Insulation

AUSTECH building products

Koolthern® Residential

Installation Guide

Fibre-free Core

Kingspan®

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Introduction

Insulation plays a significant part in the overall thermal comfort of a home. With residential buildings producing the highest carbon footprint in the built environment, proper insulation helps reduce energy bills and provide better and healthier living conditions for home occupants.

Insulation assists in the prevention of heat movement through all elements of your building envelope. Using a continuous layer of insulation will help manage the effects of thermal bridging, such as heat loss and heat gain.

While insulation might not be the first thing that comes to mind when thinking about a comfortable building, it might arguably be the most important. Kingspan Kooltherm® products help correctly insulate your building envelope and limit reliance on active heat and cooling.

Who is Kingspan?

Kingspan Insulation is a market leading manufacturer of innovative ultra-thin flexible insulation products and high performance rigid insulation products for building fabric and building services applications. Kingspan Insulation is committed to providing the world market with high quality, innovative products supported by technical expertise and customer service which is unsurpassed in the industry.

Kingspan Insulation has a vast product range including premium performance rigid Kooltherm® insulation; high performance rigid Therma™ insulation and flexible fibre-free reflective insulation AIR-CELL®.

AUSTRALIAN MADE

Fibre-free Core

What is Phenolic Insulation & Why Use It?

Rigid Phenolic Board

Phenolic insulation is rigid insulation with a closed-cell structure. It is made by mixing phenolic resin with a catalyst and a blowing agent. This mix is then added directly to the bottom layer of the facing and due to a chemical reaction between the ingredients in the mix, it expands to meet the top layer of the facing. The chemical reaction releases heat and causes a network of bubbles to appear as the blowing agent is vaporised in the material, which locks in the gas and contributes to the thermal performance of the finished product. Once the boards are formed, they are cured and dried in an oven. After they are taken out of the oven, the boards are cut to size and packaged up.

Phenolic insulation is the most thermally efficient insulation commonly used. Thermal conductivity of phenolic insulation is much lower than other insulation materials such as EPS, XPS, PIR or mineral fibre products. That is why phenolic insulation can help you achieve a required thermal performance in a much thinner profile than other insulation materials.

Furthermore, phenolic insulation can be used in a variety of roof, wall and floor applications, which makes it a great solution for a range of constructions.

Kingspan Kooltherm® K17 Insulated Plasterboard

Kingspan Kooltherm® K17 Insulated Plasterboard is a premium performance, lower lambda insulation, with a fibre–free rigid thermoset phenolic core. It has a 10 mm plasterboard bonded to its front surface and a tissue based facing on its reverse surface. Kingspan Kooltherm® K17 Insulated Plasterboard offers the benefit of insulation, vapour control and dry–lining finish – **a three solutions in one system.**

It is suitable for mechanically fixed or adhesive bonded dry–lining.

This document will equip you with the skills and understanding needed to correctly install the product.

Pre-Installation Considerations

Storage

Kingspan Kooltherm® K17 Insulated Plasterboard should be protected from rain, snow and prolonged exposure to sunlight.

The polythene packaging of Kingspan Insulation products, which is recyclable, should not be considered as adequate for outdoor protection.

Ideally, boards should be stored securely inside a building in temperature controlled conditions.

If inside storage is unavailable, the boards should be stacked flat on a level base, clear of the ground, and completely protected from inclement weather by use of an opaque polythene sheet or weatherproof tarpaulin.

Bonding compounds should be stacked on pallets, above ground, clear of surface water and splash back, with overall rain and snow protection.

The integrity of packaging of all materials and ancillary components should be maintained at all times and all materials should be stored in a logical order as good site practice.

The insulation component of Kingspan Kooltherm® K17 Insulated Plasterboard is chemically inert and safe to use. A Product Safety Data Sheet for Kingspan Kooltherm® K17 Insulated Plasterboard is available from the Kingspan Insulation website.

Handling

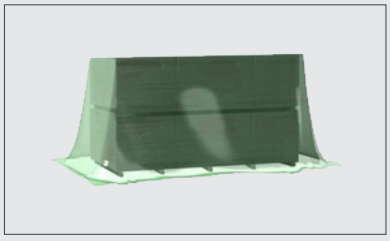
Kingspan Kooltherm® K17 Insulated Plasterboard is delivered shrink–wrapped in polythene on pallets and edge protected all the way around.

The manufacturing code is printed onto each pack label with the product description, characteristics & manufacturer's name.

Insulated dry–lining, like other plasterboard, can be difficult to grip and unwieldy, especially in restricted spaces such as stairwells. For ease of use, the boards can be handled in the following ways:

- a small crane or hoist to lift the boards into the building;
- a panel trolley to transport the boards to the point of use; and
- a simple foot–operated 'board lifter' to raise the boards ready for fixing.

Essential Note



Handling

- Boards that have been allowed to get wet should not be used.
- The installer should provide its own risk assessment for the handling, distribution and disposal of the products and resultant packaging.
- The boards must not be exposed to a naked flame or other ignition sources.

Lifting

- A full risk assessment and method statement must be carried prior to any mechanical lifting of materials.

Pre-Installation Considerations

Building and Application Assessment

A detailed assessment of the property internally and externally must be carried out before design, preparation and installation can take place.

The installation guidance and considerations included in this document can be used to assist in determining the suitability of a particular approach for a particular project, but does not itself constitute a design.

Ensuring a building is surveyed and assessed properly from the outset can lead to a successful specification and ultimately a successful outcome.

Insufficient protection against weather:
Do not start installation until the building is protected from adverse weather

Damaged/wet Insulated Plasterboard:
Do not use wet Insulated Plasterboard

Wet area/tiled surfaces (e.g. bathroom):
Do not apply an Insulated Plasterboard in areas requiring a tiled surface or waterproofing. Utilise the Kingspan Kooltherm® K12 Framing Board with a separate batten cavity and a direct fix plasterboard lining as noted on this page.

Existing wall condition:
On a masonry wall, identify any cracked/damaged external render and repair, ensuring the wall is weather and in sound condition.

Dampness/mould growth:
Identifying any signs of damp or mould growth to walls, ceilings, junctions or interfaces. If any are identified, the cause(s) should be investigated in order to determine appropriate remedial measures.

Management of moisture:
Consideration should be given that moisture will not become trapped within any construction leading to risk of interstitial condensation and consequent damp and deterioration.

Ventilation:
Ensure there is an adequate ventilation provision for the wet rooms, kitchens and utility rooms; some heating systems require permanently open air vents.

Applying as ceiling finish:
Only utilise a mechanical fixing method when applying the Kooltherm K17. Do not rely on an adhesive method in an overhead application.

Framed structure condition:
A detailed inspection of existing timbers, i.e. the timber floor joists, for dry or wet rot and insect attack. Existing metal studs or joists should be inspected for corrosion; decayed timbers or corroded metal should be replaced.

High impact resistance:
Where high impact resistance is desired, consider using the Kooltherm K17 Plus, which consists of a robust cement based lining board in place of the plasterboard.

Construction details:
All corners, junctions, and edges of installed boards should be considered, and how these may interact with existing surfaces or elements.

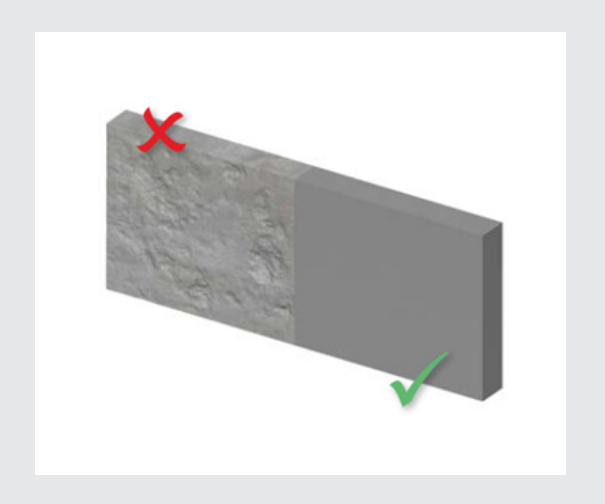
Stoves/fireplace:
Do not use the Kooltherm® K17 Insulated Plasterboard directly next to a combustion source without fire-safe measures being taken.

Contact the Technical Service Department for more information.

Pre-Installation Considerations

Preparation of the Substrate

All insulated dry–lining / internal wall insulation systems require careful planning, selection and setting out before installation can commence.



- Clean (dust-free when adhered)
- Dry (e.g. rising moisture)
- Flat, maximum uneven tolerance of 20 mm (when adhered)
- No brittle surface
- No mould growth
- No loose wall paper/paint

As a minimum, particular attention should be given to the following:

- new windows and doors (if required), ensuring joinery and position for all services are precisely determined before the chosen wall lining solution is to commence, ascertain any necessary action to be taken prior to fitting the insulated dry lining system, including window and door reveals;
- some post installation works e.g. secondary fix, may be necessary after completing the new wall lining in order to reinstate services, fixtures and fittings. Provisions should be made for their installation after the new wall lining has been installed;
- ensure services (gas, water, electric, telephone and broadband) are checked, removed, extended, replaced or relocated by suitably qualified people;
- the existing structure should be surveyed to ensure the construction is capable of supporting the weight of the internal wall system, ancillary items and any post–installation fittings;
- existing wallpaper, skirting, picture rails, gloss paint and projecting window boards may need to be removed (solution dependant). The amount of preparation and removal required will be dependent on the chosen internal wall system. Some internal finishes such as vinyl, wallpaper or gloss paint, can be scored or sanded as an alternative method to complete removal;
- best practice is to always remove wallpaper, gloss paints, skirtings, etc., regardless of the solution, in order to remove the food source for mould and to remove unforeseen obstacles when it comes to installation;
- in all instances, it is recommended that mould / fungal growth should be removed and the wall treated with a fungal wash prior to installation;
- ceiling linings and floors should be in position before the wall lining starts. Gaps at the perimeter (such as floors and ceilings) or junctions (such as internal corners), or around openings or service penetrations should be prevented;
- if identified, existing gaps should be sealed before the wall lining commences, using a flexible sealant or drywall adhesive;
- services which will inevitably penetrate the insulated dry lining are to be kept to a minimum to limit damage to the insulation layer and vapour control. As best practice, ensure all services that penetrate the wall are adequately sealed;
- before fixing the system, sufficient time must be allowed for damp–proofing treatments to dry out (if applied).

Essential Note

Before you start:

New internal wall insulation linings must be designed to accommodate the thickness of the dry-lining, particularly at reveals, heads, sills or internal walls, and in relation to ceiling height.

When the dimensions of fixtures are critical e.g. bathrooms and kitchens, these should be double checked before installation of the system.

Pre-Installation Considerations

Identifying the Appropriate Installation Method

Choosing which Kingspan Kooltherm® K17 Insulated Plasterboard Solution to Adopt

The below sets out Kingspan Insulation's general recommendations on which method of attachment to use.

All walls and finishes should be dry, stable and capable of taking the weight of the new wall lining solution.

✔ Recommended Solution

✔ To be used in addition to 6 mechanical fixings

✔ Achievable with onsite adjustment

✘ Non-recommended Solution

	Kooltherm® K17 Insulated Plasterboard Mechanically Fixed	Kooltherm® K17 Insulated Plasterboard Adhered	Kooltherm® K17 Plus Fibre Cement Adhered
Lightweight Lining Framed Wall	✔	✔	✔
Fair-faced Solid Masonry Wall	✔	✔	✔
Lined Brick Veneer Wall	✔	✔	✔
Uneven Substrate with a Flatness ≤ 20mm Tolerance	✔	✔	✔
Newly to be Applied Tile Finish	✘	✘	✘

For all other constructions, or if you are uncertain as to the solution you should adopt, **please contact the Kingspan Technical Department** (see rear cover for contact details).

Kingspan Kooltherm Board Weights

Kooltherm® K12 Board			
Kingspan Kooltherm K12 Thickness	kg / m²	kg / Board	Kooltherm Density (m³)
25 mm	0.88	2.52	35kg/m3
30mm	1.05	3.02	
40 mm	1.40	4.03	
50 mm	1.75	5.04	

Kooltherm® K17 Insulated Plasterboard				
Kingspan Kooltherm K17 Thickness (inc Plasterboard)	kg / m²	kg / Board	Plaster-board Weight (m²)	Kooltherm Density (m³)
35mm	7.88	22.70	7kg/m²	35kg/m³
40 mm	8.05	23.20		
50 mm	8.40	24.20		
60 mm	8.75	25.20		
70 mm	9.10	26.20		
80 mm	9.45	27.20		
90 mm	9.80	28.20		

Pre-Installation Considerations

Measuring & Cutting

Figure 1

The Kingspan Kooltherm® K17 Insulated Plasterboard can be laid in a horizontal or vertical orientation to best suit the room configuration.

Accurately determine the position of the insulation boards, especially around doors and frames (**Figure 1**). It is important that the insulation boards are accurately applied, so that they can form a suitable surface for finishing.

When cutting the Kooltherm® K17 Insulated Plasterboard for window and door frames, for best result, ensure that the plasterboard does not directly join at the edge of the window or door frame.

When joins connect directly to window or door frames, cracks are more likely to occur due to the movement of the different materials and the forces exerted when opening and closing windows and doors (**Figure 2**).

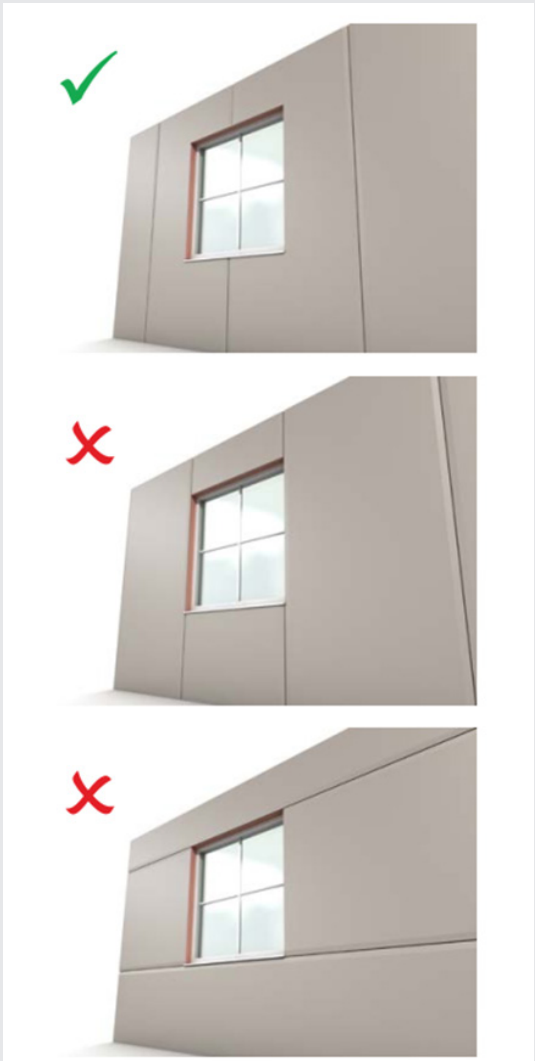


Figure 2

Essential Note

Cutting Insulated Plasterboard

The board layout should be planned to minimise cutting. Where cutting is necessary, Kingspan Kooltherm® K17 Insulated Plasterboard should be cut using a fine toothed saw from the plasterboard face, or by cutting through the insulation and paper backing of the plasterboard with a sharp knife, then snapping the system face down over a straight edge and cutting the paper facing of the plasterboard on the other side. When multiple cuts on a board are required, such as around windows, consider segmenting the board into smaller sections to prevent excessive movement of the board.

Pre-Installation Considerations

Alignment & Setting Out

Fair faced masonry wall

The guidance below should be followed when installing Kingspan Kooltherm® K17 Insulated Plasterboard with construction adhesives.

Figure 3

- Check the flatness of the surface;
- Hold a long straight edge vertically against the surface (**Figure 3)** in various places and determine the spot that protrudes most within the entire wall;
- When setting out, use a 2-3 mm thick packer or shim and a small offcut of Kingspan Kooltherm® K17 Insulated Plasterboard, place both onto the highest point of the wall, then use a straight edge and spirit level. Once plumb, draw a short line (**Figure 4)** across the floor and ceiling;
- Extend the lines on the floor and ceiling to the corners of the room by either, snapping a chalk line from one end of the wall to the other or alternatively using a laser level;
- The chalk line or laser line will indicate where the front edge of the board will follow;
- These lines are used as a guide when pressing Kingspan Kooltherm® K17 Insulated Plasterboard into place;

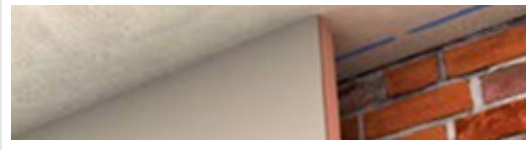


Figure 4

- Set out vertical lines at 1200 mm centres onto the wall (**Figure 5)** to indicate board positioning, marking out any doorway or window openings;

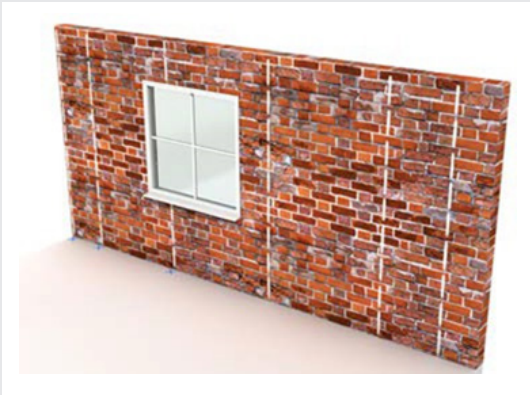


Figure 5

- Kingspan Kooltherm® K17 Insulated Plasterboard should be cut approximately 15 mm short of the floor to ceiling height when adhering the board into position;

Installation Methods

Construction Adhesive Bonding to Masonry

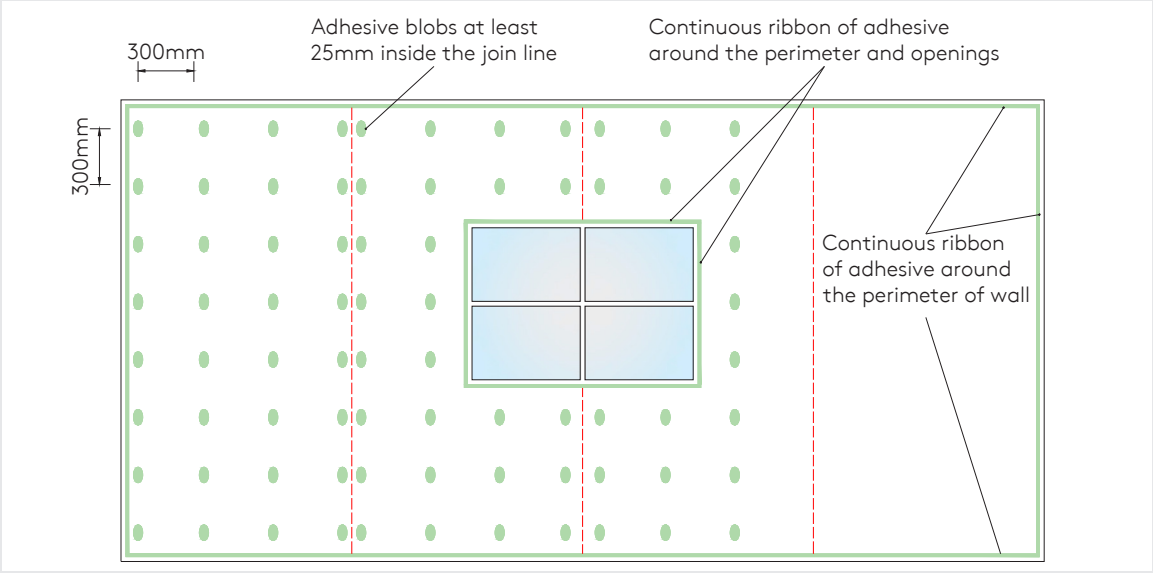


Figure 6 – Adhesive Blobs & Chalk Line Pattern

- When ready, apply a continuous band of drywall adhesive around the perimeter of the wall, around openings and around all services. This is to provide support for the board edges;
- Gun apply blobs of construction adhesive to the wall or the back of the board (**Figure 6)** approximately 25 mm in diameter(single squeeze), at 300 mm centres in both directions or to specific adhesive manufacturer's instructions.
- Ensure that the blobs adjacent to a board joint are approximately 25 mm in from the edge to avoid bridging the joint;

Figure 8

Figure 7

- Working from the bottom up, the boards should be positioned on plasterboard packing strips or shims, and gently lifted using a foot lifter until the board is tight against the ceiling. Additional packing strips may be inserted at the base to wedge the board in place;
- Tap the board back firmly (**Figure 7)** using a straightedge, ensuring that the vertical edge is plumb;
- Appropriate mechanical fixings are recommended to complement the adhesive bond. Apply 2 per board (6 fixings for FC lined Kooltherm K17Plus) after the adhesive has set, positioned 15 mm in from the board edge and at mid height (**Figure 8)** with a nominal 25 mm embedment into the wall. (Refer to fixing manufacturer instructions for more information);
- It is recommended that mechanical fixings are positioned in the tapered edge of the boards so that they are covered when the board is finished, (e.g. joints taped and skim coating) at mid height;
- If the unevenness exceeds the limits of adhesive, a framing system solution should be used instead i.e. metal furring or timber battens, using the Kingspan Kooltherm® K12 **(refer to Figure 16);**

Installation Methods

Existing Framed Walls with Linings

Installing the Kingspan Kooltherm® K17 Insulated Plasterboard using the construction adhesive method, should only be used on pre-plastered, pre-lined (plasterboard on framing or lath and plaster on framing) substrates, which are in sound condition, free from moisture and secure to the existing substrate.

The same setting out guidelines shown in the masonry adhesive section may be followed for this application; however, the following guidelines should also be adopted:

- Construction adhesives can compress down causing the board to sit flush with the existing wall **(Figure 10)**. It is important to note that the new wall lining will follow the contour of the existing wall, therefore ensure the deviation (existing wall alignment tolerance) from the highest point to the lowest point does not exceed a 5 mm gap in any direction (vertical or horizontal) when measured with a 2 m straight edge. This attachment method must only be used where the background alignment is satisfactory.

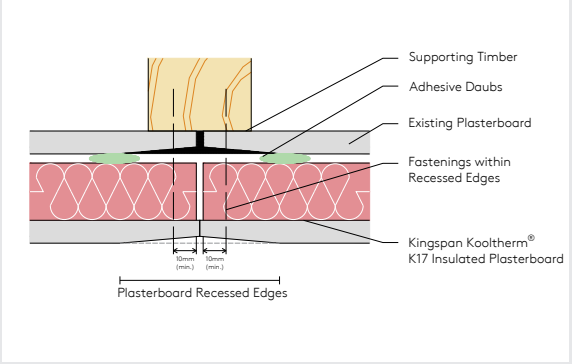


Figure 10

Installation Methods

Existing Framed Walls with Linings

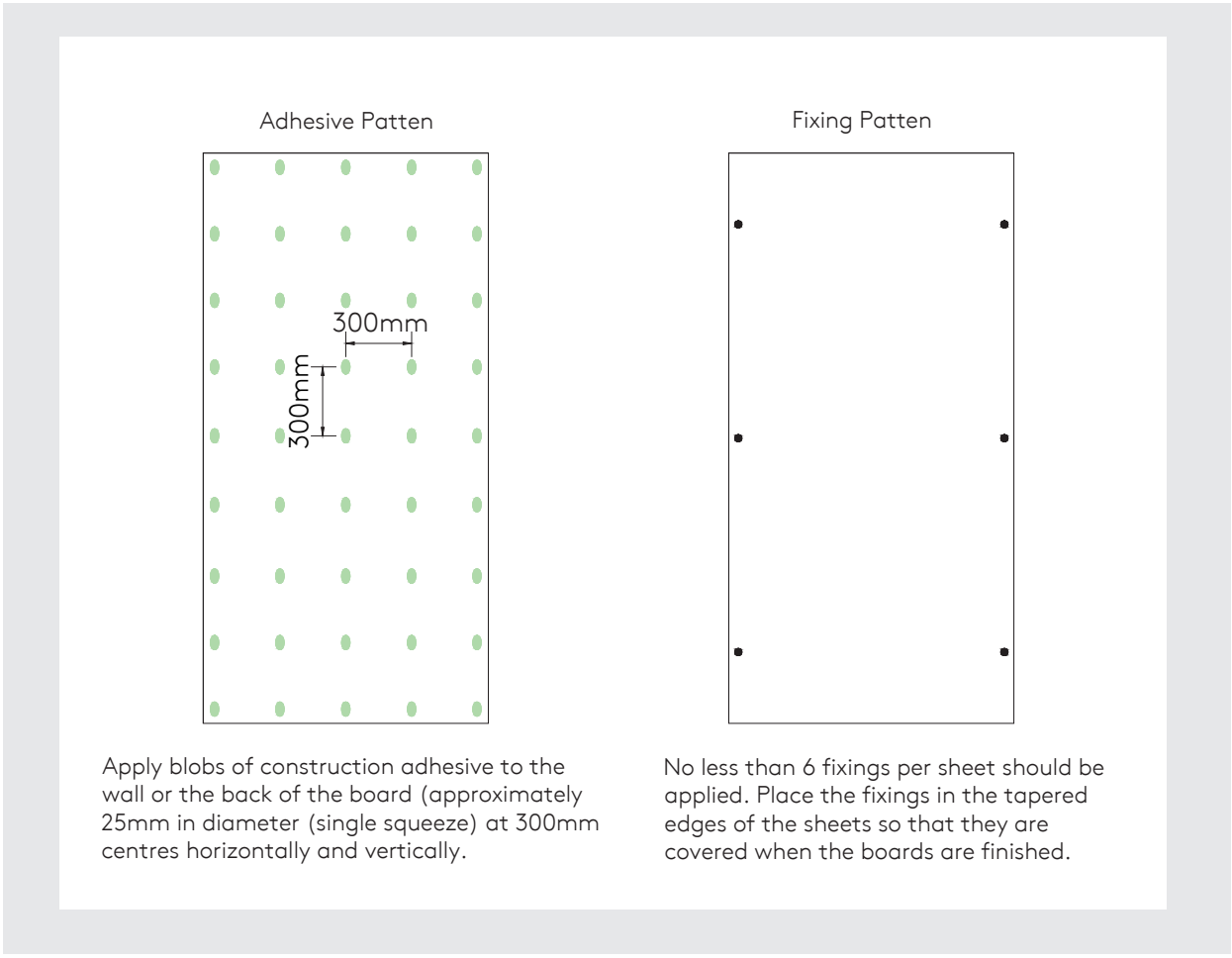


Figure 11 – Construction Adhesive Pattern

(continued)

- Once the adhesive has set (construction adhesive will grab instantly, and can set within the hour. Always consult manufacturers guidelines), apply a minimum of 6 appropriate fixings per board as shown in (**Figures 11 & 12**).
- For an existing lining, select appropriate fixings of sufficient length to give a 25 mm penetration into timber, or 10 mm penetration into metal framework supported linings (excluding the plasterboard or lath and plaster).
- Drive each fixing in until the head is slightly below the plasterboard without fracturing it.
- Further boards should be installed and lightly butted together in order to complete the lining.
- Upon completion of the Kingspan Kooltherm® K17 Insulated Plasterboard installation, seal the perimeter of the board and fill the 15 mm clearance gap at the bottom of the wall to provide an airtight seal

Figure 12

Installation Methods

Mechanical Fixing to Metal or Timber Frames/Metal Stud and Battens

Kingspan Kooltherm® K17 Insulated Plasterboard may be used on frame constructions or on any dry, stable masonry construction capable of taking the fixings for the battens/ furrings.

The guidance below should be followed when installing Kingspan Kooltherm® K17 Insulated Plasterboard with pre–treated timber battens or metal/timber framing:

- Battens/Furrings can be packed out using proprietary shims in order to correct alignment and provide space to accommodate services, as required.
- Ensure the correct batten depth is used if services are designed to go behind the insulated plasterboard.
- Walls are to be marked at 600 mm centres (max.) to indicate vertical batten and board positioning.
- Battens/Furrings should be fixed vertically at 600 mm centres (max.) to support the boards around the perimeter of the wall, windows and doors and any services which penetrate the system **(as shown in Figure 14)**.
- Give close consideration at this stage for any additional mounting points required for internal fittings.
- Kingspan Kooltherm® K17 Insulated Plasterboard should be located centrally over the framing (**Figure 13**). Kingspan Kooltherm® K17 Insulated Plasterboard should be firmly held against the framing after being cut to allow for a 5-10 mm height clearance.
- Kingspan Kooltherm® K17 Insulated Plasterboard should be fixed to all the framing members using drywall screws at 300 mm centres, (reduced to 200 mm centres at external corners for metal and timber framework solutions) (**Figure 15**).
- Boards should be lightly butted, with screws no closer than 10 mm from bound edges

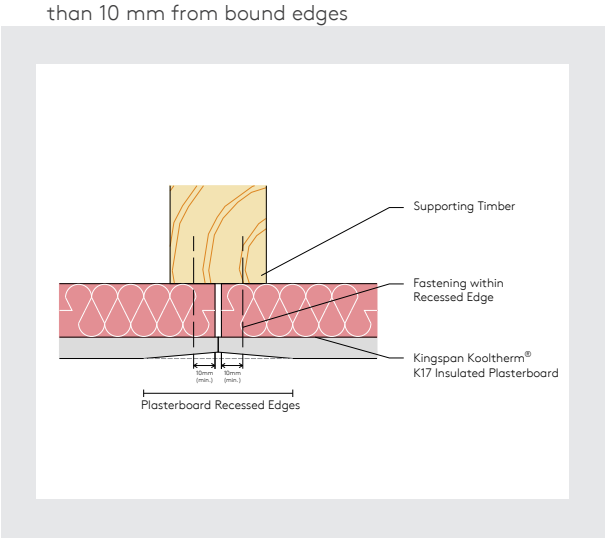


Figure 13

- Appropriate length screws should be selected to provide a nominal 10 mm penetration into metal, or 25 mm for timber studs.
- For timber battens, the fixings should be long enough to allow a 20mm penetration.
- Fixings should be selected to avoid contact with the masonry background.
- Fixings should be driven straight, with the heads embedded just below the surface of the plasterboard without fracturing it.
- Further boards should be installed and lightly butted together to complete the lining.
- On completion of Kingspan Kooltherm® K17 Insulated Plasterboard, seal the perimeter and fill the 5 mm clearance gap at the bottom of the wall to provide a better airtight seal.

Installation Methods

Mechanical Fixing to Metal or Timber Frames/Metal Stud and Battens

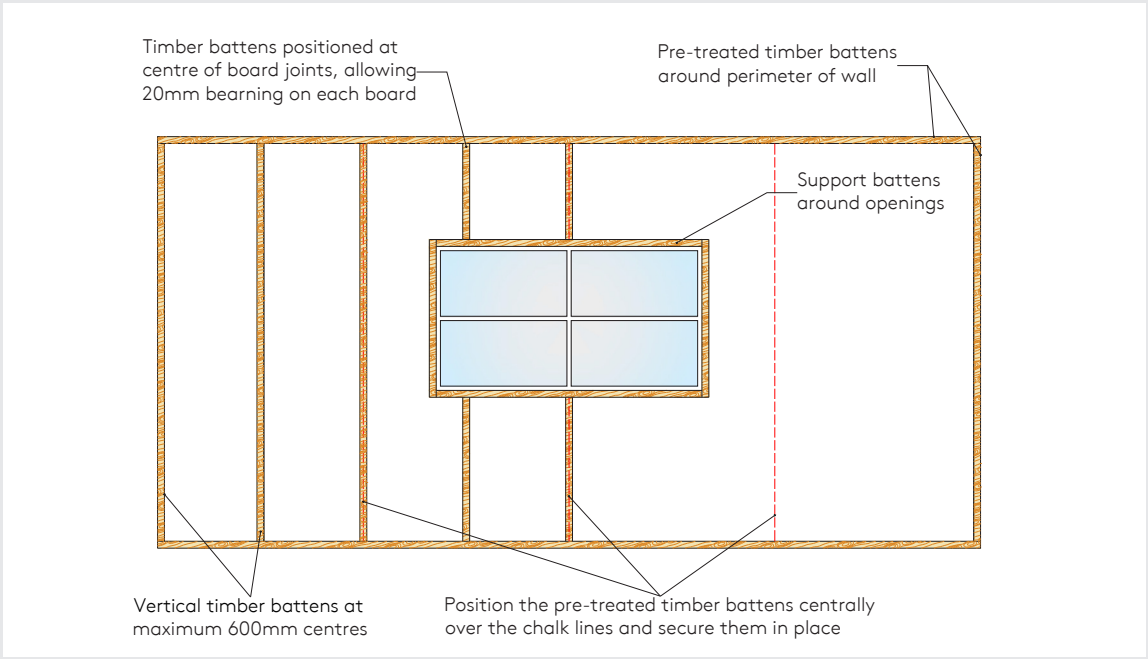


Figure 14

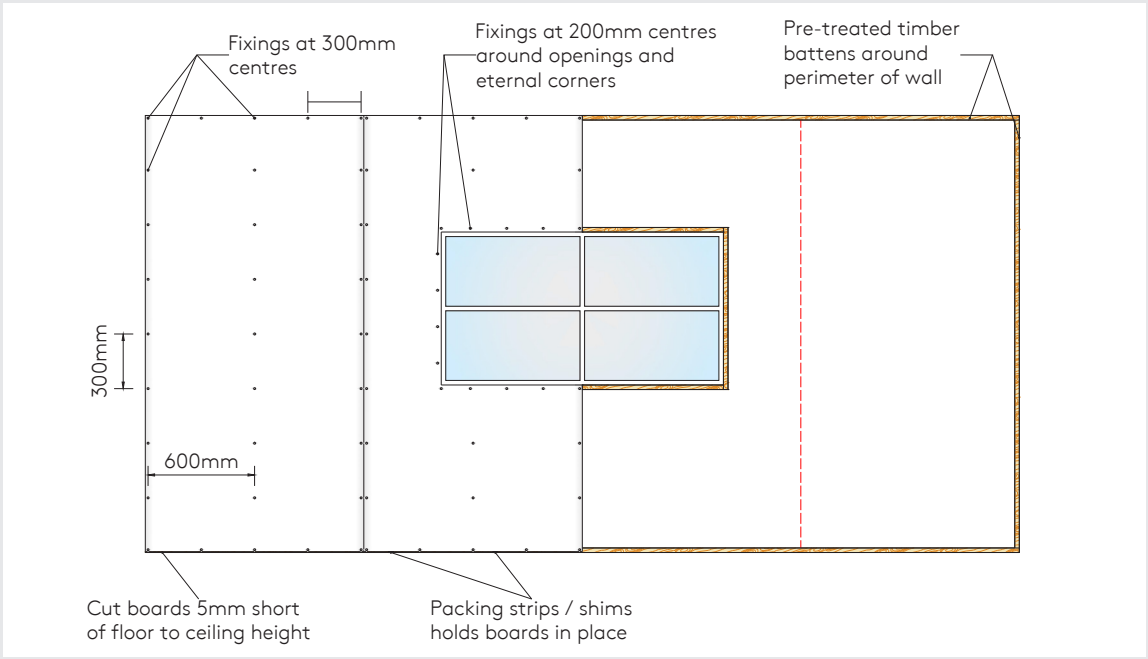


Figure 15 – Drywall Screw Fixing Pattern

Post-Installation Guidance

Reducing Air Leakage

The guidance below should be followed when minimising thermal bridging, surface condensation and airtightness in conjunction with Kingspan Kooltherm® K17 Insulated Plasterboard.

- At external angles, run the Kingspan Kooltherm® K17 Insulated Plasterboard past the corner and cut back the insulated backing of Kingspan Kooltherm® K17 Insulated Plasterboard to form a neat insulated junction.
- Do not allow Kingspan Kooltherm® K17 Insulated Plasterboard to block new or existing vents.
- Where a door opening occurs, Kingspan Kooltherm® K17 Insulated Plasterboard should be cut around the opening to avoid a joint directly in line with the door jambs.
- Best practice is to repeat the same procedure as detailed above for window openings where practical.
- Window or door reveals can be insulated with a thin Kingspan Kooltherm® K17 Insulated Plasterboard when space permits.
- Where reveal frames cannot accommodate increased thickness, a standard plasterboard can be used.
- If the party wall or internal wall is not of solid masonry construction, insulation can be installed within the cavity of a cavity wall construction or installed within the frame of timber or metal studs.
- To assist with reducing thermal bridging, the junction of an external wall, party wall or internal wall can be insulated with the Kingspan Kooltherm® K17 Insulated Plasterboard, for a distance of 400 mm from the external wall lining.
- To ensure the intended thermal performance and airtightness of the construction is achieved, it is important to ensure all gaps around the perimeter of the board, where the Kingspan Kooltherm® K17 Insulated Plasterboard meets the ceiling, floor, adjacent walls, window/door frames and service penetrations, are sealed. Large gaps (≥ 10mm) should be filled with a combination of low expanding PU foam and flexible acrylic sealant and/or gypsum jointing compound. Small gaps (≤ 10mm) can be sealed in the same manner or alternatively filled with flexible acrylic sealant and/or gypsum jointing compound.

Essential Note

At reveals/external angles remember to run the lining past the corner and cut back the insulation backing of the Kingspan Kooltherm® Insulated Plasterboard to form a neat junction with the board on the adjacent wall/reveal jamb/external corner.

Post-Installation Guidance

Wet Areas/Wall Tiles

The Kooltherm® K17 Insulated Plasterboard should not be used when wall tiles or a specialty plasterboard such as moisture resistant board is required.

Alternate options using the Kooltherm® K12 Framing Board can be considered with a designated supporting framing system to accommodate the internal linings (**Figure 16**).

Framing systems such as stand–off brackets which support the lining furring channels can be accommodated in a conventional manner. Alternatively timber battens can be applied across the Kooltherm® K12 Framing Board, fixing through the insulation into the structure.

Figure 16

Wall Mounted Fixture and Fittings

The guidance below should be followed when installing Kingspan Kooltherm® K17 Insulated Plasterboard with light – heavy wall mounted fittings

- Lightweight wall mounted fittings such as mirrors, lamps, light switches, sockets, lightweight shelving, towel rails, cable clamps etc. can be fixed directly into Kingspan Kooltherm® K17 Insulated Plasterboard. A common method of installation requires the use of self–drilling drywall anchor fixings and toggle or umbrella type plasterboard fixings.
- Additional bands of adhesive steel fixing straps or timber battens depending on the method adopted, should be applied where medium – heavyweight wall mounted fittings are installed and to support unsupported board edges.
- For medium – heavy weight wall mounted fittings, always use appropriate fixings to fix through the insulated dry–lining and into the masonry structure behind or, into the framework supporting Kingspan Kooltherm® K17 Insulated Plasterboard, placing additional timbers, steel horizontal fixing channels, or relevant supports where required.

Essential Note

Safety measures should be taken such as isolating power before any work is undertaken.

Post-Installation Guidance

Selecting the Correct Fixing

Fixture	Example	Description	Fixing
Lightweight (up to 8 kg)	Mirrors, lamps, sockets, lightweight shelving, towel rails, skirting boards, cable clamps or floor–supported radiators	No pre–drilling is required as these fixings cut their own hole and form their own thread within the Kingspan Kooltherm® K17 Insulated Plasterboard element. They are available either in nylon or metal and are usually supplied with a suitable screw. They usually provide safe working loads of up to 8 kg per fixing (depends on type and manufacturer as to the actual load that can be applied).	Self–drilling drywall anchor fixings 
Medium (9 – 20 kg)	Shelves, mirrors, lightweight cupboards, bathroom cabinets	For medium weight fittings, use metal cavity fixings as they transfer the load behind the plasterboard and the stresses are put onto a wider area of the board. The steel expanding 'umbrella' type of fixings will usually provide safe working loads of 12 kg per fixing. These type of fixings have the advantage that it can be placed in the drill hole before offering up the fixture, making installation much easier. It also allows the fixture to be demounted and refitted again very easily without losing the fixing in the cavity. The disadvantage is that this type of fixing is permanently expanded so although the screw is removable the anchor body is extremely difficult to dismantle at a later date. For this reason it should not be used for applications where fixing removal is required in the future.	Steel expanding cavity fixings ('umbrella' fixings) 
Heavy (over 21 kg)	Kitchen cupboards, wall mounted radiators, basins, worktops, baths, shelving, TVs	Any object fixed to Kingspan Kooltherm® K17 Insulated Plasterboard other than light or medium weight fixtures should only be fixed through the Kingspan Kooltherm® K17 Insulated Plasterboard into the masonry substrate, pre–treated timber battens, timber noggins or plywood backing. Use Anchor Fixings for fixing through to masonry. Use self-tapping wood screws for fixing through to timber noggins / battens. Use Steel expanding cavity fixings ('umbrella' fixings) for fixing through to plywood backing. An alternative method for attaching heavyweight items to Kingspan Kooltherm® K17 Insulated Plasterboard on pre–treated timber battens is to fix 18 mm (min.) plywood sheet in between the timber battens where the heavy items are to be located. It will usually require a deeper pre–treated timber batten than 25 mm in order to accommodate the depth of plywood and support timbers. Plywood sheets should fit flush to the pre–treated timber batten surface. This method makes it a lot easier for the installer to find a secure substrate to fix into as there is a continuous timber substrate and no time lost in trying to find the batten or noggin to fix the heavy weight object into. When fixing heavier items, allowance should be made at the design stage as to where these items are to be located as additional strength and support to the boards will be needed. This includes additional timbers (when using a pre–treated timber batten system) or additional ribbons of adhesive (when using an adhesive system), should be placed on the substrate prior to attaching the Kingspan Kooltherm® K17 Insulated Plasterboard.	Steel Bolt / Anchor / Frame fixings   

Installation Details

Movement/Control Joints

Consideration should be given to the provision for movement in the system via movement / control joints at intervals required by the structure.

Movement/control joints should be incorporated to coincide or relate to existing movement joints in structural elements with no direct bridging of mechanical parts of the system.

Dealing with Services

Services which will inevitably penetrate Kingspan Kooltherm® K17 Insulated Plasterboard e.g. recessed light switches, recessed socket boxes, water pipes and power outlets, should be kept to a minimum to limit the impact to the insulation layer.

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. Some services e.g. pipework, electrics, etc. can be relocated onto the surface of Kingspan Kooltherm® K17 Insulated Plasterboard, however, they would be visible unless encased.

Electrical

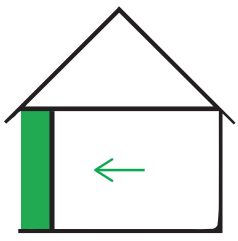
Installation must be in accordance with AS/NZS 3999 Bulk Thermal Insulation and AS/NZS 3000 Electrical Installations (Wiring Rules). Suitably qualified competent persons should be consulted / used when installing fixed electrical cables or fixed electrical equipment or fittings.

- 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 series.
- Electrical cables that are likely to come into contact with the insulation component of Kingspan Kooltherm® K17 Insulated Plasterboard are not required to be protected by a suitable conduit to prevent plasticiser migration as would be the case with some other forms of insulation i.e. polystyrene insulation which can cause the PVC sheathing to age prematurely; however, conduit may be required for other reasons, such as impact protection.
- Where it is possible to use the existing electrical cables, as opposed to rewiring, ensure consideration is given to the current-carrying capacity load after the internal wall insulation is installation.
- Existing electrical cables that are being retained / reused may need to be extended as a result of the new internal wall insulation system, alternatively relocate the sockets or switches (if possible) higher than the original position, therefore, freeing up the necessary amount of cabling required.
- To improve the level of airtightness, seal around the perimeter between the wall and Kooltherm K17.
- Socket and switch boxes should be fixed into Kingspan Kooltherm® K17 Insulated Plasterboard or back to the structure, in accordance with the manufacturer's instruction.

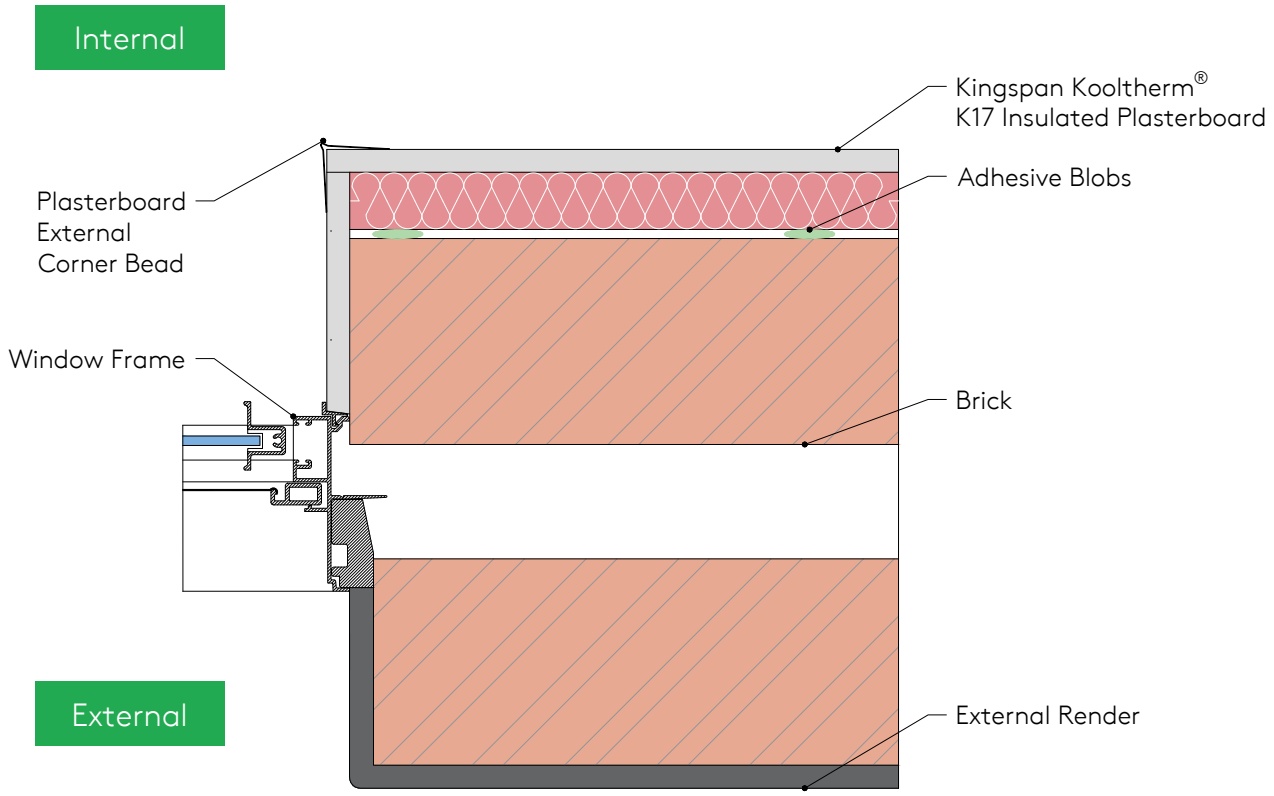
Essential Note

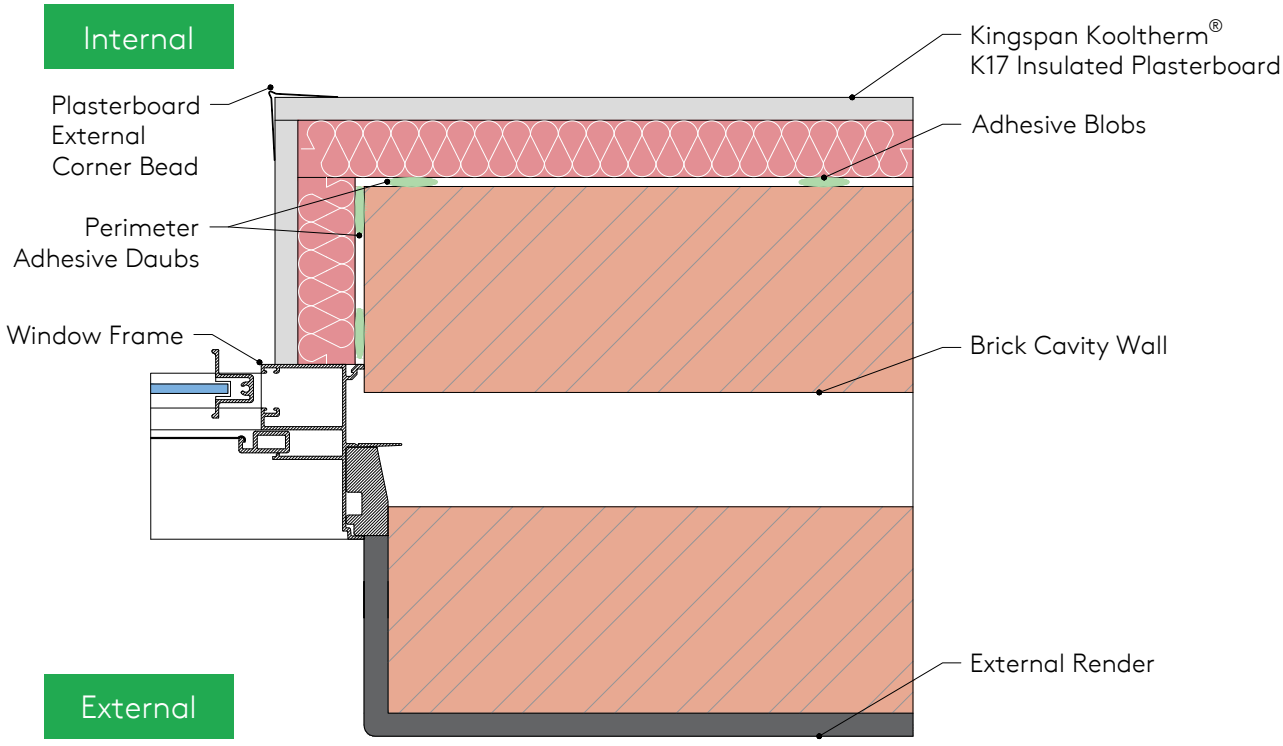
Before carrying out any work an assessment of the electrical risk from the installation of insulation should be undertaken. Where electrical appliances or cables are present, advice from a licensed electrician should sought, ensuring compliance with relevant electrical safety legislation.

Installation Drawings

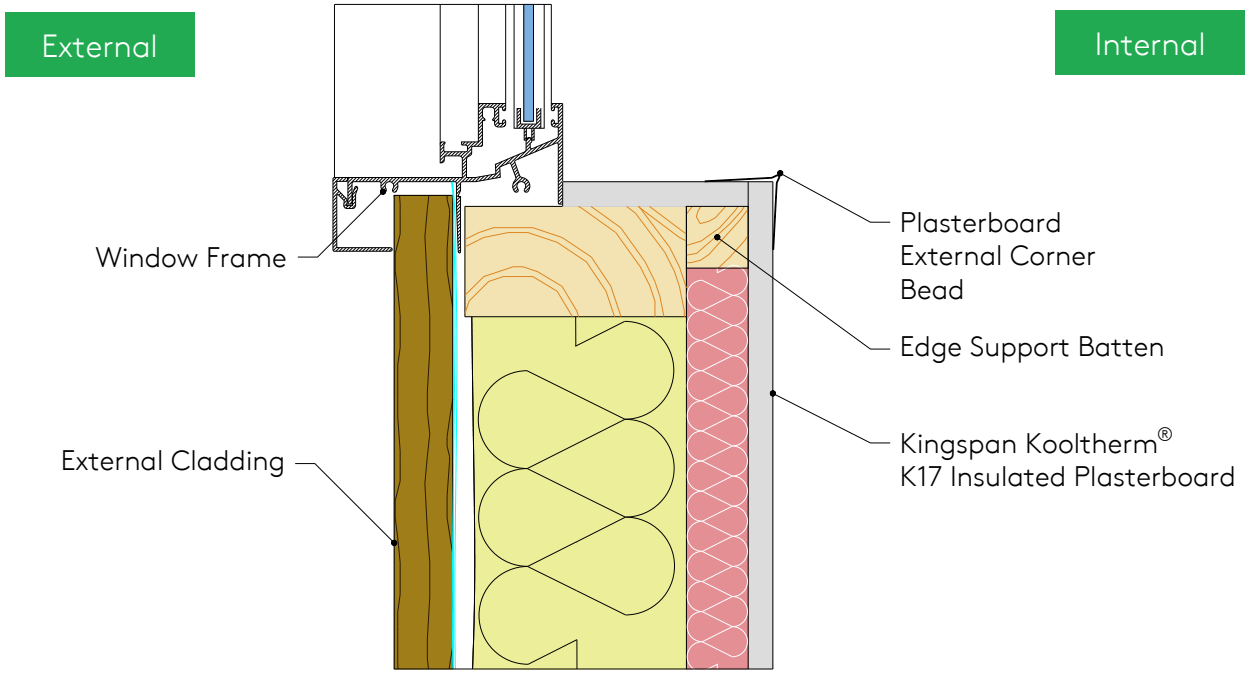


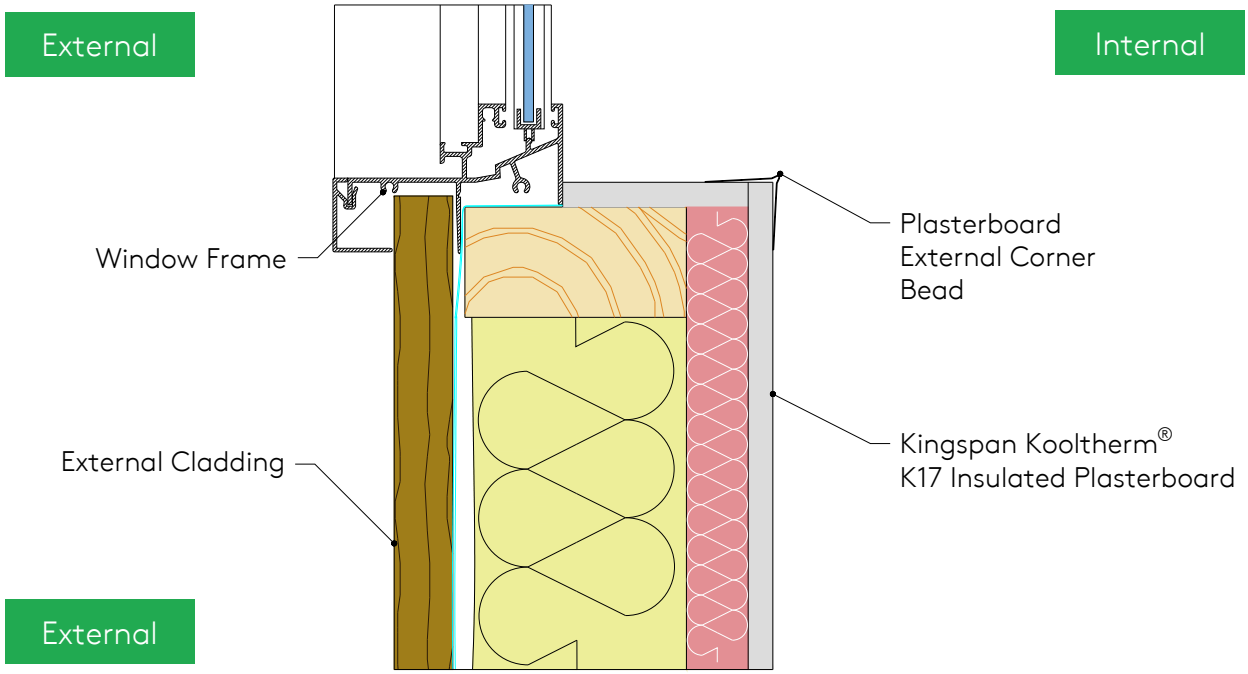
Cavity Wall Reveal





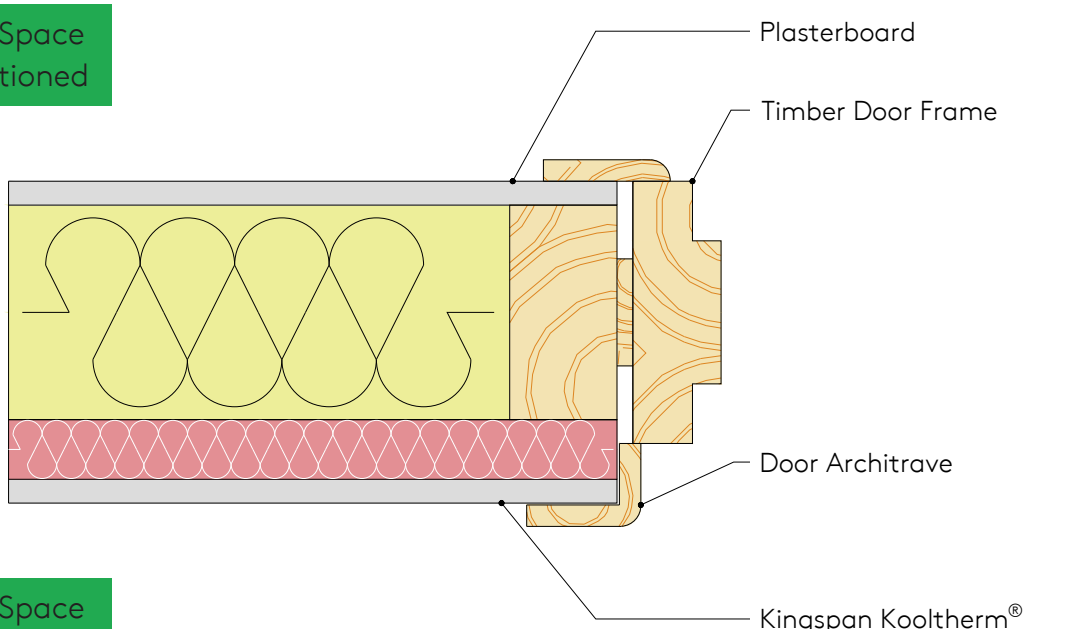
Stud Frame Wall Sill





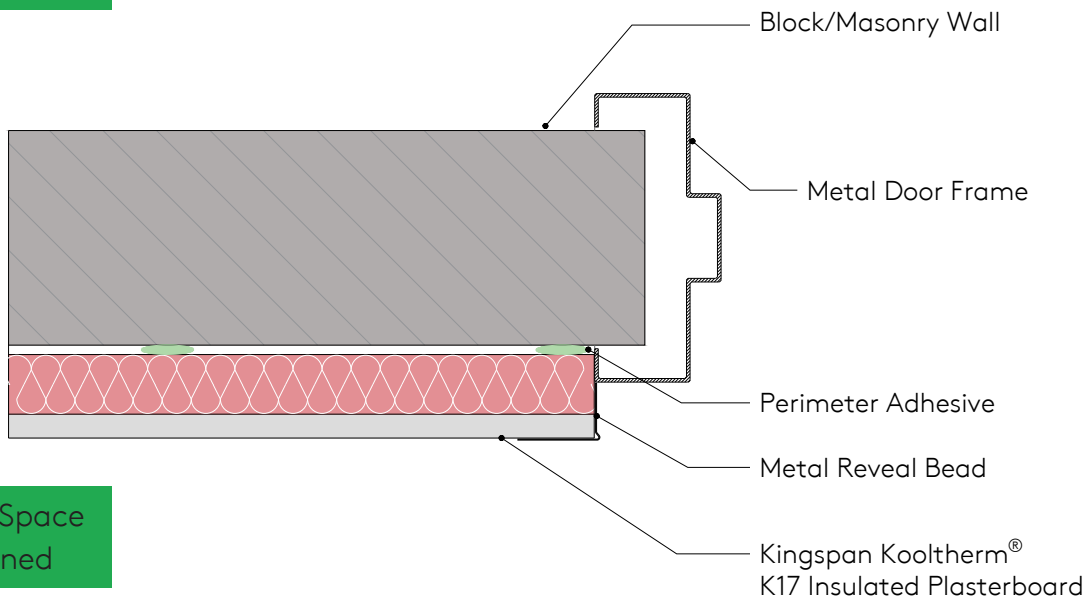
Internal Garage Wall

Internal Space
Unconditioned



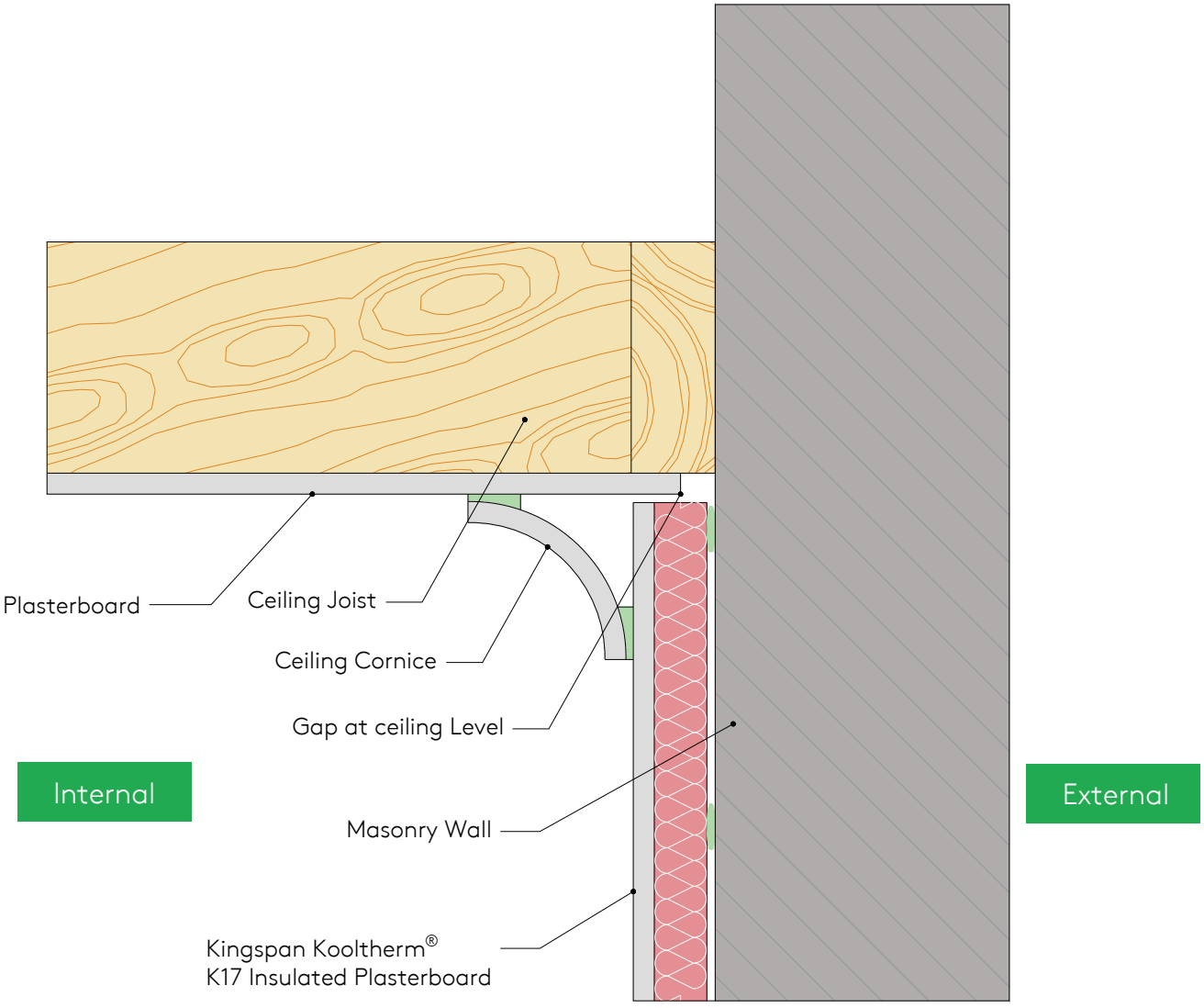
Internal Space
Conditioned

Internal Space
Unconditioned

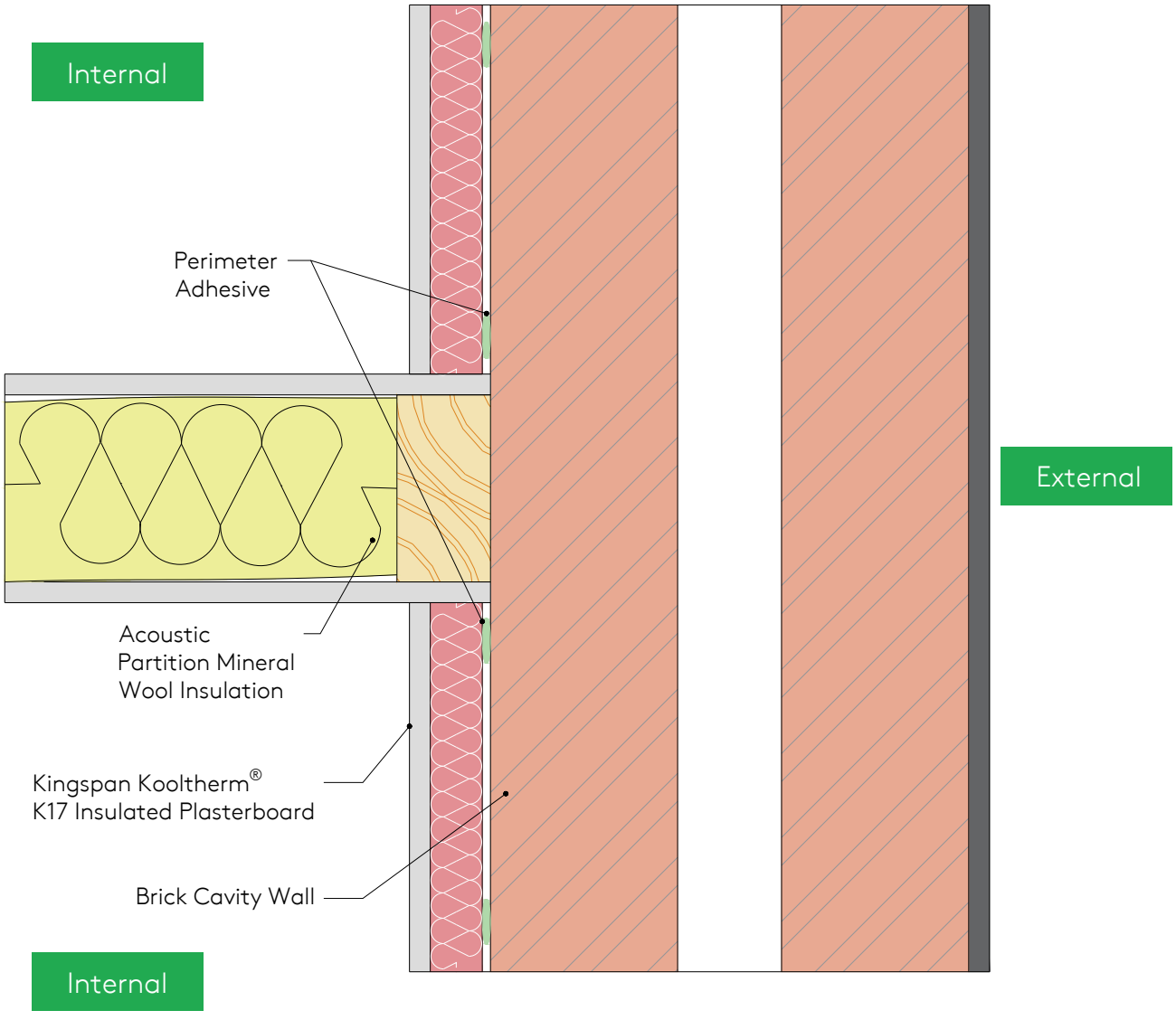


Internal Space
Conditioned

Ceiling Joist Junction

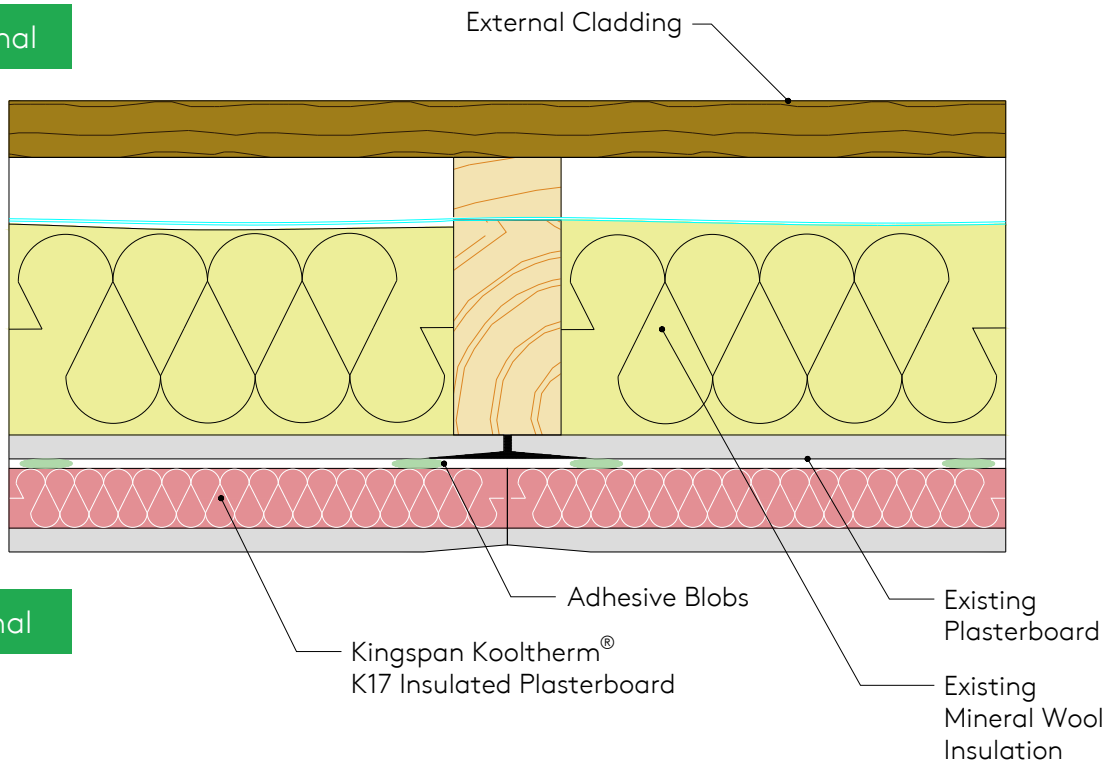


Internal Wall Junction



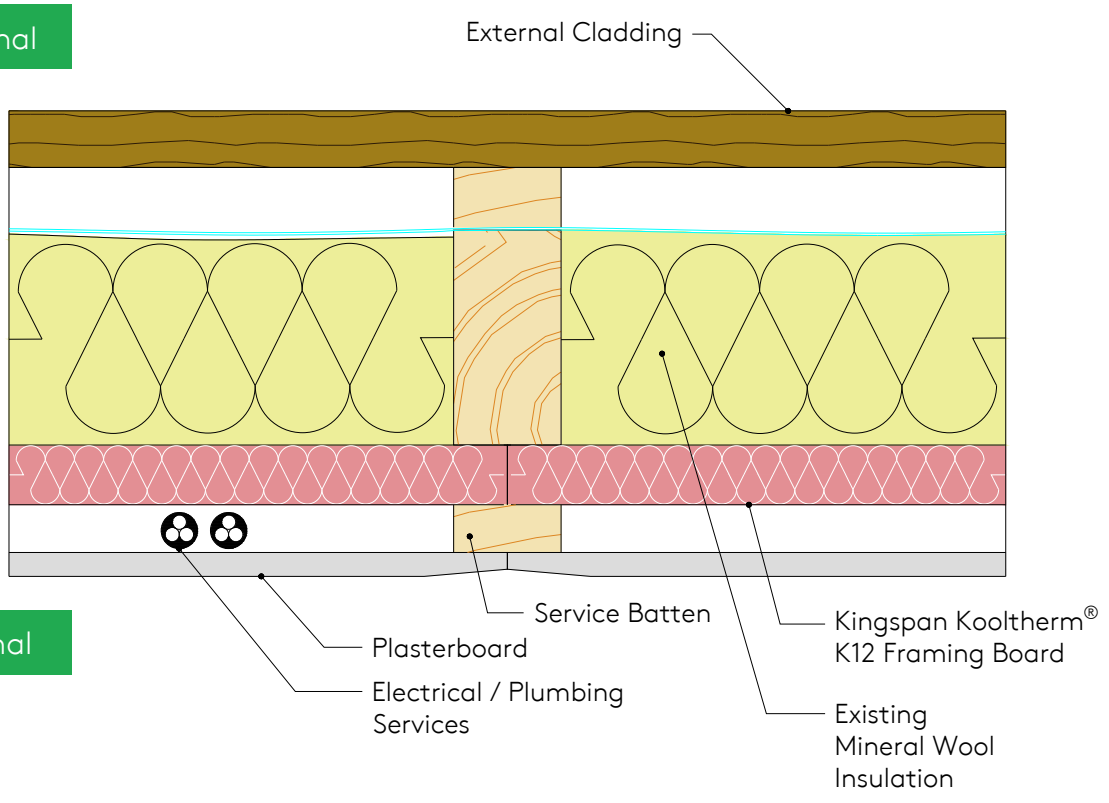
New & Existing Timber Frame Wall

External



Internal

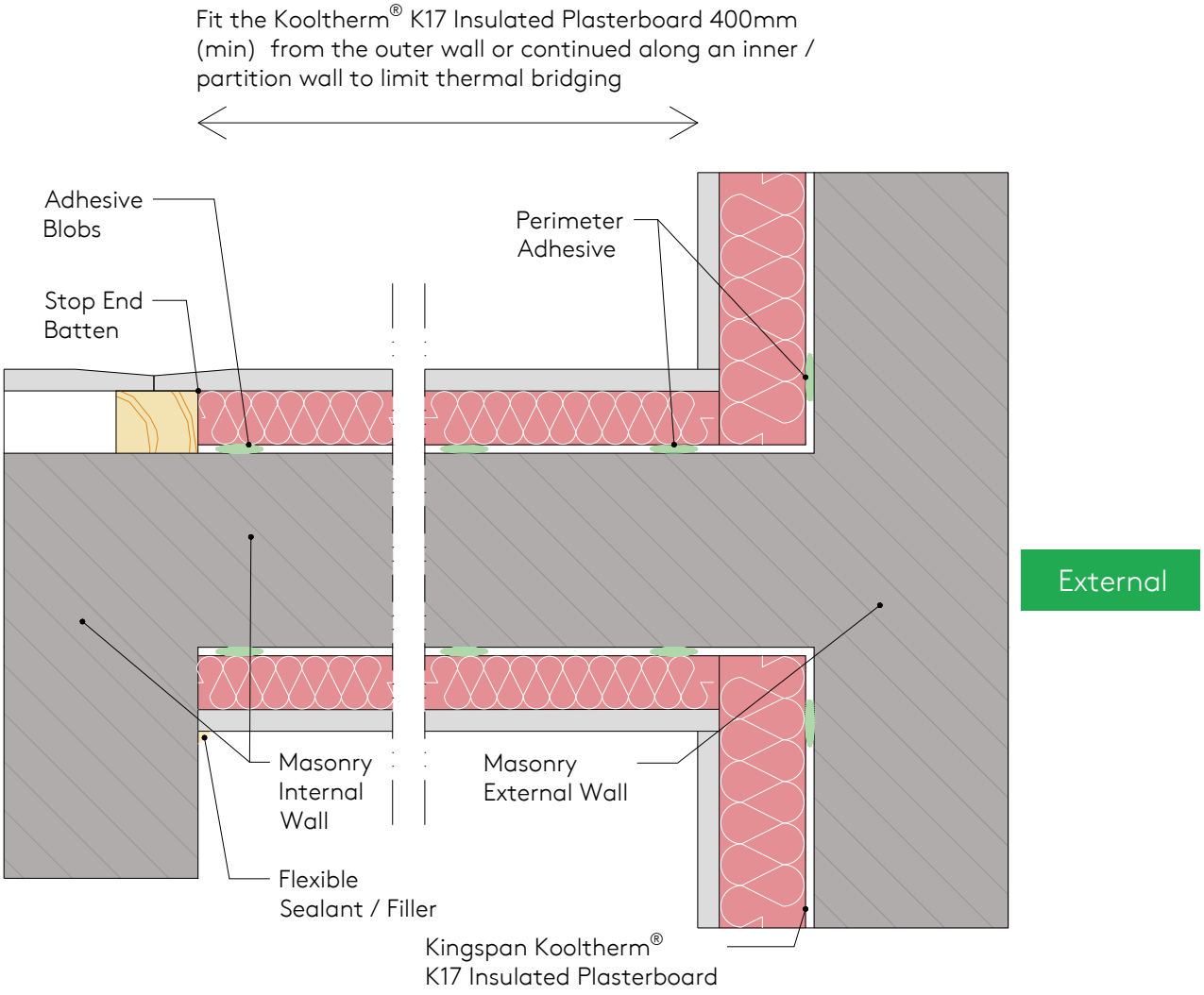
External



Internal

Internal Masonry Wall Junction

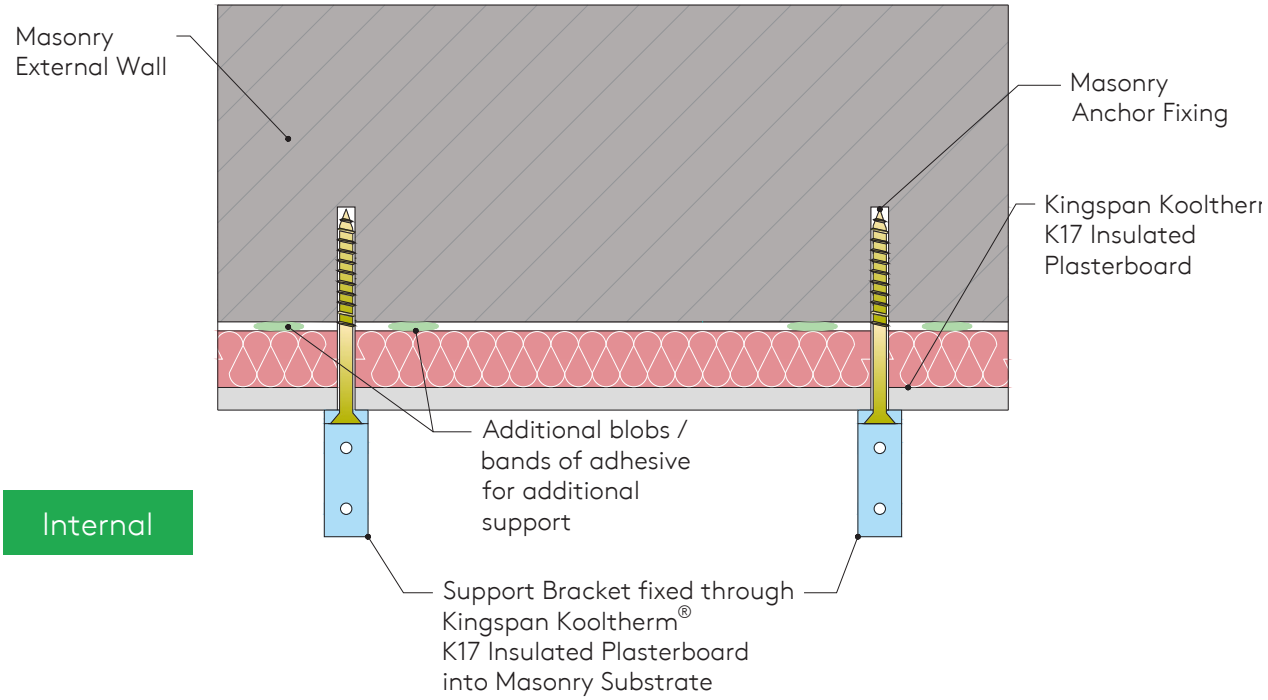
Internal



Internal

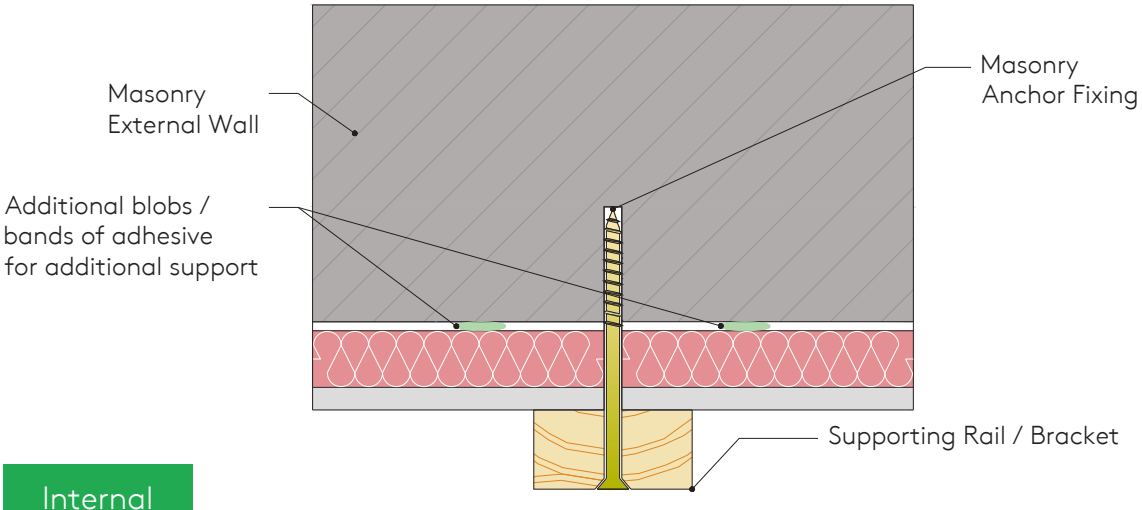
Heavy Bracket/Rail

External



Internal

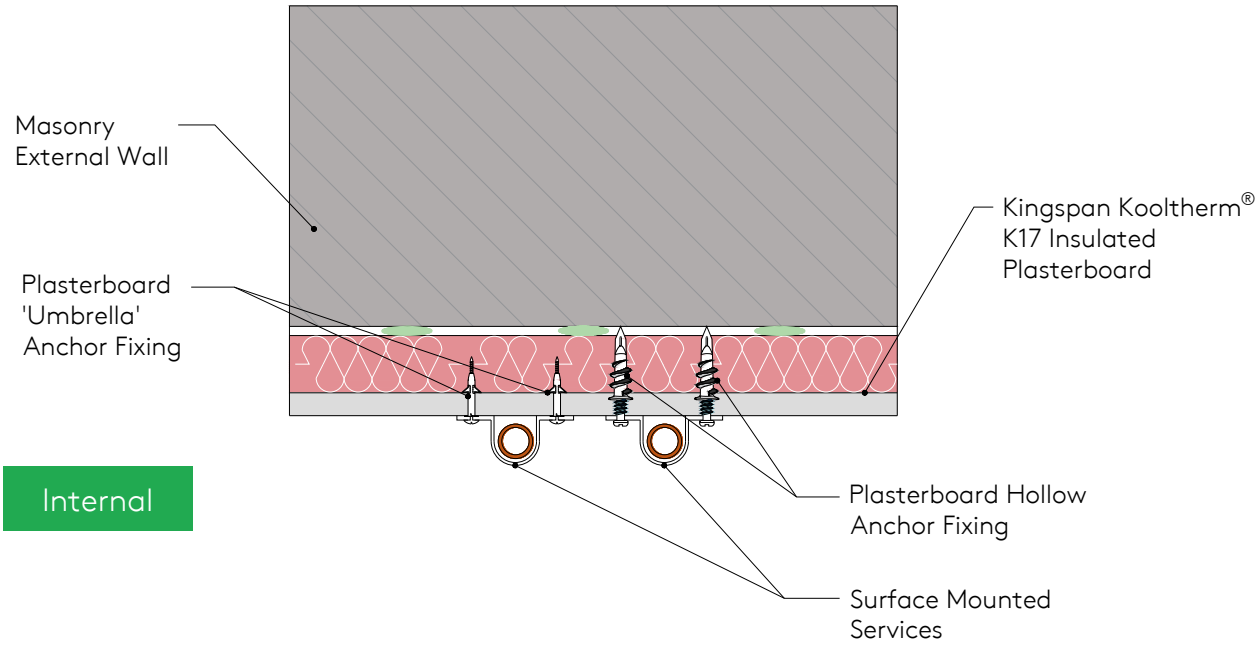
External



Internal

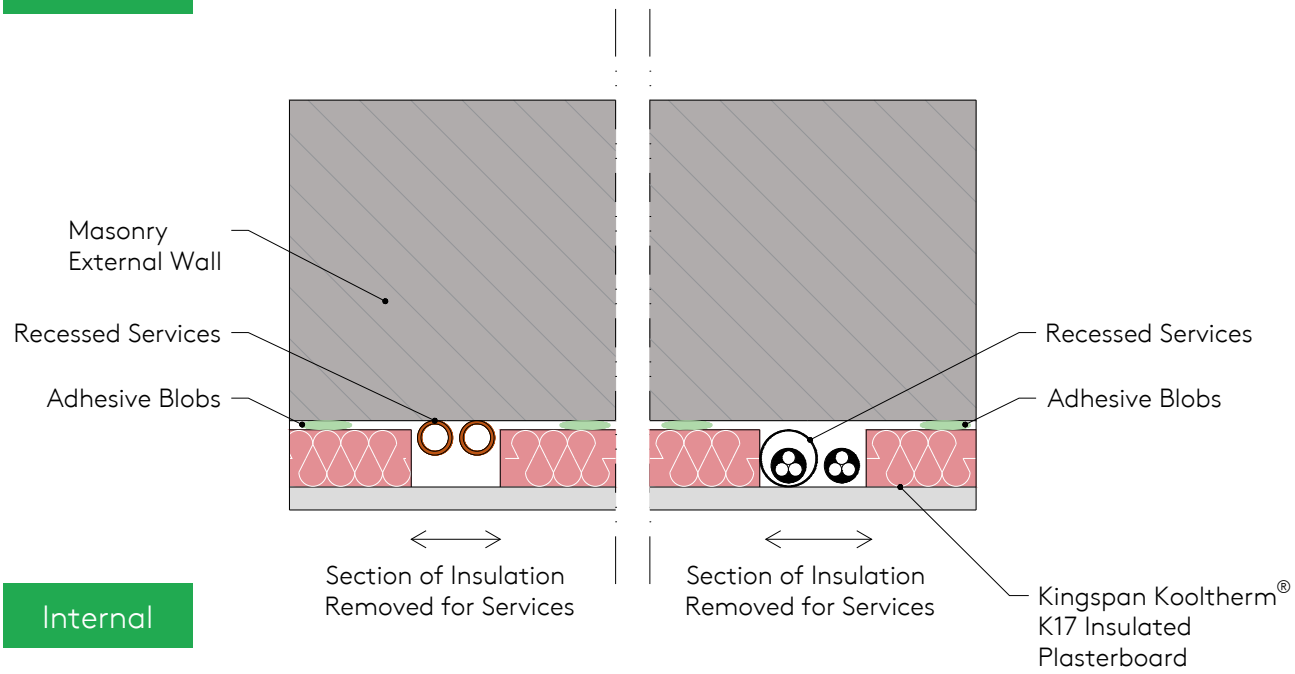
Surface Mounted & Recessed Services

External



Internal

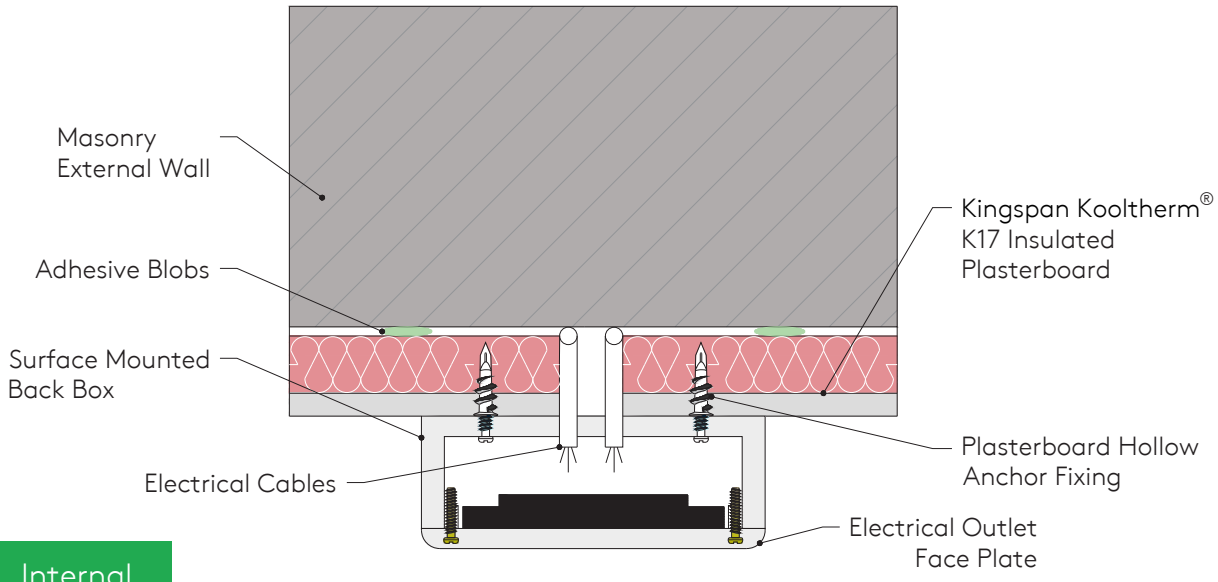
External



Internal

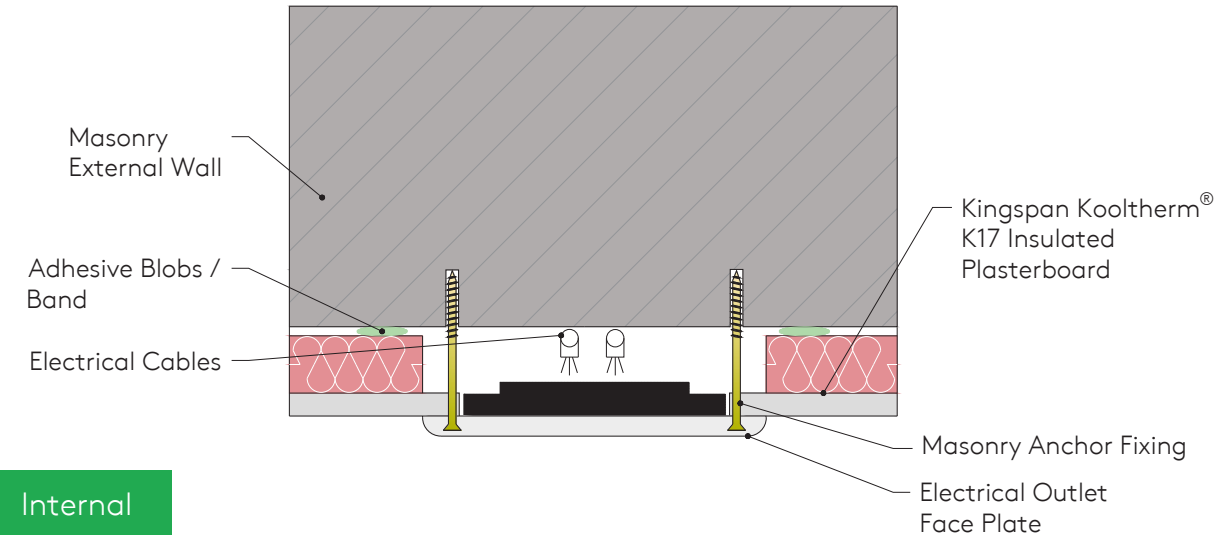
Surface Mounted Electrical Outlet

External



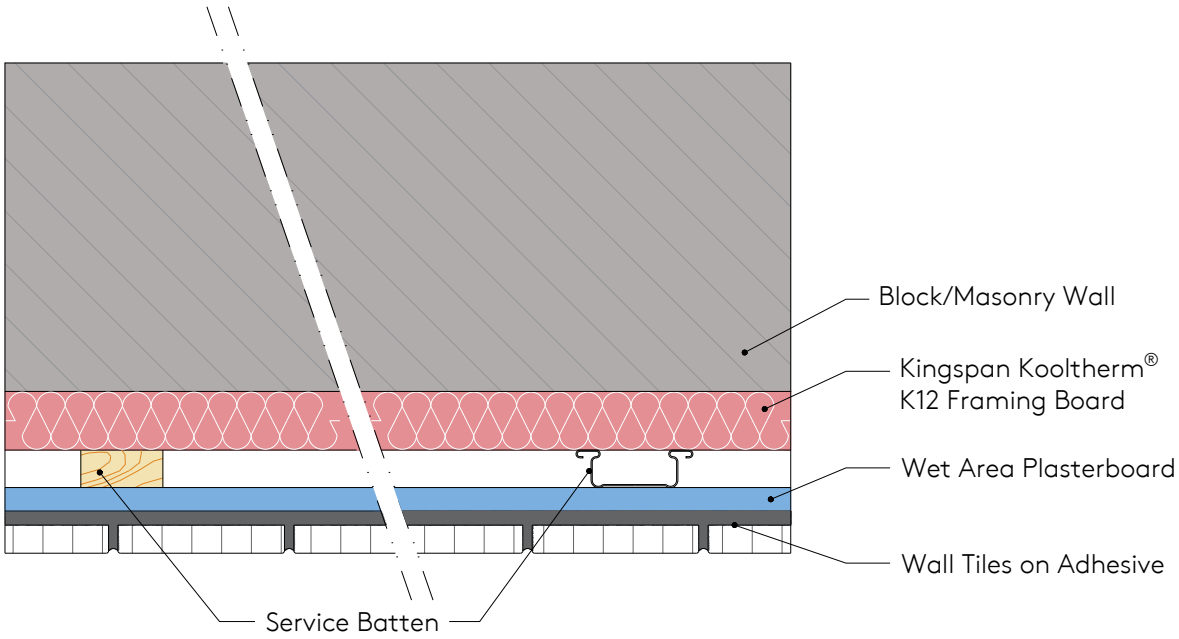
Internal

External



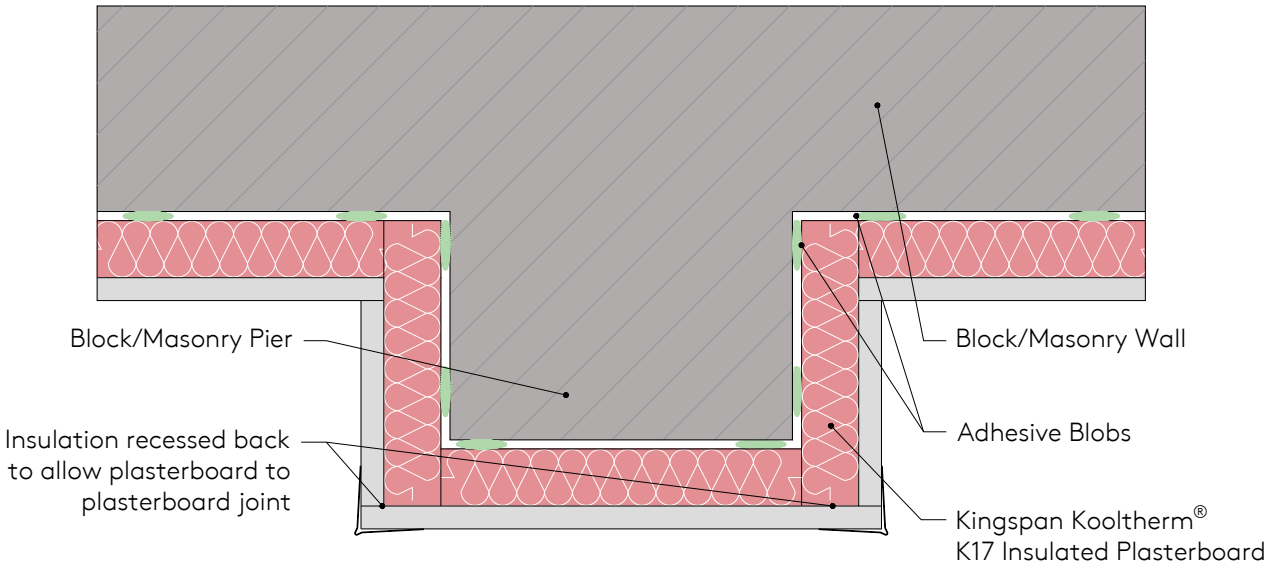
Internal

Wet Area/Tiled Surface Mounting



Masonry Wall Pier & Control Joint

External



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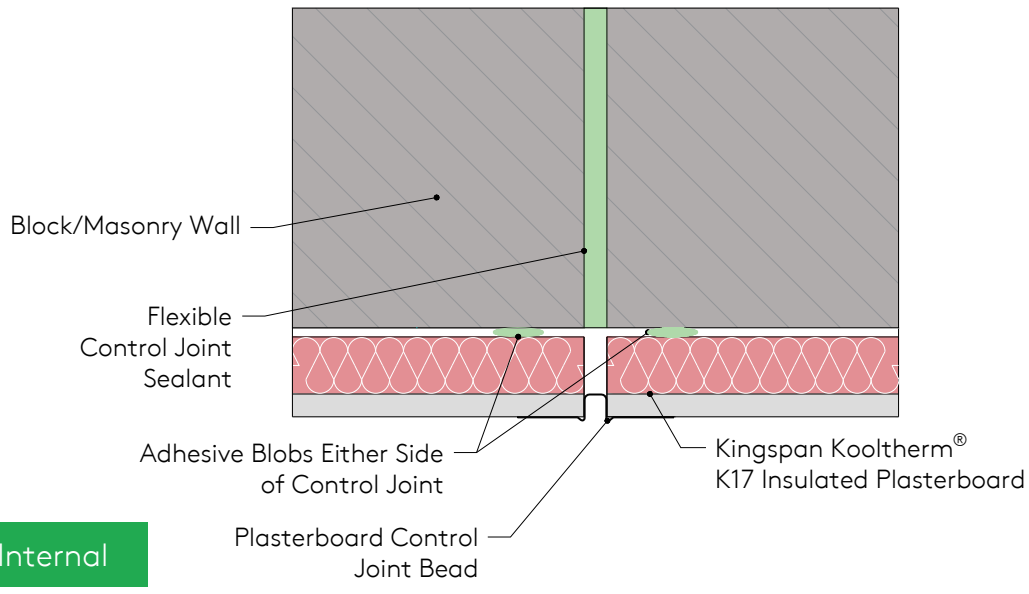

Internal

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