Masons PrimeTherm ERS WarmRoof

DESIGN AND INSTALLATION GUIDE

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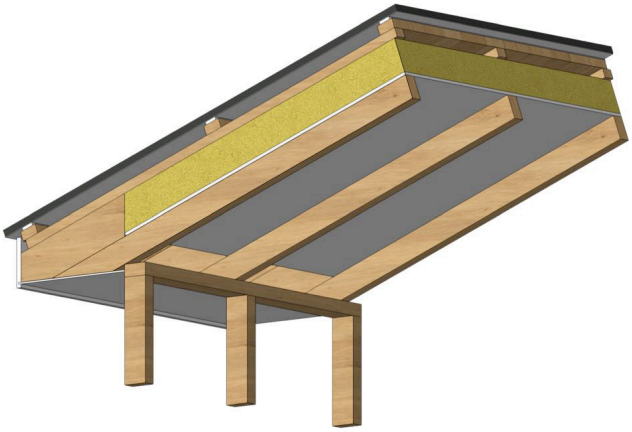
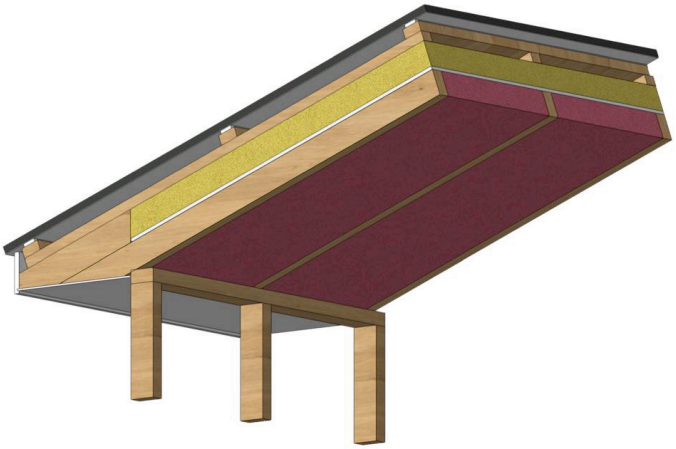
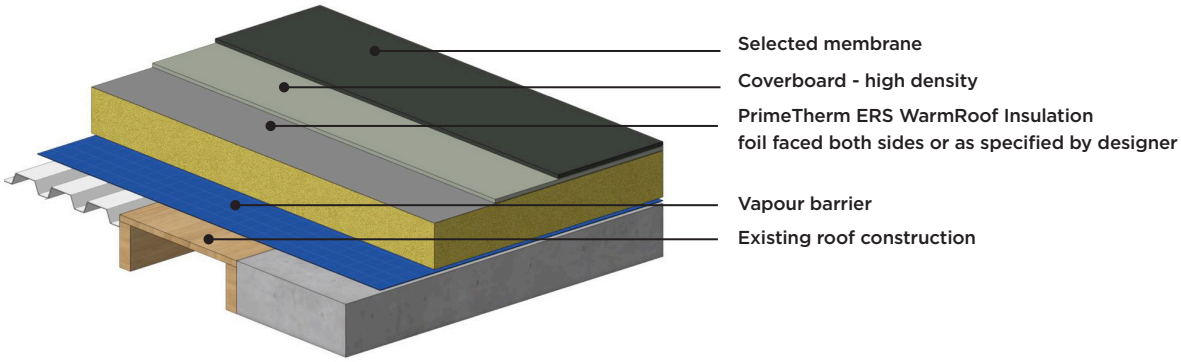


New Residential metal longrun roofing – Exposed rafter Skillion roof



New Residential metal longrun Skillion roof

New Residential metal longrun roofing Trussed or Skillion roof



New Flat Membrane Roof

PRODUCT NAME
Masons PrimeTherm ERS WarmRoof

DESCRIPTION AND INTENDED USE
PrimeTherm ERS WarmRoof is a closed-cell sheet insulation manufactured from rigid thermosetting polyisocyanurate (PIR) closed-cell foam with composite foil facings. It is available in sheets 2400mm x 2400mm x 50-120mm thick.

PrimeTherm ERS WarmRoof is intended to be installed over and between roof framing members of profiled metal sheet roofing. It provides a continuous layer of insulation when installed over the primary roof framing members. Fix structural battens over and through the WarmRoof insulation into the structural rafters/trusses using longer fixings to suit.

KEY TECHNICAL SPECIFICATIONS
Refer to Masons PrimeTherm ERS PIR Insulation Board TDS for technical specifications including R-Values

MECHANICAL PROPERTIES & THERMAL PERFORMANCE – R-VALUES

Facing Type	0.022 W m-k thickness in mm	R Value after aging* (estimated)	Density kg/m³	Compressive strength KPA
All	50	2.03	40	158
All	80	3.24	40	158
All	100	4.05	40	158

* What is the Aged R Value? R Value is a measure of thermal resistance -R.

PIR board R values reduce slowly post production. Typical PIR board R value reduction is thiner boards up to >13-15%. Thicker boards circa >10% R values stabilise after approx. 2 years.

Building designers use aged R values for an accurate thermal modelling of the building performance.

KEY BENEFITS
PrimeTherm ERS WarmRoof when used in a Warm Roof design provides a continuous insulation barrier over roof framing members. It significantly increases the thermal performance of roofs by virtually eliminating the effects of thermal bridging, an issue that plagues traditional segmented roof/ceiling insulation. Foil faced or glass fibre ERS WarmRoof can also be installed between framing members to form a Hybrid roof.

PrimeTherm ERS WarmRoof is located under the roof underlay providing fully effective continuous insulation performance to the roof system without derating by the cavity. It provides a rigid thermal break and a continuous flat supporting surface for the metal or metal tiles roof battens. Refer to the drawings on **mpb.co.nz**

LIMITATIONS ON THE USE OF PIR ERS WARMROOF:
Masons recommend design, specification and installation by Licensed Building Practitioners with product and application experience. Successful installation requires project specific design. PrimeTherm ERS WarmRoof 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 WarmRoof contributes to satisfying building code requirements as part of a roofing system that is designed, installed and maintained in accordance with product literature and project specifications. It does not contribute to structural bracing.

DESIGN REQUIREMENTS SUPPORTING THE USE OF PRIMETHERM ERS WARMROOF

Specific design is required to effectively incorporate PrimeTherm ERS WarmRoof over roof framing (i.e. including battening and fascia detailing, internal ceiling heights and total roof thickness).

PrimeTherm ERS WarmRoof is an insulation product resistant only to compressive forces such as those resulting from wind pressures onto framing members. All structural fixings must be made through the structural battens and insulation and into structural framing members. Designers must take care to prevent the risk of condensation and accumulation of moisture in the roof structure.

Designers shall refer to the PrimeTherm ERS Technical Data Sheet (TDS) above to determine whether PrimeTherm ERS WarmRoof is suitable for any application.

INSTALLATION INSTRUCTIONS

PrimeTherm ERS WarmRoof sheets shall be applied to the framing and fixed sufficiently to resist wind loads prior to installation of structural roof battens. PrimeTherm ERS WarmRoof is not designed to contribute to the structural bracing of the structural roof. Roof battens shall be installed without delay. All fixings shall only be made into structural framing. Roof cladding to be fixed in accordance with cladding manufacturers' instructions.

INSULATION AND COMPLIANCE

PrimeTherm ERS WarmRoof is intended to be installed over timber roof framing by Liscenced Practitioner Builders 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.

HEALTH AND SAFETY

Identify all hazards that may cause injury prior to commencing installation. Including:

- Ensure all repair work is completed before starting installation.
- Disconnect electrical supply as appropriate, and ensure the work area has adequate lighting.
- All electrical cables should be treated as live. Do not damage cables or wires during installation.
- Look out for hazards including nails, splinters, pests, other trades sharing the same area.
- Wear appropriate PPE, e.g. gloves if using a knife and a mask if working in dusty environment.
- The foil facings are highly reflective, eye and skin protection should be worn when handling in bright sunny conditions.
- The foil facings can be slippery when wet, care should be taken when handling.
- Do not stand on the product unless it is dry and fully supported on a loadbearing surface.
- This product does not provide fall arrest protection and all working at height safety guidelines should be complied with at all times.
- For additional health and safety information please see NZS 4246:2016 Appendix B.

TOOLS AND ACCESSORY PRODUCTS

- Tape measure
- Knife or fine toothed saw
- Work platform
- Hammer / drill-driver
- Expanding polyurethane foam

HANDLING AND STORAGE

PrimeTherm ERS boards should be stored undercover, in a clean, dry area protected from damage. If the product becomes wet, simply allow the product to dry before installing. Wetting and drying will not affect product performance as it is a closed-cell water barrier that does not absorb moisture.

PRE-INSTALLATION CHECKS

- These installation instructions are to be read in conjunction with the information in the PrimeTherm ERS PIR Insulation Board – TDS, BPIR, MSDS, and drawings relevant to Warm Roof.
- Ensure the product and framing is dry.
- If installing between framing members, confirm the gaps are suitable for the width of the product.
- The maximum unsupported product span is 600mm for 50mm thickness' over 50mm thick. Insulation 50mm thick and under should be fully supported.
- If installing over framing members, ensure the framing spacings are provided to adequately support the product.
- Confirm the location of inbuilt appliances, vents and electrical installations. Maintain the required clearances between these items and the insulation.
- Where design documents require reflective air spaces for thermal performance, ensure these are maintained between the product and other building components.
- For additional information please see NZS 4246:2016 Section 3, 4 and 5.

Installation

SYSTEM OVERVIEW

A **warm roof** places continuous rigid PIR insulation **above** timber rafters or roof framing. This ensures the entire structure stays warm, pushing the dew point outside the structure, eliminating cold bridging through framing members.

Correct installation with no gaps is critical to ensure effective insulation performance. Product may be cut using a fine toothed saw, or by scoring-and-snapping with a sharp knife.

FLAT MEMBRANE WARM ROOF

Flat membrane roofs require specific design. Select the PIR board facings that best suit the final roof assembly. Detailing for vapour control in flat membrane warm roof is essential .

STEP 1: PREPARE THE ROOF STRUCTURE

- Ensure timber rafters/framing are:
  - Dry, clean, and level
  - Installed to design specification
  - Free from protruding nails or debris
- Check framing for squareness and fall (if required for drainage)

STEP 2: INSTALL RIGID SUBSTRATE

- Ensure a stable, continuous base for PIR insulation (solid sarking).
- Sark roof framing with Ply, OSB Board or Fibre cement sheets to suit framing spacing. Solid sarking should be sufficient for foot traffic or plant on finished roof assembly.
- Leave appropriate gaps between sheets for thermal movement and moisture drainage if specified.

STEP 3: INSTALL VAPOUR CONTROL LAYER (IF REQUIRED)

- In colder climate zones or high internal moisture environments, a **vapour control layer (VCL)** may be installed **under** the PIR (on top of the substrate).
- Ensure the VCL is sealed at joints and penetrations and is compatible with PIR.

STEP 4: INSTALL PIR INSULATION BOARDS

- Lay PIR boards **tight together** with staggered (brick bond) joints to reduce air leakage.
- Boards may be **temporarily tack-fixed** with adhesive dabs or staples (if approved), or laid loose prior to final fixing.
- Ensure all board joints are:
  - Taped with **Masons Aluminium Foil tape** according to PIR board facings selected.
  - Gapped and foamed where irregularities exist
- **Avoid gaps or voids** around penetrations or board edges.

STEP 5: INSTALL COVER BOARD OR BATTENS

- Place a **cover board** (e.g., fibre cement) over the PIR to:
  - Protect insulation
  - Provide a base for membrane or batten fixings
  - Comply with fire or load-bearing requirements (if applicable)
- Alternatively, **battens can be installed through PIR into rafters** to create a cavity for ventilation or roofing battens.

STEP 6: MECHANICALLY FIX THE SYSTEM

- Use **proprietary warm roof fixings:**
  - Long screws with insulation washers or screw-through fixings
  - Must penetrate timber framing to required embedment depth
  - Fix through the cover board and PIR into the rafters
  - Follow a **grid pattern** recommended by the roof designer
  - Ensure adequate pull-out resistance and spacing
- Avoid compressing PIR beyond tolerance

STEP 7: APPLY ROOFING UNDERLAY OR MEMBRANE

- Install membrane roofing system over cover board to manufacturers specifications.

STEP 8: FINAL CHECKS

- Ensure:
  - All PIR joints are sealed
  - No exposed PIR board edges
  - Drainage slope is maintained
  - Fixings are all secure and countersunk as required
- Conduct blower door test (optional) to check airtightness if part of the design intent

PITCHED METAL WARM ROOF

STEP 1: PREPARE ROOF STRUCTURE

- Check timber **trusses or rafters** are:
  - Plumb, level, dry, and free from protrusions.
  - Installed to design and/or structural engineering specifications.
- Confirm **roof pitch** and overhangs are built per design.

STEP 2: FIX RIGID DECKING OVER RAFTERS (IF REQUIRED)

- Fix a **continuous solid sarking/substrate layer** over rafters/trusses using nails or screws:
  - For PIR over 50mm thick continuous support isn't required for rafters spaced @ 600 crs. Alternatively, for PIR 50mm thick or less use ply, OSB board or Fibre cement board to suit the roof framing centers to provide a rigid decking over the rafters.
  - Acts as a base for PIR insulation and provides diaphragm strength.

Note: In some proprietary systems, PIR boards may go directly over rafters, but this typically requires dense insulation or structural PIR. Otherwise, use continuous support.

STEP 3: APPLY VAPOUR CONTROL LAYER (IF REQUIRED)

- In colder climates or in buildings with high internal humidity, apply a **VCL** over the solid sarking before PIR boards.
- **Seal all laps and penetrations** for airtightness and vapour resistance.
- If no rigid decking is used place PIR on top of rafters at max 600 crs use Masons Aluminium Tape to seal all joins on top of the foil faced board to form a VCL.

STEP 4: INSTALL PIR INSULATION BOARDS

- Lay boards starting at the **eaves**, perpendicular to the rafters.
- Boards must:
  - **Tightly butt** against each other.
  - Be **staggered in brick bond pattern** for rigidity and thermal continuity.
- Use **PU foam such as Soudal Gorilla Pro Click & Fix and/or Masons Aluminium tape** to seal all gaps and edges.

STEP 5:

- Temporary fixings may be used to hold the product in place prior to installation of the structural counter battens. Temporary fixings shall incorporate a 40mm min. diameter washer and be long enough to fix through the thickness of the product into the rafter/truss. Ensure washers do not crush the insulation.

STEP 6: INSTALL STRUCTURAL COUNTER BATTENS

- Install vertical counter battens. Fix these through PIR and into the rafters.
- Doing this:
  - Provides a structure for the purlins to fix into
  - Helps secure PIR in place
  - Minimises thermal bridging when spaced carefully
- Use **long structural screws or proprietary warm roof fixings:**
  - Space according to wind load, and the specific roof design and roofing type.

STEP 7: INSTALL ROOFING SYSTEM

- Fix roofing system in accordance with E2/AS1 and roofing manufacturers specifications.
- Install selected Masons ventilation battens over purlins and fix in accordance with installation instructions.
- Install selected Masons roofing underlay in accordance with installation instructions and E2/AS1.

ENVIRONMENTAL DATA

See Masons PrimeTherm ERS PIR Insulation Board Safety Data Sheet. Contain off-cuts in bags to ensure the product is not blown away or can enter waterways.

MAINTENANCE REQUIREMENTS

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

PRODUCT IDENTIFIER

All product labels say PrimeTherm ERS PIR Board, followed by the board size and facing (glass or foil faced or no facer).

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