

Installation Guide

Kooltherm® K12 Framing Board

Wall Insulation



Kooltherm®


Kingspan®

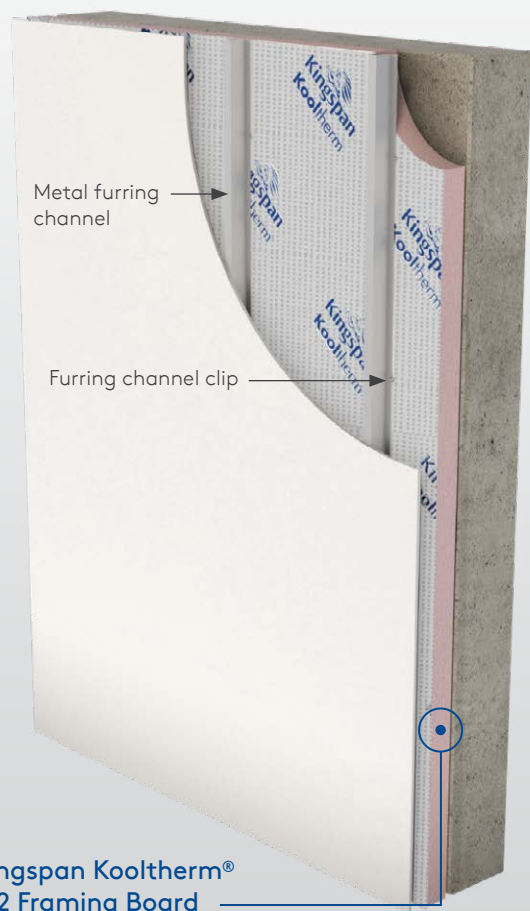
Kooltherm® K12 Framing Board

Product Description

Kooltherm®

Kooltherm K12 Framing Board is a fibre-free rigid thermoset phenolic insulation, faced on both sides with a low emissivity composite foil autohesively bonded to the insulation core during manufacture. This reflective low emissivity surface improves the thermal resistance of a cavity adjacent to the board.

Kooltherm K12 Framing Board is manufactured with a blowing agent that has zero Ozone Depletion Potential (ODP) and low Global Warming Potential (GWP).



Kingspan Kooltherm®
K12 Framing Board

Figure 1.
Concrete Wall Installation (Clip/Channel System)

- Rigid thermoset phenolic insulation
- Fibre-free, closed cell insulation core
- Can be used between wall framing or as continuous insulation
- Can eliminate thermal bridging
- Easy to handle and install
- Ideal for new build or refurbishment
- No CFC or HCFC used in manufacture
- NZBC and AS/NZS 4859.1:2018 compliant
- CodeMark-certified for NZBC compliance

CodeMark
CM20099

Fibre-free
Core

Kooltherm® K12 Framing Board Installation Instructions

When steel framing is used, Kingspan Kooltherm K12 Framing Board can be used external to the framing as it is difficult for it to be fitted into cold-formed steel framing.

Insulation External to the Steel or Timber Framing

Refer to figure 2

1. Ensure that wall stud spacings do not exceed 600 mm centres.
2. Fix Kooltherm® K12 Framing Board to the external surface of the frame structure ensuring vertical board joints coincide with a vertical stud. Use appropriate length fixings (for steel framing, this would be self-drilling) and insulation washers as temporary fixings prior to the secondary structural batten being fitted. Minimum 6 temporary fixings required per 1200mm x 2400mm board.
Note: Galvanic corrosion between the Kooltherm K12 foil face and the steel framing needs to be considered in geothermal and high moisture environments. Galvanic corrosion occurs when two incompatible metals are in contact, in the presence of moisture. This needs to be taken into account when designing the building, in particular the management of internal moisture. For best practice, a separation layer such as Thermakraft Watergate Plus synthetic wall underlay, is used in front of steel framing.
3. Ensure that the boards are lightly butted and continuity of insulation is maintained. For small gaps, fill with a non-solvent based expanding polyurethane foam and trim flat.
4. Fix the wall underlay, for example Thermakraft RAINARMOR Self Adhesive Wall Underlay, which does not require additional mechanical fixings or Thermakraft Watergate Plus using screws or clouts through the insulation to the stud.
5. Fix structural battens to the wall frame, through the insulation board, ensuring that the battens and fixings are coincident with the underlying studs, top and bottom plates. Fixings at maximum 300mm spacing, with minimum 25mm embedment to timber framing and three thread engagement into steel framing. Structural batten spacing should not be more than 600mm. Follow the cladding manufacturer's guidance for the structural batten. Testing has been conducted for light to medium weight cladding on timber framing, as outlined in NZS 3604:2011, using timber countersunk screws at maximum 300mm spacing with minimum 25mm thread embedment in timber framing.
6. Refer to the cladding manufacturer's guidance to fix the cladding onto the structural battens.

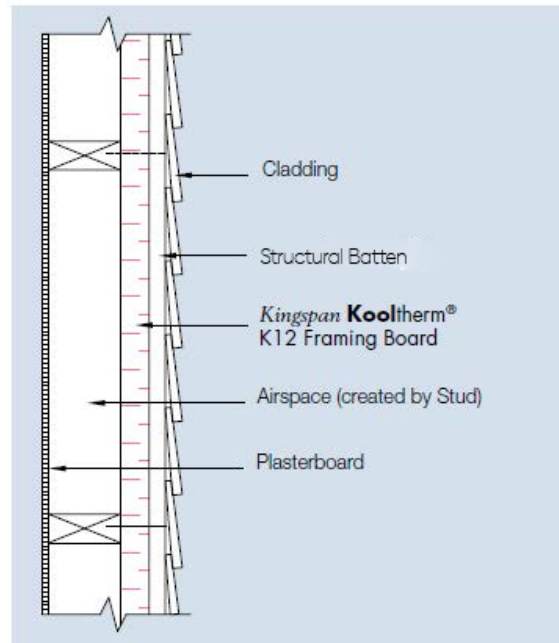


Figure 2. Timber framed wall with Kingspan Kooltherm® K12 Framing Board, counter battens and internal plasterboard lining

Kooltherm® K12 Framing Board Installation Instructions

Insulation External to Steel or Timber Framing – Brick Veneer Wall

Refer to figure 3

1. Ensure that wall stud spacings do not exceed 600 mm centres.
2. The sequence in which the wall tie is installed will depend on the type of tie selected and construction method. Use appropriate wall ties, suitable for the corrosion zone requirements and tested to AS/NZS 2699.1:2000.
 - Wall ties that have already been secured to the frame before the installation of Kooltherm K12 will need to pierce the Kooltherm K12. Cut a hole in the insulation to ensure the wall tie reaches the external face of the Kooltherm K12. Interference fit of the wall tie is recommended to ensure the hole is as small as possible, otherwise a non-solvent based expanding foam may be used to fill any gaps.
 - Wall ties that are to be installed after the installation of Kooltherm K12 need to be fitted with minimal disruption to the continuous insulation layer. Any holes required should be as small as possible, while allowing installation of the wall tie. A non-solvent based expanding foam may be used to fill any gaps.
3. Fix Kingspan Kooltherm® K12 Framing Board to the external surface of the frame structure ensuring vertical board joints coincide with a vertical stud. Use 11 fixings and appropriate insulation washers per board, see figure 4. This is to ensure no bowing of the board. Ensure that fixings are coincident with the underlying studs, top and bottom wall plates. Minimum embedment of 25mm for timber framing. Minimum 3 full screw threads engagement for steel framing.
4. Ensure that the boards are lightly butted and continuity of insulation is maintained. For small gaps, fill with a non-solvent based expanding polyurethane foam and trim flat.
5. Fix the wall underlay, for example Thermakraft RAINARMOR Self Adhesive Wall Underlay, which does not require additional mechanical fixings, or Thermakraft Watergate Plus using screws or clouts through the insulation. Make necessary penetrations on the wall underlay to accommodate the wall ties. Tape around the brick tie, covering the pierced/ cut area with Thermakraft Premium Joining Tape or Thermaflash. Ensure no tape is embedded in the mortar, only the wall tie should be embedded in the mortar.
6. Construct the outer leaf of masonry in the conventional manner, using appropriate wall ties to hold the two wall leaves together.

Note: Always use the appropriate fixings and wall ties as specified. Refer to the wall cladding manufacturer's fixing details and instructions.

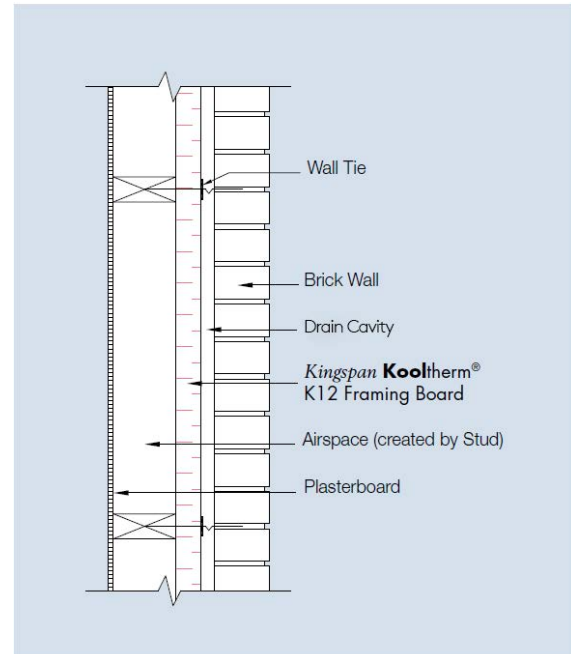


Figure 3. Brick veneer wall with Kingspan Kooltherm® K12 Framing Board.

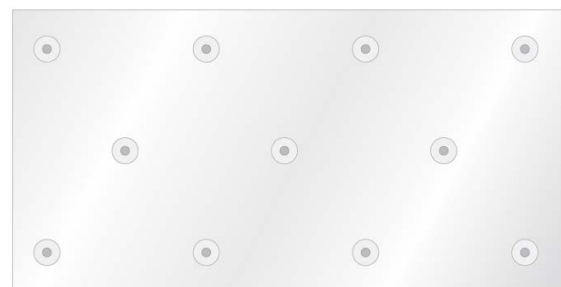


Figure 4. Fastener pattern - 11 fasteners per boards for boards 2400mm x 1200mm (3.81 fixings / m²).

Taping

When a Thermakraft Wall Underlay has been used, taping of board joints is not required. It is recommended that exposed board edges should be protected by taping, provided that the underlay overlaps the tape.

Any small holes or damage to the board should be taped with Kingspan AIR-CELL Insulation Tape, Thermakraft Premium Joining Tape or Thermaflash.

Kooltherm® K12 Framing Board Installation Instructions

Insulation to Concrete Wall (Clip/Channel System)

See Figure 1.

1. Install chosen furring channel clips at required spacing for plasterboard lining.
2. Fit Kooltherm K12 over furring channel clips by pushing over the clips to abut the wall, and so that the wings of the clips penetrate the board. Care should be taken to avoid the foil facing of the Kooltherm K12 separating from the insulation core by neatly trimming the foil face at the point where the furring channel clip penetrates the insulation. See Figure 5.
3. Butt join boards of Kooltherm K12 to provide a continuous insulation layer.
4. Install furring channels by clipping into channel clips. Furring channels should be tight against the face of the Kooltherm K12. Where furring channels are not tight to the insulation contact Kingspan Insulation Technical Service for further advice.
5. Install plasterboard lining.

Taping

It is considered best practice to tape joins of Kooltherm K12 boards in the system with Kingspan AIR-CELL Insulation Tape, Thermakraft Premium Joining Tape or Thermaflash.

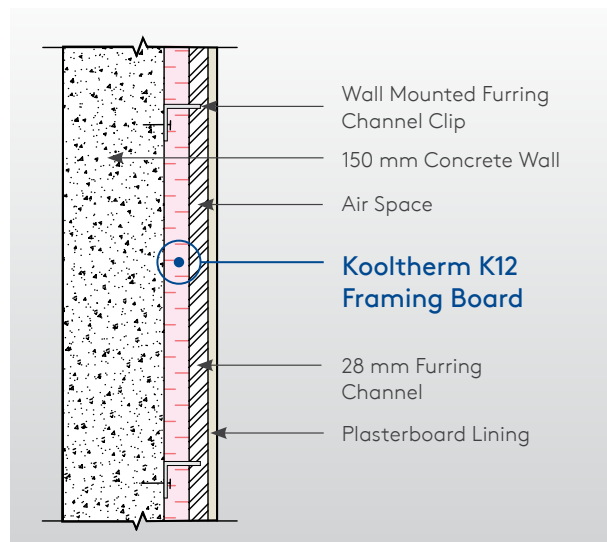


Figure 5. Side elevation of Kooltherm K12 Framing Board clip-and-channel system

Insulation between Timber Wall Studs



Figure 6. Kooltherm K12 Framing Board fitted between timber wall studs.

1. If insulation boards are to be fitted so that they are flush with the inside surface of the timber studs, nail treated battens to the side of the studs, to provide a 'stop' to prevent the insulation boards from moving within the stud cavity.
2. This 'stop' should be positioned to allow the insulation boards to finish flush with the inside surface of the studs.
3. Insulation boards may be temporarily held to the 'stop' battens with large headed clout nails.
4. The boards will be further restrained by the plasterboard/insulated plasterboard lining, fixed to the inside face of the studs.
5. To avoid air leakage, any penetrations through the insulation (electrical sockets, plumbing and wiring etc) should be sealed with flexible sealant or equivalent, or a combination of flexible polyurethane foam and flexible sealant or equivalent.
6. Any remaining gaps between boards/sheets of insulation should be filled with flexible sealant or equivalent, or a combination of flexible polyurethane foam and flexible sealant or equivalent. Do not leave gaps or voids between the insulation boards, which would negatively impact the thermal efficiency of the system.
7. If the insulation boards are to be fitted so that they are flush with the outside surface of the timber studs, tight up against pre-installed rigid sheathing or rigid air barrier, insulation boards must be cut and fitted in the spaces between the studs.
8. Once the boards are fitted in place, nail treated battens to the side of the studs, to provide a 'stop' to prevent the insulation boards from moving within the stud cavity.

Kooltherm® K12 Framing Board Installation Instructions

9. In all cases, measure the distance between studs before cutting Kooltherm K12 to size, as spacings can vary.
10. Cutting should be carried out either by using a fine toothed saw, or by scoring with a sharp knife, snapping the board over a straight edge and then cutting the facing on the other side. Ensure accurate trimming to achieve close-butting joints and continuity of insulation.
11. Ensure there is a tight fit between the boards and the adjoining studs and other timbers, and fill all gaps with expanding polyurethane foam.

General

Services

Where electrical and plumbing services are not surface mounted or chased into the structure, carefully recess the back of the insulation to accommodate the services.

To ensure an appropriate rate of heat dissipation from cables, the current-carrying capacity of any electrical services partially surrounded by thermal insulation should be determined in accordance with AS/NZS 3008.1:2017 series.

Ensure excess insulation is not removed to minimise thermal weaknesses.

Occupational Health & Safety

Kingspan Insulation products are chemically inert and safe to use. A Product Safety Information Sheet is available from Kingspan Insulation NZ Ltd.

Please note that the reflective surfaces on this product are designed to enhance their thermal performance. As such, they will reflect light as well as heat, including ultraviolet light. Therefore, if these boards are being installed during bright or sunny weather, it is advisable to wear UV protective sunglasses or goggles and if the skin is exposed for a significant period of time, to protect bare skin with a UV block sun cream.

Foil facings are conductive to electricity – avoid contact with un-insulated electrical cables and fittings. Installation must be in accordance with AS 3999:2015 Bulk Thermal Insulation Installation and AS/NZS 3000:2018 Electrical Installations (Wiring Rules).

Handling and Storage

Storage

The polythene packaging of Kingspan Kooltherm should not be considered adequate for long term outdoor protection. Ideally, boards should be stored inside a building. If, however, outside storage cannot be avoided, then the boards should be stacked clear of the ground and covered with a polythene sheet or weatherproof tarpaulin. Boards that have been allowed to get wet should not be used.

Kooltherm K12 Framing Board should be protected from getting wet during periods of inclement weather prior to the application of the weatherproof render.

Resistance to Solvents

The insulation core is resistant to short-term contact with petrol and with most dilute acids, alkalis and mineral oils. However, it is recommended that any spills be cleaned off fully before the boards are installed. Ensure that safe methods of cleaning are used, as recommended by suppliers of the spilt liquid. The insulation core is not resistant to some solvent-based adhesive systems, particularly those containing methyl ethyl ketone. Adhesives containing such solvents should not be used in association with this product. Damaged boards or boards that have been in contact with harsh solvents or acids should not be used.



Product Warranty

Standard Kingspan Insulation Warranty applies. Refer to Kingspan Insulation Warranty statement for further details. This is available online at kingspaninsulation.co.nz; or call us on 0800 806 595; or email info@kingspaninsulation.co.nz

Kingspan Insulation NZ Limited (NZBN 9429045930393), reserves the right to amend product specifications without prior notice. The information contained in Kingspan's literature is given in good faith and based on good building practice but are not an exhaustive statement of all relevant information and are subject to any conditions contained in the Warranty. Recommendations for use should be verified as to the suitability and compliance with actual requirements, specifications and any applicable laws and regulations. All product dimensions and performance claims are subject to any variation caused by normal manufacturing process and tolerances.

Furthermore, as the successful performance of the relevant system depends on numerous factors outside the control of Kingspan (for example quality of workmanship and design), Kingspan shall not be liable for the recommendations in that literature and the performance of the Product. For other applications or conditions of use, Kingspan Insulation offers a Technical Advisory Service, the advice of which should be sought for uses of Kingspan Insulation products that are not specifically described herein. Please check that your copy of the literature is current by contacting us or visiting www.kingspaninsulation.co.nz E&OE

