



**MASTERWALL.**

## **K-SERIES**

**BAL 40, super high performance external insulating wall system incorporating Kingspan Kooltherm® panel.**

TECHNICAL DOCUMENT:

### **SYSTEM INSTALLATION & CONSTRUCTION DETAILS DIRECT-TO-FRAME SYSTEM**

MASTERWALL AUSTRALIA PTY LTD. 18-20 Cyber Loop, Dandenong South, Victoria, Australia  
EMAIL. [sales@masterwall.com.au](mailto:sales@masterwall.com.au) WEB. [masterwall.com.au](http://masterwall.com.au) NATIONAL ENQUIRIES. (03) 9799 6565 FAX. (03) 8740 2180



**POLYURETHANE FOAM SEALANT:**

100% flexibility ensures integrity and weatherproofing of joints.

**KOOLTHERM® K5 PANEL:**

Super-high performance insulated panel  
(Thicknesses: 50/80mm R 2.5/4.0)

**FIXINGS:**

Pre-assembled 50mm button and class 3 screw sets provide the right fix for every situation.

**ALLOY EXTERNAL CORNERS:**

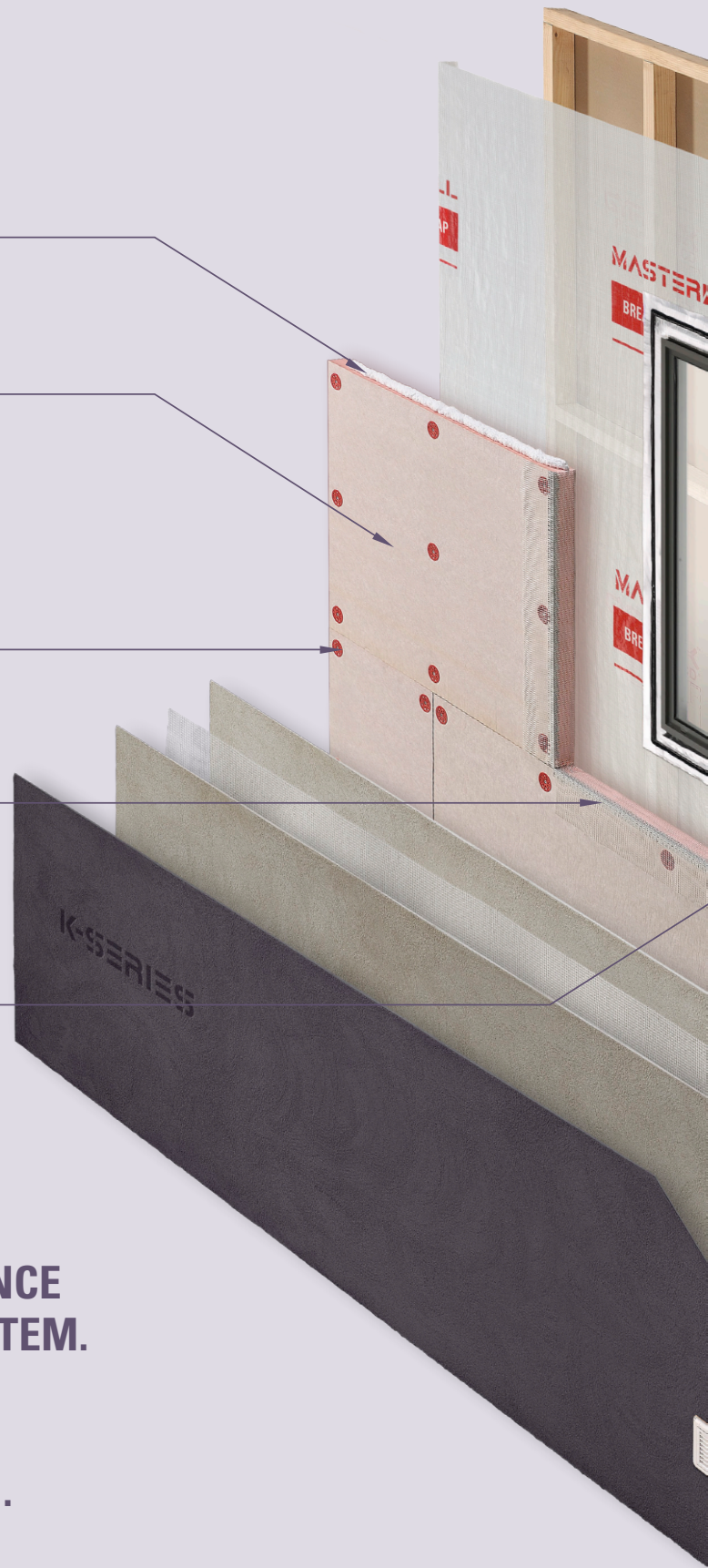
With integrated reinforcing mesh for strength.

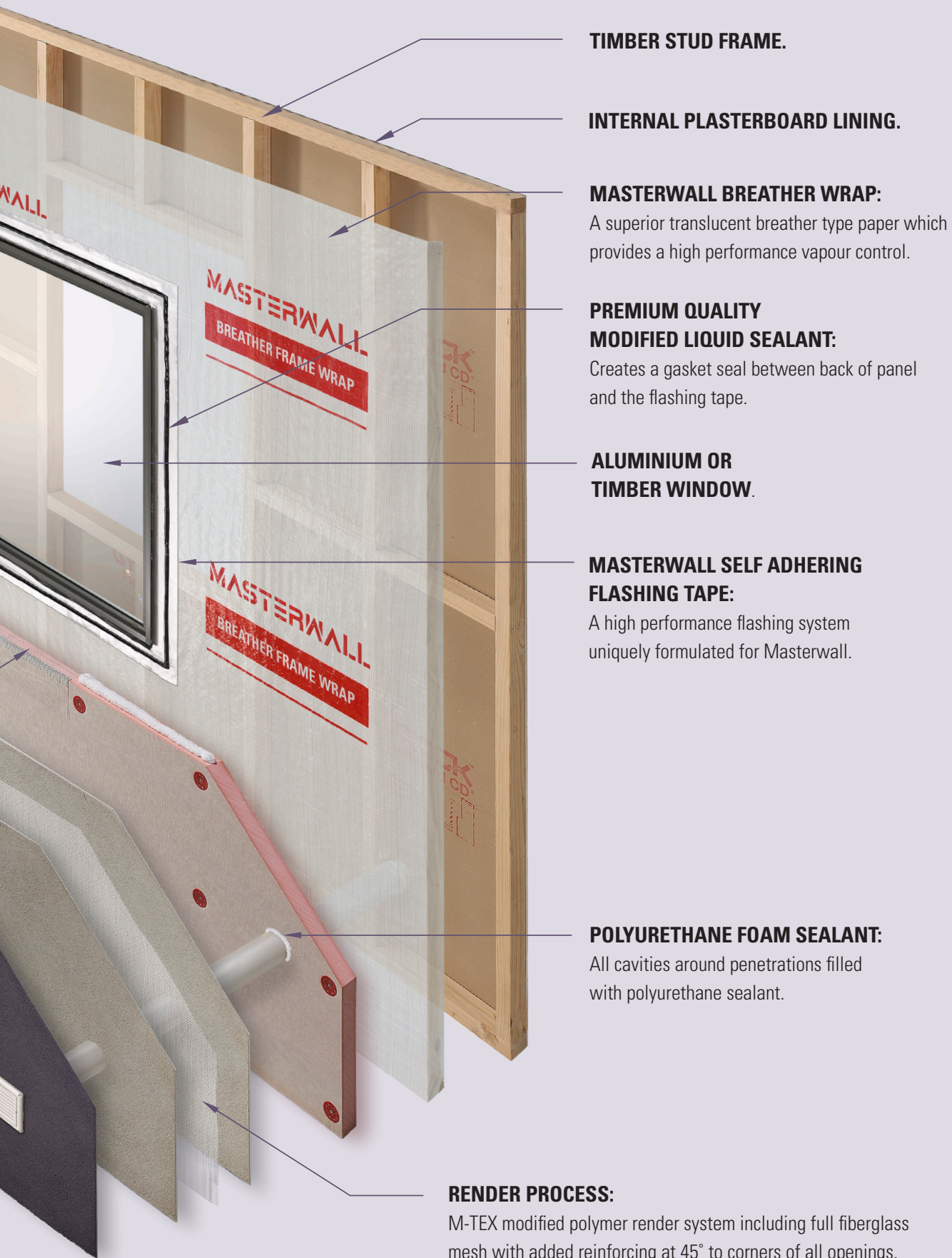
**NO NEED FOR POST  
FORM REVEALS:**

No need to double frame to achieve  
brick like reveals.

**K-SERIES.  
A SUPER-HIGH PERFORMANCE  
INSULATED CLADDING SYSTEM.**

**FRAMED CONSTRUCTION.  
DIRECT-TO-FRAME SYSTEM.**





**TIMBER STUD FRAME.**

**INTERNAL PLASTERBOARD LINING.**

**MASTERWALL BREATHER WRAP:**

A superior translucent breather type paper which provides a high performance vapour control.

**PREMIUM QUALITY  
MODIFIED LIQUID SEALANT:**

Creates a gasket seal between back of panel and the flashing tape.

**ALUMINIUM OR  
TIMBER WINDOW.**

**MASTERWALL SELF ADHERING  
FLASHING TAPE:**

A high performance flashing system uniquely formulated for Masterwall.

**POLYURETHANE FOAM SEALANT:**

All cavities around penetrations filled with polyurethane sealant.

**RENDER PROCESS:**

M-TEX modified polymer render system including full fiberglass mesh with added reinforcing at 45° to corners of all openings.

## SYSTEM SPECIFICATIONS

### K-SERIES EXPLODED VIEW DIAGRAM

Frame Construction	2
--------------------	---

### INTRODUCTION

Description	8
Application	8
Composition	8
Manufacture	8
Sizes & Thicknesses	9
Manufacturing Tolerances	9
Density	9
Compressive Strength	9
Water Vapour Resistance	9
Fire Performance	9
Colour & Packaging	9
Warranty - 7 years	9
Limitation of Liability	9

### PROPERTIES

Thermal Performance	10
Acoustic Performance	10
Impact Resistance	10
Weatherproofing	10
Moisture Resistance	10
M.S.D.S.	10
Substrates	11
BAL 40 (Bushfire Attack Level)	11
Reinforcing Mesh	11
Trims	11
Flashing Tape	11
Joint Sealant	11
Window Flashing Sealant	12
Screw Fixings	12
Render System	12

### INSTALLATION

Breather Frame Wrap	13
Layout	13
Supporting Framework	13
Cutting	13
Health & Safety	13

## SYSTEM SPECIFICATIONS

### INSTALLATION - Continued

Fixing To Framing	14
Sealing - Joints	14
Sealing - Openings	14
Sealing - Other Penetrations	14
Control Joints and Articulation Relief Joints	15
Corners, Edges, Openings & Returns	15
Skyline System	16
Curved Walls	16
Finishing	16
Storage, Handling, Protection	16
Repair	17
Waste Management	17

<b>DISCLAIMER</b>	17
-------------------	----

**Masterwall K-Series complies with the BCA 2019 provisions and State or Territory variation(s).**

Refer to [masterwall.com.au/downloads](https://masterwall.com.au/downloads) to view the complete Certificate of Conformity.





## CONSTRUCTION DETAILS

### SET OUT ADVICE FOR 450 CENTRED STUD WALL

50 & 80mm <b>Kooltherm®</b> panel	18
-----------------------------------	----

### SET OUT ADVICE FOR 600 CENTRED STUD WALL

80mm <b>Kooltherm®</b> panel	19
50mm <b>Kooltherm®</b> panel	20

### SET OUT ADVICE FOR OPENINGS

50 & 80mm <b>Kooltherm®</b> panel	21
-----------------------------------	----

### TYPICAL CORNER JOINTS

50mm & 80mm <b>Kooltherm®</b> panel	22
-------------------------------------	----

### TYPICAL JOINTS BETWEEN PANELS

50 & 80mm <b>Kooltherm®</b> panel	23
-----------------------------------	----

### KOOLTHERM® PANEL / BRICK VENEER

External corner - junction - 1	24
External corner - junction - 2	24
Construction control joint - junction - 3	25
Internal corner - junction - 4	25

### KOOLTHERM® PANEL / CEMENT FIBRE BOARD

Junction	26
----------	----

### KOOLTHERM® PANEL / KOOLTHERM® PANEL

Construction control joint	26
----------------------------	----

### KOOLTHERM® PANEL / KOOLTHERM® PANEL

Control joint - mid floor break	27
---------------------------------	----

### KOOLTHERM® PANEL

Balcony - Solid Floor Junction	28
--------------------------------	----

### KOOLTHERM® PANEL / BRICK VENEER

Junction - first floor level step out	29
Junction - first floor level flush joint	30

### KOOLTHERM® PANEL

Overhanging first floor level	31
Lower roof junction - rear flashed	32
Lower roof junction with additional faux flashing	33
Universal Junction	34
Universal Junction - external corner	34
Universal Junction - internal corner	35
Universal Junction - solid masonry	35

## CONSTRUCTION DETAILS

### KOOLTHERM® PANEL - CONTINUED

Rendered Parapet Wall with Skyline System Water Proofing	36
Panel Penetration	36
BAL40 Rendered Parapet Wall with Skyline System Water Proofing	37
Roof junction / parapet wall	38
Roof junction pitched roof with soffit lining	38

### KOOLTHERM® PANEL / TIMBER WINDOW

Typical head detail	39
Typical sill detail	39
Typical side jamb detail	39

### KOOLTHERM® PANEL / ALUMINIUM WINDOW

Typical head detail	40
Typical sill detail	40
Typical side jamb detail	40

### KOOLTHERM® PANEL & BRICKWORK JUNCTION

Ground level	41
--------------	----

### KOOLTHERM® PANEL & CONCRETE STUMP CONSTRUCTION

Protruding panel	42
------------------	----

### KOOLTHERM® PANEL & CONCRETE STUMP CONSTRUCTION

43

### KOOLTHERM® PANEL & GROUND SLAB JUNCTION

44

Within rebate

### KOOLTHERM® PANEL & GROUND SLAB JUNCTION

Protruding	45
------------	----

### KOOLTHERM® PANEL / EXTERNAL WALL

External support with water proofing	46
--------------------------------------	----

### TYPICAL FIXING SUPPORT FOR DOWN PIPE/EXTERNAL FITTINGS

50 & 80mm <b>Kooltherm</b> ® panel	47
------------------------------------	----

### KOOLTHERM® PANEL ALUMINIUM SLIDING DOOR

Typical head detail	48
Typical sill detail	48
Typical jamb detail	48

### SYSTEM CHECKLIST

49

### NOTES

49

50

## K-SERIES

### Description

**Kooltherm®** panel is an external lightweight, reinforced, insulating wall panel, mechanically fixed to the outer face of the building. The panels are completed by the application of an approved polymer render, trims, sealants, opening flashings and decorative and waterproof coatings.

Traditional sand/cement render is not suitable on the **Kooltherm®** panels.

**Kooltherm®** panels are comprised of a super high performance CFC/HCFC - free rigid thermoset phenolic foam core. The facing of the panel is reinforced with a fibreglass tissue and is compatible with approved polymer render and decorative finishes.

**Kooltherm®** panels, completed with a polymer render finish, have a 30 year history in Europe. K-Series complies with the Building Code of Australia - Alternative Solutions, National Construction Code (N.C.C.) of Australia - Alternative Solutions and has achieved certification from Codemark as a building **system**.

### Application

K-Series is appropriate for use on timber and steel-framed residential and commercial buildings.

The lightweight panels are convenient to install and add minimum weight to the structure.

The product's thermal insulation properties contribute to the energy efficiency of the building.

The ability to accept approved acrylic render and decorative finishes allows a variety of aesthetic styles to be achieved, including traditional, heritage and modern.

The large panels are speedily installed, providing early enclosure and weatherproofing – assisting in the early achievement of lock-up stage.

### Composition



**Panel:** Dense grade thermoset phenolic fire resistant foam core.

**Facing:** Flexible fibreglass tissue designed for both excellent mechanical fix and natural bond with the binders and polymers found in approved polymer render systems. The panel surface has a light colour with a fibre texture. K-Series Cyclonic panel is pre-coated with an alkali resistant fibreglass reinforcing mesh, suspended in a cementitious flexible coating.

### Manufacture

The panels are manufactured in Australia by Kingspan Insulation. The fibreglass tissue facing is bonded during the manufacturing process. **Kooltherm®** panels have a recycled/renewable content of 1.3%.

The cementitious coating required for the K-Series Cyclonic panel is mechanically applied by Masterwall Australia.

-  As water ingress into timber frames can cause significant movement and thus risk cracking the external render, total frame protection from weather ingress should be implemented prior to the installation of the K-Series System. If for any reason, moisture is apparent in the timber frame after installation, this should be allowed to dry out thoroughly prior to the application of render.
-  It is recommended that the installation of internal linings to all external walls should be completed prior to the start of the render process of the K-Series System. If installing internal linings after the completion of external render, use screw fixings only, as hammering nails will crack external render.



## Sizes & Thicknesses

**Standard panel size:** 2400mm x 1200mm

**Nominal thickness:** 50mm, 80mm

**Area:** 2.88m<sup>2</sup>

### Mass (uncoated non-cyclonic panel):

Thickness	50mm	80mm
kg/m <sup>2</sup>	2.2	3.4
Total sheet kg	6.3	10.0

If other thicknesses are required, please consult Masterwall Australia.

## Manufacturing Tolerances

**Length:** 2400mm ± 10mm

**Width:** 1200mm ± 5mm

**Thickness:** ± 1.0mm

## Density

44kg/m<sup>3</sup> nominal

## Compressive Strength

Typically exceeds 120 kPa at 10% compression.

## Water Vapour Resistivity

Water Vapour Transmission Rate (AS 2498.5)

Mean Value 185 µg/m<sup>2</sup>.s

## Panel Fire Performance AS 1530.3

- a. Spread of flame = 0
- b. Smoke developed = 4
- c. Heat evolved = 2
- d. Ignitability = 13

## Colour & Packaging

The reinforced facing has a distinctive light colour. The panels are shrink-wrapped in plastic when delivered to site to protect from damage. K-Series Cyclonic pre-coated panels have a fibreglass reinforced cementitious coating on the face, which is light grey in colour.

## Warranty - 7 years

**Masterwall Australia Pty Ltd** warrants that its products are free from defects in materials and workmanship for a period of 7 years from the date of purchase. For a full description of the Warranty refer to the Masterwall Australia website (<http://www.masterwall.com.au>)

## Limitation of Liability

Except as provided for in the warranty above, **Masterwall Australia Pty Ltd** is not liable for any direct, indirect or consequential loss which any user suffers, incurs or is liable for in connection with the supply of **Masterwall Australia Pty Ltd's** products, including without limitation, direct, indirect or consequential loss arising from third party claims occasioned by defects in products.

## PROPERTIES

### Thermal Performance

#### Kooltherm® Direct to Frame

Panel Thickness	Material R-value	Total R-value (Winter)	Total R-value (Summer)	Total R-value (Winter)	Total R-value (Summer)
		Timber Framing		Steel Framing	
50mm	2.4	2.9	2.7	2.8	2.7
80mm	3.9	4.4	4.1	4.2	4.1

All thermal calculations are compliant with Australian Standard AS/NZS 4859.1:2018 (published 19/11/2018) which now include the allowance of thermal bridging of the timber/steel frame.

The complete system R Rating includes Kooltherm panels, breather wrap, stud frame cavity and 10mm plasterboard. Full system 'calculation of thermal performance' is available on request.

As significant variations occur in both thickness and/or number of layers applied (as well as the types of approved polymer render used on external walls), the contribution of the completed render finish is not included in the R Rating.

The optional thicknesses of the panel provide the opportunity to achieve higher R Ratings without the need to install additional insulation in the wall frame.

Although the finished **Kooltherm®** panels are water resistant, a breathable frame wrap is required over framing. If a reflective insulation is required for enhanced thermal performance or to achieve other construction characteristics, that material is to be **a breather grade** – to allow for vapour transmission.

### Acoustic Performance

In common with lightweight closed-cell materials, **Kooltherm®** panels offer limited absorption of airborne sounds. However, the same structure limits the transference of structure-borne and impact sounds. Sound Insulation Panel only 80mm = Rw 18 (-1 ; -1).

### Impact Resistance

When correctly installed, **Kooltherm®** panels offer similar resistance to impact and damage as other common non-metallic sheet materials. In addition to this feature, the panels will not shatter or fracture beyond the area of impact.

The K-Series System has completed a successful impact test AS/NZS 4040.5 – 1996

### Weatherproofing

The K-Series system provides a weatherproof facade with drainage cavity to the building having been tested to comply with the Verification Method FV1 in Volume 1 of the NCC and V2.2.1 of Volume 2. Full reports available on request.

### Moisture Resistance

**Kooltherm®** panels do not support capillary action and when correctly installed with the properly detailed flashings and material combinations, K-Series System provides a weatherproof face to the building. This includes the installation of a breathable frame wrap over framing.

### M.S.D.S.

A Material Safety Data Sheet (MSDS) is available for K-Series panels. Please contact **Masterwall Australia**.

## Substrates

### Timber framing must comply with:

AS 1684 - National Timber Framing Code.

### Metal framing must comply with:

AS 3623 - Domestic metal framing.

Structural bracing is to be integral to the wall frame system.

K-Series System does not contribute to the structural integrity of the framing.

### The control factors for installation of Kooltherm® panels are:

**Support Spacing:** 450mm & 600mm framing.

**Building Classes:** 1 to 10

**Wind Loadings:** N1 to N4 (classes 1 & 10). Up to 3 kPa (classes 2 to 9)

**Cyclonic:** C1 on 450mm steel or timber stud spacings.  
(K-Series Cyclonic pre-coated panel only).

For installation outside these control factors, please contact **Masterwall Australia**.

## BAL 40 (Bushfire Attack Level)

The K-Series BAL 40 System must be comprised of a precise group of specified materials to meet the Bushfire Attack Level standard as tested (AS1530.8.1-2007). This includes the **Kooltherm®** panel with all of the K-Series ancillaries, i.e. Masterwall breather frame wrap, window flashing tape, fixings, fixing buttons, urethane sealants, foam sealants, external render trims and fibreglass mesh.

The render system applied must strictly follow the specification of render system manufacturer for the K-Series System to achieve a BAL 40 rating (contact **Masterwall Australia** for further information).

## Reinforcing Mesh

An alkaline-resistant 5mm x 5mm fibreglass mesh, minimum 1000mm width, (minimum 145gsm) must be installed over the entire face of the paneled wall. For K-Series Cyclonic pre-coated panel, a 150mm - 200mm wide fibreglass reinforcing mesh tape must be installed over all panel joints. Full wall mesh is not required as the K-Series Cyclonic panel already features fibreglass mesh over the entire panel.

## Trims

Alloy corner trims are preferred and are to be applied to all external corners/openings and **exposed** bottom edges of panels if applicable. Galvanised or stainless steel trims are not recommended.

## Flashing Tape

Flexible adhesive backed Aluminium **Masterwall** Flashing Tape typically used around windows, doors and underneath control joints as a high quality adhesive flashing system.

## Joint Sealant

A flexible urethane foam sealant should be applied to all butt joints - see Construction Details.

## Window Flashing Sealant

A premium quality modified liquid sealant applied to the face of the window flashing. Urethane foam sealants are not to be used in this application.

## Screw Fixings

Class (3) screws, 10 gauge fitted with a 50mm diameter K-Series plastic button. 40mm diameter K-Series plastic button for Cyclonic pre-coated panel.

Class (3) screws are specified regardless of the geographic location, as **Kooltherm®** panels always contain differing levels of water vapour.

### Fixing spacing according to wind load:

Frame & Masonry Substrates		Wind Classification to AS 4055			
Stud spacing	Location (mm)	N1	N2	N3	N4
450	Within 1200 of building edge	300	300	300	200
	Elsewhere	300	300	300	300
600	Within 1200 of building edge	300	300	250	150
	Elsewhere	300	300	300	300

The screws are selected to suit either timber framing or steel framing, and are available in the following lengths.

Length	Type	Gauge	Relevant Panel Thickness	
75mm	Chip	10	50mm	Self Driller
75mm	Chip	10	50mm	Needle Point
100mm	Bugle	10	80mm	Self Driller
105mm	Bugle	10	80mm	Needle Point

- Timber Frame - Screw lengths should always be a minimum of 25mm longer than the thickness of the panel specified.
- Steel Frame - Screw lengths should always be a minimum of 15mm longer than the thickness of the panel specified.

### Cyclonic fixing spacing - K-Series pre-coated Cyclonic panels:

Frame			
Stud spacing	Location (mm)	Edge of panel	Elsewhere on panel
<b>450 maximum</b>			
C1	Within 1200mm of building edge	300	150
	Elsewhere	300	200

## Render System

Typically a minimum 5mm polymer render system will be applied utilising 5mm x 5mm fibreglass mesh embedded into 3mm polymer render, followed by a 2mm polymer render levelling coat and a colour tinted trowel-on acrylic texture. For all render system specifications consult **Masterwall Australia**.

## INSTALLATION

### Breather Frame Wrap

**Masterwall Australia** recommends use of **Masterwall** Breather Frame Wrap or similar.

Note: Under no circumstances should a non-breathable paper be used behind **Kooltherm®** panels.

### Layout

**Kooltherm®** panels may be laid either vertically or horizontally according to the best fit for the 2400mm x 1200mm sheet - horizontal, staggered joint layout is always the preferred option.

If the wall height is less than or equal to 2400mm, then practicality may dictate that the **Kooltherm®** panel be laid vertically - but horizontal layout is the preferred option.

If the wall height is greater than 2400mm, then the panels should always be laid horizontally, in a brickwork or stretcher bond pattern, with each 1200mm vertical joint staggered up through the height of the wall.

**A horizontal layout is the preferred option.**

### Supporting Framework

**Edges of the Kooltherm® panels require support on studs, noggings or other intermediate blocking.**

**Kooltherm®** panels may be cantilevered or projected beyond supports by the same distance as a given panel's thickness.

Fixed-back blocking techniques are mandatory. Full-stud width (min 90mm) support is required. Back blocking timber must be MGP 10 or greater. Merchant grade is not permitted. Adhesive fixed back blocking is not permitted.

Supports to intermediate joints are required, as shown in this table.

Panel Thickness	50mm		80mm	
Joint Orientation	V	H	V	H
Studs 450 crs	✓	✗	✓	✗
Studs 600 crs	✓	✓	✓	✗

(V = Vertical) (H = Horizontal)

Supports/blocking are required to all edges around openings.

### Cutting

**(a) Masonry Blade:** For 50mm & 80mm **Kooltherm®** panels, a diamond-tipped masonry blade is an accurate, time-efficient way to cut/trim panels (see MSDS).

**(b) Hand Saw:** A fine-tooth saw is also an efficient way of cutting the 50mm **Kooltherm®** K5 panel.

**Kooltherm®** panels should be accurately cut to size to produce close butt joints between panels.

### Health & Safety

Use of personal protective equipment (face masks and safety goggles) is recommended. The fine dust created by mechanical cutting is hazardous, and protection is recommended, including face masks and safety goggles.

Mechanical cutting should be performed in well-ventilated spaces. Power tools can be fitted with effective dust-extraction systems. Refer to **Kooltherm®** Material Safety Data Sheet (MSDS).

## Fixing To Framing

**(a) Centres:** On a stud spacing of either 450mm or 600mm, fixings are to be at a maximum 300mm centres vertically to all perimeter and intermediate supports. Fixings around perimeter of panels should be 25mm in from the edge of the panel. Average 12 fixings per m<sup>2</sup> (see Wind Load Fixing Chart page 12).

**(b) Fixings:** Fixing screws and buttons should be the type and suitability as set out in this guide.

**(c) Appearance:** When fastened correctly, the screw head and button should be slightly countersunk in a concave recess on the outer surface of the panel, and located so as to not crush the edge of the panel. The button should always retain its circular shape i.e. if the button begins to flare or fold it has been screwed too far towards the frame.

## Sealing - Joints

Prior to closing up of all joints between panels (and between panels and other building elements), a flexible urethane foam is required to the centre the gap between panels.

This forms a mechanical seal for weatherproofing, and converts the many individual panels into a single monolithic, insulated skin.

Foam urethane sealant is therefore required to:

**(a)** All butt joints

**(b)** All external corners and butt jointed internal corners

## Sealing – Openings

Prior to the application of the panel, **all** openings must be flashed from the reveal to the frame. **Masterwall Australia Pty Ltd** recommends and supplies adhesive aluminium **Masterwall** Flashing Tape for just this purpose, and is suitable for both aluminium and timber windows. This proven flashing method reduces the risk of water penetration. In turn, the panels are then to be sealed with a premium quality modified liquid sealant (not foam) to the face of the flashing tape to form a gasket seal around the opening.

Note: **Kooltherm**® panels should not be externally sealed to window/door reveals at this point, post installation and prior to render application. Sealants should never be rendered over, as render systems, with limited movement capabilities, will restrict a sealant's ability to move according to manufacturer's specification. Sealants for openings should be applied after the render system has been applied - never before!

## Sealing – Other Penetrations (including wiring, plumbing, joists, ducting)

Where possible all penetrations through the **K-Series System** should be treated as per window detail, incorporating flashing tape and liquid urethane sealant. This is of high importance for floor and pergola joist penetrations, electrical meter boxes, ducting and the like.

It is then recommended that a 10mm minimum clearance gap be left between the **Kooltherm**® panel and the penetration and caulked using **Masterwall** flexible expanding foam urethane sealant prior to render application.

Smaller penetrations such as plumbing or electrical conduit should have a 10mm minimum clearance gap between the **Kooltherm**® panel and the pipe and caulked using **Masterwall** approved flexible expanding foam urethane sealant prior to render application.

Note: Extra mesh tape is required around the penetration for added reinforcing during the render process.

**Masterwall Australia Pty Ltd** recommends the use of liquid sealants to all timber windows after the rendering process has been completed. Please note that render systems are not sealants i.e. an opening cannot be sealed by the application of a polymer render system. Render systems are water-shedding technologies, not weather-proofing technologies.



### Control Joints and Articulation Relief Joints

Control joints for expansion should coincide with control joints within the building structure and substrate, and should be placed at all perceived stress points or weak areas of excessive movement within the building structure. Control joints should be placed at a maximum of walls that are over 20 meters long and at all mid-floor breaks. It is recommended that panel area below windows that is less than 300mm in height should be relieved with 'Articulation Relief Joints' of the render coating, at the corners of the opening (see Finishing: page 16). Contact Masterwall Australia for further information.

Articulation relief joints of the render coating are to be formed by cutting or forming a 'V' groove into the completed base coats, only to 70% depth of the render, not into the **Kooltherm®** panel. The applied top coats shall replicate the 'V' groove to leave a visible line.

Where control joints are part of the building construction, the joint is to be expressed in the **Kooltherm®** panels as an open joint, free of construction urethane, and finished as for all other open edges (including external corners applied to each edge).

Panel to panel control joints should be located on double studs, which are then to be sealed with flashing tape, which is then sealed to the rear of each panel with the use of a premium quality modified liquid sealant (not foam).

All control joints should feature either Ableflex (or similar) or backer rod as the primary seal, which should be set back in the control joint a minimum of 8mm where it must be caulked by others after the render process has been completed. – See Construction Details Manual. All Control Joints should be free of render products.

### Corners, Edges, Openings & Returns

All panels to external corners must be butt joined (square) to give maximum strength to the corner.

Butt joints are required to all internal corners. Foam urethane sealant is required in this butt joint.

To form a total weatherproof face, all joints and abutments require sealing with foam urethane sealant.

**Masterwall** Alloy External Corners should be applied to all of the following areas:

- (a) All external corners
- (b) All openings
- (c) All bottom edges of panel

These trims are to be in long lengths and set accurately to be plumb, level and straight.

## Masterwall Skyline System

The **Skyline System** is an architectural concealed waterproofing detail for use on parapet designs, featuring clean, uninterrupted lines. The **Skyline System** is concealed by the applied render finish and eliminates the need for unsightly pressed metal capping. It is also used as a waterproofing detail for fixing blocks within the **Masterwall** and **K-Series System**.

The **Skyline System** membrane is a pressure sensitive self-adhesive butyl tape, 0.75mm in thickness, containing a non-woven polyester fibre face, ready for the application of high polymer render. Able to withstand building movement, it has 35% elongation breaking limit and is serviceable from -10° to 100° Celsius.

Important Note: As the **Skyline System** is a total waterproofing detail, no fixings should ever penetrate the horizontal surface of the completed parapet. All fixings of balustrades and the like should only be mounted on the vertical wall surface only.

## Curved Walls

**Kooltherm**<sup>®</sup> panels cannot be curved under any circumstances.

## Render System

When all **Kooltherm**<sup>®</sup> panels have been installed (complete with sealants and edge trims) a 5mm minimum thickness of the M-TEX render system by Masterwall is required. Traditional sand/cement renders are not suitable for application of **Kooltherm**<sup>®</sup> panels.

Prior to render application the face of the **Kooltherm**<sup>®</sup> panels require priming with a single coat of M-TEX Rendercoat Primer.

M-TEX Pro Render is then applied to a depth of 3mm with M-TEX alkali resistant fibreglass mesh 160gsm embedded into the wet render, additional reinforcing strips of the mesh (200 x 200mm) should be applied diagonally across the corners of all openings such as windows, doors and electrical meter boxes.

A second 2mm levelling coat of M-TEX Pro Render is then applied to achieve the required thickness.

The final finish is achieved with the application of an M-TEX Marble coloured texture of choice.

For full M-TEX specification and data sheets, please consult Masterwall.

Articulation relief joints of the render coating are to be formed by cutting or forming a 'V' groove into the completed base coats, only to 70% depth of the render, not into the **Kooltherm**<sup>®</sup> panel. The applied top coats shall replicate the 'V' groove to leave a visible line.

## Storage, Handling, Protection

**Kooltherm**<sup>®</sup> panels delivered to site should be stored flat and evenly supported.

Panels are to be stored in dry locations. If they are to be stored outside, cover adequately from rain damage.

During installation, the **Kooltherm**<sup>®</sup> panels should be handled with care to prevent edge damage or fracture.

Particular care is required during windy conditions, as unsecured panels can be severely damaged.

Continuous exposure may result in deterioration and minor fretting of exposed edges of the panel. This is to be removed prior to proceeding with finishing or sealing. As with all sheet materials, protection from impact damage is required.

The application of the approved polymer render should, wherever possible, follow the installation of internal services, fittings and linings – when the risk of damage is minimised.

Timely application of the render will complete the wall system - and protect the panels from damage.

## **Repair**

Panels that are fractured or severely damaged (before or after fixing) should be rejected or cut down to size for use.

Minor penetrations, edge fractures or crushed areas may be site-patched with the reinforcing mesh and an approved acrylic patching render.

## **Waste Management**

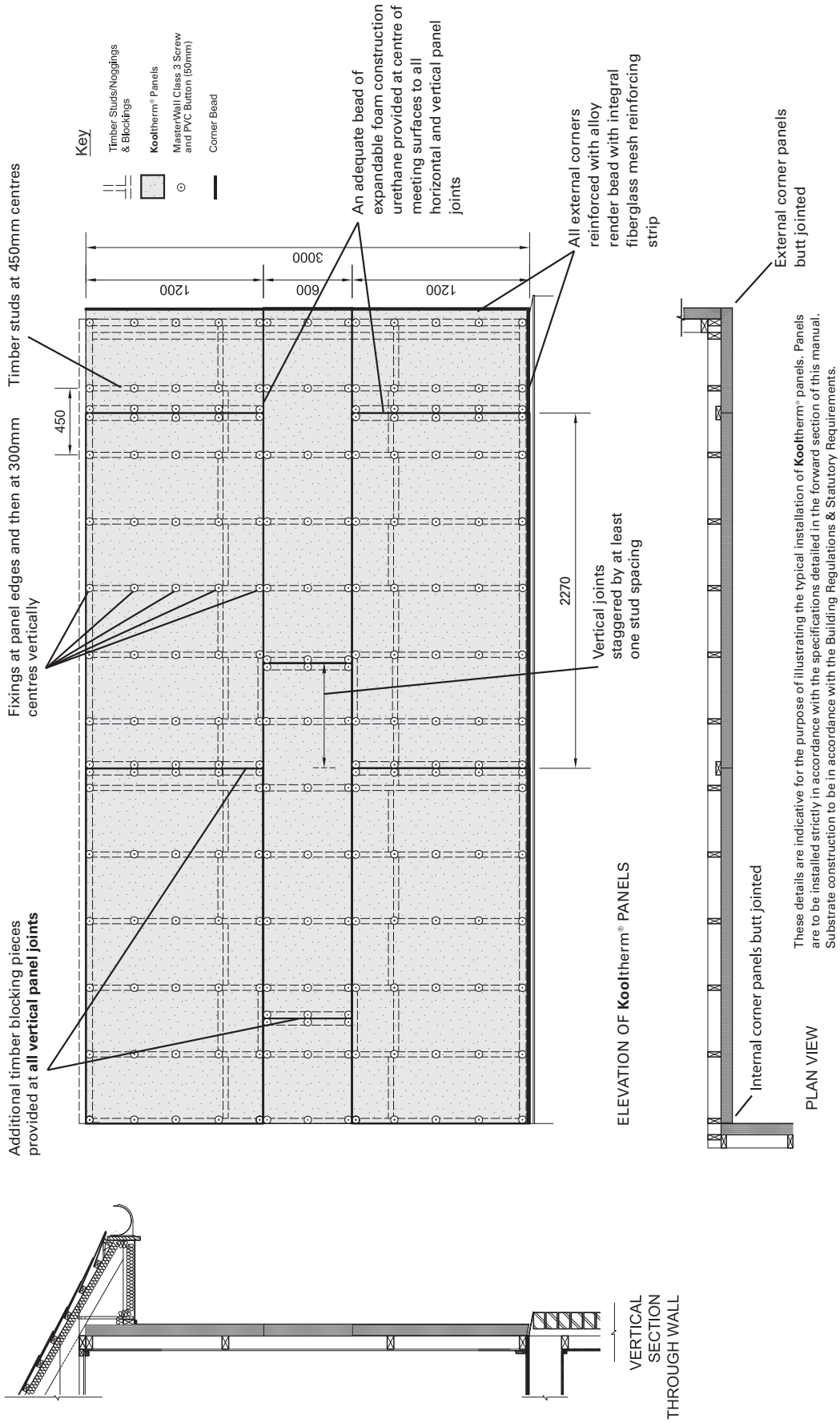
Being lightweight, the panel material is readily dispersed by the wind. To prevent a nuisance, all off-cuts and residue from cutting should be stored in tied plastic bags for removal to a place of legal disposal. Attention to detail - in particular to spacing of backblocking - will contribute to a reduction in the amount of waste and off-cut materials.

## **Disclaimer**

Whilst every effort has been made to ensure the information in this manual is correct at the time of printing, **Masterwall Australia Pty Ltd** reserves the right to change the specifications of all products referred to in this manual at any time. All changes made to this manual are uploaded on to our website [www.masterwall.com.au](http://www.masterwall.com.au).

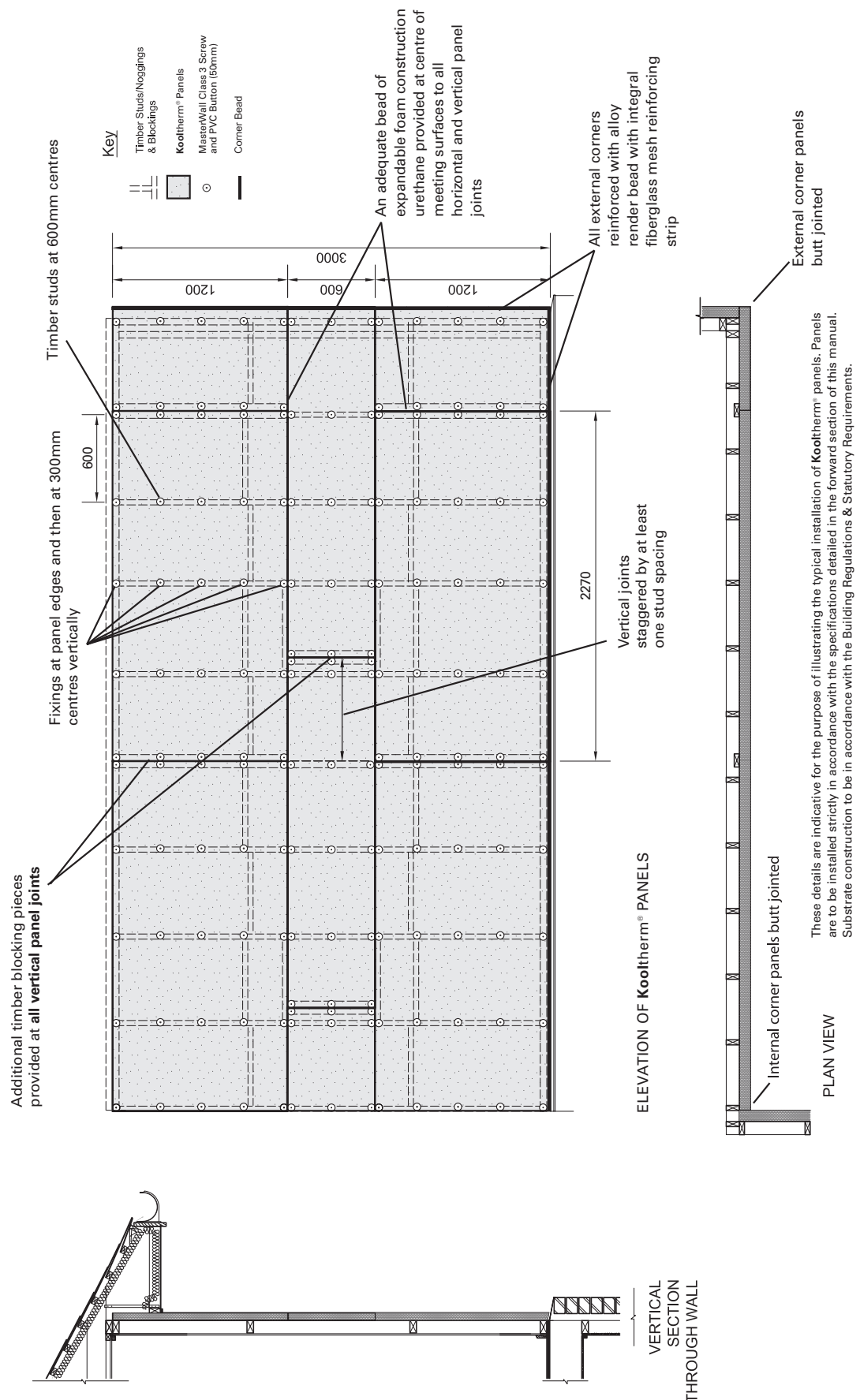
# SET OUT ADVICE FOR 450 CENTRED STUD WALL:

# 50mm & 80mm Kooltherm® PANEL



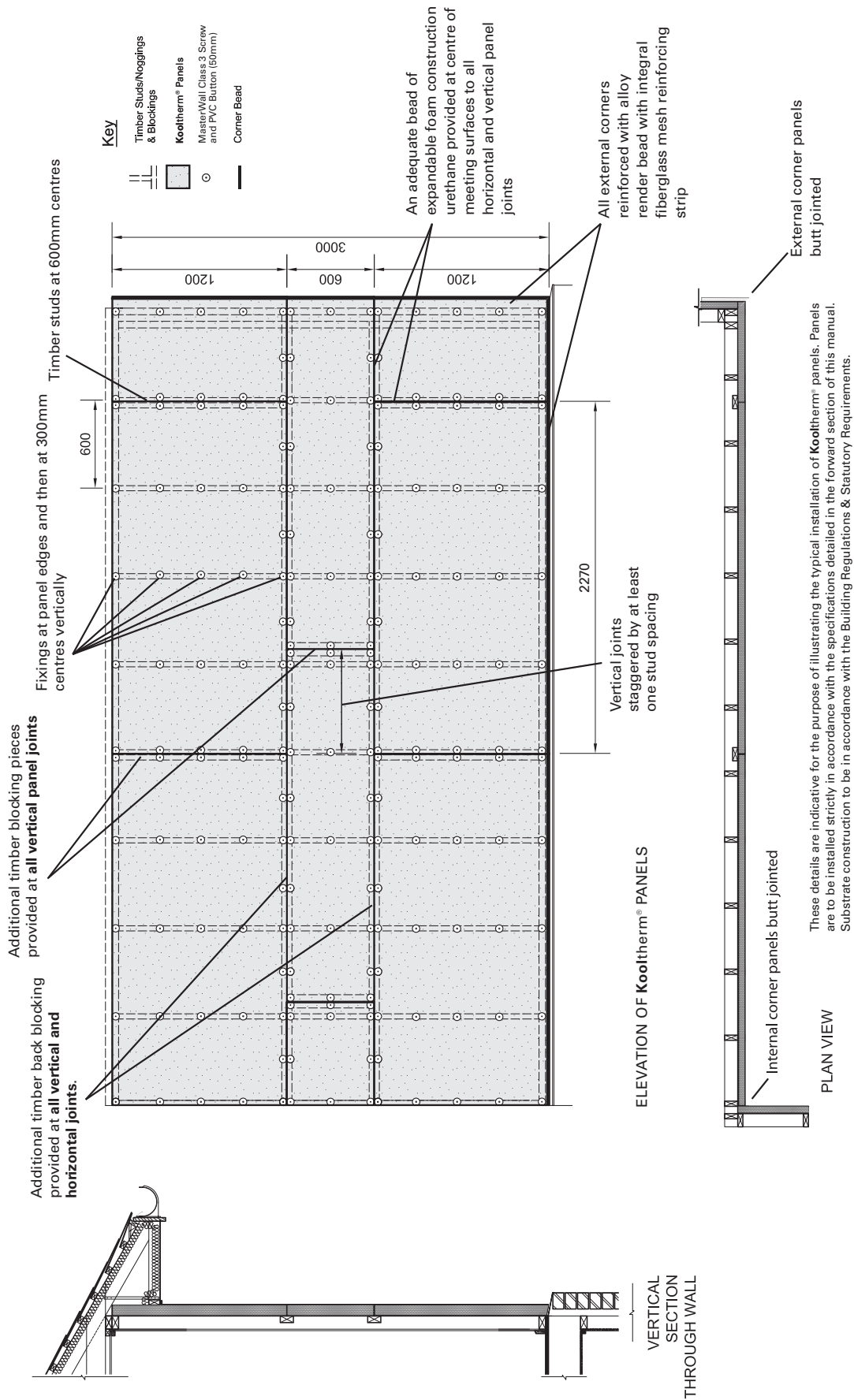
# 80mm Kooltherm® PANEL

SET OUT ADVICE FOR 600 CENTRED STUD WALL:



# 50mm Kooltherm® PANEL

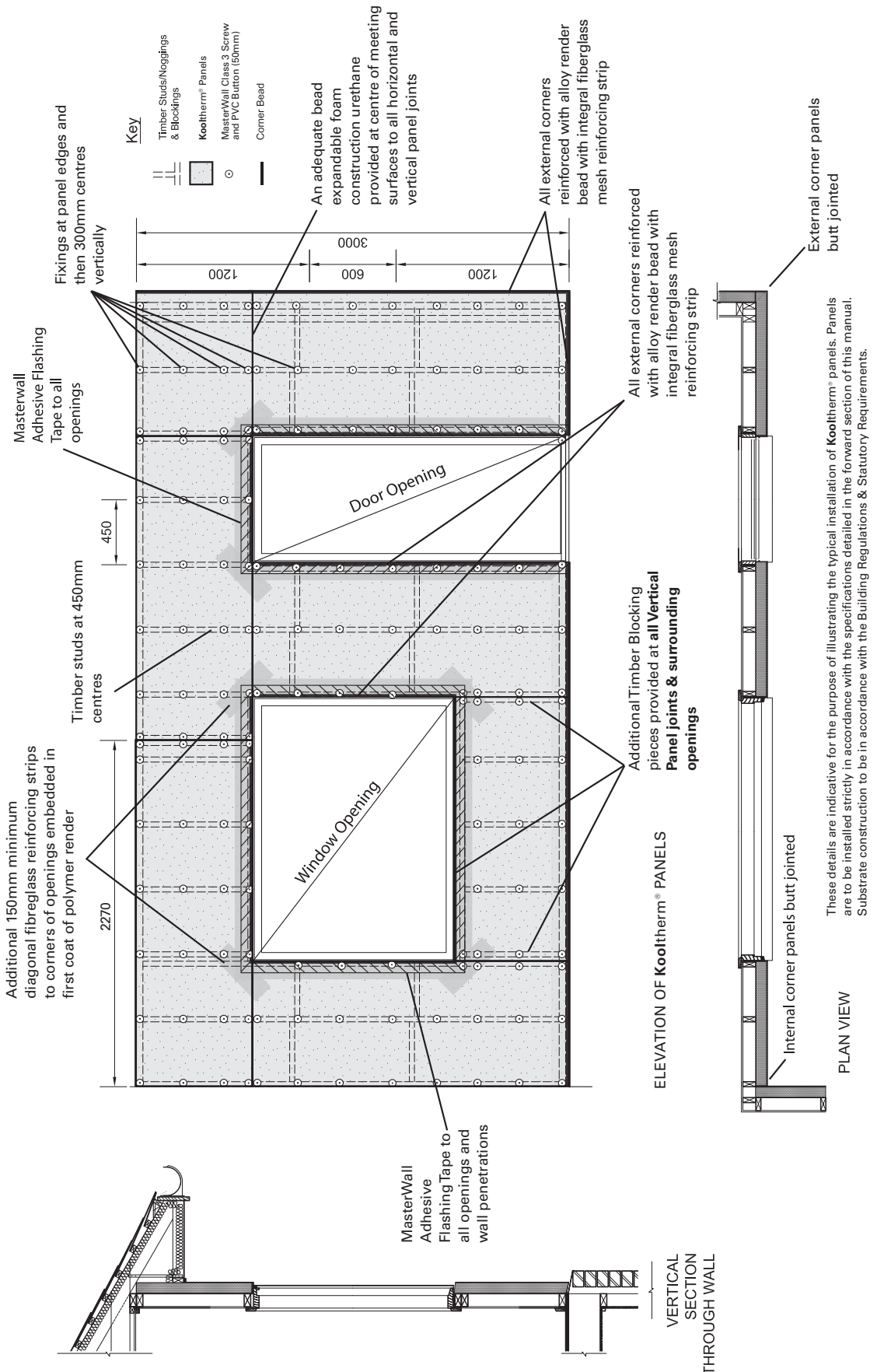
## SET OUT ADVICE FOR 600 CENTRED STUD WALL:





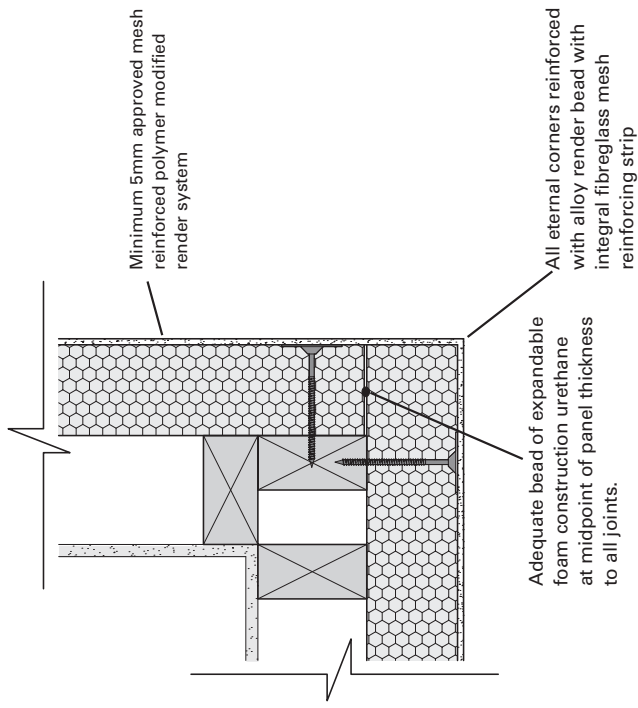
50 & 80mm **Kooltherm®** PANEL

SET OUT ADVICE FOR OPENINGS:



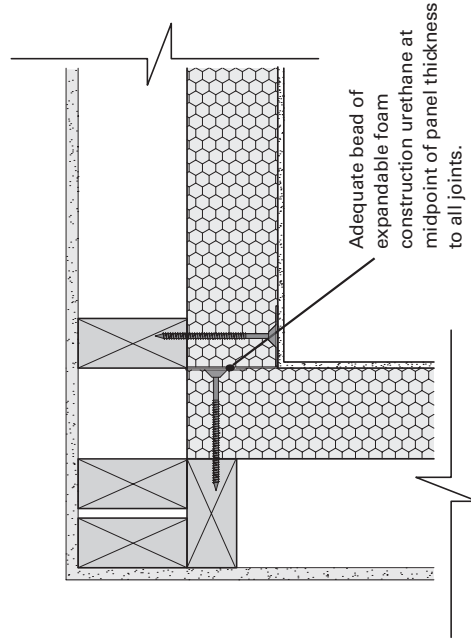
## 50mm & 80mm **Kooltherm®** PANEL

### TYPICAL CORNER JOINTS:



### **Kooltherm®** Panels Butt Jointed

### EXTERNAL CORNER - PLAN VIEW



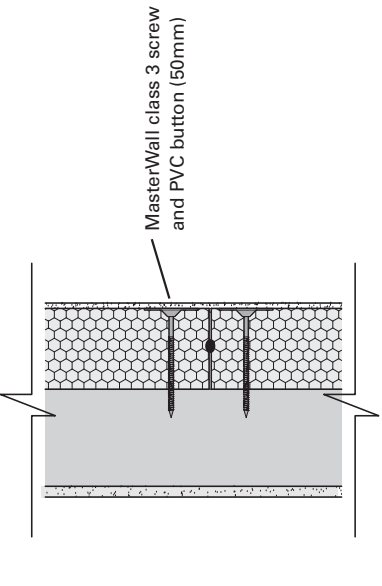
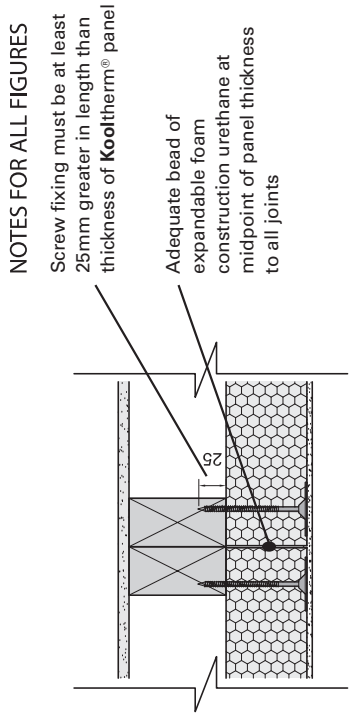
### **Kooltherm®** Panels Butt Jointed

### INTERNAL CORNER - PLAN VIEW

These details are indicative for the purpose of illustrating the typical installation of **Kooltherm®** panels. Panels are to be installed strictly in accordance with the specifications detailed in the forward section of this manual. Substrate construction to be in accordance with the Building Regulations & Statutory Requirements.

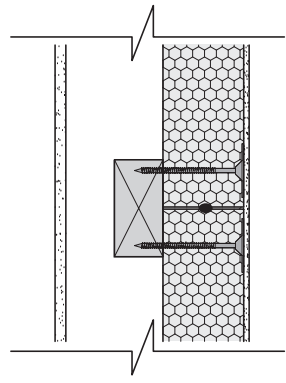
# 50mm & 80mm Kooltherm® PANEL

## TYPICAL JOINTS BETWEEN PANELS:

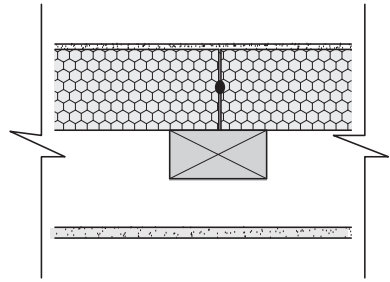


Vertical joint at stud. Double stud required.

Horizontal panel joints at stud.



Vertical panel joints between studs.  
Back blocking required fixed to frame.

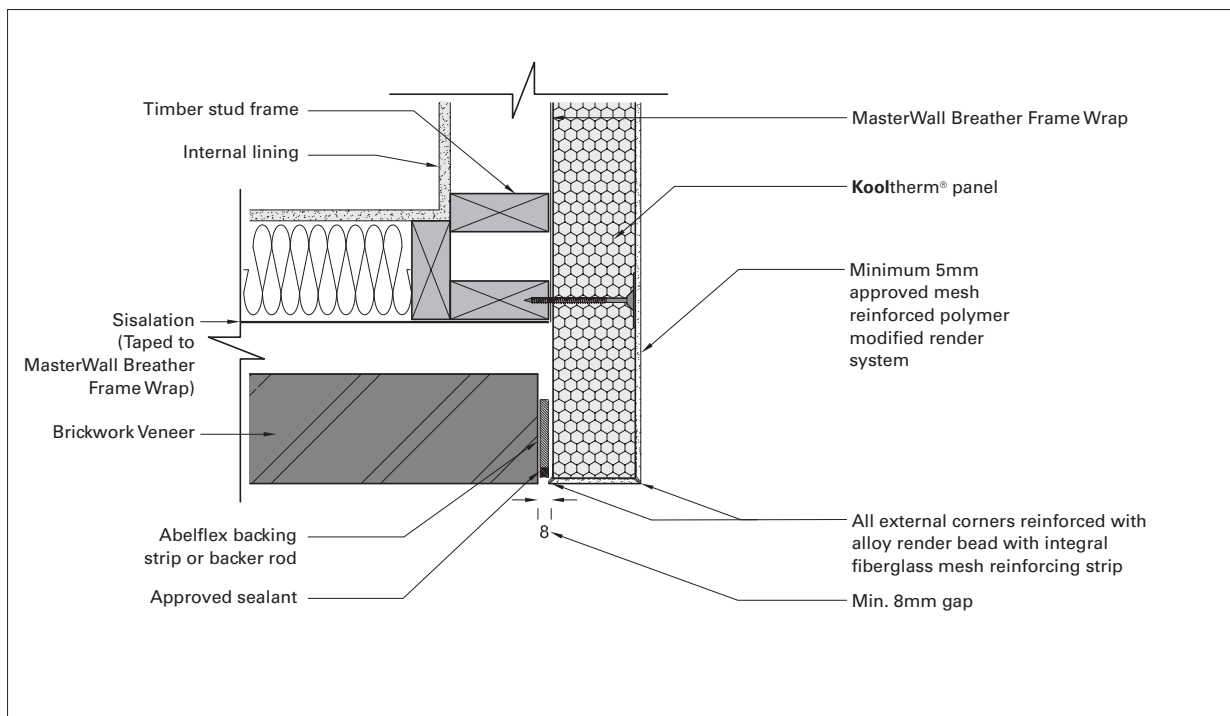


Horizontal joints of 50mm panel on 600mm centre studs. Back blocking fixed to frame required between studs.

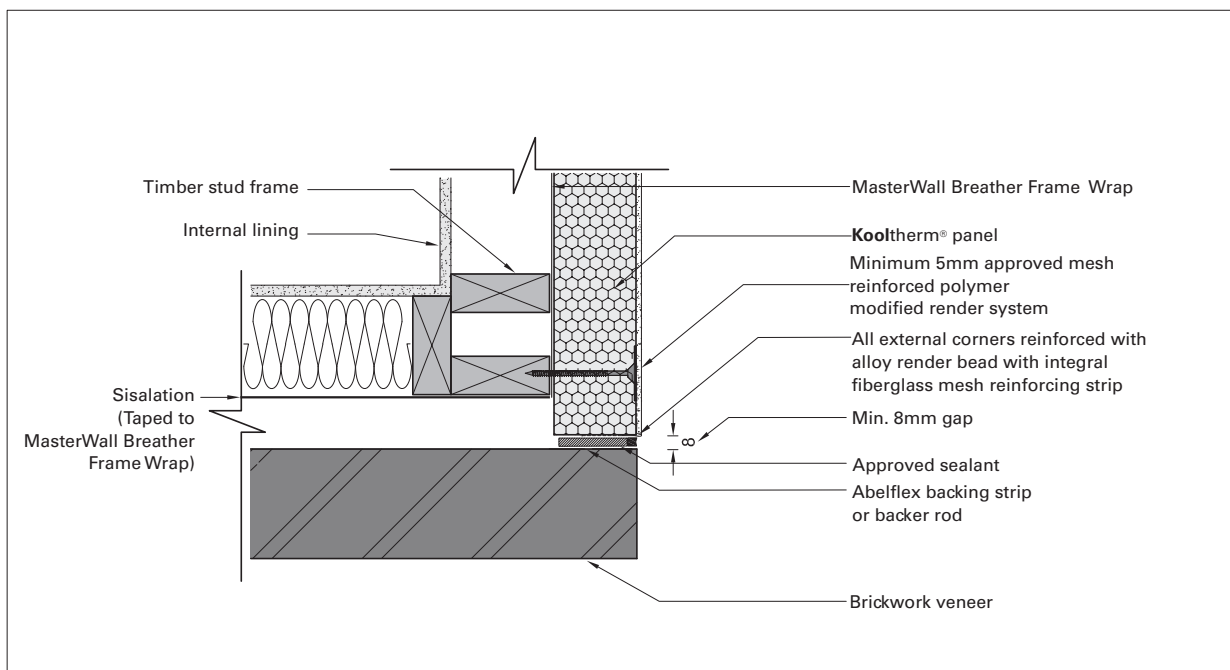
## VERTICAL JOINTS - PLAN VIEW

## HORIZONTAL JOINTS - SECTION VIEW

These details are indicative for the purpose of illustrating the typical installation of Kooltherm® panels. Panels are to be installed strictly in accordance with the specifications detailed in the forward section of this manual. Substrate construction to be in accordance with the Building Regulations & Statutory Requirements.

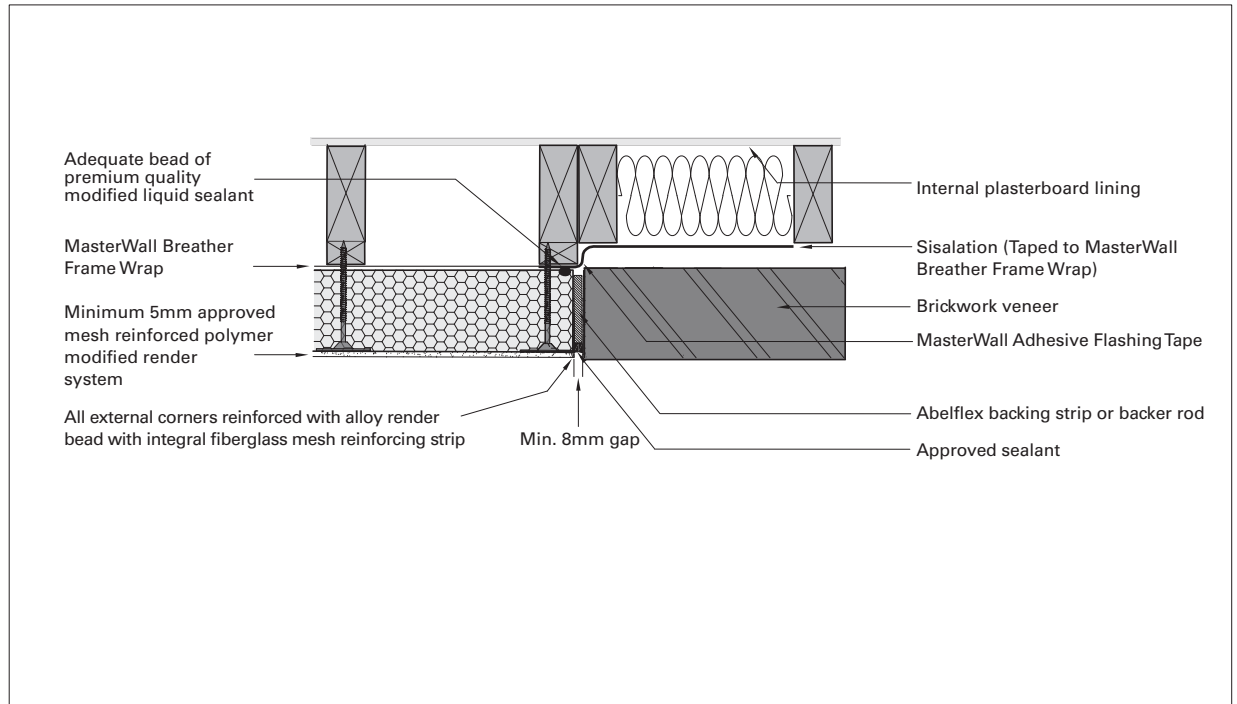


## Kooltherm® PANEL / BRICK VENEER EXTERNAL CORNER: JUNCTION - 1

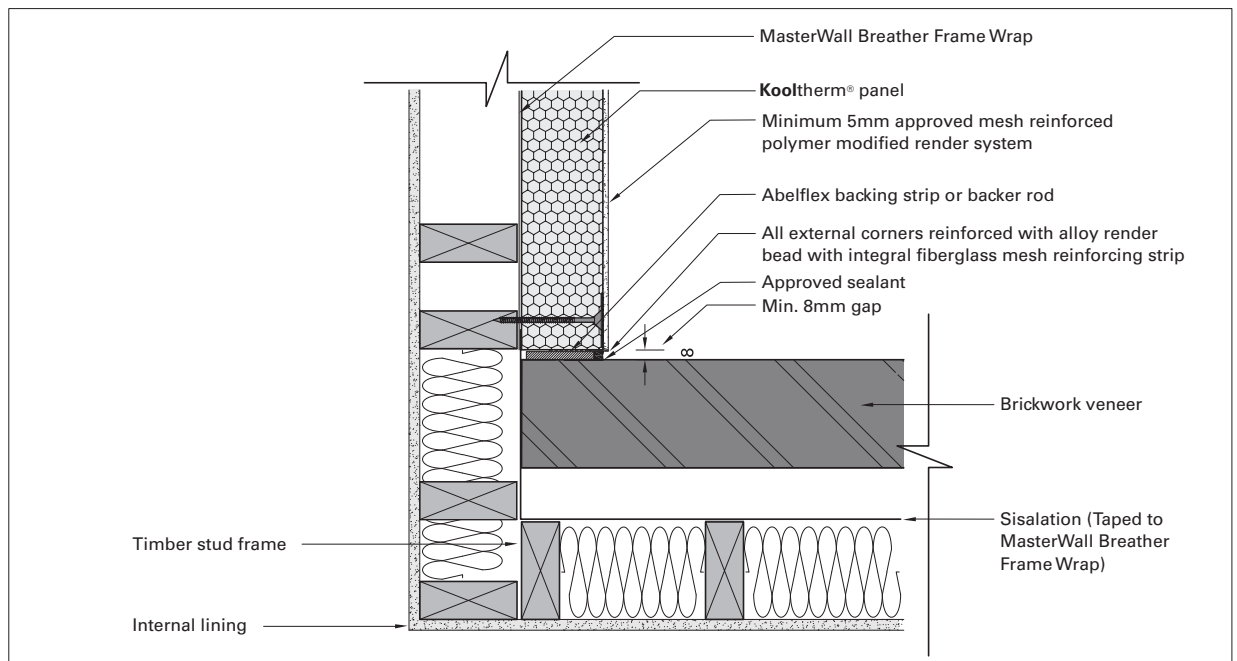


## Kooltherm® PANEL / BRICK VENEER EXTERNAL CORNER: JUNCTION - 2

These details are indicative for the purpose of illustrating the typical installation of Kooltherm® panels. Panels are to be installed strictly in accordance with the specifications detailed in the forward section of this manual. Substrate construction to be in accordance with the Building Regulations & Statutory Requirements.

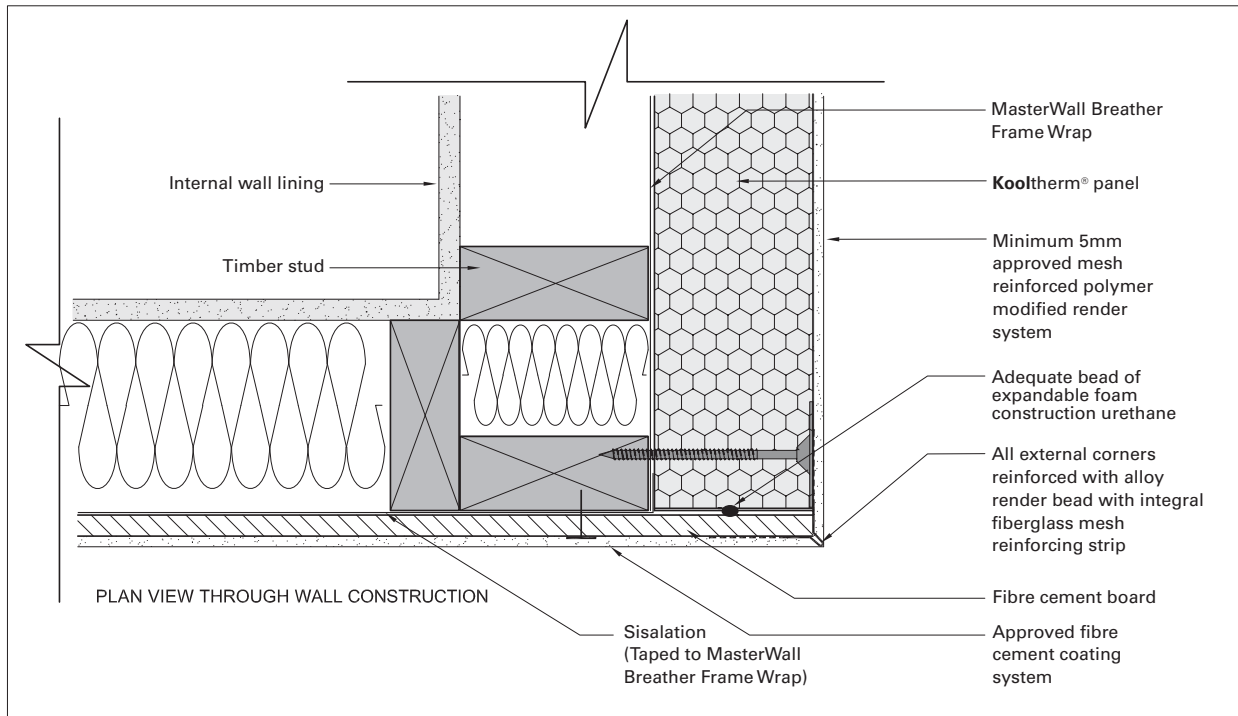


## Kooltherm® PANEL / BRICK VENEER CONSTRUCTION CONTROL JOINT: JUNCTION - 3

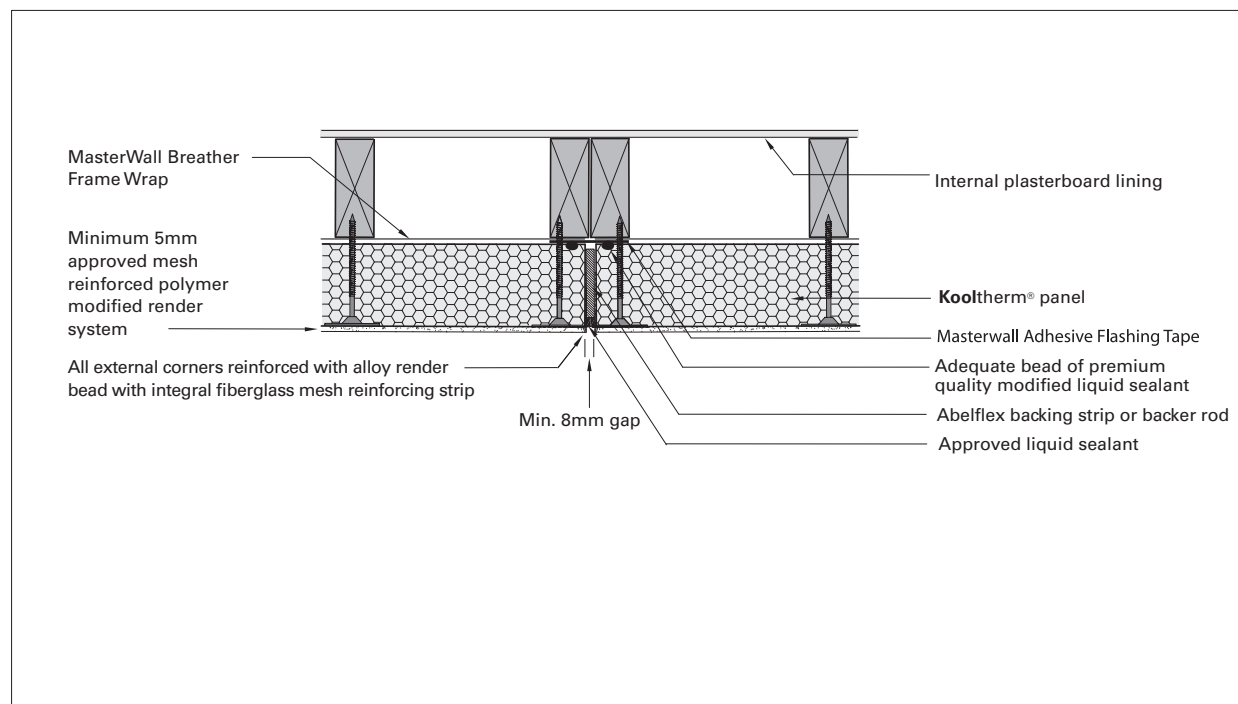


## Kooltherm® PANEL / BRICK VENEER INTERNAL CORNER: JUNCTION - 4

These details are indicative for the purpose of illustrating the typical installation of Kooltherm® panels. Panels are to be installed strictly in accordance with the specifications detailed in the forward section of this manual. Substrate construction to be in accordance with the Building Regulations & Statutory Requirements.



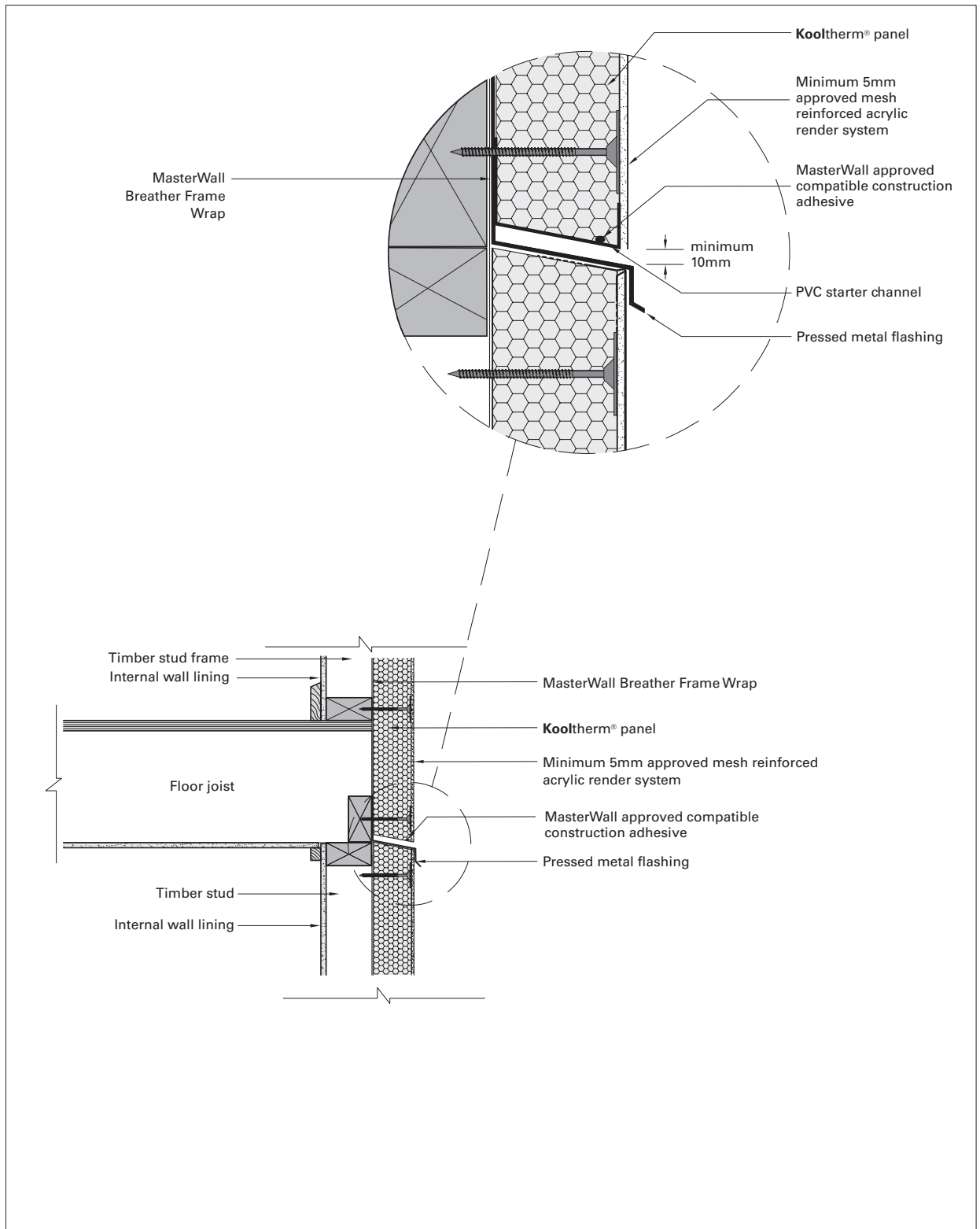
## Kooltherm® PANEL / FIBRE CEMENT BOARD: JUNCTION



## Kooltherm® PANEL / Kooltherm® PANEL: CONSTRUCTION CONTROL JOINT

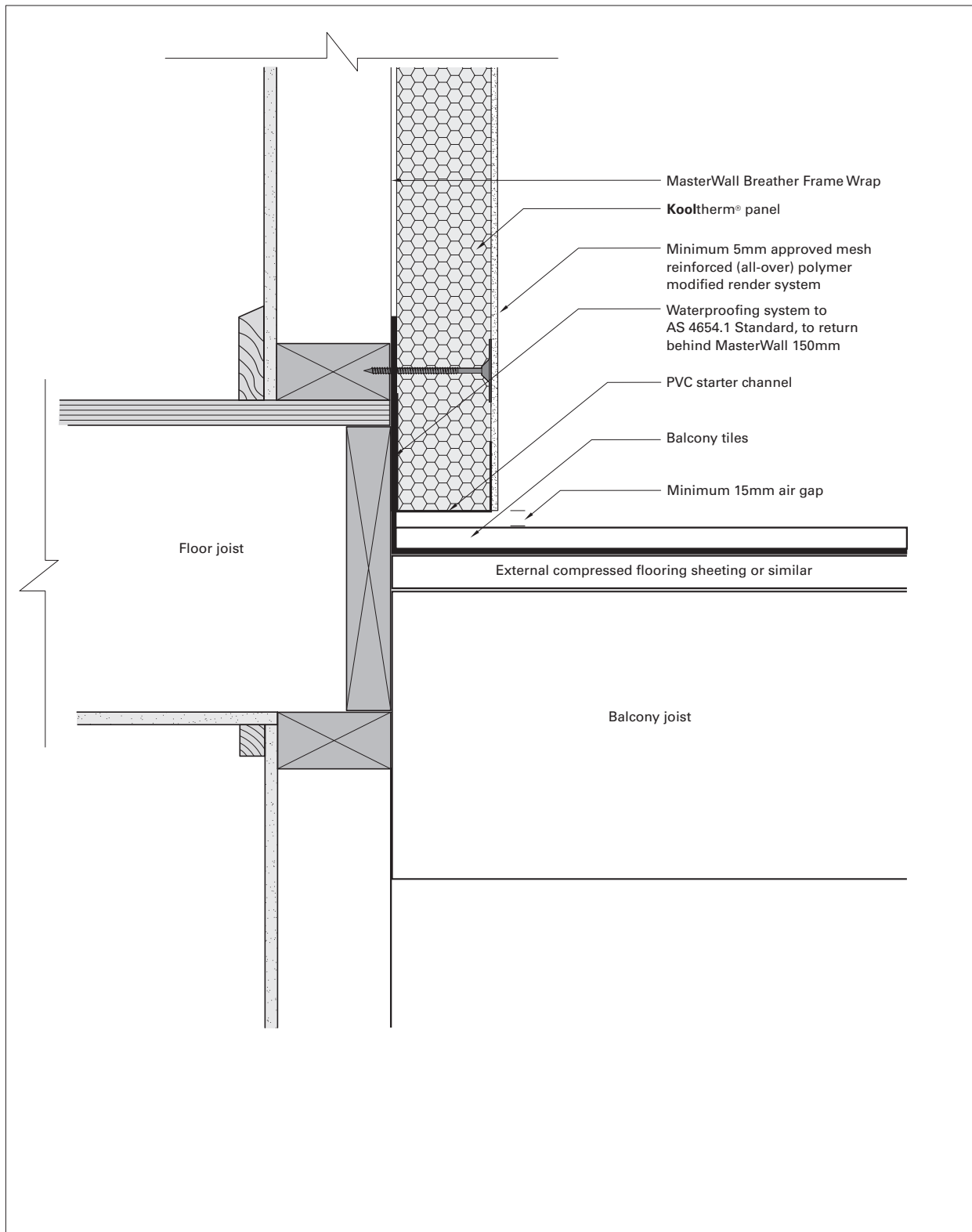
These details are indicative for the purpose of illustrating the typical installation of Kooltherm® panels. Panels are to be installed strictly in accordance with the specifications detailed in the forward section of this manual. Substrate construction to be in accordance with the Building Regulations & Statutory Requirements.





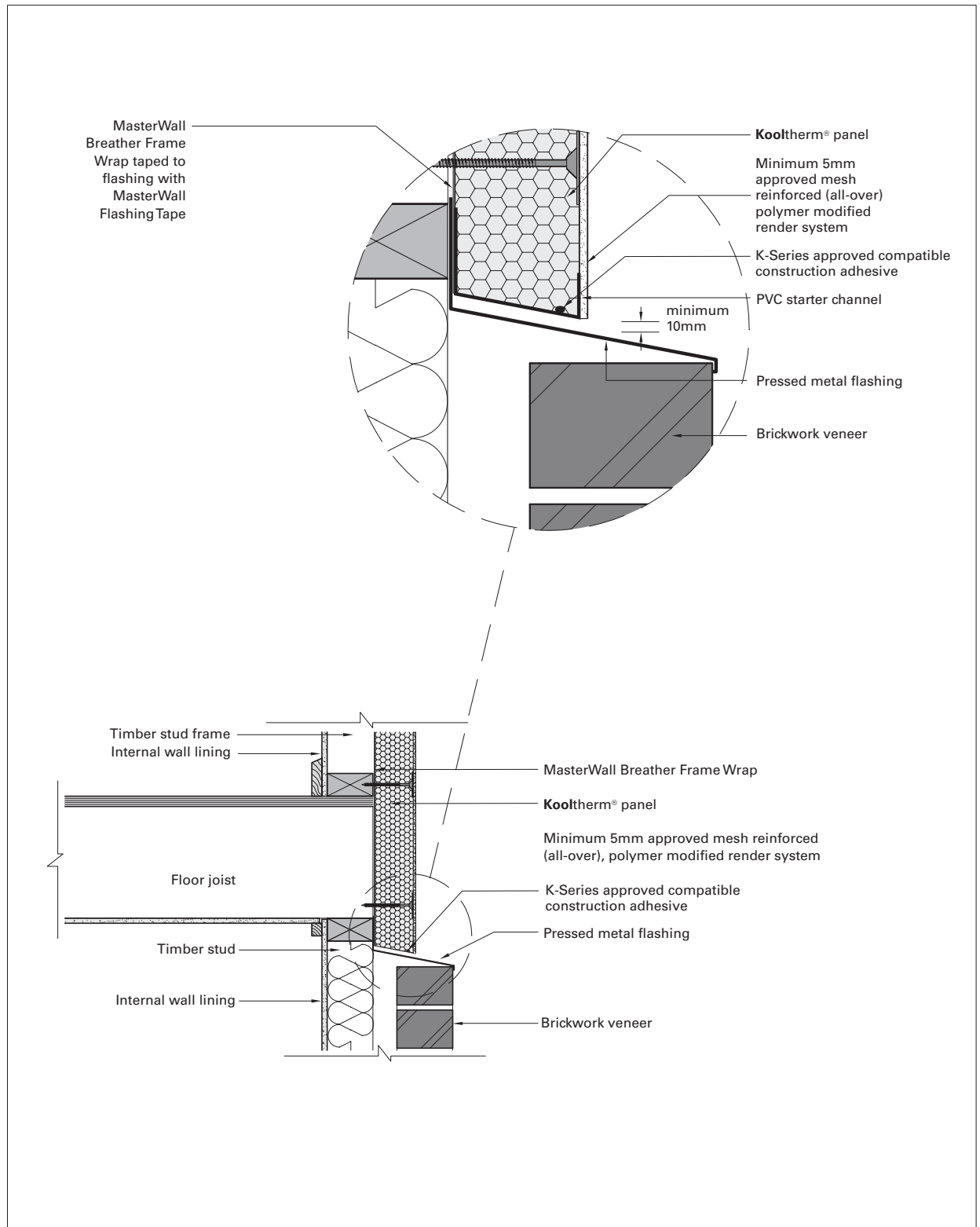
## Kooltherm® PANEL / Kooltherm® PANEL: CONSTRUCTION CONTROL JOINT - MID FLOOR BREAK

These details are indicative for the purpose of illustrating the typical installation of Kooltherm® panels. Panels are to be installed strictly in accordance with the specifications detailed in the forward section of this manual. Substrate construction to be in accordance with the Building Regulations & Statutory Requirements.



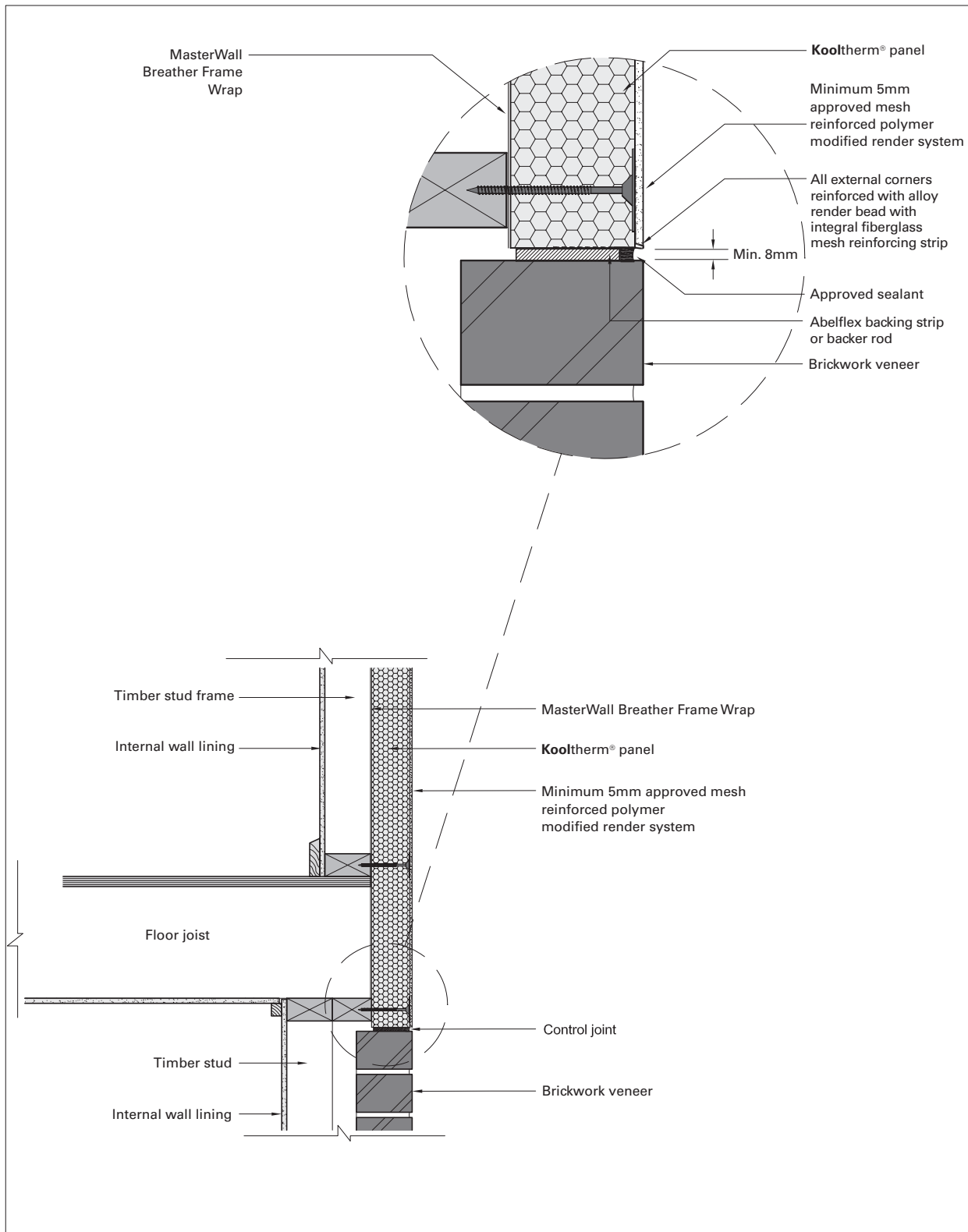
## Kooltherm® PANEL: BALCONY SOLID FLOOR JUNCTION

These details are indicative for the purpose of illustrating the typical installation of Kooltherm® panels. Panels are to be installed strictly in accordance with the specifications detailed in the forward section of this manual. Substrate construction to be in accordance with the Building Regulations & Statutory Requirements.



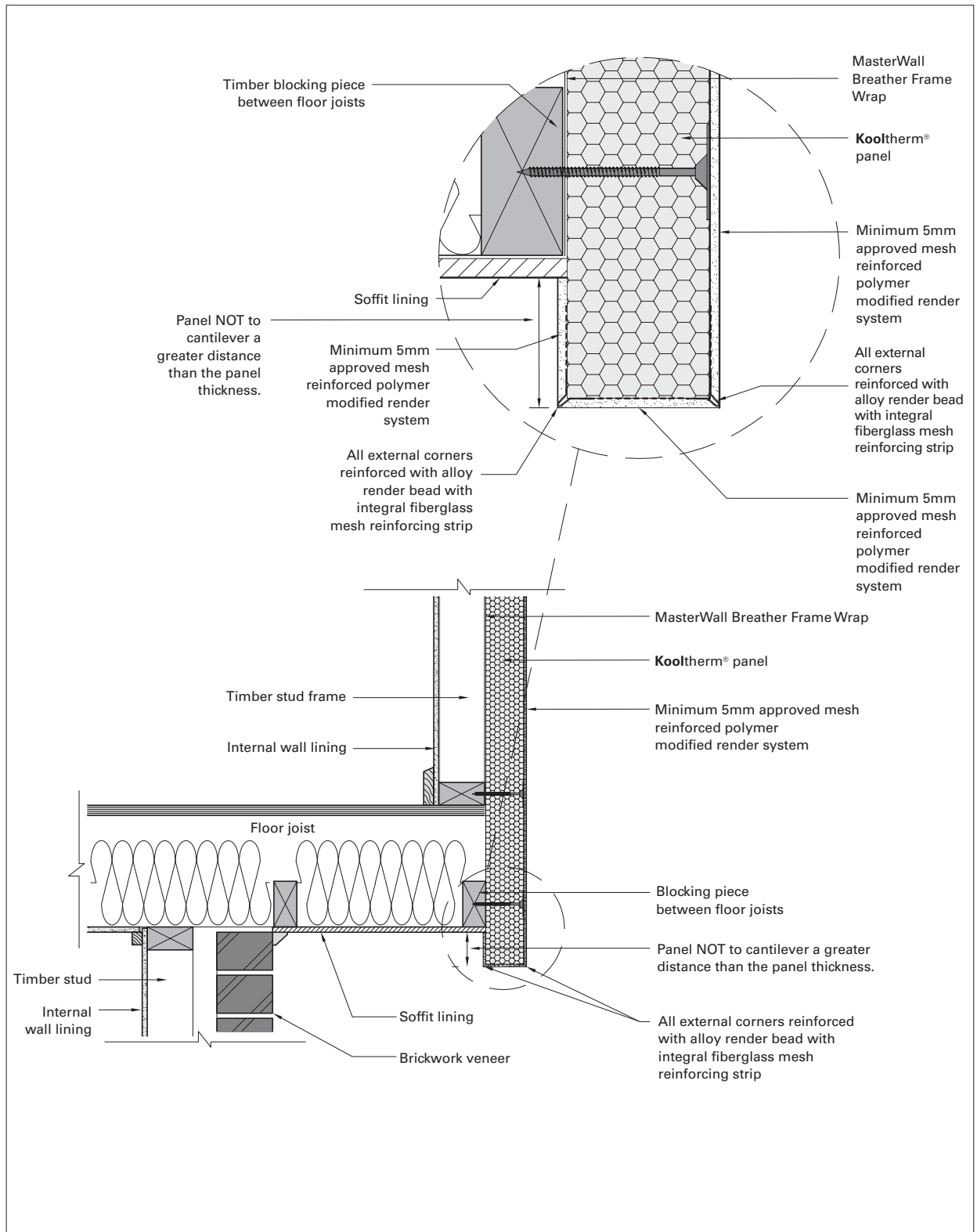
## Kooltherm® PANEL / BRICK VENEER: JUNCTION - FIRST FLOOR LEVEL STEP OUT

These details are indicative for the purpose of illustrating the typical installation of Kooltherm® panels. Panels are to be installed strictly in accordance with the specifications detailed in the forward section of this manual. Substrate construction to be in accordance with the Building Regulations & Statutory Requirements.



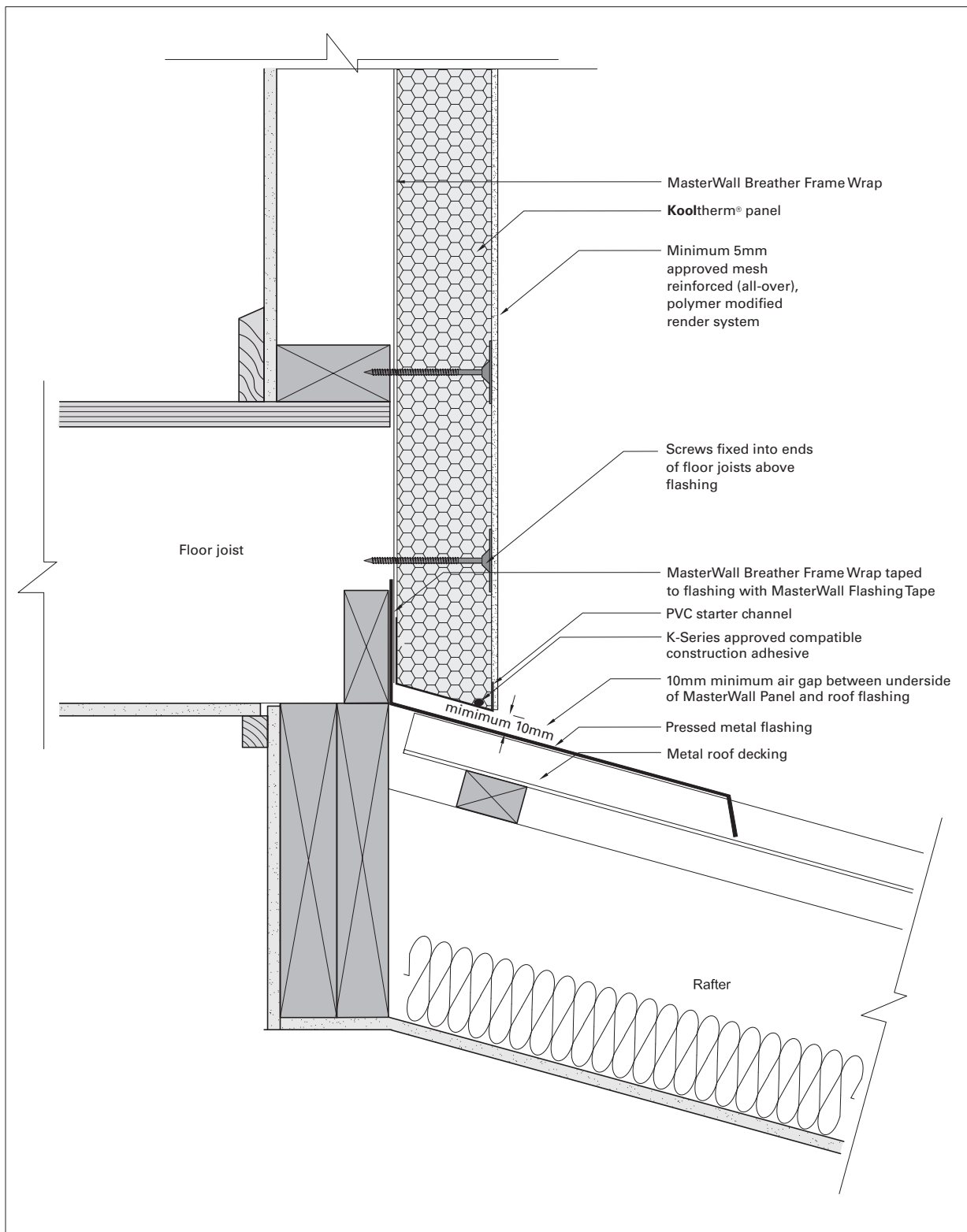
## Kooltherm® PANEL / BRICK VENEER JUNCTION: FIRST FLOOR LEVEL FLUSH JOINT

These details are indicative for the purpose of illustrating the typical installation of Kooltherm® panels. Panels are to be installed strictly in accordance with the specifications detailed in the forward section of this manual. Substrate construction to be in accordance with the Building Regulations & Statutory Requirements.



## Kooltherm® PANEL: OVERHANGING FIRST FLOOR LEVEL

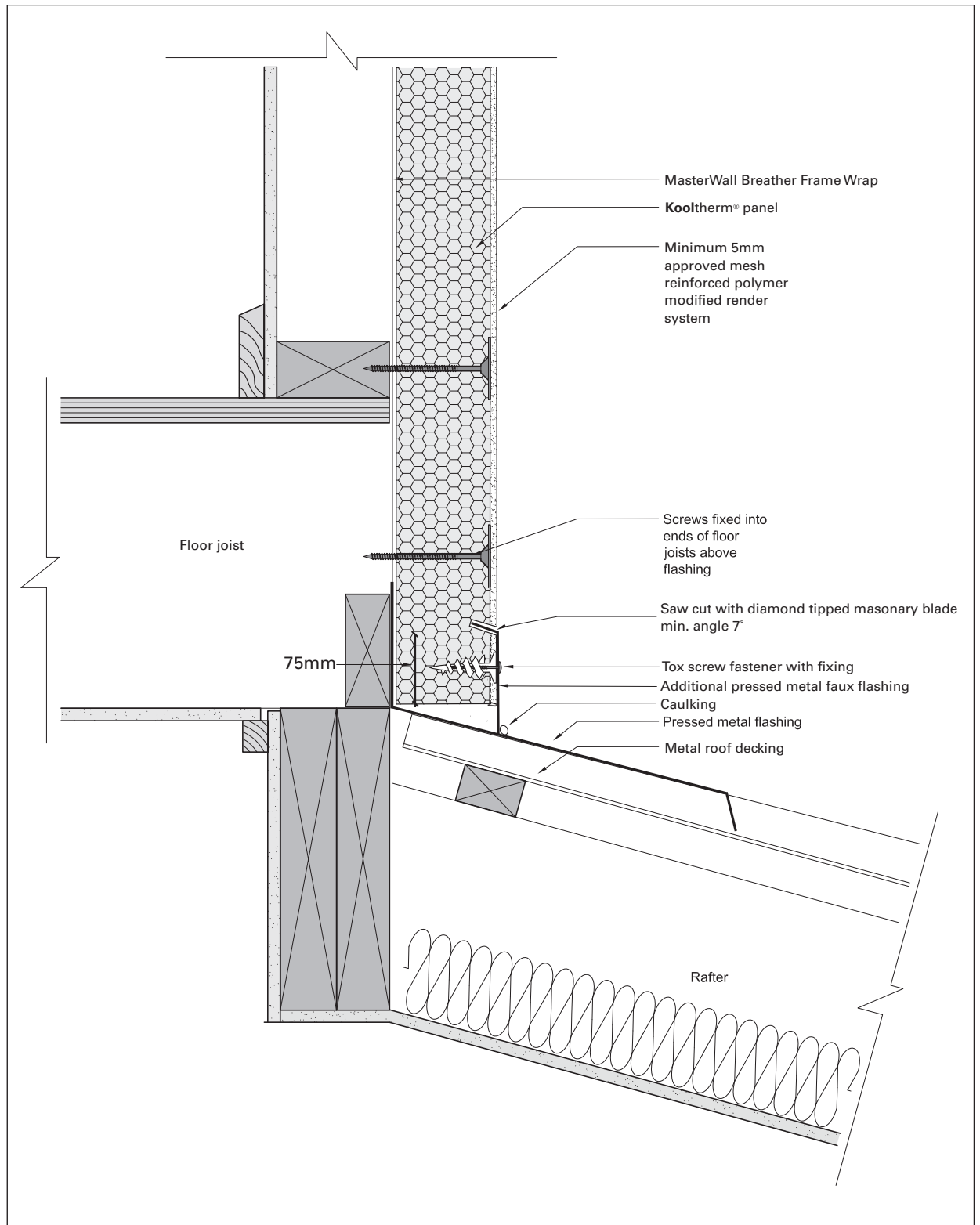
These details are indicative for the purpose of illustrating the typical installation of Kooltherm® panels. Panels are to be installed strictly in accordance with the specifications detailed in the forward section of this manual. Substrate construction to be in accordance with the Building Regulations & Statutory Requirements.



## Kooltherm® PANEL: LOWER ROOF JUNCTION - REAR FLASHED

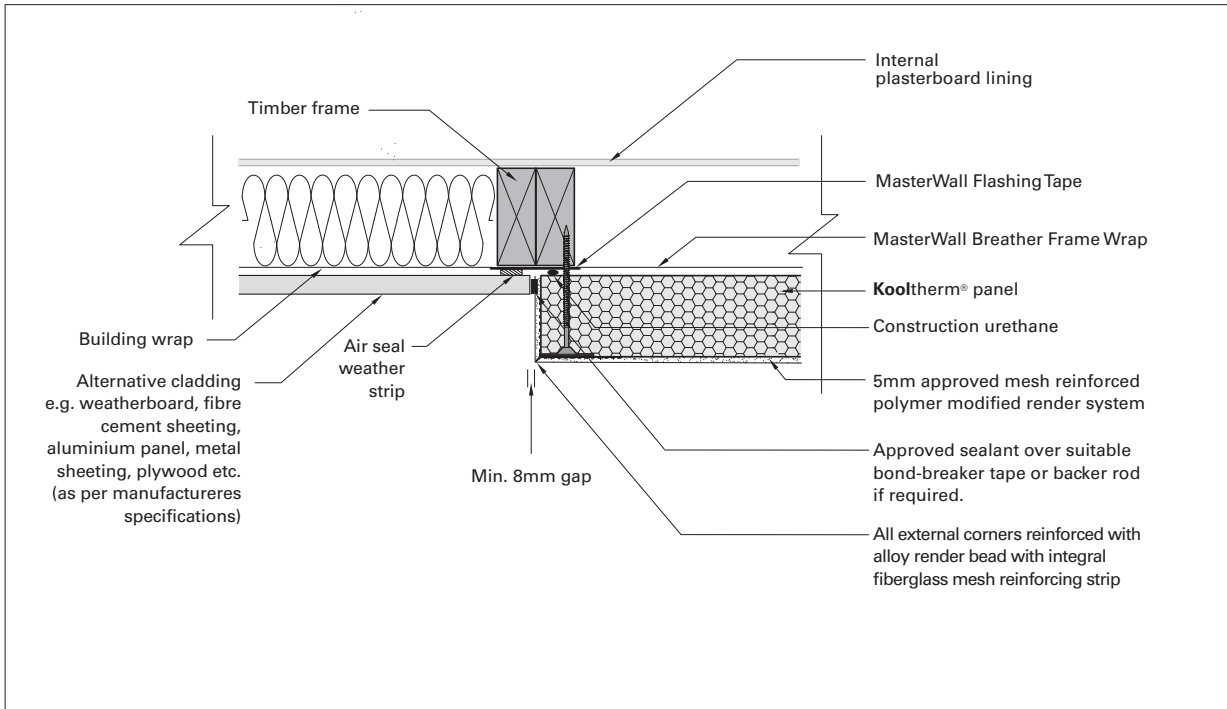
These details are indicative for the purpose of illustrating the typical installation of Kooltherm® panels. Panels are to be installed strictly in accordance with the specifications detailed in the forward section of this manual. Substrate construction to be in accordance with the Building Regulations & Statutory Requirements.



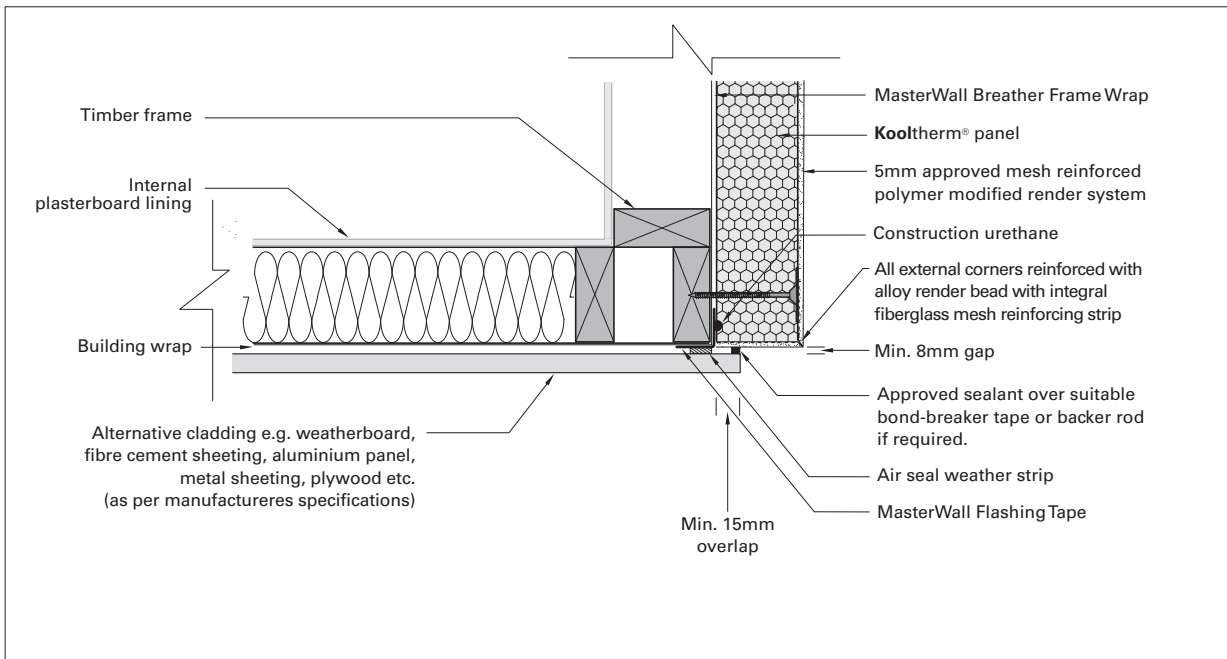


## Kooltherm® PANEL: LOWER ROOF JUNCTION WITH ADDITIONAL FAUX FLASHING

These details are indicative for the purpose of illustrating the typical installation of Kooltherm® panels. Panels are to be installed strictly in accordance with the specifications detailed in the forward section of this manual. Substrate construction to be in accordance with the Building Regulations & Statutory Requirements.

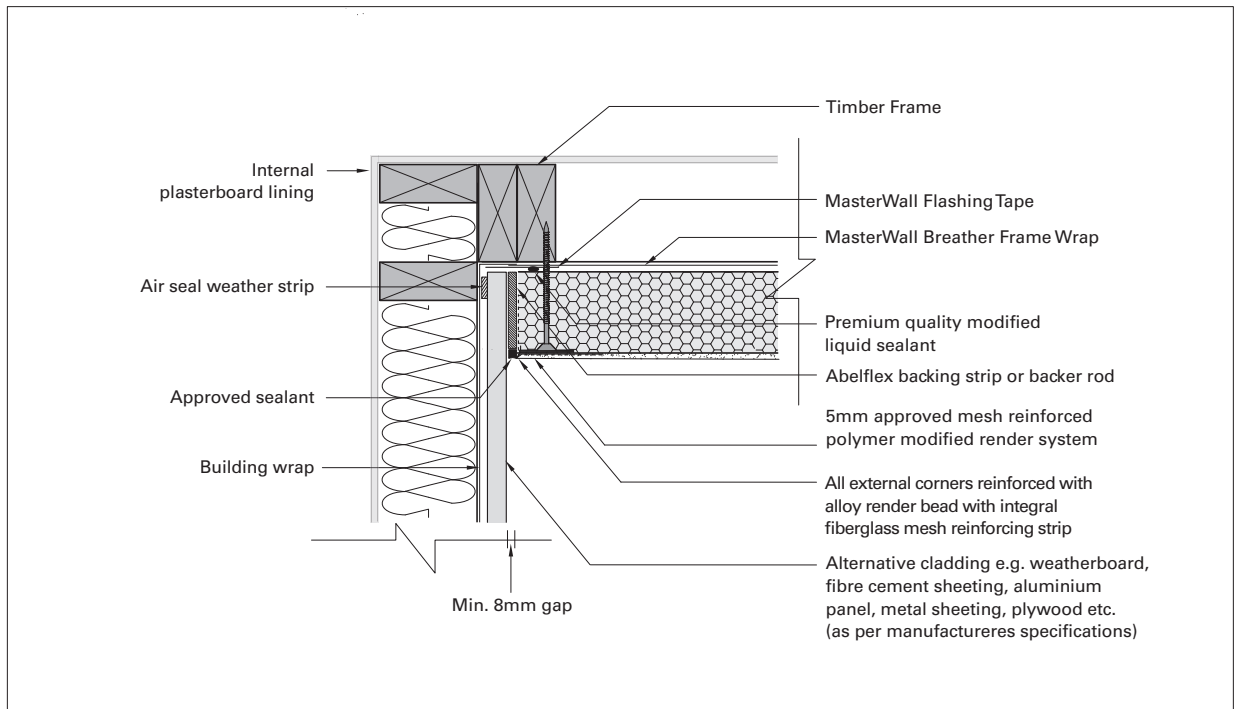


## Kooltherm® PANEL: UNIVERSAL JUNCTION

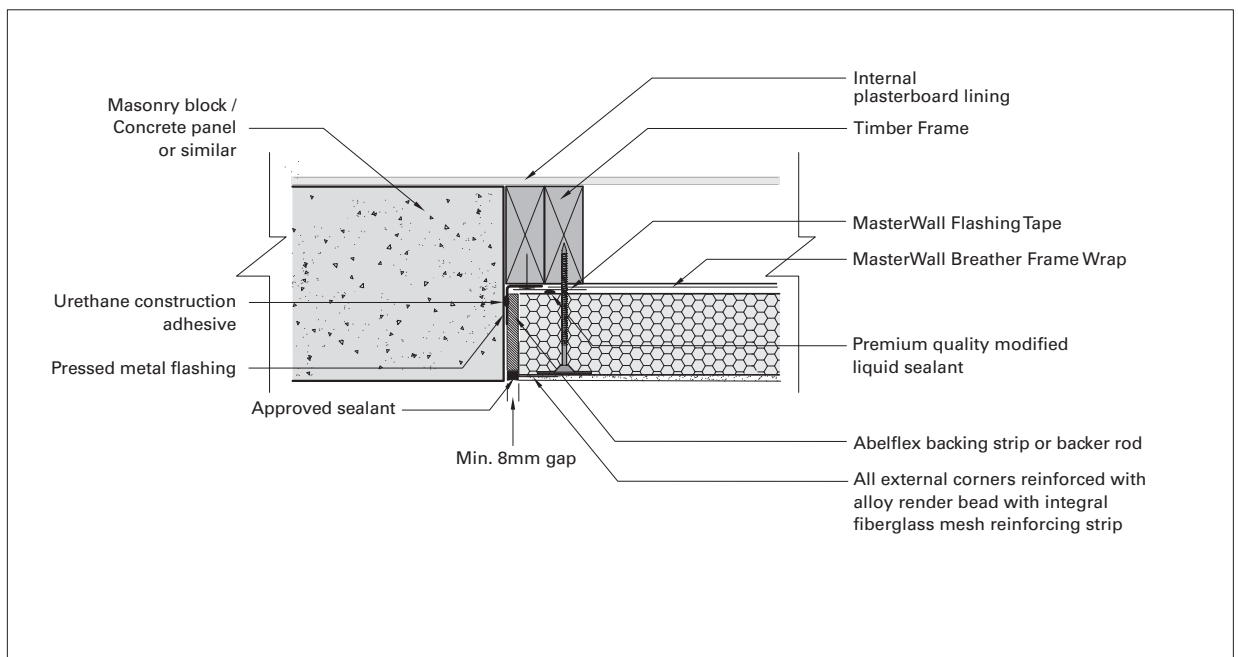


## Kooltherm® PANEL / EXTERNAL CORNER: UNIVERSAL JUNCTION

These details are indicative for the purpose of illustrating the typical installation of Kooltherm® panels. Panels are to be installed strictly in accordance with the specifications detailed in the forward section of this manual. Substrate construction to be in accordance with the Building Regulations & Statutory Requirements.

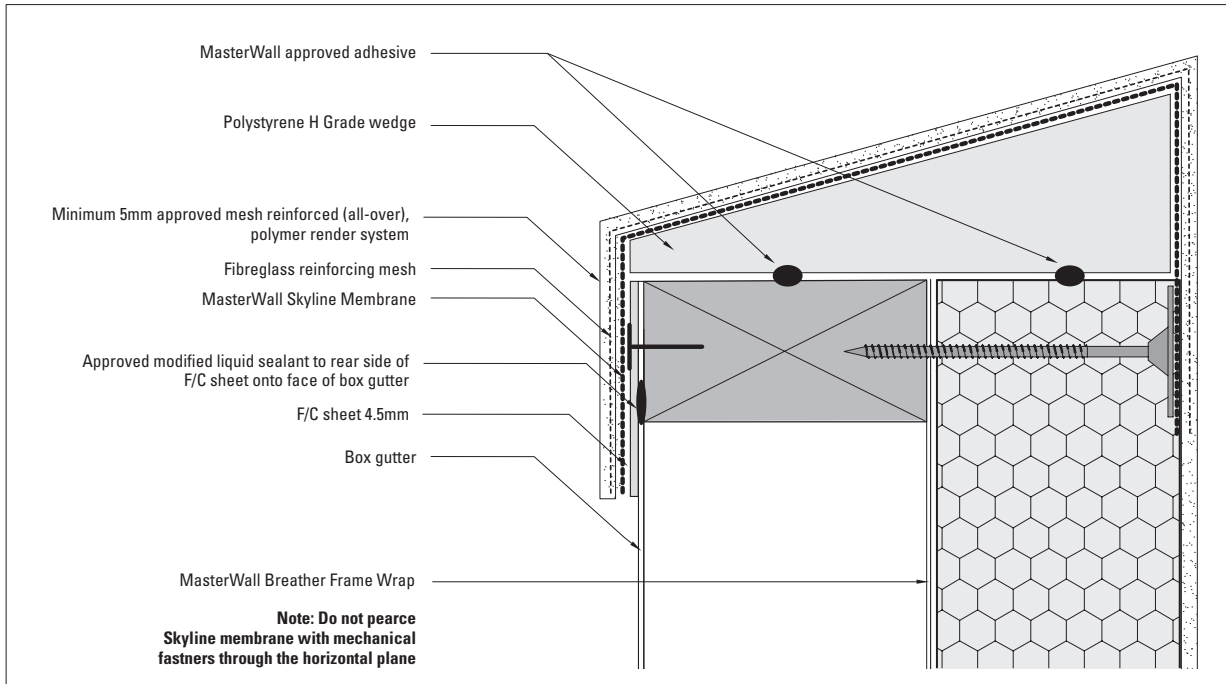


## Kooltherm® PANEL / INTERNAL CORNER: UNIVERSAL JUNCTION

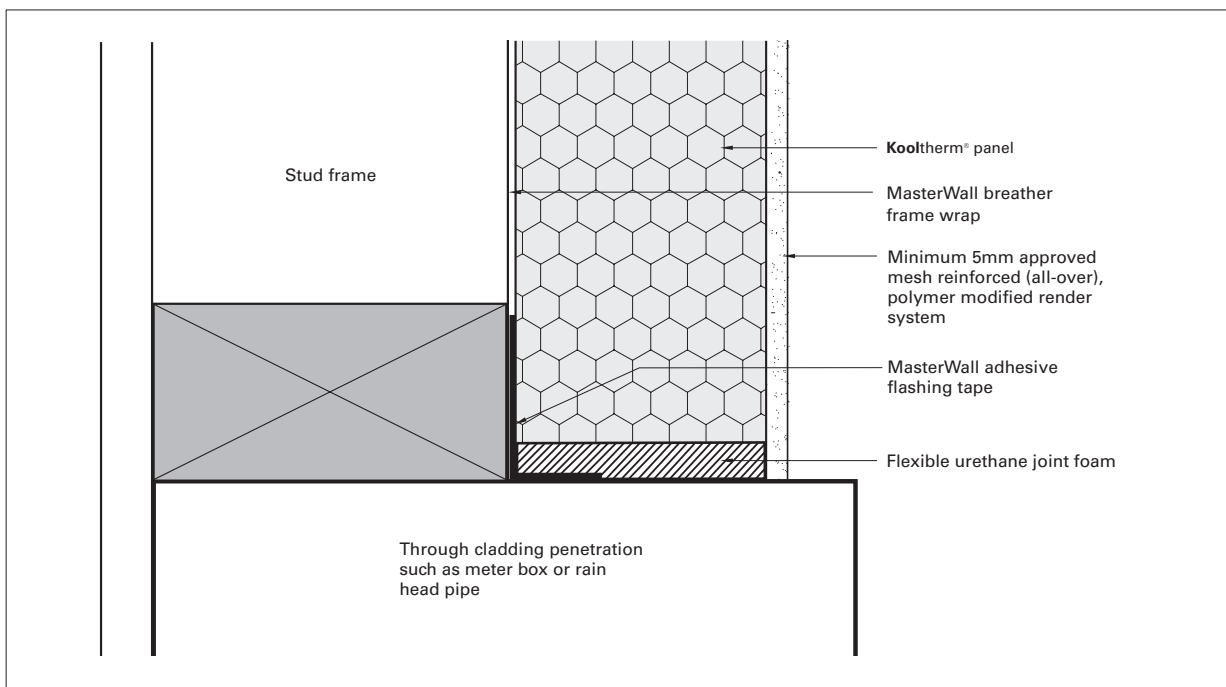


## Kooltherm® PANEL / SOLID MASONRY: UNIVERSAL JUNCTION

These details are indicative for the purpose of illustrating the typical installation of Kooltherm® panels. Panels are to be installed strictly in accordance with the specifications detailed in the forward section of this manual. Substrate construction to be in accordance with the Building Regulations & Statutory Requirements.

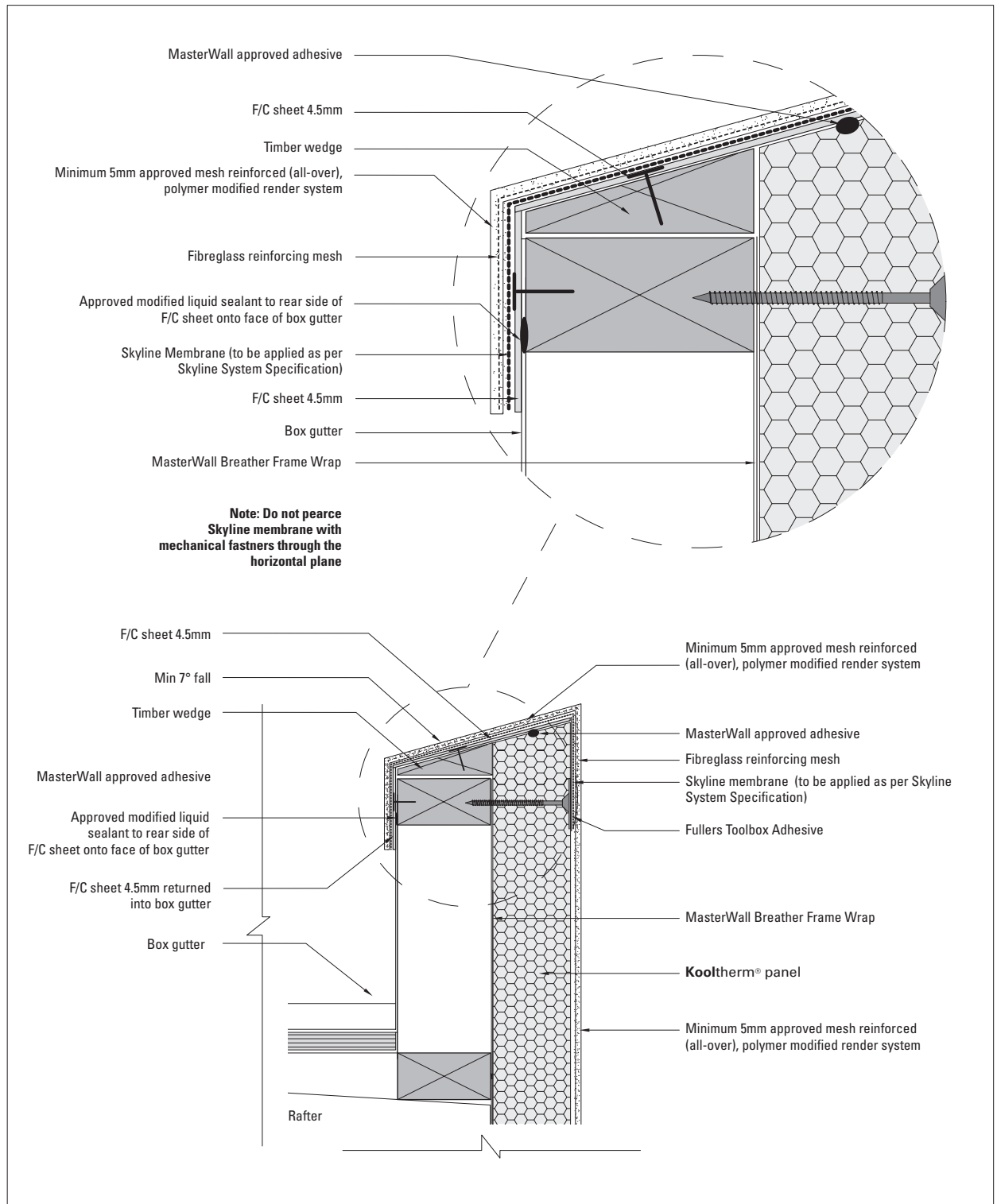


## Kooltherm® PANEL: RENDERED PARAPET WALL WITH SKYLINE SYSTEM WATER PROOFING



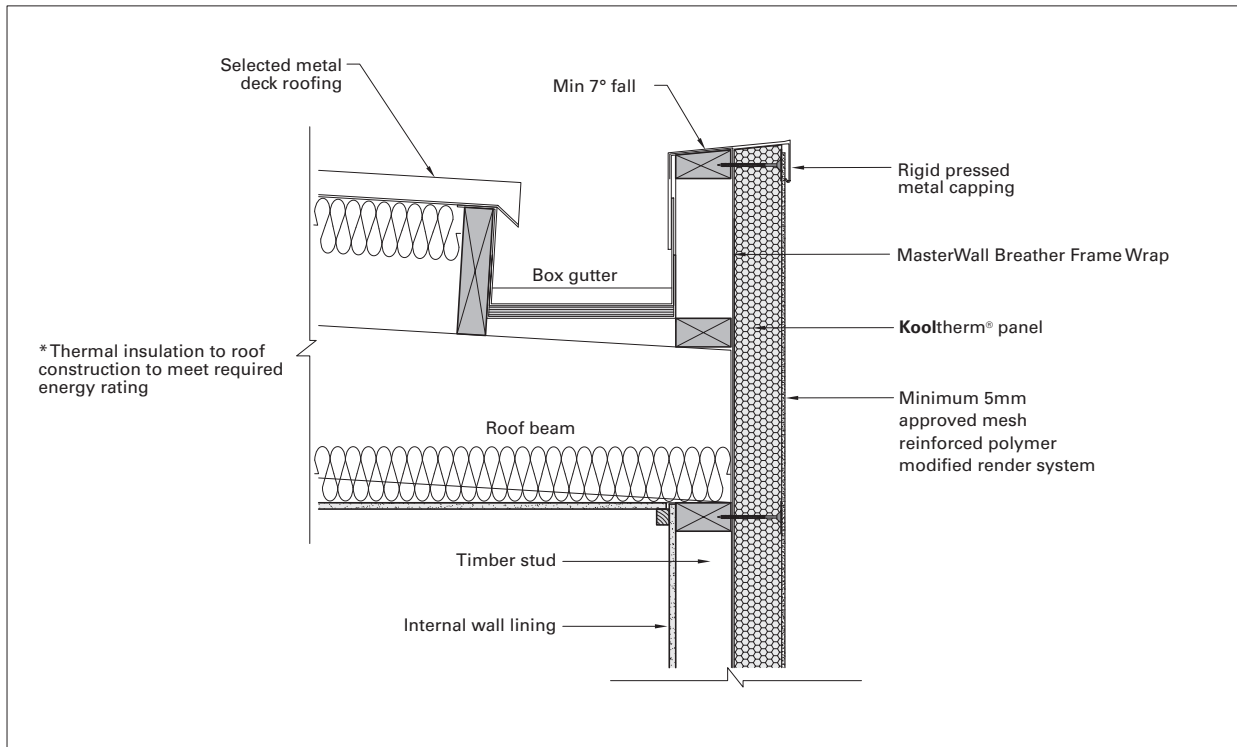
## Kooltherm® PANEL: PANEL PENETRATION

These details are indicative for the purpose of illustrating the typical installation of Kooltherm® panels. Panels are to be installed strictly in accordance with the specifications detailed in the forward section of this manual. Substrate construction to be in accordance with the Building Regulations & Statutory Requirements.

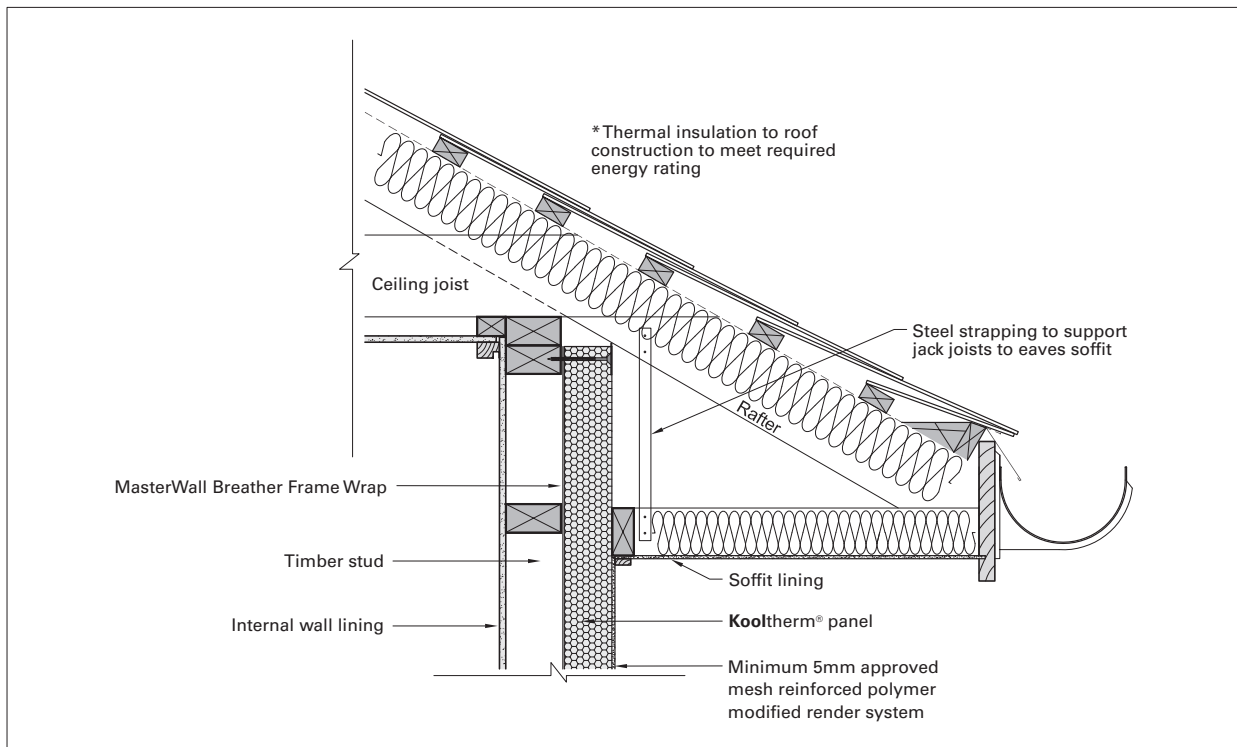


## Kooltherm® PANEL: BAL 40 RENDERED PARAPET WALL WITH SKYLINE SYSTEM WATER PROOFING

These details are indicative for the purpose of illustrating the typical installation of Kooltherm® panels. Panels are to be installed strictly in accordance with the specifications detailed in the forward section of this manual. Substrate construction to be in accordance with the Building Regulations & Statutory Requirements.

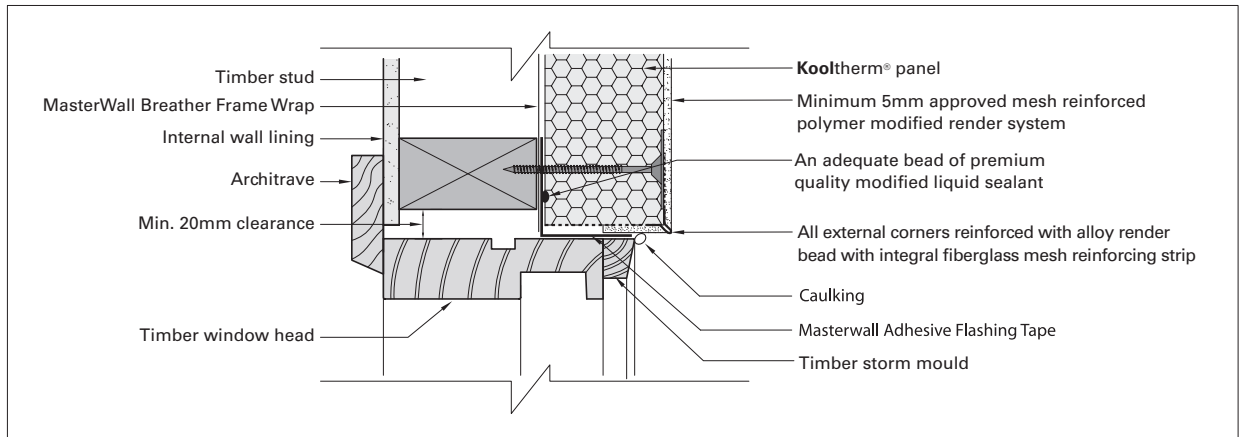


## Kooltherm® PANEL / ROOF JUNCTION: PARAPET WALL

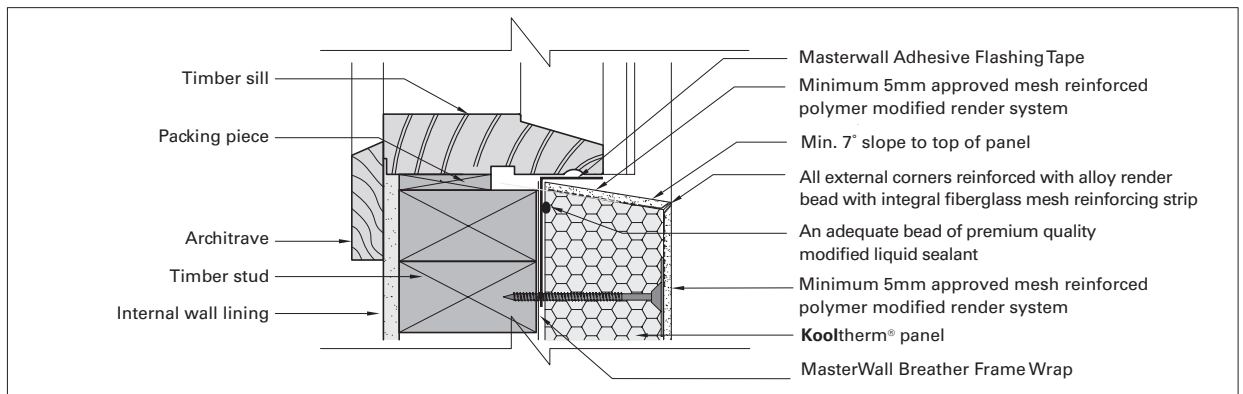


## Kooltherm® PANEL / ROOF JUNCTION: PITCHED ROOF WITH SOFFIT LINING

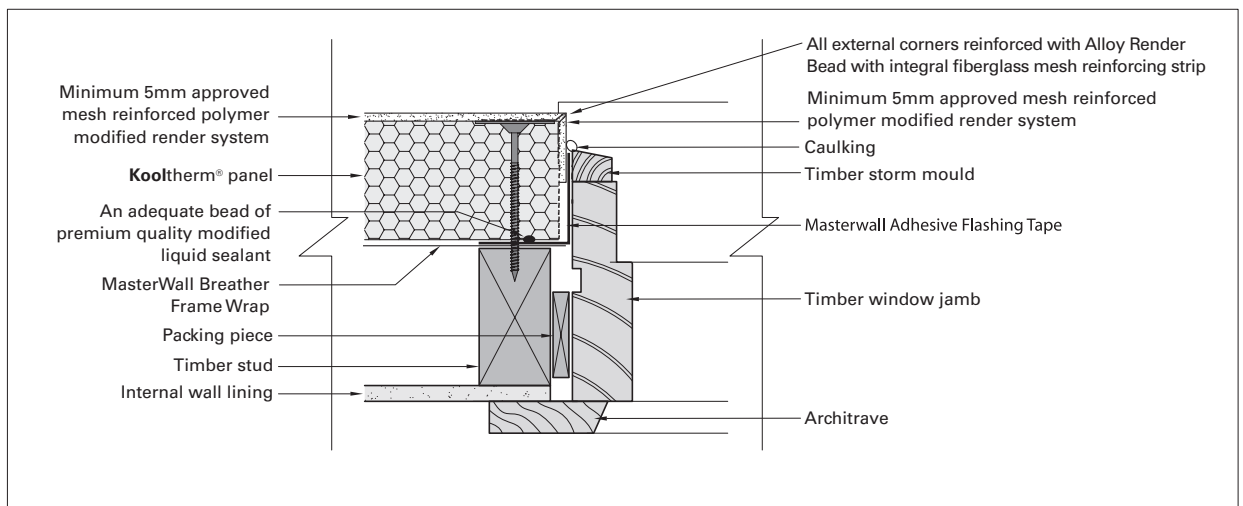
These details are indicative for the purpose of illustrating the typical installation of Kooltherm® panels. Panels are to be installed strictly in accordance with the specifications detailed in the forward section of this manual. Substrate construction to be in accordance with the Building Regulations & Statutory Requirements.



## Kooltherm® PANEL / TIMBER WINDOW: TYPICAL HEAD DETAIL

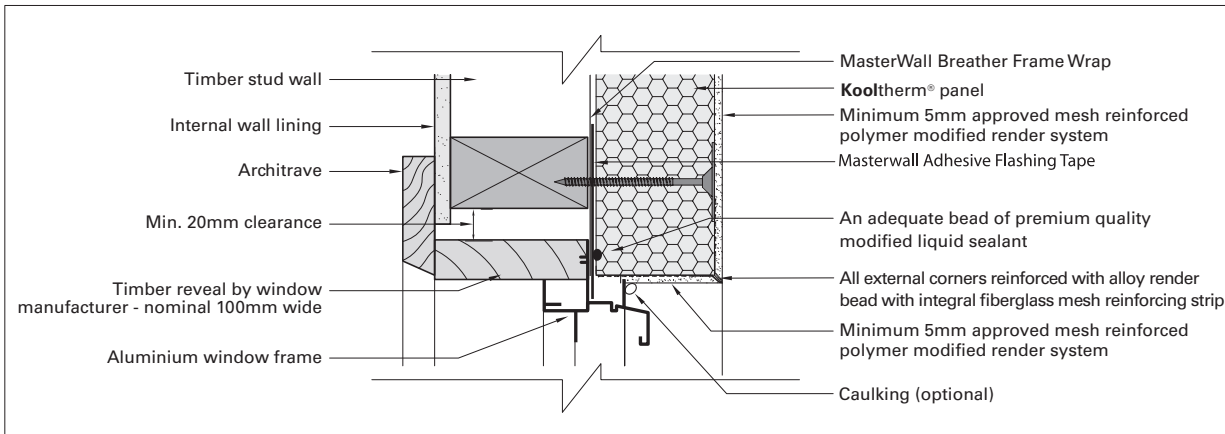


## Kooltherm® PANEL / TIMBER WINDOW: TYPICAL SILL DETAIL

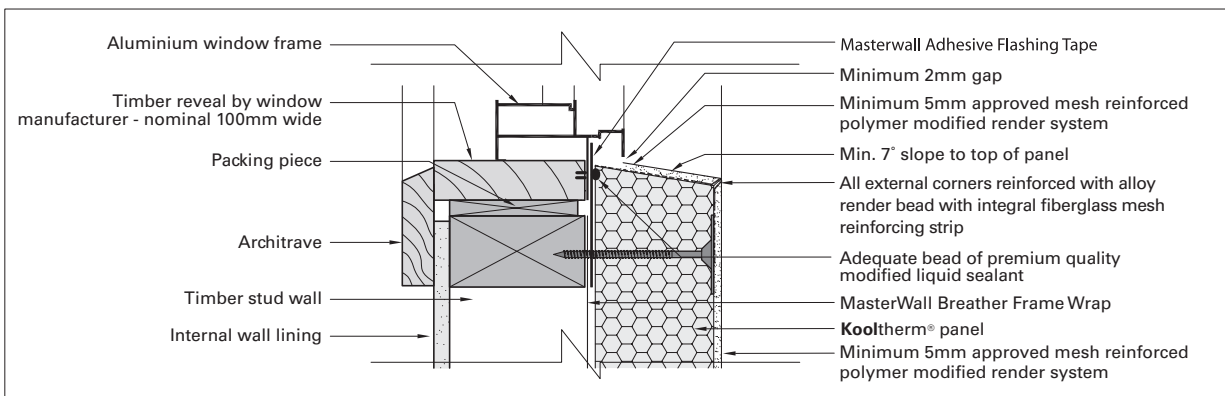


## Kooltherm® PANEL / TIMBER WINDOW: TYPICAL SIDE JAMB DETAIL

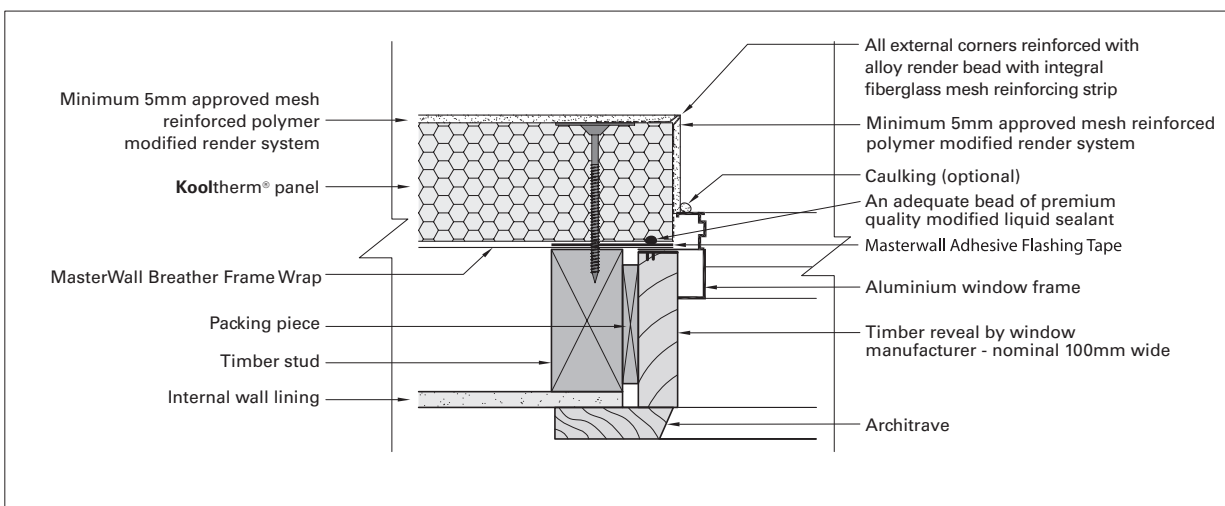
These details are indicative for the purpose of illustrating the typical installation of Kooltherm® panels. Panels are to be installed strictly in accordance with the specifications detailed in the forward section of this manual. Substrate construction to be in accordance with the Building Regulations & Statutory Requirements.



## **Kooltherm®** PANEL / ALUMINIUM WINDOW: TYPICAL HEAD DETAIL



## **Kooltherm®** PANEL / ALUMINIUM WINDOW: TYPICAL SILL DETAIL

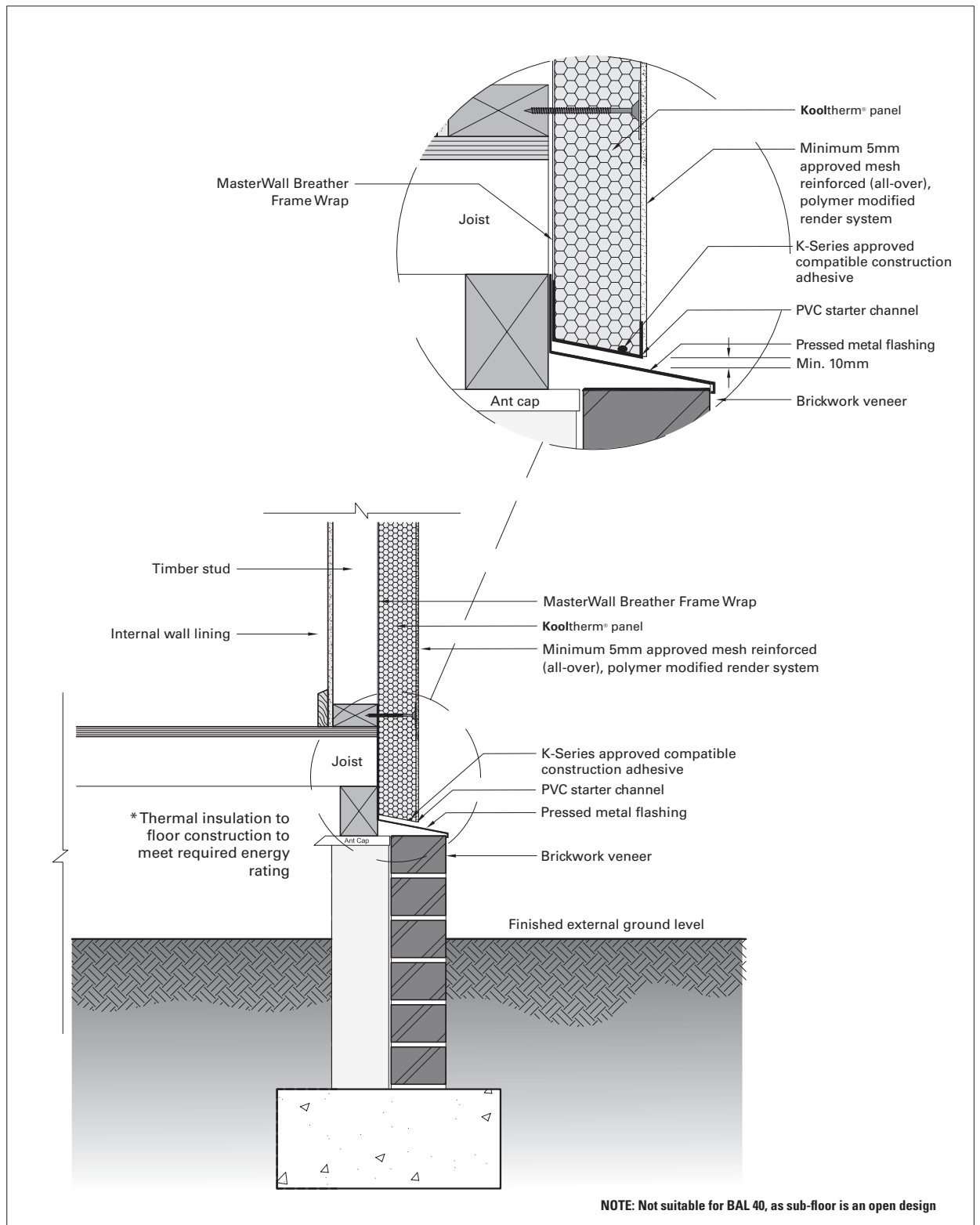


## **Kooltherm®** PANEL / ALUMINIUM WINDOW: TYPICAL SIDE JAMB DETAIL

Note: Window system to be self draining.

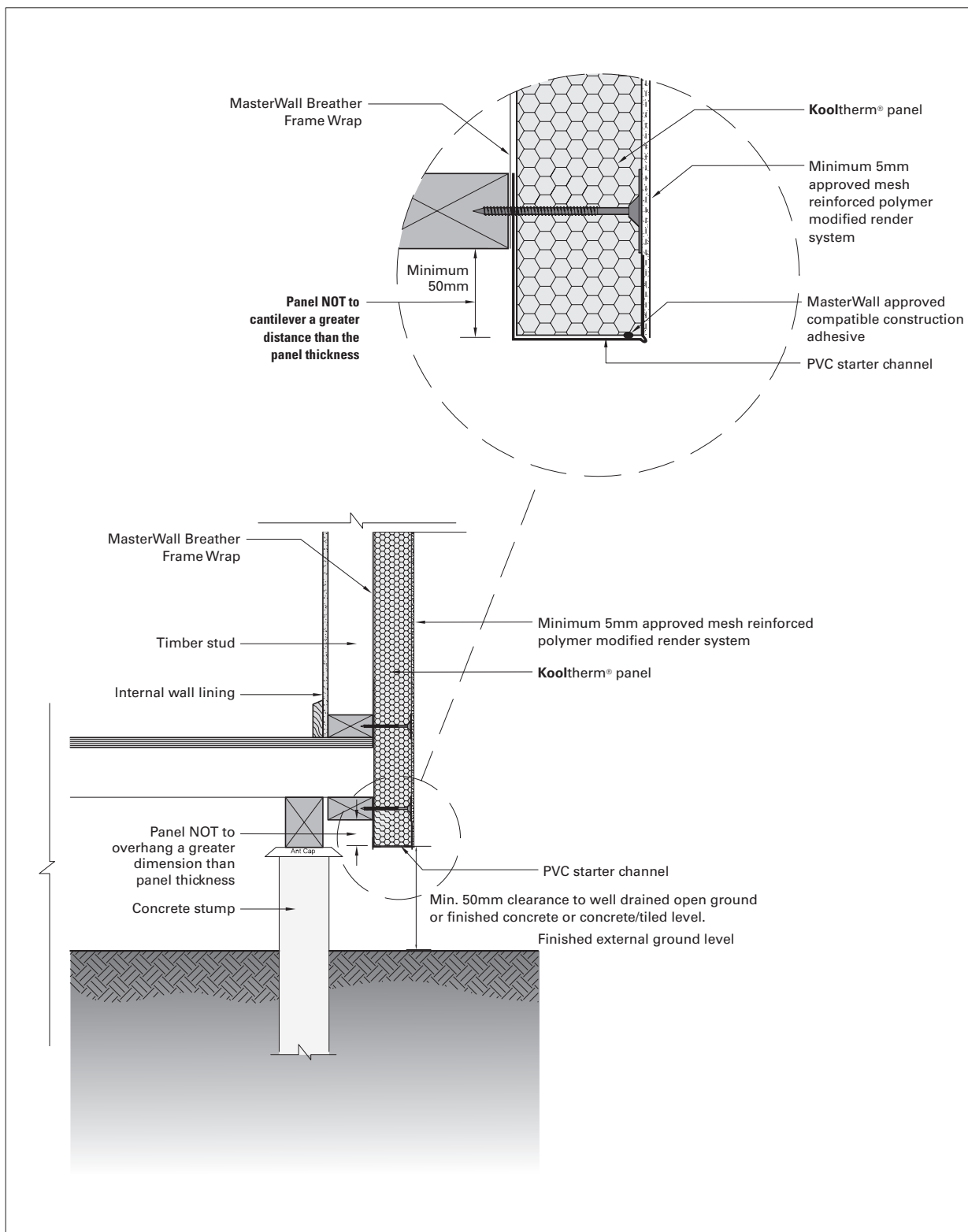
These details are indicative for the purpose of illustrating the typical installation of **Kooltherm®** panels. Panels are to be installed strictly in accordance with the specifications detailed in the forward section of this manual. Substrate construction to be in accordance with the Building Regulations & Statutory Requirements.





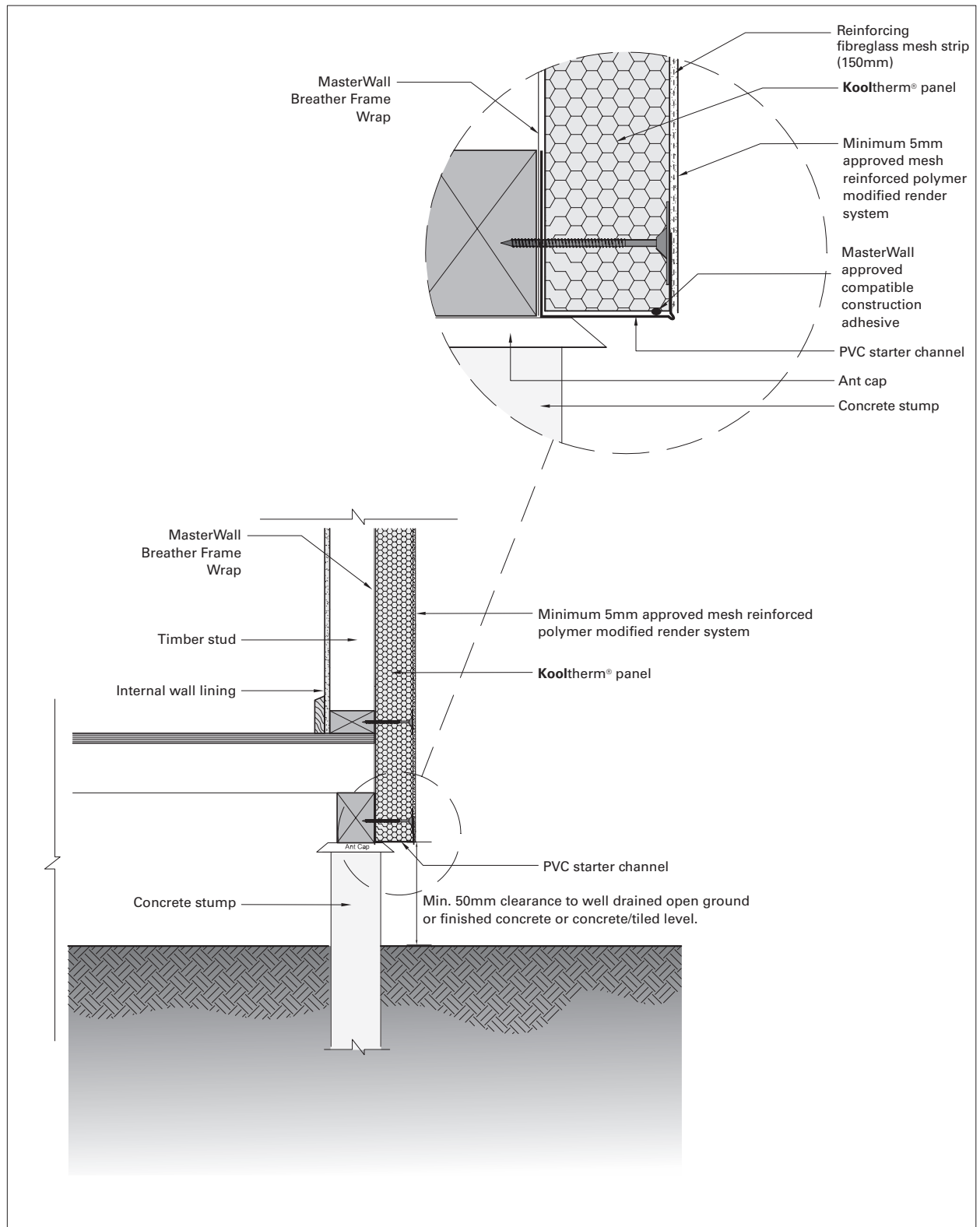
## Kooltherm® PANEL & BRICKWORK JUNCTION: GROUND LEVEL

These details are indicative for the purpose of illustrating the typical installation of Kooltherm® panels. Panels are to be installed strictly in accordance with the specifications detailed in the forward section of this manual. Substrate construction to be in accordance with the Building Regulations & Statutory Requirements.



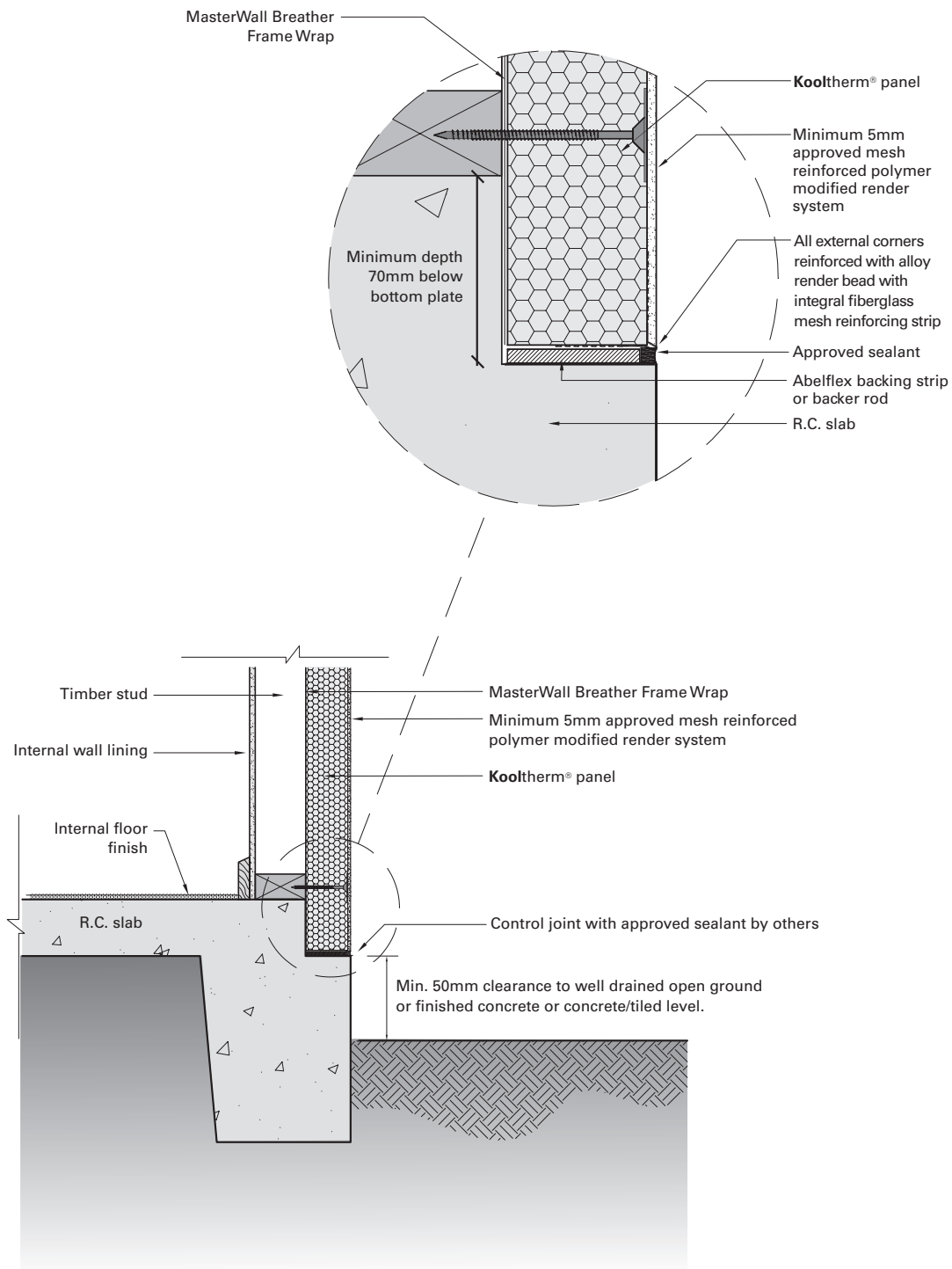
## Kooltherm® PANEL & CONCRETE STUMP CONSTRUCTION: PROTRUDING PANEL

These details are indicative for the purpose of illustrating the typical installation of Kooltherm® panels. Panels are to be installed strictly in accordance with the specifications detailed in the forward section of this manual. Substrate construction to be in accordance with the Building Regulations & Statutory Requirements.



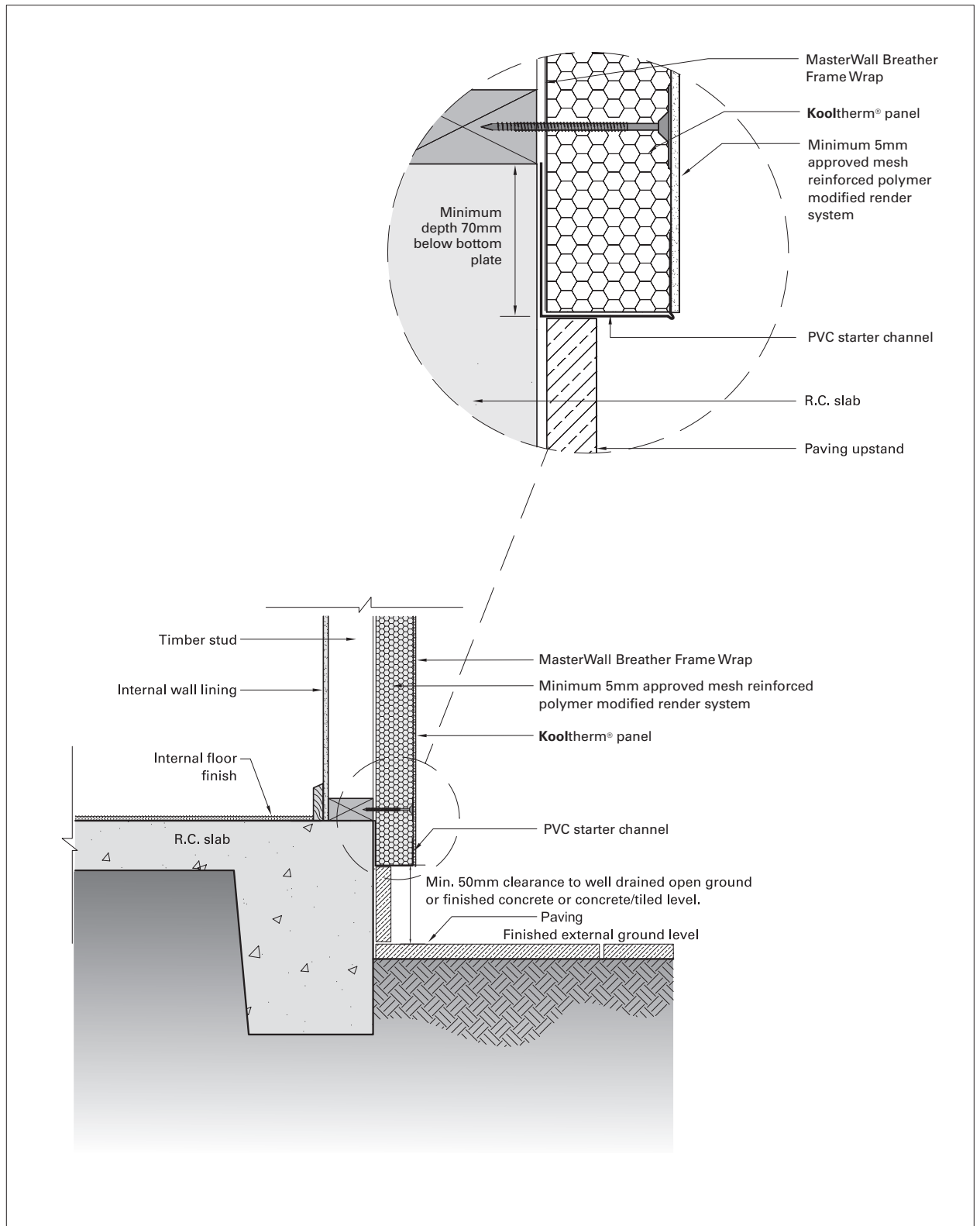
## Kooltherm® PANEL & CONCRETE STUMP CONSTRUCTION

These details are indicative for the purpose of illustrating the typical installation of Kooltherm® panels. Panels are to be installed strictly in accordance with the specifications detailed in the forward section of this manual. Substrate construction to be in accordance with the Building Regulations & Statutory Requirements.



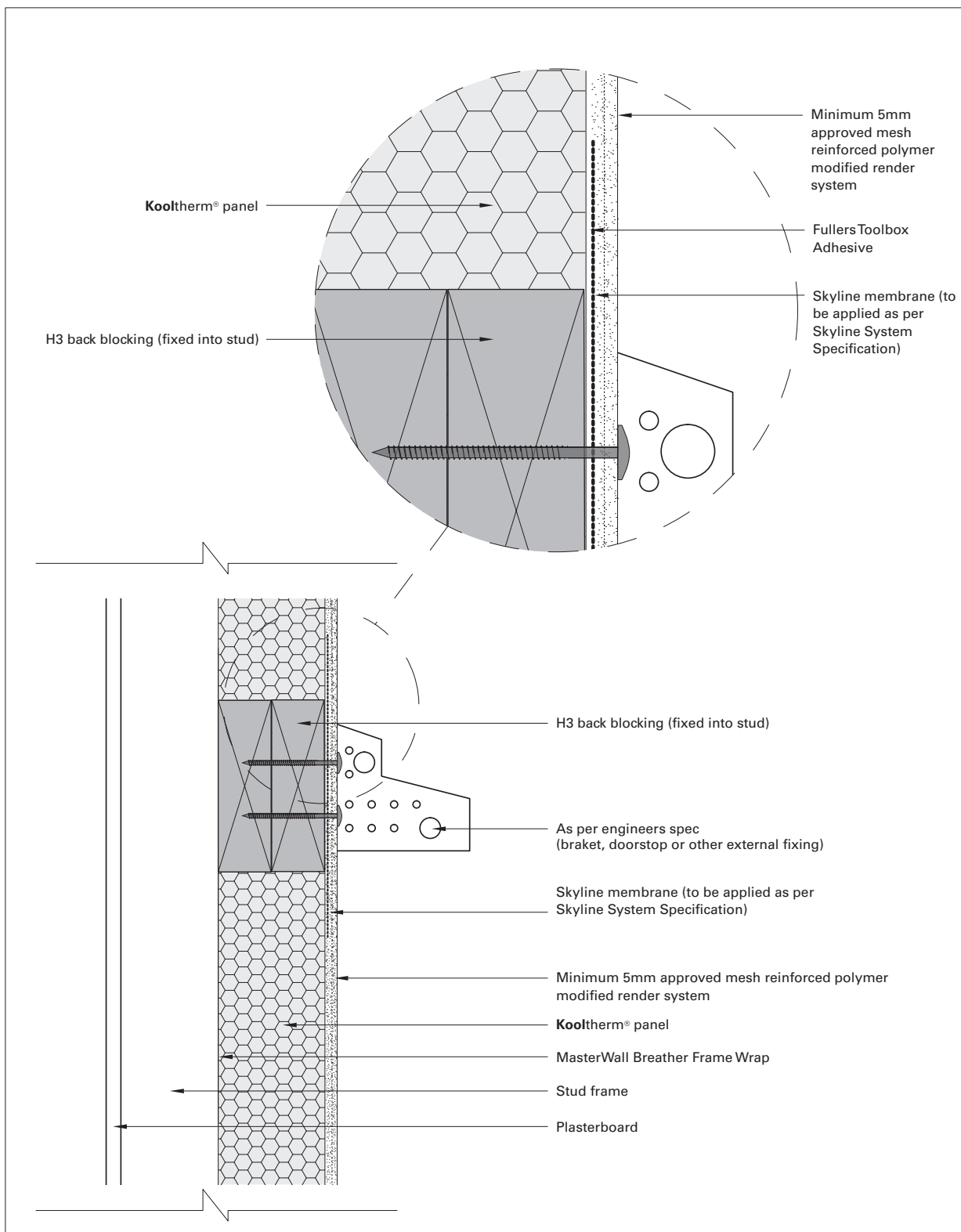
## Kooltherm® PANEL & GROUND SLAB JUNCTION WITHIN REBATE

These details are indicative for the purpose of illustrating the typical installation of Kooltherm® panels. Panels are to be installed strictly in accordance with the specifications detailed in the forward section of this manual. Substrate construction to be in accordance with the Building Regulations & Statutory Requirements.



## Kooltherm® PANEL & GROUND SLAB JUNCTION PROTRUDING

These details are indicative for the purpose of illustrating the typical installation of Kooltherm® panels. Panels are to be installed strictly in accordance with the specifications detailed in the forward section of this manual. Substrate construction to be in accordance with the Building Regulations & Statutory Requirements.

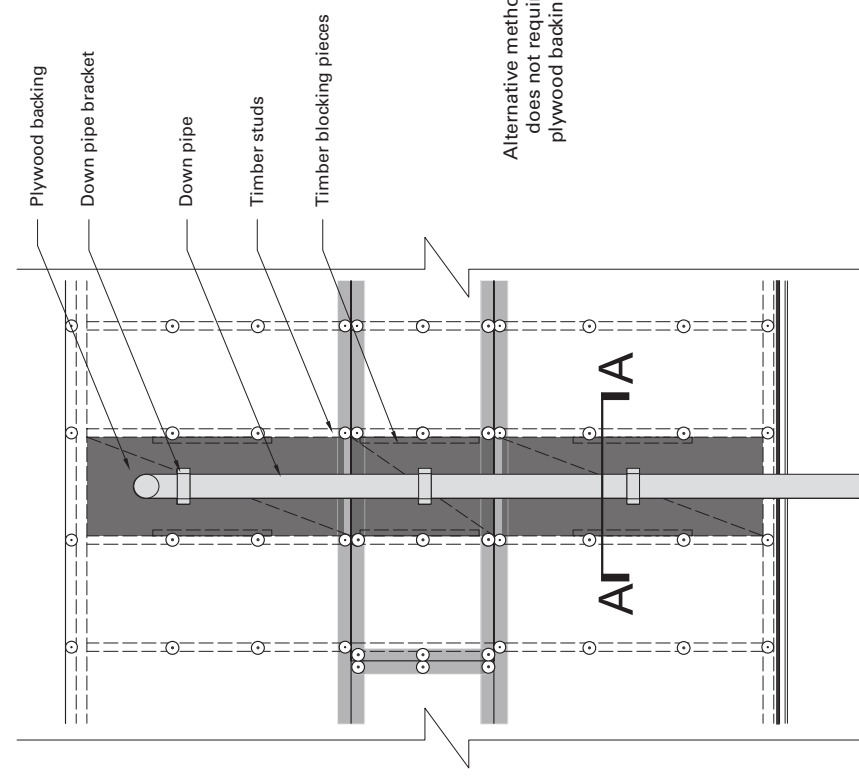


## Kooltherm® PANEL / EXTERNAL WALL: EXTERNAL SUPPORT WITH SKYLINE SYSTEM WATER PROOFING

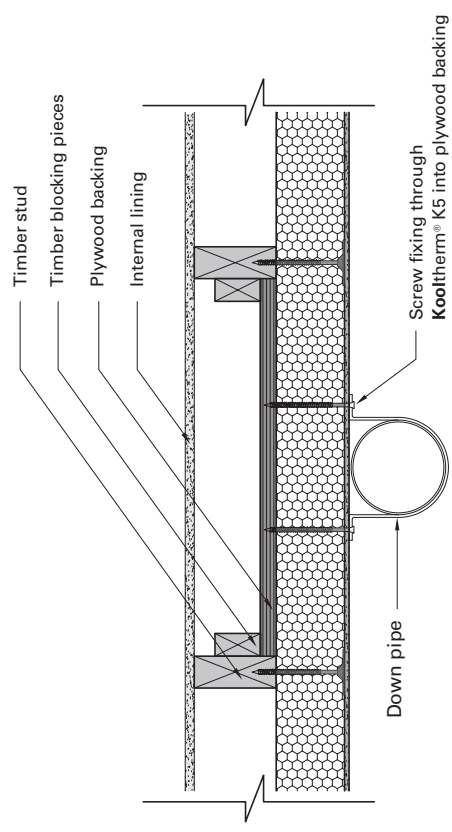
These details are indicative for the purpose of illustrating the typical installation of Kooltherm® panels. Panels are to be installed strictly in accordance with the specifications detailed in the forward section of this manual. Substrate construction to be in accordance with the Building Regulations & Statutory Requirements.

50mm & 80mm THICK 80mm **Kooltherm®** PANEL

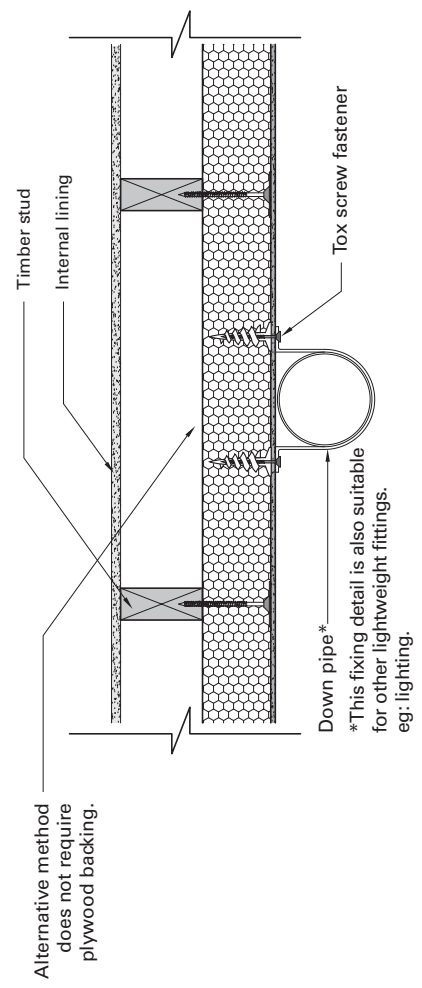
TYPICAL FIXING SUPPORT FOR DOWN PIPE:



DOWN PIPE - ELEVATION VIEW

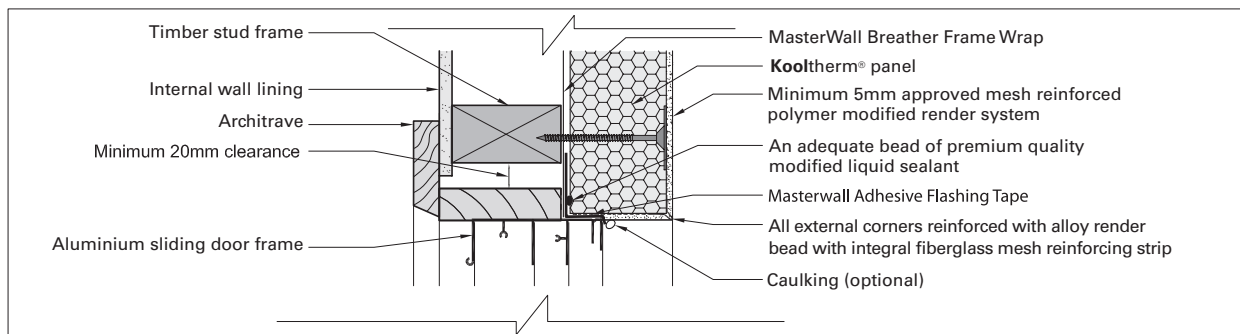


DOWN PIPE - SECTION VIEW A`A

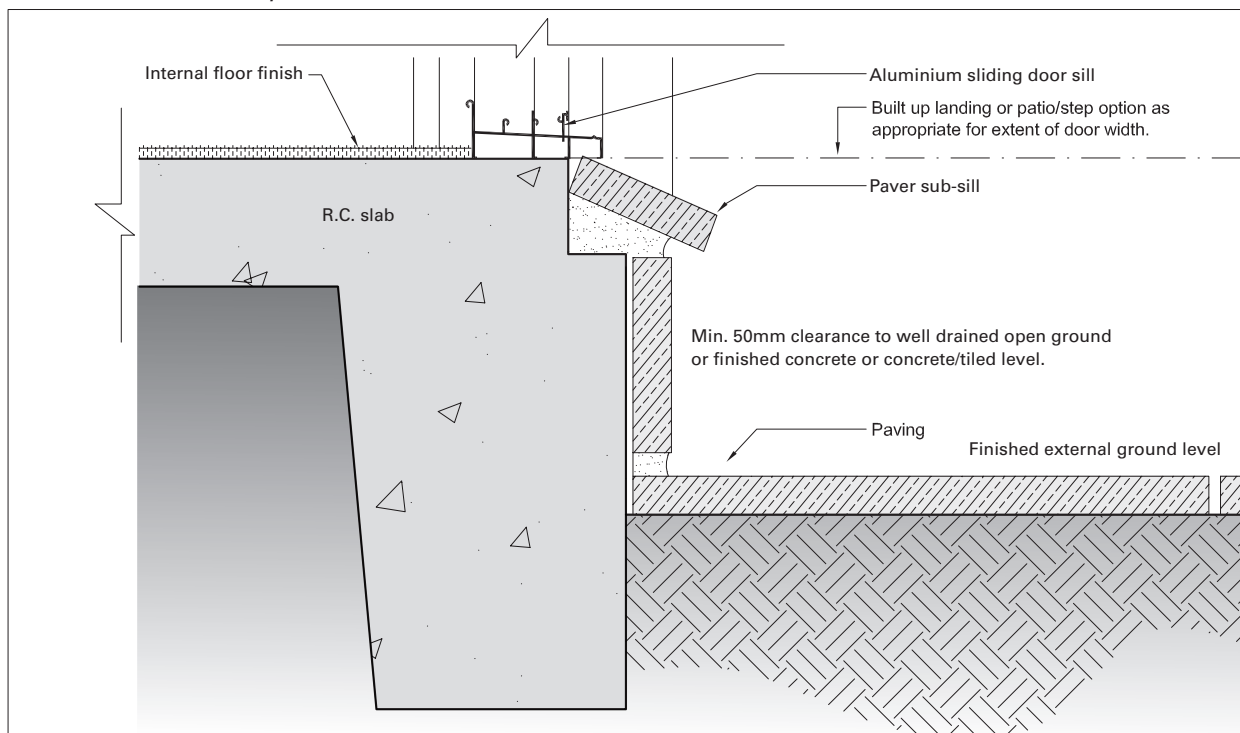


DOWN PIPE - ALTERNATIVE USING TOX SCREW FASTENERS

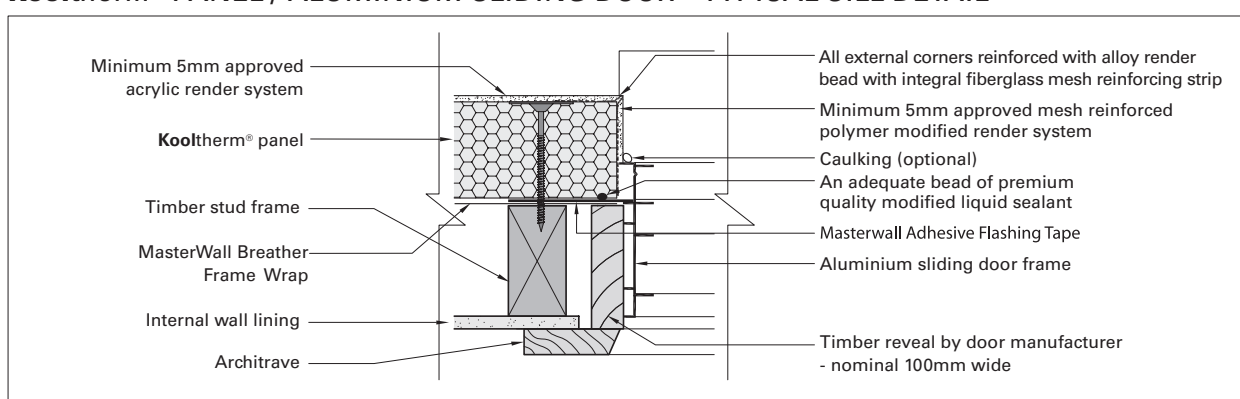
These details are indicative for the purpose of illustrating the typical installation of **Kooltherm®** K5 Panels. Panels are to be installed strictly in accordance with the specifications detailed in the forward section of this manual. Substrate construction to be in accordance with the Building Regulations & Statutory Requirements.



### Kooltherm® PANEL / ALUMINIUM SLIDING DOOR - TYPICAL HEAD DETAIL



### Kooltherm® PANEL / ALUMINIUM SLIDING DOOR - TYPICAL SILL DETAIL



### Kooltherm® PANEL / ALUMINIUM SLIDING DOOR - TYPICAL JAMB DETAIL

These details are indicative for the purpose of illustrating the typical installation of Kooltherm® panels. Panels are to be installed strictly in accordance with the specifications detailed in the forward section of this manual. Substrate construction to be in accordance with the Building Regulations & Statutory Requirements.



## SYSTEM CHECKLIST:

PRODUCT	DESCRIPTION	SIZES	COVERAGE	✓
K-Series Panel	Polystyrene Panel	50mm & 80mm	1.2m x 2.4m (2.88m²)	
Masterwall Fixings	Screw Button Sets 100 p/box	75mm, 100mm, 130mm	30 per panel	
Masterwall Breather Frame Wrap	Vapour Permeable Sarking	1350mm or 2700mm	82m²	
Masterwall Flashing Tape	Self Adhesive Aluminium Tape (flashing windows & doors etc)	75mm width	25m roll	
Premium Quality Modified Liquid Sealant	Premium Quality Modified Liquid Sealant (gasket sealant for flashing tape)	600ml sausage	2 per roll of flashing tape	
Expandable Elastic Foam	Expandable Urethane Flexible Foam (joint sealant)	700ml can	65m² of K-Series Panel	
PVC Starter Channel with drainage holes	U Channel for bottom of panel (on ground floor)	50mm & 80mm	3.0m lengths	
Ableflex	Foam strip for rebated slab detail & expansion joints	75mm width	25m roll	
H Grade Polystyrene or Metal Battens	Vertical battens attached to timber/metal studs to form cavity	To suit	At each vertical stud and at all openings	

## NOTES:



## NOTES:



## TECHNICAL ADVICE / DESIGN

Masterwall Australia supports all of its products with a comprehensive Technical Advisory Service for specifiers, stockists and contractors.

This includes a software-powered service designed to give fast, accurate technical advice. Simply phone the Masterwall Australia Technical Service Department with your project specifications. Calculations can be carried out to provide a Condensation (Dew Point) Risk Analysis, and/or a Total Wall (RT) System Thermal Value so that the correct insulation thicknesses can be determined for any given project.

## CONTACT MASTERWALL AUSTRALIA

For national Technical and Sales contact Masterwall Australia:

**National phone:** (03) 9799 6565  
**Email:** [sales@masterwall.com.au](mailto:sales@masterwall.com.au)  
**Web:** [www.masterwall.com.au](http://www.masterwall.com.au)

## POWERED BY KINGSPAN

K-Series is powered by Kingspan Kooltherm® panels to deliver exterior insulation systems with superior high performance.



Masterwall manufactures and distributes high performance exterior insulation, render and coating systems.

**M-TEX**

**M-SERIES**

**M** | SKYLINE

**M** | H<sub>2</sub>O DRAINAGE WRAP

**X-SERIES**

**M** | UMBRA

**M** | MASTERFLOOR

**K-SERIES**

**M** | MATRIXX