

DESIGN AND INSTALLATION GUIDE



V1.0 Dec 2025

PRODUCT NAME

Masons PrimeTherm ERS WarmWall EX

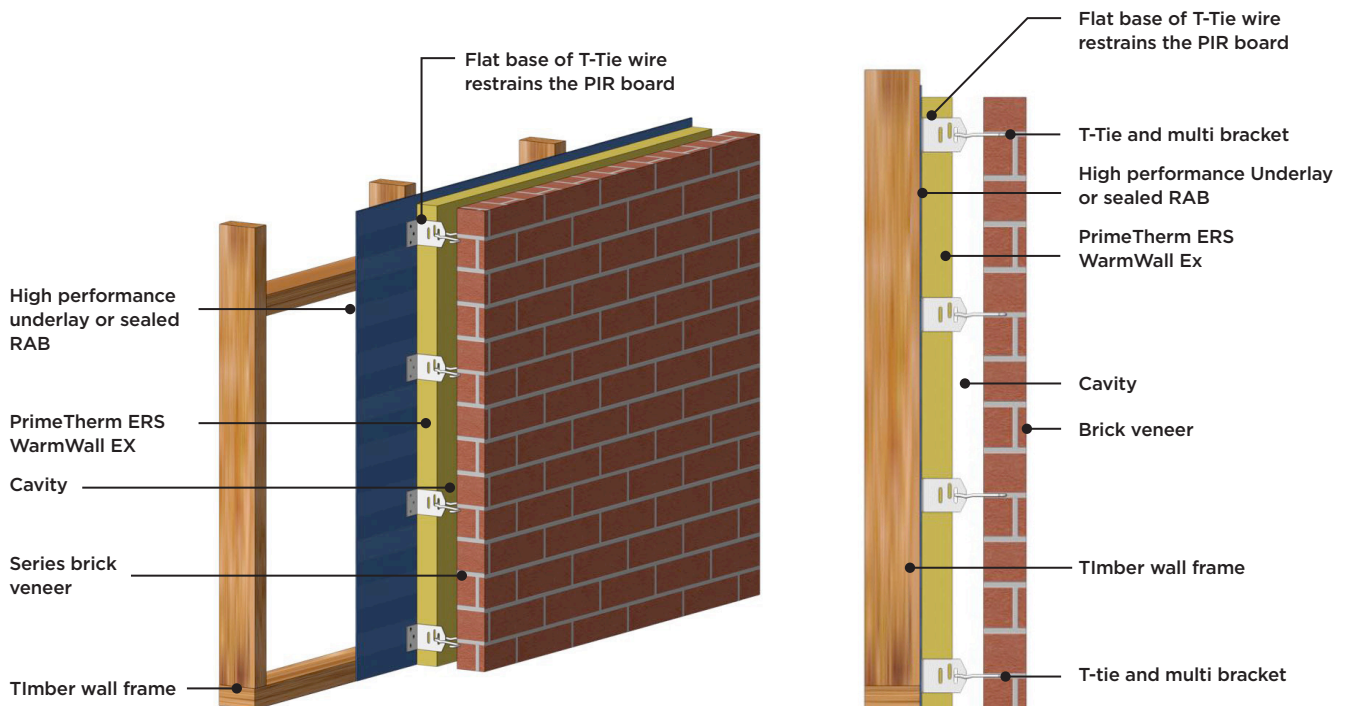
DESCRIPTION AND INTENDED USE

PrimeTherm ERS WarmWall EX is a superior quality closed-cell foil-faced sheet insulation manufactured from rigid thermosetting polyisocyanurate (PIR) closed-cell foam and composite foil facings.

PrimeTherm ERS used in Warm Wall Ex is available in sheets 2400mm x 1200mm (2.88m²), thickness range from 50mm to 120mm.

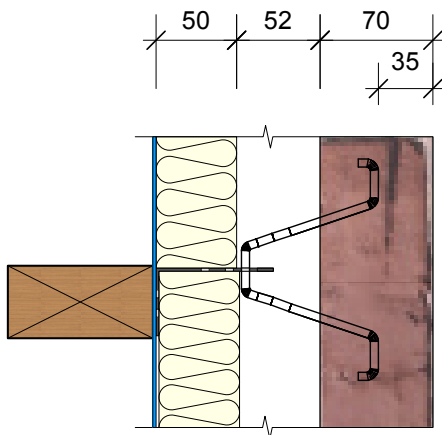
WarmWall EX is intended to be installed as a continuous layer of insulation to the outside face of external wall framing in external wall applications.

Brick Cladding

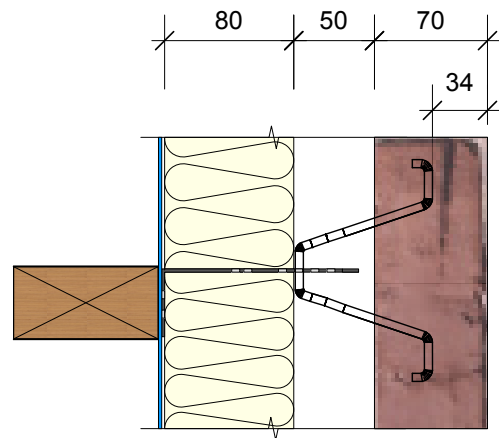




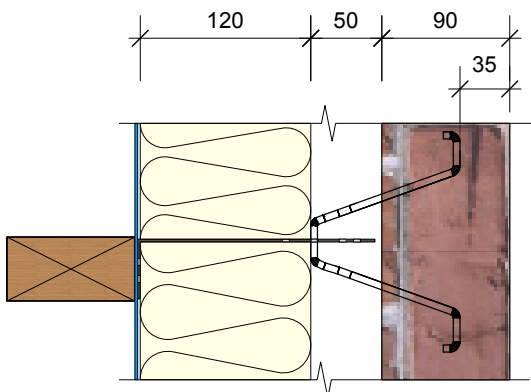
Examples of Options:



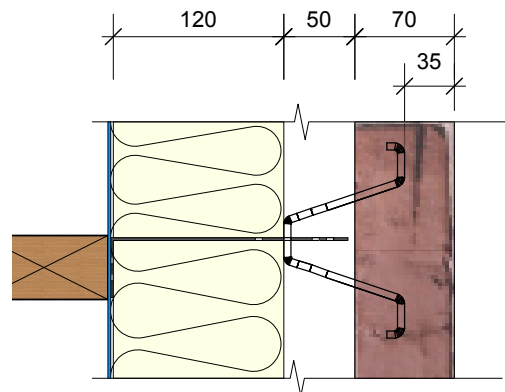
50mm PIR board with 50mm cav
85 tie wire & 70 series brick
TTIE85SSMULT25-50



80mm PIR board with 50mm cavity
85 tie wire & 70 series brick
TTIE85SSMULT70-100



120mm PIR board with 50mm cavity
105 tie wire & 90 series brick
TTIE105SSMULT120-150



120mm PIR board with 50mm cavity
85 tie wire & 70 series brick
TTIE85SSMULT120-150

ADDITIONAL COMPONENTS

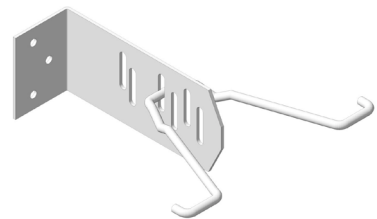
Multi Bracket

Small, Medium & Large.

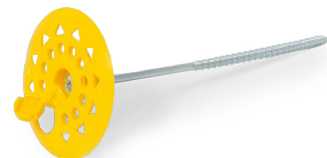
T-Ties

85mm, 105mm & 135mm.

Adjust T-Tie and Multi Bracket to suit thickness required.

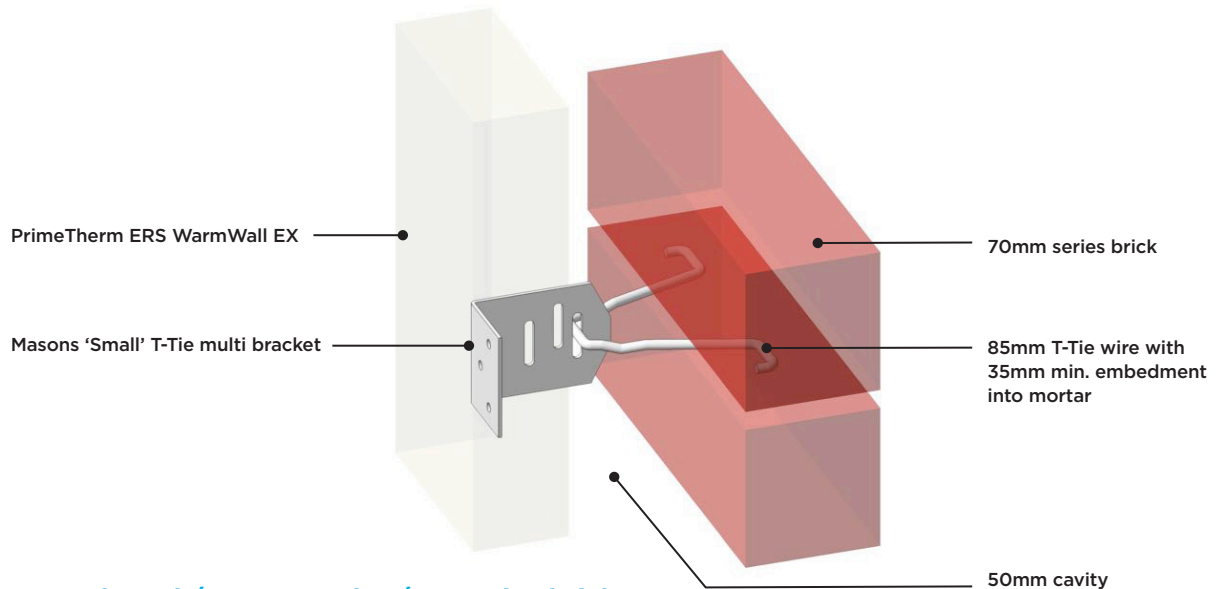


Temporary Fixings

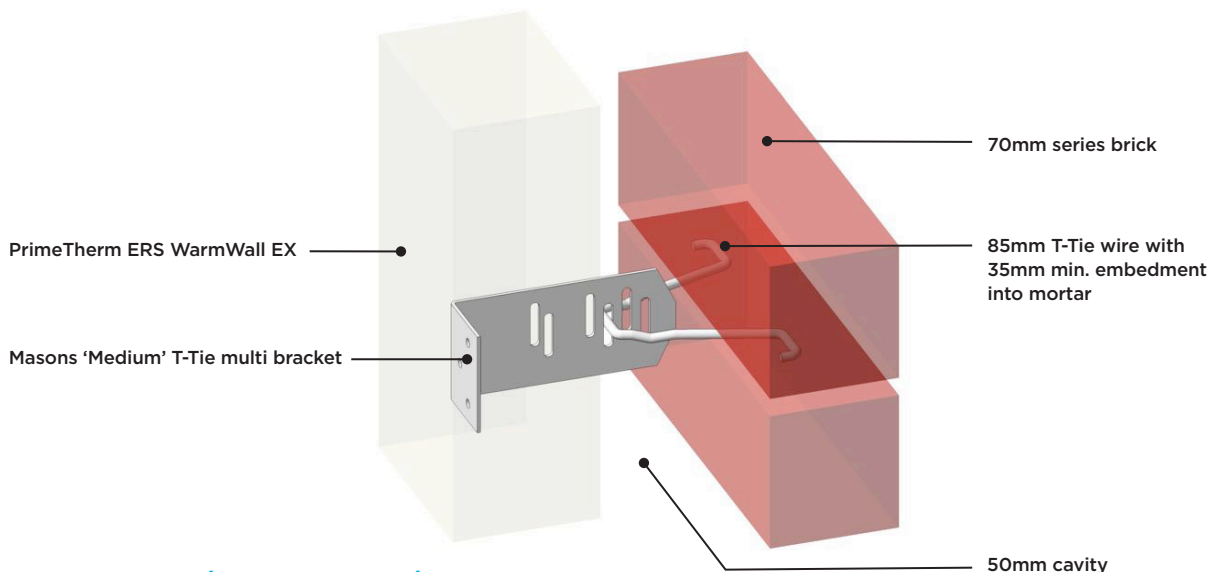




50mm PIR board / 50mm cavity / 70 series brick

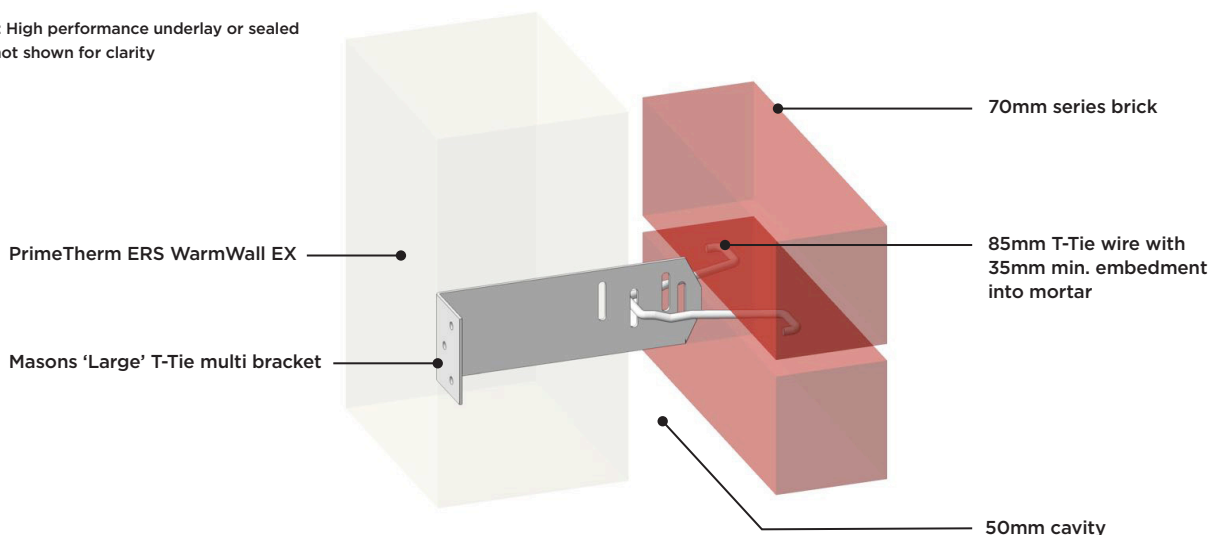


80mm PIR board / 50mm cavity / 70 series brick



120mm PIR board / 50mm cavity / 70 series brick

*Note: High performance underlay or sealed RAB not shown for clarity





Facing Type	0.022 W m-k thickness in mm	R Value after aging* (estimated)	Density kg/m ³	Compressive strength KPA
All	50	2.03	40	158
All	80	3.24	40	158
All	100	4.05	40	158
All	120	4.86	40	158

For other sizes please refer to Masons PrimeTherm ERS PIR Insulation Board - TDS

PRODUCT R-VALUE V. CONSTRUCTION R-VALUE

EXAMPLE: Using PrimeTherm ERS WarmWall EX and Brick Cladding

Default framing fraction of 37.5%, 90mm timber framed wall with 70 series Brick Cladding, 50mm cavity and PrimeTherm ERS WarmWall insulation with thickness of:

PIR thickness	Product R-value	Construction R-value
40mm	R1.75	R2.06
50mm	R2.03	R2.83
60mm	R2.8	R3.31
70mm	R3.3	R3.81
80mm	R3.24	R4.04
100mm	R4.05	R4.85
120mm	R4.86	R5.62

CONSTRUCTION R-VALUE USING DESIGN NAVIGATOR (OR OTHER AS SELECTED)

EXAMPLE: Default framing fraction 37.5%. 90mm timber framed wall with 70 series brick cladding, 50mm cavity and 80mm PrimeTherm ERS WarmWall EX insulation.

90mm frame, 80 PIR, Brick Weatherboard

4.04 m²/C/W

Type:

Wall: Timber Frame with external Insulation and vented Cavity

Timber Frame with external Insulation and vented Cavity

view detail

external surface 0.03

Cladding : generic - Brick 70mm

R-value: 0.06

Air Barrier : generic - Building paper

R-value: 0.01

Insulation : 3.24

Timber Frame & Cavity : 90mm, 37.5% framing

Wall Frame Area: 37.5%

15-90mm vented cavity (all R-values on ext. side of cavity will be halved), R: 0.08

Framing : R-value: 0.75

Cavity Area: 62.5%

15-90mm vented cavity (all R-values on ext. side of cavity will be halved), R: 0.08

Insulation :

still Airgap: 20-90mm airgap (reflective) R-value: 0.45

Wall Lining : generic - gypsum Plasterboard 10mm

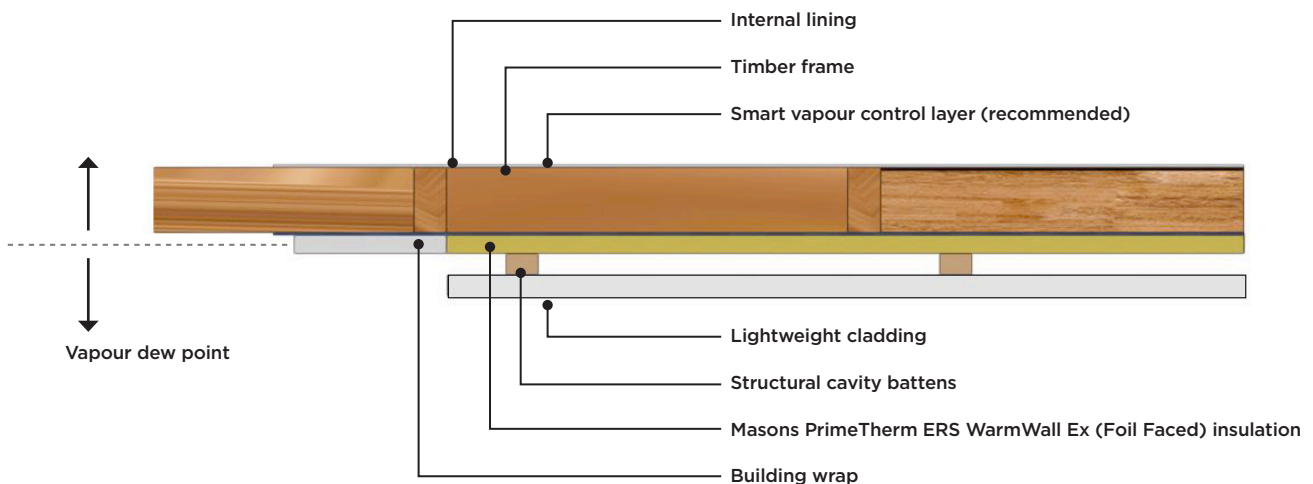
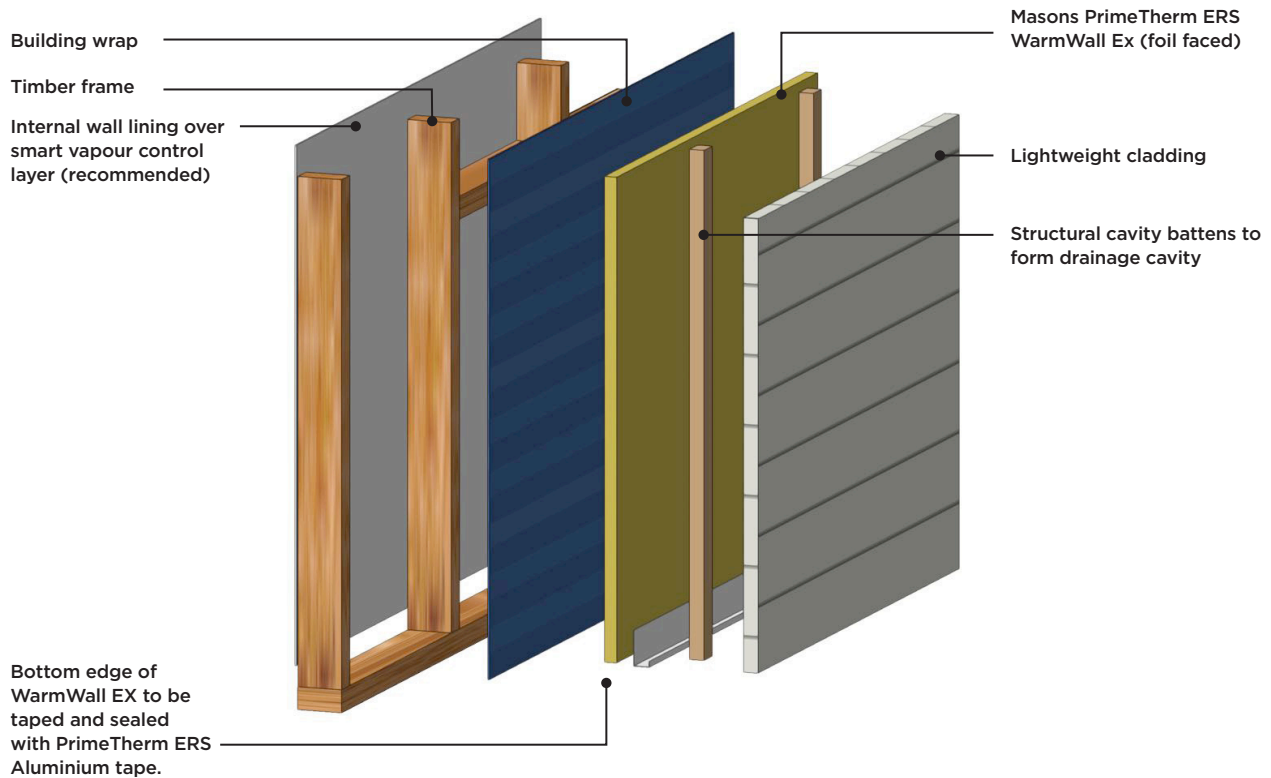
R-value: 0.04

internal surface 0.09

Construction R-value calculated by DesignNavigator ©



Lightweight Cladding

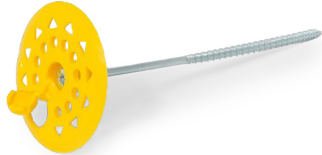


Note: Use 45 x 45 horizontal structural castellated H3.1 battens when installing vertical cladding.

ADDITIONAL COMPONENTS

Structural Battens (horizontal)	45 x 45mm H3.1 castellated
Structural Battens (vertical)	45 x 45mm H3.1

Temporary Fixings



LIGHTWEIGHT CLADDING FIXING

Fasteners					
Weight Category	Insulation thickness	Frame type & stud spacing (mm)	Fixing spacing	Screw size	Notes
Light weight (<25kg/m ²)	Up to 70mm	400 timber	600mm	#10	Embed screw 40mm
		600 timber	400mm	#10	Embed screw 40mm
		400 steel	400mm	#12	Through flange of stud
	70-100mm	400 timber	400mm	#10	Embed screw 40mm
		600 timber	300mm	#10	Embed screw 40mm
		400 steel	300mm	#12	Through flange of stud
Medium weight (25-50kg/m ²)	Up to 70mm	400 timber	600mm	#12	Embed screw 40mm
		600 timber	400mm	#12	Embed screw 40mm
		400 steel	300mm	#12	Through flange of stud
	70-100mm	400 timber	400mm	#12	Embed screw 40mm
		600 timber	300mm	#12	Embed screw 40mm
		400 steel	250mm	#12	Through flange of stud



LIMITATIONS FOR FIXINGS:

- Claddings exceeding 50kg/m² will require specific engineer design.
- These fixings are suitable for typical timber or steel stud wall assemblies low to mid rise and up to three stories up to 10m in height where allowed under the New Zealand Building Code (NZBC).
- For buildings over three stories specific engineering design is required.
- Use Stainless Steel Screws only.
- For supporting the dead load of cladding systems only.
- Because the insulation used is highly effective, the thermal bridging effect of the fasteners should be factored into the overall wall R-value calculations. As a general guideline, consider reducing the total R-value by approximately 5% when using stainless steel screws, and around 15% for galvanized or epoxy-coated steel fasteners. The reduction may be more significant in walls framed with light-gauge steel. For complete accuracy of the construction R-value a thermal model can be completed.

PROPRIETARY CLIP OR BATTEN SYSTEM

May be used to attach the cladding through the exterior insulation, provided the chosen system meets the manufacturer's structural and installation requirements. Using an aluminium or steel rail system that penetrates the PrimeTherm ERS Insulation can significantly reduce the overall R-value compared to a well-designed thermally isolated clip.

PRODUCT R-VALUE

Facing Type	0.022 W m-k thickness in mm	R Value after aging* (estimated)	Density kg/m ³	Compressive strength KPA
All	50	2.03	40	158
All	80	3.24	40	158
All	100	4.05	40	158
All	120	4.86	40	158

For other sizes please refer to Masons PrimeTherm ERS PIR Insulation Board - TDS

EXAMPLE: Using PrimeTherm ERS WarmWall EX and Pine Weatherboard cladding.

Default framing fraction of 37.5%. 90mm timber framed wall with pine weatherboard cladding, 45mm cavity and PT ERS WarmWall EX insulation with thickness of:

PRODUCT R-VALUE V. CONSTRUCTION R-VALUE

PIR thickness	Product R-value	Construction R-value
40mm	R1.75	R2.10
50mm	R2.03	R2.87
60mm	R2.8	R3.15
70mm	R3.3	R3.65
80mm	R3.24	R4.08
100mm	R4.05	R4.89
120mm	R4.86	R5.70

CONSTRUCTION R-VALUE USING DESIGN NAVIGATOR -

Default framing fraction 37.5%. 90mm timber framed wall with Pine Bevel backed Weatherboard Cladding, 45mm cavity and PrimeTherm ERS Warmwall Ex insulation with thicknesses:

90mm frame, 80 PIR, Pine Weatherboard

4.08 m²C/W

Type: Wall: Timber Frame with external Insulation and vented Cavity

Timber Frame with external Insulation and vented Cavity [view detail](#)

external surface 0.03	
Cladding : generic - Weatherboard Bevelled	R-value: 0.14
Air Barrier : generic - Building paper	R-value: 0.01
Insulation : 3.24	
<div> <div>Timber Frame & Cavity : 90mm, 37.5% framing</div> <div> <div>Wall Frame Area: 37.5%</div> <div>Cavity Area: 62.5%</div> </div> </div>	
15-90mm vented cavity (all R-values on ext. side of cavity will be halved), R: 0.08	15-90mm vented cavity (all R-values on ext. side of cavity will be halved), R: 0.08
Framing : R-value: 0.75	Insulation :
	still Airgap: 20-90mm airgap (reflective) R-value: 0.45
Wall Lining : generic - gypsum Plasterboard 10mm R-value: 0.04	
internal surface 0.09	

Construction R-value calculated by DesignNavigator ©

GENERAL:

KEY BENEFITS

PrimeTherm ERS WarmWall EX is designed for New Zealand conditions, providing a continuous insulation barrier to the outside face of timber wall framing. It significantly increases the thermal performance of traditional brick veneer, weatherboard & panel-clad external walls by virtually eliminating the effects of thermal bridging.

PrimeTherm ERS WarmWall EX is located outside the wall underlay providing continuous insulation performance to the external wall system by providing a thermal break within the wall cavity.

H1.3.1(a) and H1.3.2E: This insulation product forms part of the building envelope enclosing spaces where the temperature or humidity (or both) are modified. In conjunction with other building elements, it contributes to providing thermal resistance to the building envelope for the purposes of achieving adequate energy efficiency.

MECHANICAL VENTILATION TO OCCUPIED SPACES

Prime Therm ERS boards used in a WarmWall Exterior application act as an effective air and vapour barrier.

The building designer should incorporate sufficient mechanical and natural ventilation to ensure the required air changes to the buildings occupied spaces or intended uses. Consider a balanced pressure heat recovery system to ensure air change and to preserve the buildings energy efficiency by use of the WarmWall EX system.

Mechanical ventilation is essential to the successful operation of a high-performance house. As buildings become more airtight to improve energy efficiency and reduce heat loss, natural air leakage is minimised—making deliberate, controlled ventilation necessary to maintain healthy indoor air quality. Mechanical systems continuously extract stale, moisture-laden air and supply fresh, temperature controlled, filtered air from outside. This not only helps manage indoor humidity levels and prevent condensation but also ensures a consistent supply of oxygen, reducing the build-up of pollutants and allergens. In well-insulated, airtight homes, mechanical ventilation is not just beneficial—it is vital for ensuring a comfortable, healthy, and durable indoor environment.

HYBRID WALLS – (ADDING INSULATION WITHIN THE WALL CAVITY)

In a true external insulation system, all control layers—thermal, vapour, air, and water—are managed externally, leaving the framing zone free of insulation. This positions the dew point safely outside the structure, reducing condensation risk and ensuring high thermal efficiency. However, adding bulk insulation into the framing cavity to boost R-value – though cost-effective – can compromise this carefully balanced system.

Introducing insulation internally may shift the dew point back into the wall structure, and potentially leading to interstitial condensation.

In a hybrid wall, the exterior insulation must still provide at least half of the total wall construction R-value so the dew point stays outside the framing and avoids interstitial condensation. The wall assembly should allow for drying on both sides of the air barrier.

If you're considering a different ratio or altering the insulation layout, it's strongly advised to carry out a hygrothermal analysis to assess moisture behaviour and ensure the assembly performs as intended.

INSULATION AND COMPLIANCE

PrimeTherm ERS WarmWall Ex is intended to be installed over timber wall framing by a Licensed Building Practitioner or insulation installers experienced with rigid insulation products. The completed installation needs to meet the requirements of NZS 4246:2016, to ensure the R-Values required by any relevant regulations or building design specifications are achieved.

All construction work on houses, including installing or retrofitting insulation, shall comply with the NZBC. While there is no minimum required level of insulation that shall be retrofitted, given the time and effort, it is recommended that as much insulation as practicable be installed to maximize the benefits. Please note that if insulation is being removed, then it shall be replaced with insulation of equal or higher R-Value.

LIMITATIONS ON THE USE OF PRIMETHERM ERS WARMWALL EX:

Masons recommend design, specification & installation by licensed building practitioners with product & application experience. Successful installation requires project specific design. PrimeTherm ERS WarmWall EX cannot be permanently exposed to the elements and is not suitable for direct contact with metal building elements when there is a risk of galvanic action.

PrimeTherm ERS WarmWall EX contributes to satisfying building code requirements as part of a proprietary external wall cladding system that is designed, installed and maintained in accordance with product literature and project specifications. It does not contribute to structural bracing.

PVC sheathed electrical cables do not typically react with Masons PrimeTherm ERS WarmWall EX, however, best practice and product specific guidance still apply.

Design requirements supporting the use of WarmWall EX:

Specific design is required to effectively incorporate PrimeTherm ERS WarmWall EX on the outside face of the wall framing (e.g. including offsets, reveals, concrete slab rebates, total wall thickness). PrimeTherm ERS WarmWall EX is an insulation product resistant only to compressive forces such as those resulting from positive wind pressures onto cavity battens. Any structural fixings must only be made through the insulation and into structural framing members. Designers shall refer to the Key Technical Specifications above to determine whether PrimeTherm ERS WarmWall EX is suitable for any application.

FIRE CONSIDERATIONS

This product should not be used on buildings over 10 metres in height or in applications requiring non-combustible cladding without specific design from a suitably qualified building designer and reviewed by a fire engineer.

Masons PrimeTherm ERS WarmWall EX is intended for use within engineered or specifically designed cladding systems, where each component — including insulation, fixings, air barriers, and coatings — has been verified for safe performance when exposed to heat or flame.

Masons takes no responsibility for damage, injury, or loss resulting from the use of this product outside the scope of its intended application. It is the responsibility of the designer, specifier, and installer to ensure all system components comply with NZBC fire safety provisions and are suitable for the specific building type and risk group. If installed as a system it should be engineered and peer reviewed.

Installation Instructions:

GENERAL:

Prior to installation PrimeTherm ERS WarmWall EX shall be free of all surface dust, oxidization, and other contaminants that shall be removed with a rasp or a stiff broom.

PrimeTherm ERS WarmWall EX will not straighten walls and is not designed to contribute to the structural bracing of the wall.

Small gaps or poorly sealed penetrations can compromise the performance of the system. Air will find its way through the tiniest cracks, so be meticulous with overlaps and barrier interfaces.

Once the air barrier is in place – but before it gets covered – it's good practice to carry out a Blower Door test. Doing this while everything is still accessible means any leaks can be located and sealed up without major re-work.

BRICK VENEER WALLS:

PrimeTherm ERS WarmWall EX sheets shall be applied over the wall underlay to the framing impaled over selected brick T-Tie Multi Brackets and held in position with the T-tie wire. Additional fixing may be required using Masons insulated washers and appropriate nails or screws.

Cover all sheet joins & fasteners with Masons PrimeTherm ERS aluminum tape. Any gaps to be filled with Soudal Gorilla Pro click and fix foam.

Brick offers a long-lasting cladding option, often standing strong for hundreds of years. Given this longevity, upgrading insulation later is extremely challenging, making it smarter and more economical to exceed minimum Building Code requirements from the start. Like all building envelopes, it's essential to clearly define and seamlessly install all control layers throughout the assembly.



A: SUBSTRATE PREPARATION

- Confirm framing is plumb, dry, and structurally complete.
- Install Masons high performance underlay or rigid air barrier according to the specifications and seal all joints and penetrations.

B: MASONS MULTI BRACKET AND T-TIE (BRICK TIES)

- Secure the T-Tie multi bracket to the framing by penetrating through the air barrier into the structural framing.
- Maintain anchor spacing at a maximum of 600mm both horizontally and vertically, or closer as specified by the applicable standard or by structural engineer.

C: INSTALLING THE INSULATION

- Place the insulation between and over the T-Tie multi brackets and butt the boards tightly together.
 - Seal all exposed edges, sheet joints and fasteners with Masons 40 Below Aluminium Tape or as selected by the designer if fire rated.
 - Secure in place with 3 fixings per stud prior to installing the T-Tie wire. Use thermally broken fixings with 30mm (min) washer head and plug to reduce thermal bridging. More fixings can be installed at the builders discretion if located in an Extra High or SED wind zone or if a weather event is due or if the board will be exposed for a longer period of time.
 - Use Soudal Gorilla Pro Expanding Foam Click & Fix to seal all gaps.
 - Ensure any tears or punctures in the building wrap are properly sealed to maintain the integrity of the air barrier.
 - Where insulation meets at internal or external corners, interlock the boards in a stepped manner while preserving their full design thickness throughout.
 - If installing a second layer of external insulation, offset the boards in a staggered (brickwork-style) pattern to avoid continuous vertical seams and improve thermal continuity.
 - Openings and service penetrations can be trimmed into the insulation layer as needed, but it's critical that these areas are carefully sealed and finished in line with the detailing requirements.
 - Thread the T-Tie tie wires through the Multi Brackets to hold the insulation in place and secure further.
 - Position the T-Tie's so they will be embedded within the brickwork with Masons 'blue clip' to end of T-Tie (if required).
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D: BRICK INSTALLATION

- › Install the brick veneer in compliance with E2/AS1, particularly section 9.2 & NZS 4210, ensuring a minimum 40mm cavity gap between the insulation and the outer masonry wall, adjusted as necessary per structural engineering specifications and to suit the length of the T-tie specified.
- › Airflow vents need to be installed at both the top and bottom of the wall, as well as beneath any breaks in the cavity.

E: FLASHINGS AND OPENINGS

- › Install base, head, and sill flashings prior to PIR installation.
- › All flashings should integrate with WRB and overlap board surfaces.
- › Use flexible flashing tape at corners and windows.

LIGHTWEIGHT CLADDING:

A: SUBSTRATE PREPARATION

- › Confirm framing is plumb, dry, and structurally complete.
- › Install Masons high performance underlay and/or rigid air barrier according to the specifications & NZBC and seal all joints and penetrations.

B: INSTALLING THE INSULATION AND CAVITY BATTENS

- › Tape panel lower edges at the base of the installation with Primetherm ERS Aluminum Tape as a moisture and flame barrier.
 - › Place PrimeTherm ERS WarmWall EX vertically over the underlay and secure in place with 3 fixings per stud prior to installing battens. Use thermally broken fixings with 30mm (min) washer head and plug to reduce thermal bridging. Ensure these are slightly countersunk, or avoid placing where cavity battens are positioned. More fixings can be installed at the builders discretion if located in an Extra High or SED wind zone or if a weather event is due or if the board will be exposed for a longer period of time.
 - › Position, staple (ss) & tape the cavity closer to WarmWall Ex using PrimeTherm ERS aluminum tape.
 - › Follow up by fixing the 45 x 45 H3.1 structural timber vertical (or castellated horizontal) battens over the PIR insulation and screwing into the timber framing. Battens to suit stud centres. Ensure bottom fixing penetrates the Redway E2 cavity closer up-stand to secure.
 - › Seal all exposed edges, sheet joints and fasteners with Masons PrimeTherm ERS aluminum tape or as selected by the designer if fire rated.
 - › Use Gorilla Pro Expanding Foam Click & Fix to seal all gaps.
 - › Use long structural countersunk stainless steel screws (as per fixing table) to fix battens through the insulation and into studs. The screw size is dependant on the cladding weight.
 - › The fixing table outlines minimum requirement load-bearing capacities for cladding fixed to battens and battens through external insulation to framing.
 - › Ensure the boards are tightly butted together as you work along.
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- For larger buildings or those in areas subject to high wind or seismic forces, a tailored structural solution must be developed. Heavier cladding systems—those exceeding 50 kg/m²—require a project-specific engineered fixing method appropriate to the cladding's mass and properties.
- If a fixing misses the stud or frame member, ensure any tears or punctures in the building wrap are properly sealed from behind to maintain the integrity of the air barrier.
- Where insulation meets at internal or external corners, interlock the boards in a stepped manner while preserving their full design thickness throughout.
- If installing a second layer of external insulation, offset the boards in a staggered (brickwork-style) pattern to avoid continuous vertical seams and improve thermal continuity.
- Openings and service penetrations can be trimmed into the insulation layer as needed, but it's critical that these areas are carefully sealed and finished in line with the detailing requirements.
- Lightweight cladding should be attached directly to the structural cavity battens. There's no need to drive fixings through to the framing behind—secure them to the battens only in accordance with E2/AS1 and manufacturers specifications.
- Fix lightweight cladding (e.g., fibre cement, plaster system, weatherboard) to structural battens as per manufacturer instructions and E2/AS1.

Note: This manual must be read in conjunction with relevant product technical literature, manufacturers guidelines, and NZBC Acceptable Solutions.

ENVIRONMENTAL DATA:

See PrimeTherm ERS MSDS

MAINTENANCE REQUIREMENTS:

PrimeTherm ERS PIR Board does not require regular maintenance. Damaged, dented, fractured product must be replaced.