TR5 Density 130kg/m ³ /160 kg/m ³ Minimum compressive strength 25kN/m ² Contains phenolic resin binder and mineral oil water repellent	Size: 1200 x 600mm Thickness: 30 to 200mm	
PHS	K5 EWB Grade: CFC/HCFC-free to IS EN 13166:2001 Density 40kg/m ³ Minimum compressive strength 150kN/m ²	Size: 1200 x 600mm Thickness: 30 to 200mm	
PIR	Grade: CFC/HCFC-free to IS EN 13165:2001 Density 32kg/m ³ Minimum compressive strength 150kN/m ²	Size: 1200 x 600mm Thickness: 30 to 200mm	
Meshcloth			
Standard duty	Balanced open weave alkaline resistant glass fibre meshcloth Weight 160g/m ²	Mesh dimension: 3.5mm x 3.5mm Roll size: 1m x 50m	Roll
Heavy duty	Balanced open weave alkaline resistant glass fibre meshcloth Weight 480g/m ²	Mesh dimension: 6mm x 6mm Roll size: 1m x 25m	
Substrate Preparation			
weber CI150	Water based masonry wash containing biocides, used as a masonry cleaner and steriliser	25 litres	Bucket
weber.rend stipple	Cementitious polymer-modified bonding agent	25kg	Bag
Basecoat (XM)			
weber.rend LAC	Factory batched, low-density, polymer-modified dry powder mortar	20kg	Bag
Topcoat (XM)			
weber.rend PTC	Factory batched, polymer-modified dry powder mortar of cement, limestone, sand and polymers	25kg	Bag
weber.rend PTS	Factory batched, dry powder mortar of limestone, sand, cement and polymers for scrape texture finish		
weber.rend RBB	Factory batched, polymer-modified dry powder mortar	20kg	
weber.rend RBF	Factory batched, polymer-modified dry powder mortar	25kg	
Primer (XM)			
weber PR310	General purpose, pigmented, liquid paint primer	10 litres	Bucket
Render (XP)			
weber.therm M1	Polymer-modified through-coloured mineral one-coat render	20kg	Bag
Dry Dash			
Weber dry dash aggregate	Natural coloured, size 4mm to 6mm aggregate, available in a range of colours	25kg	Bag
Synthetic Finishes (XM)			
weber.plast TF	Acrylic based, textured, pigmented composite supplied as a paste, containing aggregate (1.5mm or 3mm max grain) for an even texture finish	15kg	Bucket
weber.plast DF	Acrylic based, textured, pigmented composite containing natural white limestone aggregate (1mm or 3mm max grain), limestone sand, whiting and fillers for a drag texture finish		
weber.sil TF	Silicone based, through coloured decorative, textured, weather resistant vapour permeable surface supplied as a paste, in 1 grade containing aggregate (1.5mm max grain)	15kg	
weber.plast P	Acrylic based, silicone enhanced breathable protective coating, containing limestone and other additives for smooth float finish on masonry and rendered surfaces	10 litres	
weber.sil P	Silicone based, resin emulsion paint		

Table 2: Component Specifications and Supply Details

Component	Description	Dimensions /Quality	Container
Weber profiles	Range of standard profiles for use at wall base, stop ends and expansion joints, including Grade 304 stainless steel to IS EN 10088-1:2005, DX51D+275N-A-U galvanised steel to IS EN 10327:2004 with polyester powder coated finish to BS 6497:1984, or aluminium	2.5 – 3m lengths	N/A
Weber profile fixings	A range of fixings are available to suit insulation thickness and substrate type, including stainless steel screws, polypropylene plug type with steel expansion pins or plastic expansion sleeves, and integral plastic finned nails with mushroom heads. Fixings are specified on a project specific basis, based on pullout strength tests and loading calculations. Where non-stainless steel fixings are used, they must be completely protected in an integral plastic plug and end cap.	Varies	Boxed by manufacturer
Weather Seal	Weber approved mastic sealant (silicone, poly-sulphide or polyurethane) Weber approved compressible weather seal to BS 6093:2006 Table 1.	Varies	Varies

Table 3: Ancillary Items

2.4.2 General

Weber prepare a bespoke site package for each project, including U-value calculations, requirements for materials handling and storage, method statements for installation, building details, fixing requirements, provision for impact resistance, maintenance requirements etc. This document forms part of the contract documentation for circulation to the home owner /client and the installer. Installers will be expected to adhere to the specification. Deviations must be approved by a Weber technical representative. Weber technical representatives will visit the site on a regular basis to ensure that work is carried out in accordance with the project specific site package, including the Certificate holder's installation manual.

Mineral fibre board, lamella, phenolic board and PIR board must be protected from moisture prior to and during installation. It may be necessary to remove and replace any unsuitable/wet material.

External works that leave the external appearance of the building inconsistent with neighbouring buildings may require planning permission. The status of this requirement should be checked with the local planning authority as required.

2.4.3 Site Survey and Preliminary Work

A pre-installation survey of the property shall be carried out and recorded to confirm suitability of substrate for application of the system including modifications/repairs necessary, pullout resistance of proposed mechanical fixings etc. Internal wet work e.g. screeding or plastering, should be completed and allowed to dry prior to system application. The substrate must be free of water repellents, dust, dirt, efflorescence and other harmful contaminants or materials that may interfere with the adhesive bond. Remove projecting mortar or concrete parts mechanically as required.

Where discrepancies exist preventing installation of the system in accordance with this Certificate

and the Certificate holder's instructions, these discrepancies must be discussed with the Certificate holder and a solution implemented with the approval of the Certificate holder.

2.4.4 Procedure

- Prepare substrate in accordance with the project specific site package. This will include brushing down of walls, washing with clean water and treatment with a fungicidal wash as required.
- Weather conditions must be monitored to ensure correct application and curing conditions. Renders (adhesives, base coats, primers, finish coats) must not be applied if the temperature is below 5°C or above 30°C at the time of applications. In addition, cementitious-based renders must not be applied if the temperature will be below 0°C at any time during 72 hours after application; cement-free, synthetic-resin and silicone-resin plasters must not be applied if the temperature will be below 5°C at any time during 72 hours after application. The coatings must also be protected from rapid drying.
- Refer to the site package for guidance on modifications of down pipes, soil and vent pipes, pipe extensions etc.
- Where possible all pipe work should be relocated as required to accommodate the insulation. Where pipe work cannot be relocated and is to be housed in the depth of the system, access for maintenance must be maintained through the use of removable covers or alternative design to be approved by the Certificate holder.
- Base beads and all full system beads are fixed as specified. Insulation and render only beads are fixed as specified in the site package.
- For the weber.therm XM system, the basecoat is mixed and applied, meshcloth is laid in and a further application of basecoat is applied to achieve the appropriate thickness (5 to 6mm). Topcoat is mixed and applied to achieve the desired thickness of 6 to 8mm.

- Primer is applied to the topcoat/basecoat prior to the application of the selected textured coating.
- For the weber.therm XP system, the weber.therm M1 render is applied in two layers, with the reinforcement mesh in between, to give a finished coat approximately 12 – 15mm thick depending on the finish.
- To minimise the effects of cold bridging, the EPH (high density EPS) insulation below DPC level should, where practicable, extend below ground level as shown in Figure 2. Where this is not possible the first run of insulation boards is positioned on the base profile. All HD EPS below DPC level should be fully encapsulated by the basecoat.
- Window and door reveals should, where practicable, be insulated to minimise the effects of cold bridging in accordance with the recommendations of the Acceptable Construction Details Document published by the DoEHLG, Detail 2.21, to achieve an R-value of $0.6\text{m}^2\text{K/W}$. Where clearance is limited, strips of approved insulation should be installed to suit available margins and details recorded as detailed in Section 4.5 of this Certificate.
- Mechanical fixings are provided in accordance with the project specific design requirements based on pullout test results (see Table 1).
- Purpose-made powder coated aluminium window sills are installed in accordance with the Certificate holder's instructions. They are designed to prevent water ingress and incorporate drips to shed water clear of the system (see Figure 3).
- Lamella fire stops are installed in accordance with the Certificate holder's instructions as defined in Section 4.2 of this Certificate, at locations defined in the project specific site package.
- For EPS insulation, any high spots or irregularities should be removed by light planing with a rasp to ensure the application of an even thickness of basecoat. For all other insulation types, the substrate must be flat and level before installing the boards, as the boards must not be rasped.
- Movement joints shall be provided in accordance with the project specific site package.
- At all locations where there is a risk of insulant exposure, e.g. window reveals, eaves or stepped gables, the system must be protected, e.g. by an adequate overhang or by purpose-made sub-sills, seals or flashings. For examples see Figures 3, 4, 5 and 11.
- Refer to the Certificate holder's instructions and the project specific site package regarding the installation method and location of the SS fixings through the reinforcing mesh where fire stops have been installed. Additional mesh patches are also applied at these locations. Stainless steel fire fixings to be provided at a rate of one per square metre above two stories. The fixing design should take account of the extra duty required under fire conditions.
- In sunny weather, work should commence on the shady side of the building and be continued following the sun to prevent the rendering drying out too rapidly.
- All rendering should follow best practice guidelines, e.g. BS 8000-0:2014 *Workmanship on construction sites – Introduction and general principles* and IS EN 13914-1:2016 *Design, preparation and application of external rendering and internal plastering – External rendering*.
- On completion of the installation, external fittings, rainwater goods etc. are fixed through the system into the substrate in accordance with the Certificate holder's instructions.
- All necessary post-application inspections should be performed and the homeowner's manual completed and handed over to the homeowner accordingly.

Window unit and sill to be compatible, i.e. provide a fully sealed flush finished joint at interface. Sill upstand should not compromise window drainage.

Sill to bear on and to be mechanically fixed to adequate structural support (insulation should not bear weight of sill)

See Figure 3a



Figure 3: Profiled Sill/Reveal

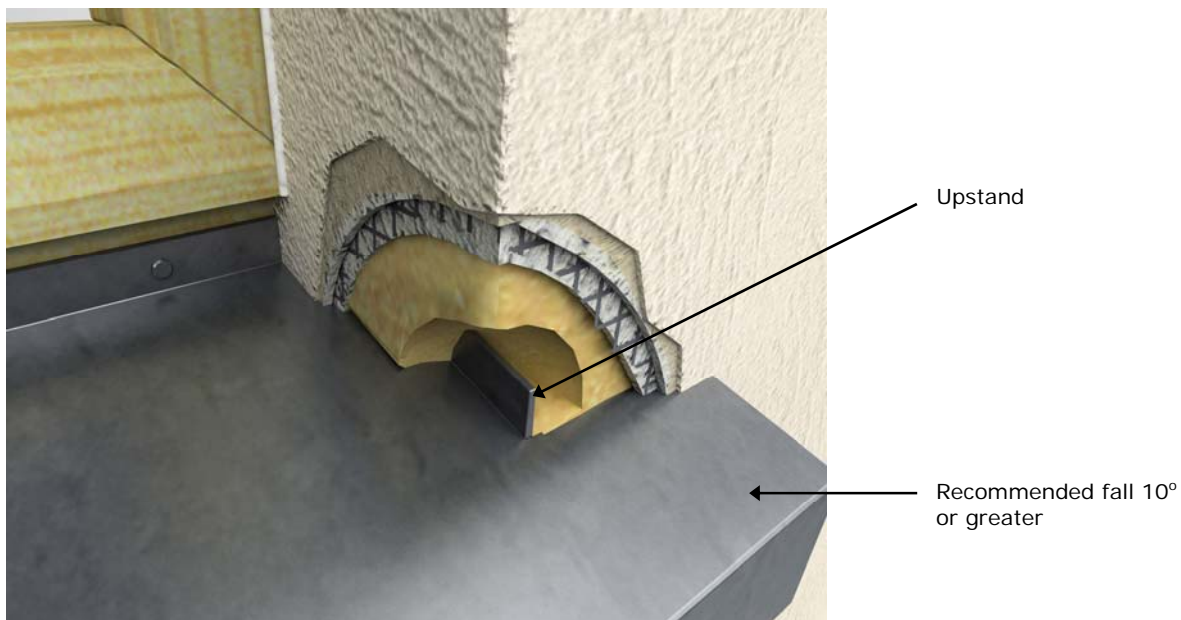


Figure 3a: Profiled Sill – Stop End

weber.therm XM system
comprising:

- weber.therm insulant
- 6mm meshcloth coat
(**weber.rend LAC** &
weber mesh standard)
- **weber PR310** primer
- textured synthetic finish
- OR
- where required mineral
render topcoat
(textured synthetic finish shown)

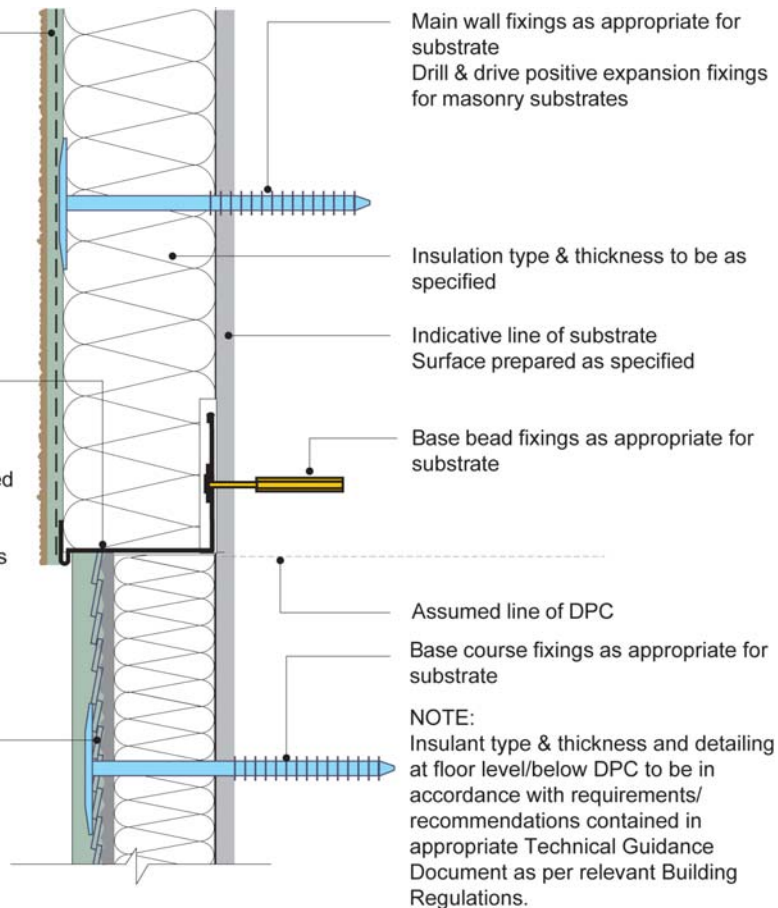
Aluminium box profile
full system base bead

NOTES:

Heavy Duty meshcloth may be incorporated
from base bead level to 2m up where
additional impact resistance is required
Where specified, main wall area fire fixings
to be inserted through meshcloth at a rate
of 1/m²
Meshcloth patch to be applied over head
of main wall fire fixings when applying
2nd pass of **weber.rend LAC**

weber.therm XP system
comprising:

- **weber.therm EPH** insulant
- 6mm **weber.therm M1**
- **weber mesh** standard
- 6mm **weber.therm M1**
- **weber.rend RBF**



Note: weber.therm XM build-up is shown on main wall; weber.therm XP finish is shown on DPC detail.

Figure 2: Base bead/Below DPC

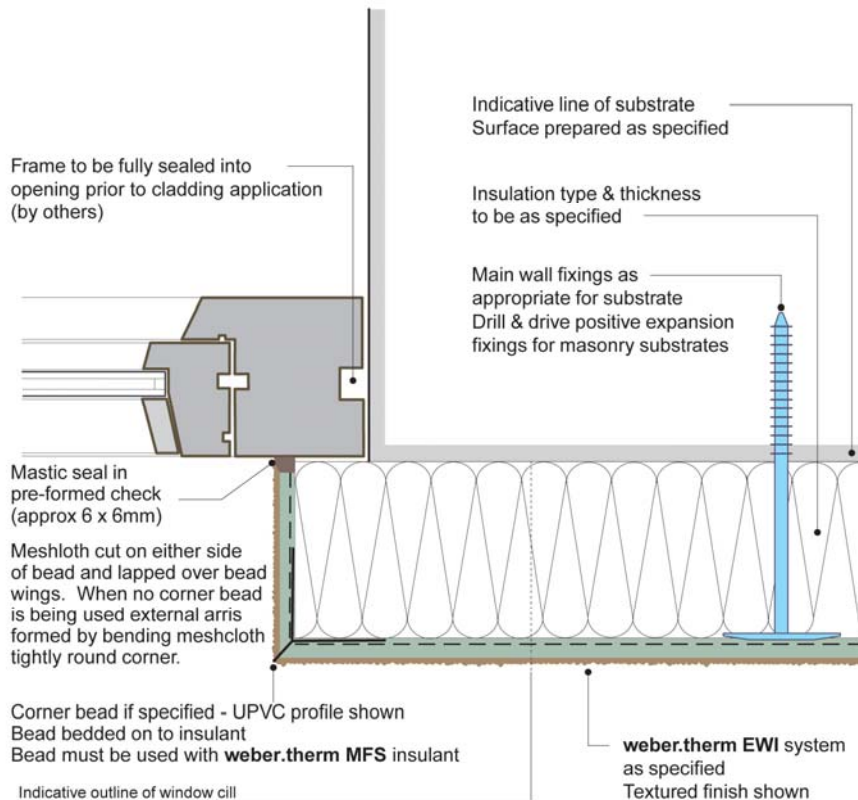


Figure 4: Window Reveal

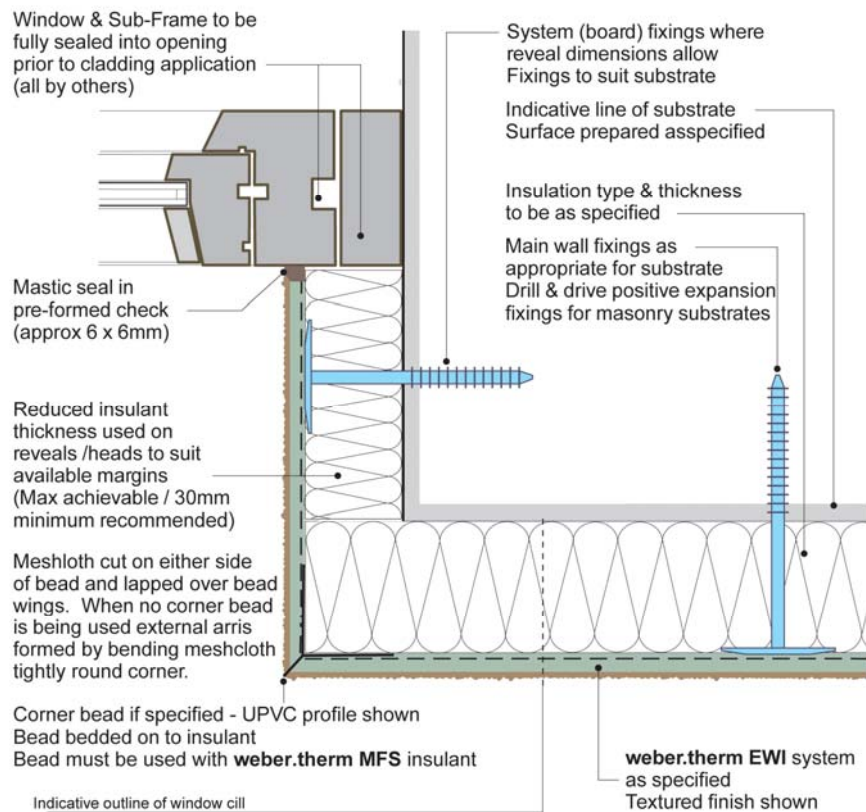


Figure 5: Thin Board Reveal

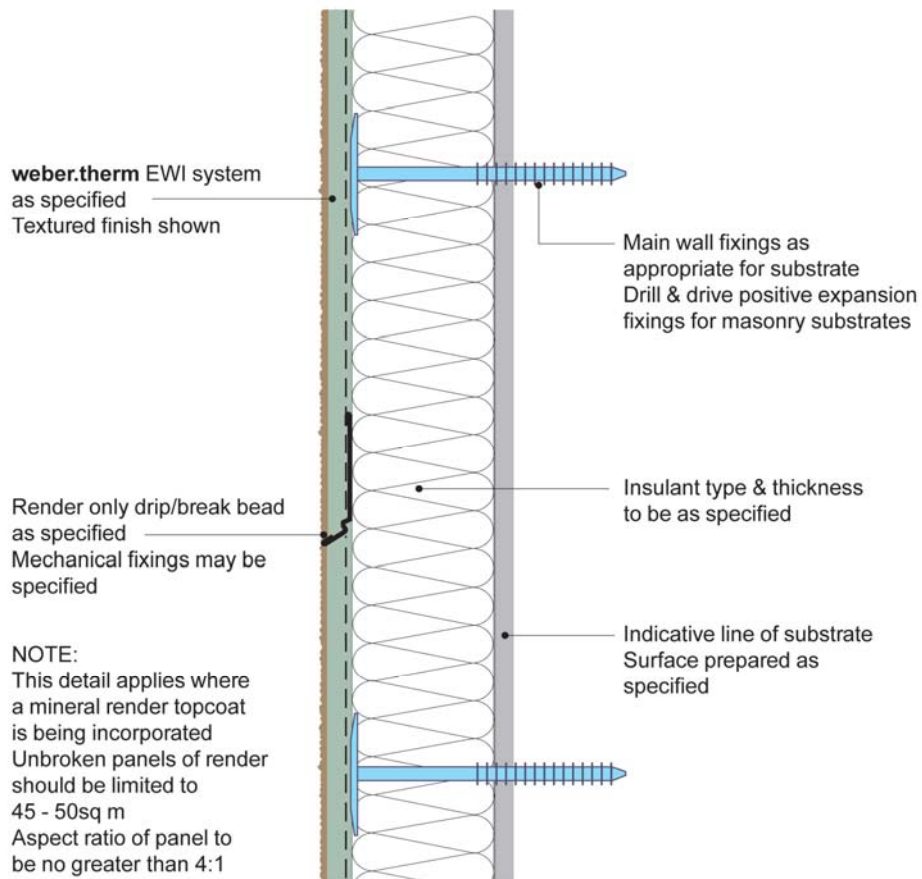


Figure 6: Horizontal Drip Bead

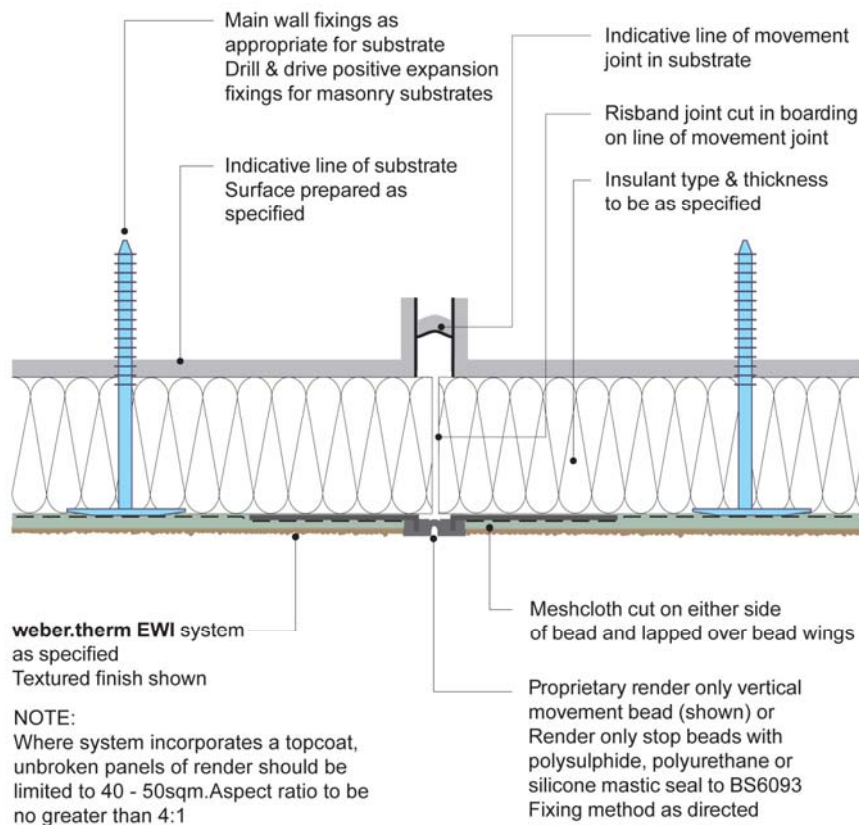


Figure 7: Movement Joint

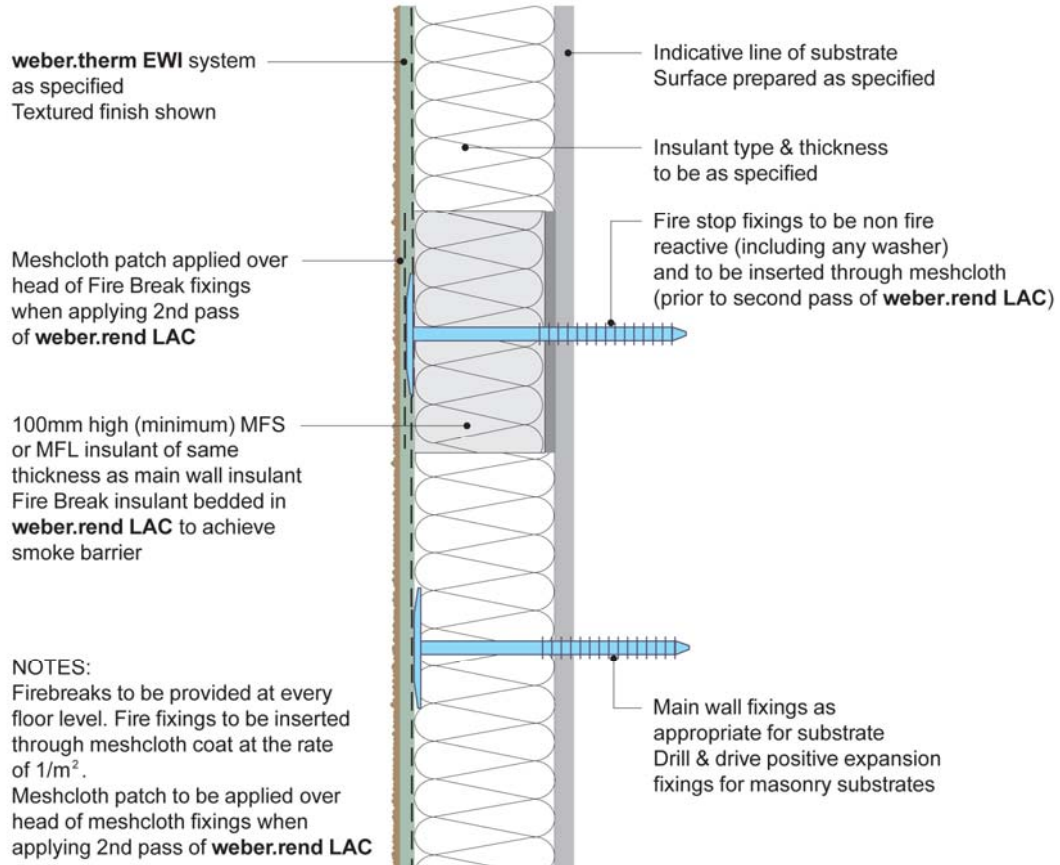


Figure 8: Horizontal Fire Stop

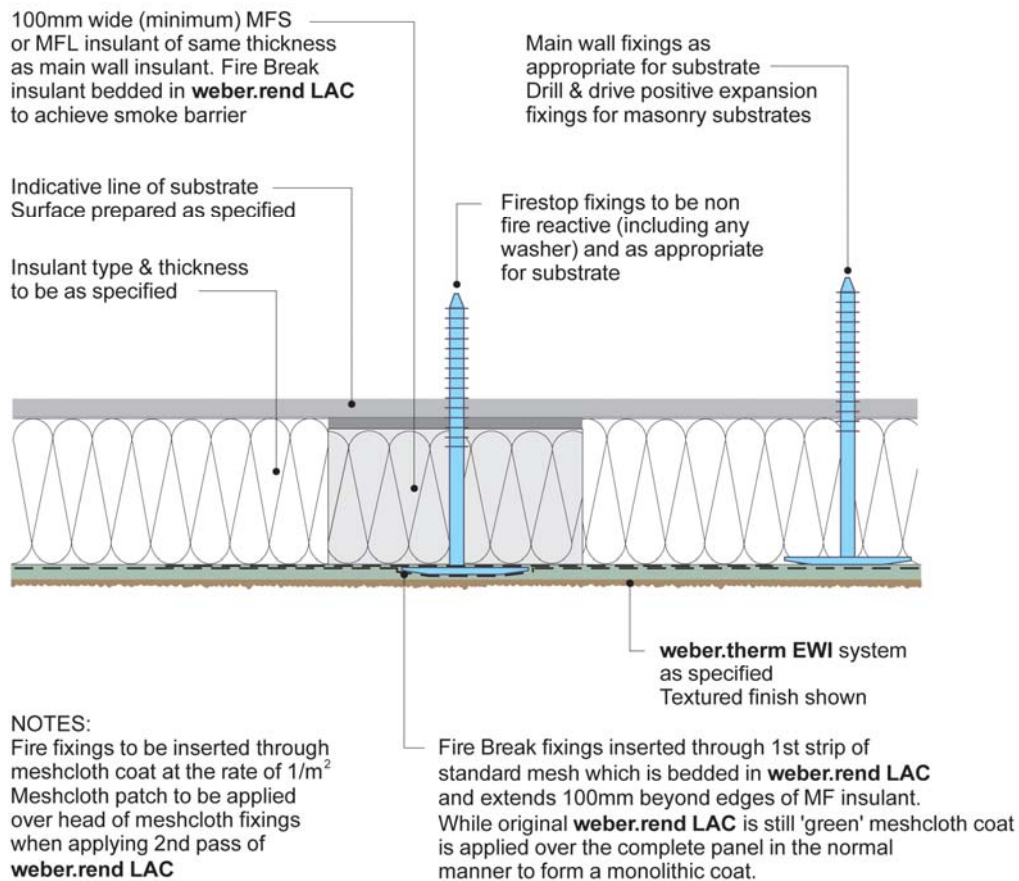


Figure 9: Vertical Fire Stop

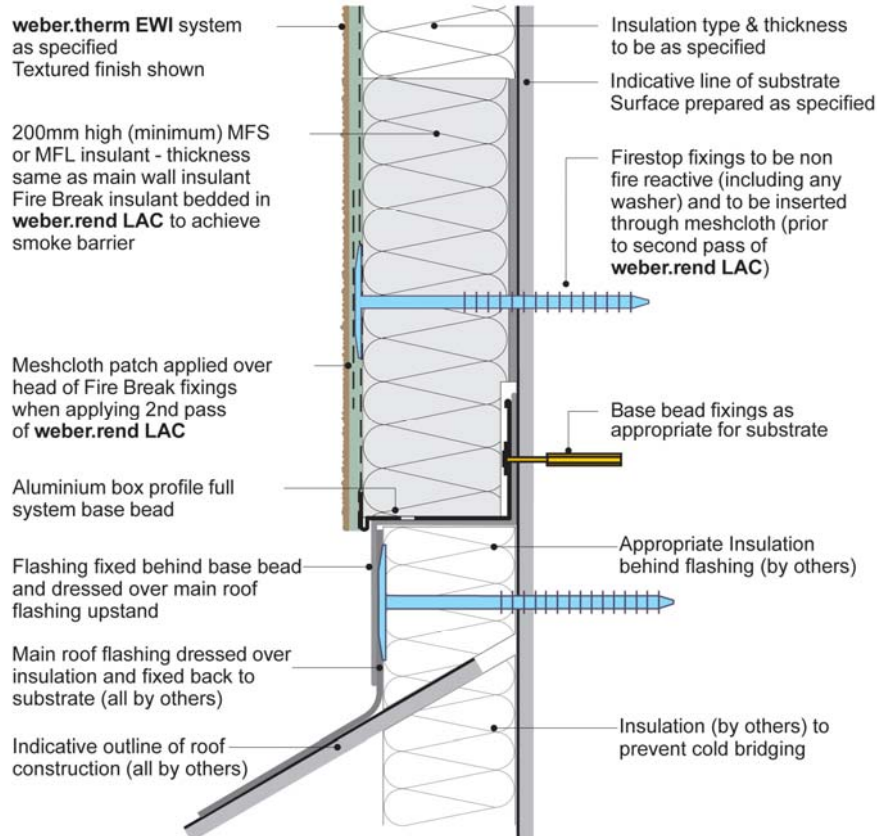
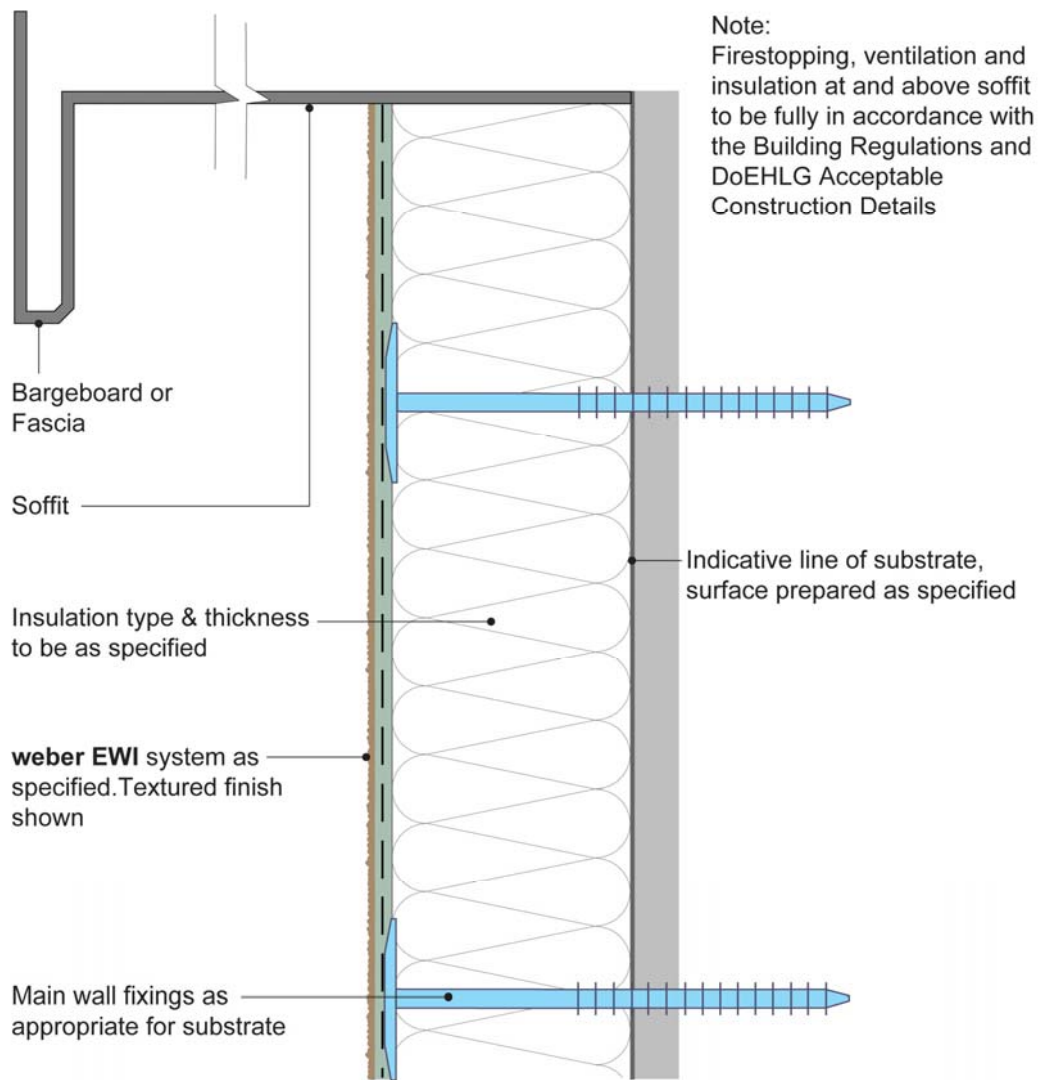
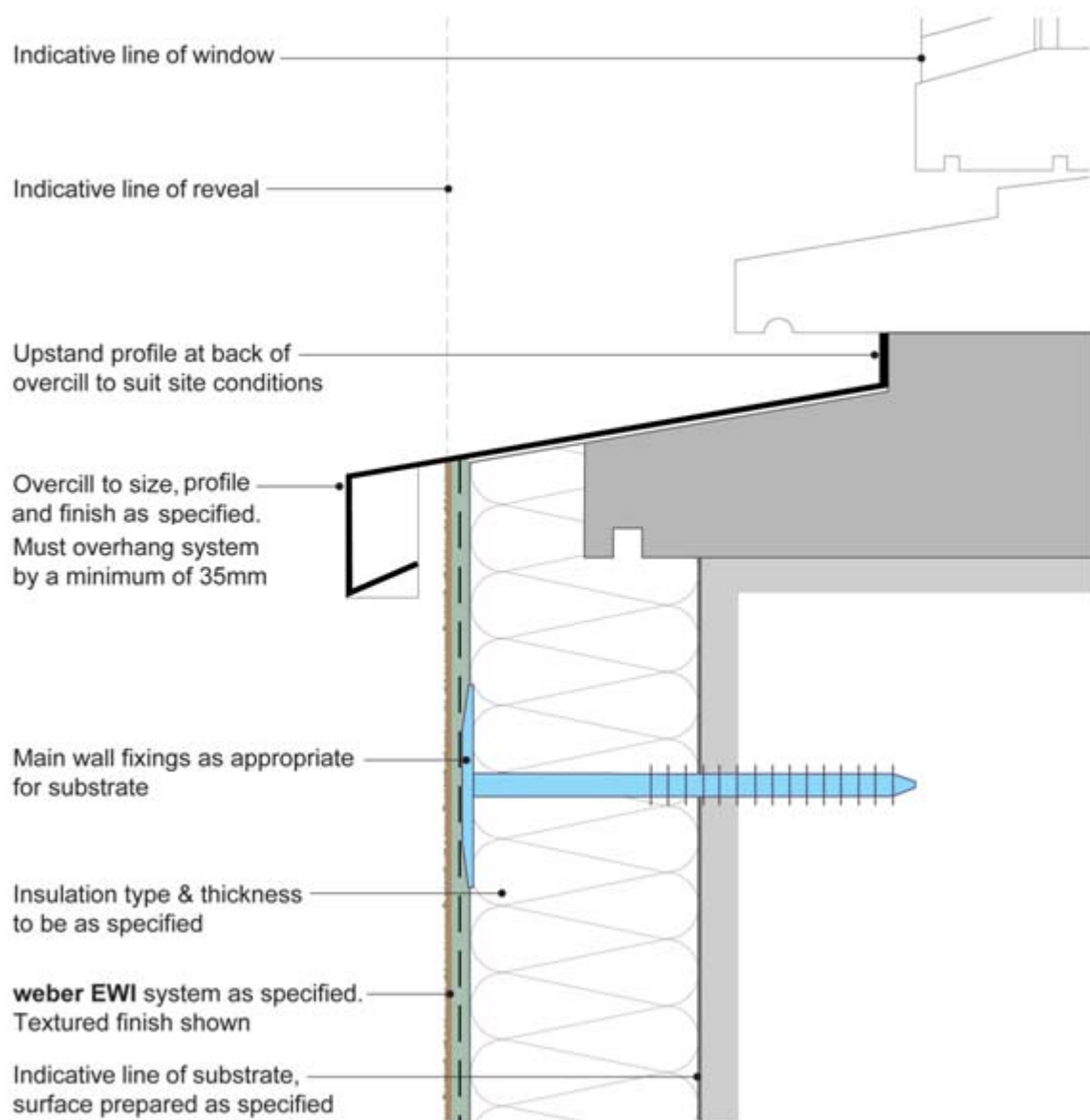


Figure 10: Stepped Gable



Note: If soffits are being replaced in conjunction with insulation works, contact Weber for improved detail to limit thermal bridging.

Figure 11: Eaves



Note: If windows are being replaced in conjunction with insulation works, contact Weber for improved detail to limit thermal bridging.

Figure 12: Window Sill

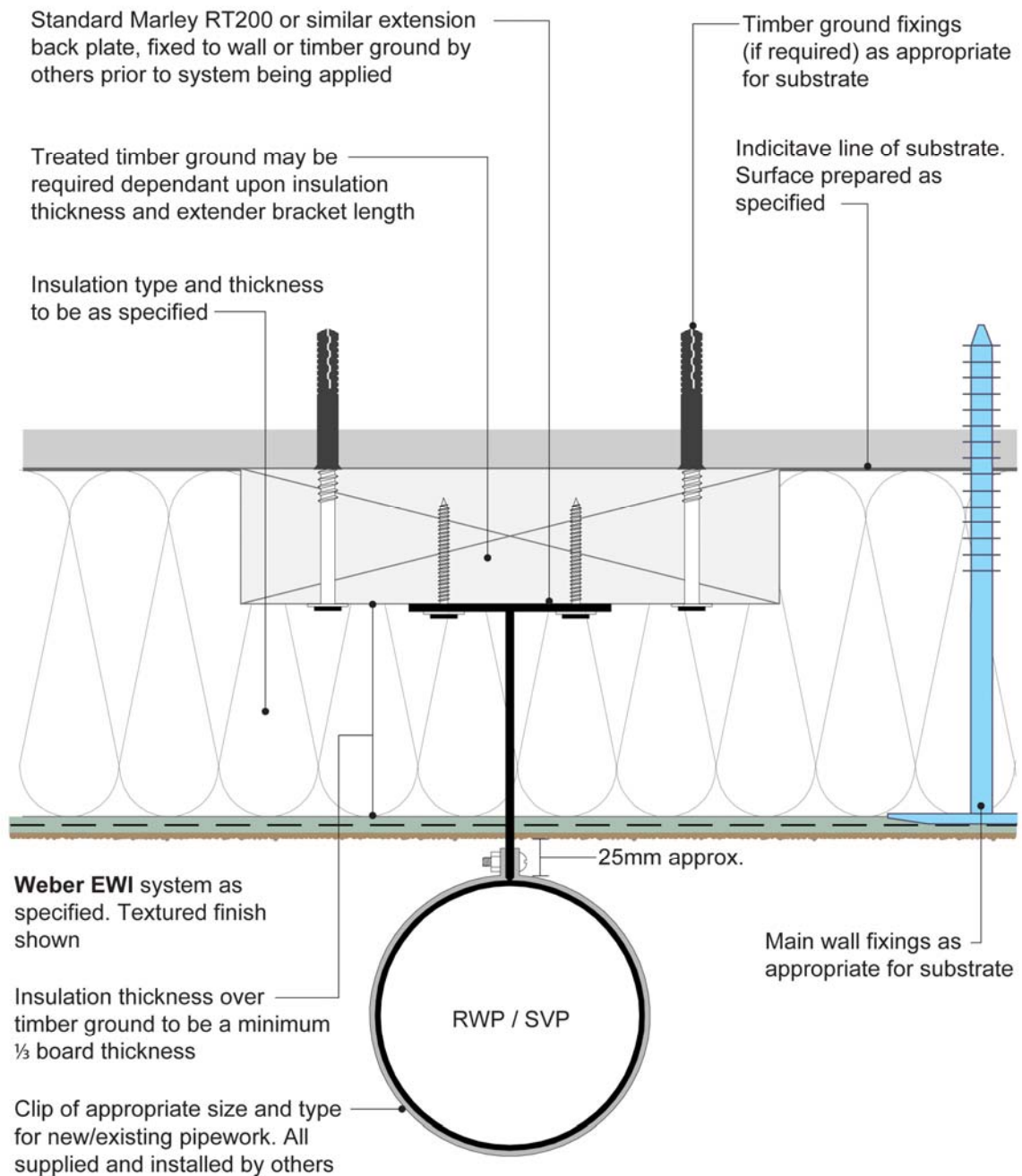


Figure 13: Service Pipe Support

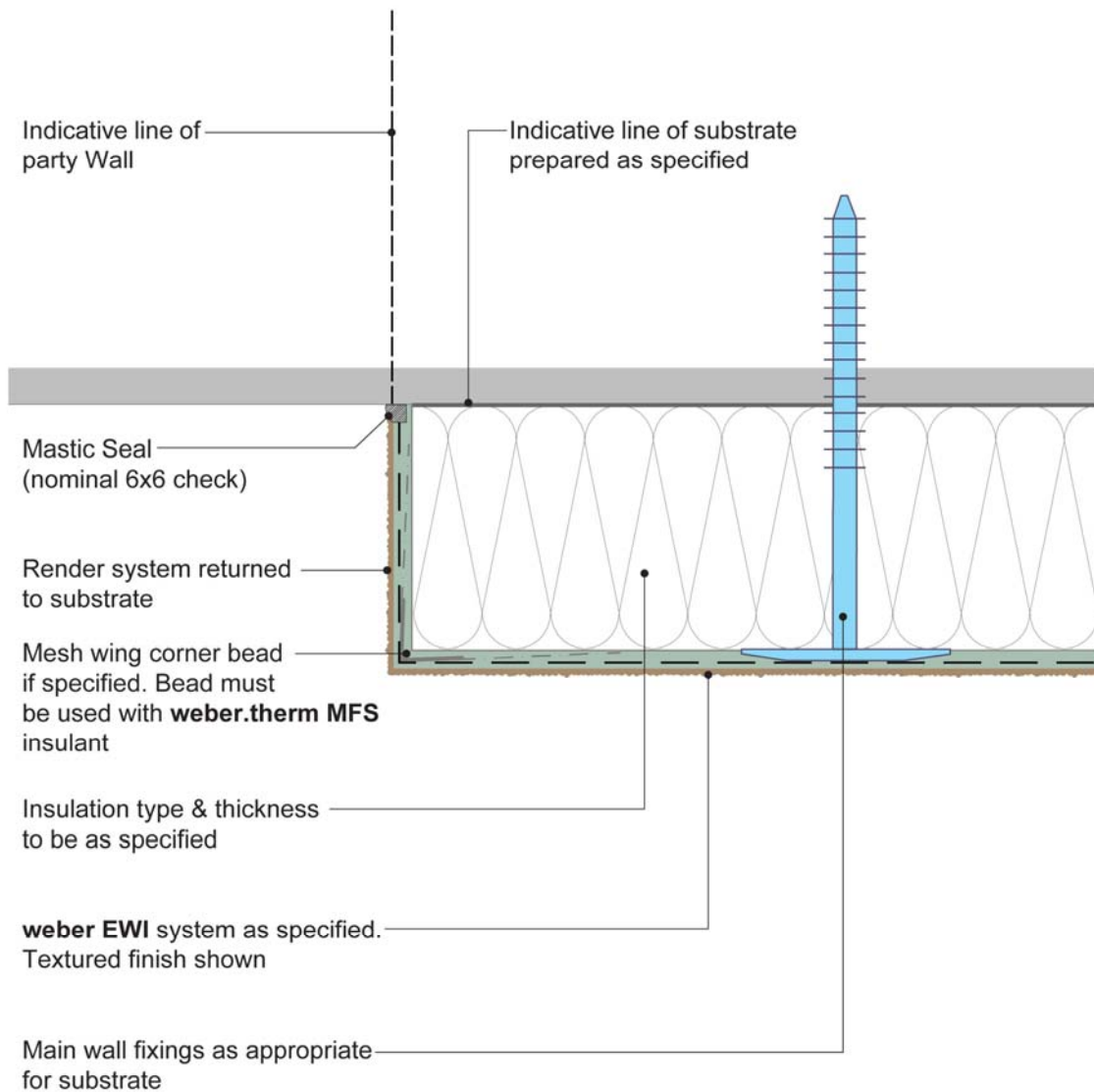


Figure 14: Party Wall Junction

3. GENERAL

The systems are designed by Weber on a standard or project specific basis. The design will include for:

- a) The completion and recording of a site survey.
- b) Evaluation and preparation of substrate.
- c) Minimising risk of condensation in accordance with the recommendations of BS 5250:2011+A1:2016 *Code of practice for control of condensation in buildings*. This includes the use of approved Weber detailing as shown in Figures 2 to 14 incorporating the requirements of SR 54:2014 *Code of practice for the energy efficient retrofit of dwellings* and, where possible, meeting all of the Acceptable Construction Details published by the DHPLG.
- d) Thermal insulation provision to Part L of the Building Regulations 1997 to 2017.
- e) Resistance to impact and abrasion.
- f) Resistance to thermal stresses.
- g) Resistance to wind loading.
- h) The overall factor of safety for wind loading that should be used is 1.5. Design of fixings to withstand design wind loadings, using a safety factor of 3 (three) for mechanical fixings and a safety factor of 9 (nine) for adhesive. In addition, fixings around window and door openings shall be at a maximum of 400mm centres in each board or section of board so as to provide positive and robust restraint over the life of the system.
- i) Design for fire resistance, fire spread and fire stopping, as defined in Section 4.2 and 4.3 of this Certificate.
- j) Design of a water management system to prevent ingress of water at movement joints, windows, doors, openings for services etc. Particular attention is required to ensure that window and sill design are coordinated to achieve a fully integrated design as shown in Figures 3, 4, 5 and 12.
- k) Movement joints.
- l) A site specific maintenance programme for inclusion in the home owner's documentation.
- m) Durability requirements.

Detailing and construction must be to a high standard to prevent the ingress of water and to achieve the design thermal performance.

Window details should be designed such that, where possible, they can be removed and replaced from within the building. Consideration

should be given to maximising improvement of thermal insulation at window reveals, door openings etc.

Adequate provision should be made at design and installation stage for the release of trapped moisture e.g. above window heads.

When designed and installed in accordance with this Certificate, the system will satisfy the requirements of Part L of the Building Regulations 1997 to 2017. The design shall include for the elimination/minimising of cold bridging at window and door reveals, eaves and at ground floor level in compliance with Acceptable Construction Details published by the DHPLG.

Seals to windows and doors shall be provided in accordance with the project specific site plan.

Care should be taken to ensure that any ventilation or drainage openings are not obstructed.

In areas where electric cables can come into contact with EPS, in accordance with good practice all PVC sheathed cables should be run through ducting or be re-routed.

The durability of the render systems is influenced by the colour of the render used. The Certificate holder recommends the following Light Reflectance Values:

- Mineral renders: 30% or greater.
- Acrylic textured finishes: 25% or greater.
- Silicone textured finishes: 30% or greater.

4.1 STRENGTH AND STABILITY

4.1.1 Wind Loading

The weber.therm XM & XP External Insulation Systems can be designed to withstand the wind pressures (including suction) and thermal stresses in accordance with the Building Regulations 1997 to 2017.

4.1.2 Impact Resistance

- a) The weber.therm XM & XP External Insulation Systems have been classified as defined in Table 4 to be suitable for use as defined in ETAG 004 Cl. 6.1.3.3 Table 8 as follows:

Category I: A zone readily accessible at ground level to the public and vulnerable to hard impacts but not subject to abnormally rough use.

Category II: A zone liable to impacts from thrown or kicked objects, but in public locations where the height of the system will limit the size of the impact; or at lower levels where access to the building is primarily to those with some incentive to exercise care.

Category III: A zone not likely to be damaged by normal impacts caused by people or by thrown or kicked objects.

Note: The above classifications do not include acts of vandalism.

In an Irish context, Category II excludes any wall at ground level adjacent to a public footpath but includes one with its own private walled-in garden. Category III excludes all walls at ground level.

- b) The design should include for preventing damage from impact by motor vehicles or other machinery. Preventive measures such as provision of protective barriers or kerbs should be considered.

4.2 BEHAVIOUR IN RELATION TO FIRE

The external surfaces of the weber.therm XM External Insulation System is classified as Class O as per Clause A12 of TGD to Part B of the Building Regulations 1997 to 2017. The reaction to fire classification according to IS EN 13501-1:2007 *Fire classification of construction products and building elements – Classification using data from reaction to fire tests* for the weber.therm XP External Insulation System is defined at B-s1, d0. weber.therm XM (MFS/MFD) & XP (MFS/MFD) are classed as non-combustible as per Table A8 d) of TGD to Part B of the Building Regulations 1997 to 2017.

Systems that achieve A2 or B Reaction to Fire Classification are suitable for use up to a

maximum of size storeys (18m) in height on purpose groups 1(a), 1(c), 1(d), 2(a), 2(b), 3, 4(a) and 4(b), and for use up to a maximum of five storeys (15m) in height on purpose group 1(b), as defined in TGD to Part B of the Building Regulations 1997 to 2017.

With regard to fire stopping and limitations on use of combustible materials, walls must comply with Sections 3.2, 3.3, 3.4 and 4 of TGD to Part B of the Building Regulations 1997 to 2017, and Sections 3.5, 3.6, 3.7 and 4 of TGD to Part B Volume 2 of the Building Regulations 1997 to 2017.

Stainless steel fire fixings to be provided at the rate of one per square metre when specified. The fixing design should take account of the extra duty required under fire conditions.

Vertical and horizontal fire barriers shall be provided at each compartment floor and wall, with fixings provided at 300mm vertical centres and 400mm horizontal centres respectively, including the second floor level of a three-storey single occupancy house (see Diagram 12 of TGD to Part B Volume 2 of the Building Regulations 1997 to 2017). Firebreaks should be adhesively bonded to the substrate and mechanically fixed with stainless steel fire fixings at 300mm centres. The fire barrier shall be of non-combustible material, i.e. mineral fibre lamella, be at least 100mm high, continuous and unbroken for the full perimeter of the building and for the full thickness of the insulation.

4.3 PROXIMITY OF HEAT PRODUCING APPLIANCES

Combustible material must be separated from a brick or blockwork chimney by at least 200mm from a flue and 40mm from the outer surface of the brick or blockwork chimney, in accordance with Clause 2.15 of TGD to Part J of the Building Regulations 1997 to 2017. Metal fixings in contact with combustible materials should be at least 50mm from a flue.

4.4 THERMAL INSULATION

Assessments were carried out to verify that the requirements of Part L of the Building Regulations 1997 to 2017 can be achieved using the weber.therm XM External Insulation System. The manufacturer's declared thermal conductivity values ($\lambda_{90/90}$) taken from their CE marking Declarations of Performance are 0.038W/mK for the standard white EPS board, 0.030 W/mK for the graphite enhanced EPS board, 0.036W/mK for the mineral fibre board, 0.020W/mK for the

phenolic board and 0.025W/mK for the PIR board. These have not been assessed by NSAI Agrément. Table 5 shows typical insulation thicknesses to achieve the required $0.27\text{W/m}^2\text{K}$ U-value.

Calculation of U-values will be required on individual projects to confirm a U-value of $0.27\text{W/m}^2\text{K}$ has been achieved, based on the wall construction and the insulation used. The thermal conductivity (λ) value of the insulation to be used in all U-value calculations must be the $\lambda_{90/90}$ value.

When the system is to be applied to a masonry cavity wall, consideration should be given to the treatment of the ventilated cavity. In order to ensure the thermal effectiveness of the external insulation system, it is critical to eliminate airflow within the cavity void. It is essential to seal the cavity to achieve an unventilated air layer. This eliminates heat losses due to airflow within the cavity circumventing the external insulation system. Best practice is to fill the cavity void with an NSAI Agrément approved Cavity Wall Insulation (CWI) system. Ventilation to the building must be maintained in accordance with the requirements of TGD to Part F of the Building Regulations 1997 to 2017.

4.5 LIMITING THERMAL BRIDGING

The linear thermal transmittance ' ψ ' (Psi) describes the heat loss associated with junctions and around openings. Window and door reveal design used on the weber.therm XM & XP External Insulation Systems have been assessed and when detailed in accordance with this Certificate (see Figures 4 and 5) can meet the requirements of Table D1 of TGD to Part L of the Building Regulations 1997 to 2017. When **all** bridged junctions within a building comply with the requirements of Table D1 of TGD to Part L, the improved 'y' factor of 0.08 can be entered into the DEAP building energy rating (BER) calculation.

Alternatively if **all** junctions can be shown to be equivalent or better than the Acceptable Construction Details published by the DoEHLG, then the improved 'y' factor of 0.08 can be used, i.e. R value = $0.6\text{m}^2\text{K/W}$ for window/door reveals as shown in Figures 4 and 5.

Where either of the above options are shown to be valid, or when the required values cannot be achieved, all relevant details should be recorded on the 'Certificate of Compliance' for that project for use in future BER calculations.

' ψ ' values for other junctions outside the scope of this Certificate should be assessed in accordance with BRE IP1/06 *Assessing the effects of thermal bridging at junctions and around openings* and

BRE BR 497 *Conventions for calculating linear thermal transmittance and temperature factors* in accordance with Appendix D of TGD to Part L of the Building Regulations 1997 to 2017.

4.6 CONDENSATION RISK

Areas where there is a significant risk of interstitial condensation due to high levels of humidity should be identified during the initial site survey. A condensation risk analysis will be carried out by Weber in accordance with BS 5250:2011+A1:2016 and the design modified as appropriate to reduce the risk of surface condensation to acceptable levels.

4.6.1 Internal Surface Condensation

When improving the thermal performance of the external envelope of a building through external wall insulation, designers need to consider the impact of these improvements on other untouched elements of the building. As discussed in Section 4.5 of this Certificate, thermally bridged sections of the envelope such as window jambs, sills and eaves will experience a lower level of increased thermal performance. The degree of improvement to these junctions can be limited due to physical restrictions on site, i.e. footpaths, soffit boards or hinges for windows.

When bridged junctions meet the requirements of Appendix D Table D2 of TGD to Part L of the Building Regulations 1997 to 2017, the coldest internal surface temperature will satisfy the requirements of Section D2, namely that the temperature factor shall be equal to or greater than 0.75. As a result, best practice will have to be adopted in order to limit the risk of internal surface condensation which can result in dampness and mould growth.

When site limiting factors give rise to substandard levels of insulation at bridged junctions, guidance should be sought from the Certificate holder as to acceptable minimum requirements.

4.6.2 Interstitial Condensation

An interstitial condensation risk analysis will be carried out by Weber in accordance with BS 5250:2011+A1:2016 and the design modified as appropriate to reduce the risk of interstitial condensation to acceptable levels.

4.6.3 Ventilation

When installing the external insulation system, the works to be undertaken must not compromise the existing ventilation provisions in the home, including the ventilation of suspended timber floors, where existing vents must be sleeved across the rising wall and sealed.

4.7 MAINTENANCE

Adequate provision should be made for access and maintenance over the life of the system.

The system shall be inspected and maintained in accordance with the Certificate holder's instructions, as detailed in the Repair and Maintenance Method Statement, which is incorporated into the Building Owner's Manual.

Necessary repairs should be carried out immediately and must be in accordance with the Certificate holder's instructions. Repairs to plumbing etc. should also be carried out as required to prevent deterioration or damage, and to protect the integrity of the system.

Synthetic finishes may be subject to aesthetic deterioration due to exposure to UV light. They may require to be re-painted every 18 to 20 years to maintain appearance. Care should be taken to ensure that the synthetic finish used is compatible with the original system and that the water vapour transmission or fire characteristics are not adversely affected.

Sealants shall be subject to regular inspection (at least annually). They should be replaced as required and fully replaced every 18 to 20 years to maintain performance.

4.8 WEATHERTIGHTNESS

When designed and detailed in accordance with this Certificate, the system will prevent moisture from the ground coming in contact with the insulation (see Figure 2).

The external render has adequate resistance to water penetration when applied in accordance with the Certificate holder's instructions.

Joint designs, sealant specifications and recommendations for detailing at windows and doors were assessed and are considered adequate to ensure that water penetration will not occur, assuming that regular maintenance is carried out in accordance with the Certificate holder's instructions (see Figure 7).

Recommendations for detailing at windows and doors have been assessed and are considered adequate to ensure that water penetration will not occur, assuming that regular maintenance is carried out in accordance with the Certificate holder's instruction (see Figures 3, 4 and 5).

4.9 DURABILITY

4.9.1 Design Life

An assessment of the life of the system was carried out. This included an assessment of:

- Design and installation controls;
- Proposed building heights;
- Render thickness and specification;

- Material specifications, including insulant, mesh, beading and fixing specifications;
- Joint design;
- Construction details;
- Maintenance requirements.

The assessment indicates that the system should remain effective for at least 30 years, providing that it is designed, installed and maintained in accordance with this Certificate. Any damage to the surface finish shall be repaired immediately and regular maintenance shall be undertaken as outlined in Section 4.7 of this Certificate.

4.9.2 Aesthetic Performance

As with traditional renders, the aesthetic performance of the systems, e.g. due to discolouration, soiling, staining, algal growth or lime bloom, is depended on a range of factors such as:

- Type, colour and texture of surface finish;
- Water retaining properties of the finish;
- Architectural form and detailing;
- Building orientation/elevation;
- Local climate/atmospheric pollution.

Adequate consideration should be given at the design stage to all of the above to ensure that the level of maintenance necessary to preserve the aesthetics of the building is acceptable.

4.10 PRACTICABILITY

The practicability of construction and the adequacy of site supervision arrangements were assessed and considered adequate. The project specific designs and method statements for application, inspection and repair were reviewed and found to be satisfactory.

4.11 TESTS AND ASSESSMENTS WERE CARRIED OUT TO DETERMINE THE FOLLOWING

- Structural strength and stability
- Behaviour in fire
- Impact resistance
- Pull-out resistance of fixings
- Thermal resistance
- Hygrothermal behaviour
- Condensation risk
- Site erection controls
- Durability of components
- Dimensional stability of insulants

4.12 OTHER INVESTIGATIONS

- (i) Existing data on product properties in relation to fire, toxicity, environmental impact and the effect on mechanical strength/stability and durability were assessed.
- (ii) The manufacturing process was examined including the methods adopted for quality control, and details were obtained of the

quality and composition of the materials used.

- (iii) Special building details (e.g. ground level, window and door openings, window sill and movement joints) were assessed and approved for use in conjunctions with this Certificate.
- (iv) Site visits were conducted to assess the practicability of installation and the history of performance in use of the product.

Insulation	Reinforced Base Coat	Finish	Impact Category ETAG 004 Table 8
EPS	6mm weber.rend LAC / weber mesh standard	weber PR310 / 1.5mm weber.plast TF150	III
		6-8mm weber.rend PTC / weber PR310 / 1.5mm weber.plast TF150	II
		6-8mm weber.rend PTS	II
		weber.therm M1	I
	6mm weber.rend LAC / weber mesh standard / weber mesh heavy duty	weber PR310 / 1.5mm weber.plast TF150	II
MFS/MFD	6mm weber.rend LAC / weber mesh standard	weber PR310 / 1.5mm weber.plast TF150	I
		6-8mm weber.rend PTC / weber PR310 / 1.5mm weber.plast TF150	I
		weber.therm M1	I
	6mm weber.rend LAC / weber mesh standard / weber mesh heavy duty	weber PR310 / 1.5mm weber.plast TF150	I
PHS	6mm weber.rend LAC / weber mesh standard	weber PR310 / 1.5mm weber.plast TF150	III
		6-8mm weber.rend PTC / weber PR310 / 1.5mm weber.plast TF150	II
		weber.therm M1	I
	6mm weber.rend LAC / weber mesh standard / weber mesh heavy duty	weber PR310 / 1.5mm weber.plast TF150	II
PIR	6mm weber.rend LAC / weber mesh standard	weber PR310 / 1.5mm weber.plast TF150	III
		6-8mm weber.rend PTC / weber PR310 / 1.5mm weber.plast TF150	II
		weber.therm M1	I
	6mm weber.rend LAC / weber mesh standard / weber mesh heavy duty	weber PR310 / 1.5mm weber.plast TF150	II

Table 4: Impact Resistance

ETICS insulation	Declared thermal conductivity ($\lambda_{90/90}$) of insulation (W/mK)	Thickness of insulation (mm)	U-value (W/m ² K)
No ETICS	-	-	2.14
EPS70 FRA	0.038	130	0.26
EPS70 FRA	0.030	100	0.26
MFS board	0.036	120	0.25
PHS board	0.020	70	0.26
PIR board	0.025	90	0.26
These values are based on a typical house of 215mm hollow block construction (Building Regulations 2008 Part L) with the following construction (internal to external): <ul style="list-style-type: none"> Plaster, gypsum (BS 5250): 4mm Render (BS 5250): 15mm Hollow block, 1800kg/m³ (440x215x100 with 10mm mortar joint): 215mm External render: 15mm Insulation material: As specified Render finish with mesh basecoat: As specified 			

Table 5: Typical U-values

5.1 National Standards Authority of Ireland ("NSAI") following consultation with NSAI Agrément has assessed the performance and method of installation of the product/process and the quality of the materials used in its manufacture and certifies the product/process to be fit for the use for which it is certified provided that it is manufactured, installed, used and maintained in accordance with the descriptions and specifications set out in this Certificate and in accordance with the manufacturer's instructions and usual trade practice. This Certificate shall remain valid for five years from date of issue so long as:

- (a) the specification of the product is unchanged.
- (b) the Building Regulations 1997 to 2017 and any other regulation or standard applicable to the product/process, its use or installation remains unchanged.
- (c) the product continues to be assessed for the quality of its manufacture and marking by NSAI.
- (d) no new information becomes available which in the opinion of the NSAI, would preclude the granting of the Certificate.
- (e) the product or process continues to be manufactured, installed, used and maintained in accordance with the description, specifications and safety recommendations set out in this certificate.
- (f) the registration and/or surveillance fees due to NSAI are paid.

5.2 The NSAI Agrément mark and certification number may only be used on or in relation to product/processes in respect of which a valid Certificate exists. If the Certificate becomes invalid the Certificate holder must not use the NSAI Agrément mark and certification number and must remove them from the products already marked.

5.3 In granting Certification, the NSAI makes no representation as to;

- (a) the absence or presence of patent rights subsisting in the product/process; or
- (b) the legal right of the Certificate holder to market, install or maintain the product/process; or

(c) whether individual products have been manufactured or installed by the Certificate holder in accordance with the descriptions and specifications set out in this Certificate.

5.4 This Certificate does not comprise installation instructions and does not replace the manufacturer's directions or any professional or trade advice relating to use and installation which may be appropriate.

5.5 Any recommendations contained in this Certificate relating to the safe use of the certified product/process are preconditions to the validity of the Certificate. However the NSAI does not certify that the manufacture or installation of the certified product or process in accordance with the descriptions and specifications set out in this Certificate will satisfy the requirements of the Safety, Health and Welfare at Work Act 2005, or of any other current or future common law duty of care owed by the manufacturer or by the Certificate holder.

5.6 The NSAI is not responsible to any person or body for loss or damage including personal injury arising as a direct or indirect result of the use of this product or process.

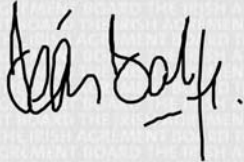
5.7 Where reference is made in this Certificate to any Act of the Oireachtas, Regulation made thereunder, Statutory Instrument, Code of Practice, National Standards, manufacturer's instructions, or similar publication, it shall be construed as reference to such publication in the form in which it is in force at the date of this Certification.

NSAI Agrément

This Certificate No. **09/0338** is accordingly granted by the NSAI to **Weber** on behalf of NSAI Agrément.

Date of Issue: **August 2009**

Signed



Seán Balfe
Director of NSAI Agrément

Readers may check that the status of this Certificate has not changed by contacting NSAI Agrément, NSAI, 1 Swift Square, Northwood, Santry, Dublin 9, Ireland. Telephone: (01) 807 3800. Fax: (01) 807 3842. www.nsai.ie

Revisions

September 2010: Inclusion of phenolic insulation

11th January 2018: References to Building Regulations and standards updated.