THERMAL BRIDGING DETAILS - V.1.0 31st March 2017

Foreword:

The following set of design details has been prepared for use by installers of Solid Wall Insulation (SWI) systems.
The details are provided to highlight common areas of construction where thermal bridging may occur, potentially leading to a reduction in thermal performance and an increased risk of surface condensation, and to encourage best practice.

The details provided are not exhaustive, other methods of detailing may be suitable depending upon individual circumstances.

In all situations, this guide assumes that the designer of the SWI/EWI system has properly addressed the risk of thermal bridging for each specific site location where the design detail is to be used.

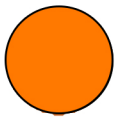
All details should be reviewed in conjunction with the requirement for adequate ventilation and correct use of the building on completion of the installation of the SWI/EWI system. Mastic sealants shall always be supported by a secondary seal to comply with the new PAS 2030 2017 requirements

All details are a generic representation of the design intent and reference should be made to the specific system designer of the intended EWI system for advice on an appropriate compliant detail.

The details are to provide guidance only, and are intended to assist the installer to differentiate between details that may lead to thermal bridging and/or condensation risk from those that will achieve better thermal performance and no/limited condensation risk. The details do not replace government accredited construction details and their adoption alone may not demonstrate compliance with the Building Regulations.

The energy performance of dwellings to satisfy Building Regulations must be calculated using the Standard Assessment Procedure (SAP) or the Simplified Building Energy Model (SBEM) for other buildings. U-Values used as part of the SAP or SBEM calculations shall be carried out according to BR443 "Conventions for U-Value Calculations" and should be undertaken prior to commencement of installation works.

The details that have a red traffic light attributed to them do not include insulation and thus can lead to a thermal bridge, this does not however, automatically mean that condensation or damp will occur at this detail. Detail should be considered in the context of the property and current ventilation by the EEM designer.
The installer must demonstrate that every possibility to improve the thermal performance of the detail has been considered/tried. Failure in the regard may result in Non-compliance with PAS 2030.

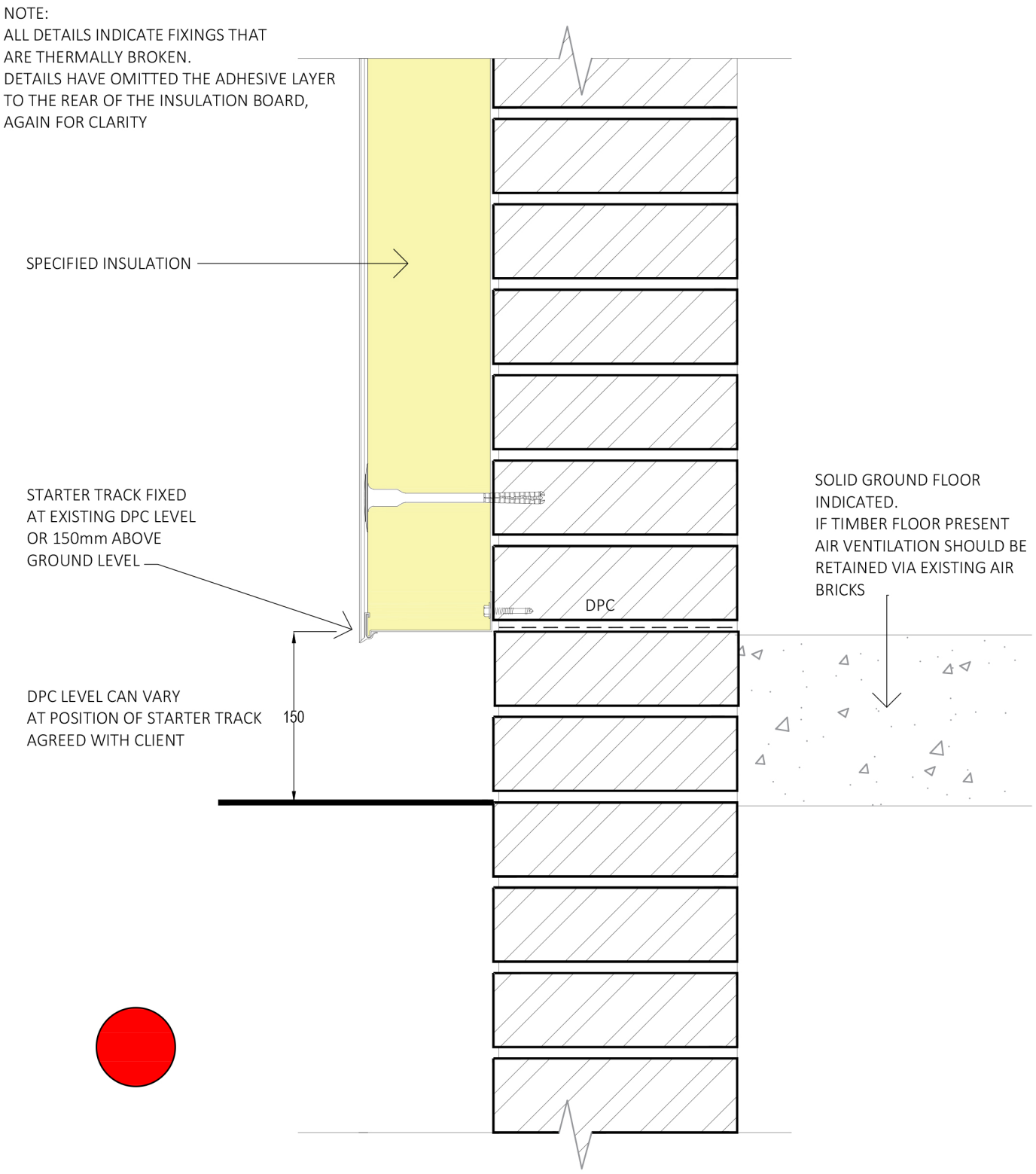


The details that have an amber traffic light attributed to them are partially insulated along the thermal path through the wall construction. It does not mean that condensation/damp will occur at this detail, nor does it rule out the risk of condensation/damp completely. Detail should be considered in the context of the property and current ventilation by the EEM designer.

The details that have a green traffic light attributed to them fully insulate the thermal path through the wall construction and provide a high level of confidence that condensation will not occur at this detail.

NOTE: *FOR CLARITY AND TO AVOID DUPLICATION, DETAILS FOR FLUE PENETRATIONS AND OTHER FUEL BURNING APPLIANCES HAVE BEEN OMITTED.CONTRACTORS SHOULD REFER TO THE FOLLOWING DOCUMENT:*
Specification for the installation of external wall insulation ensuring the safety and operation of fuel burning appliances.

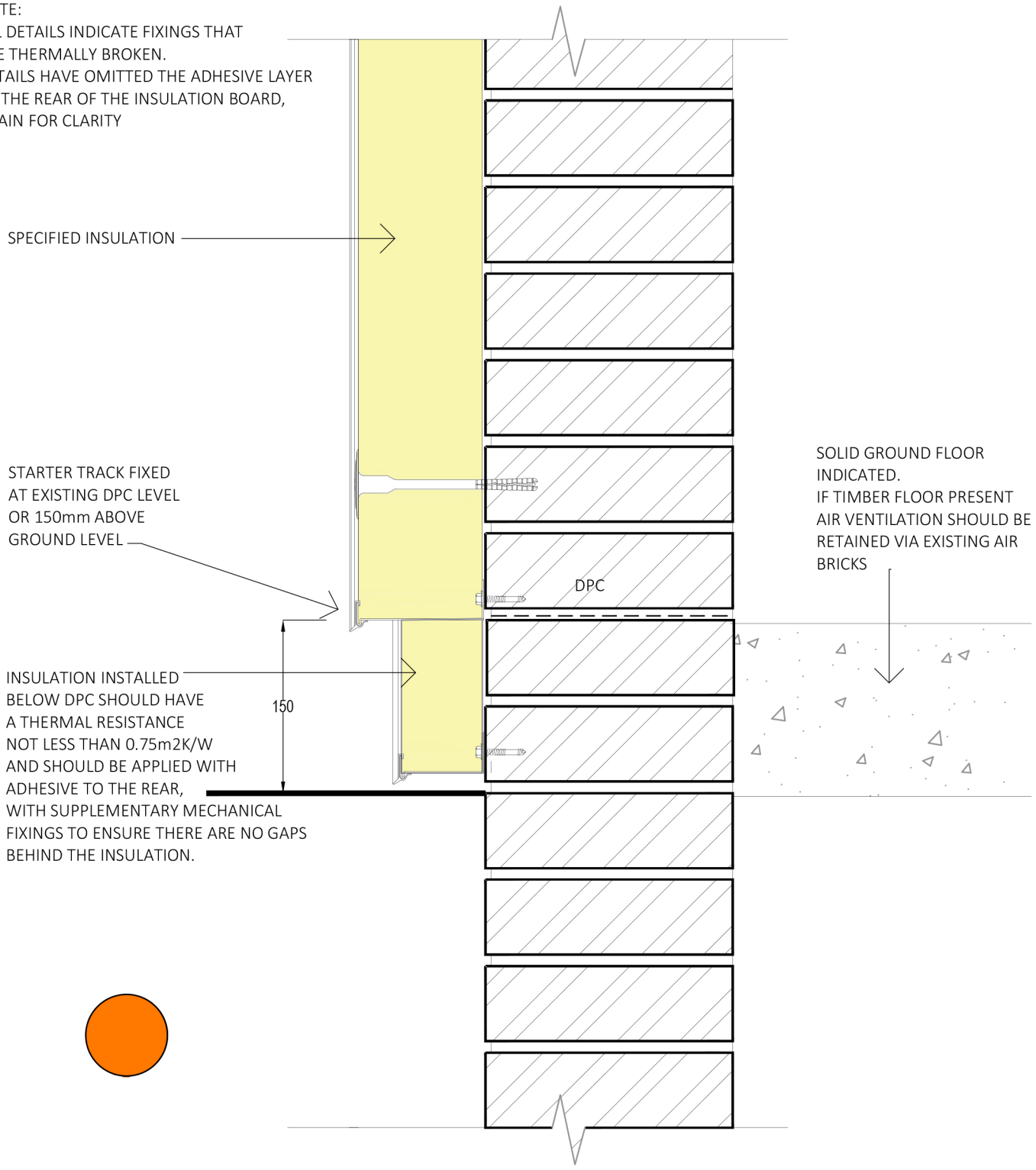
THERMAL BRIDGING DETAILS



Title:	Un-insulated Plinth Detail
Dwg. No.	TBD-001
Rev.	B

THERMAL BRIDGING DETAILS

NOTE:
ALL DETAILS INDICATE FIXINGS THAT ARE THERMALLY BROKEN.
DETAILS HAVE OMITTED THE ADHESIVE LAYER TO THE REAR OF THE INSULATION BOARD, AGAIN FOR CLARITY



Title:	Partial-insulated Plinth Detail
Dwg. No.	TBD-002
Rev.	B

THERMAL BRIDGING DETAILS

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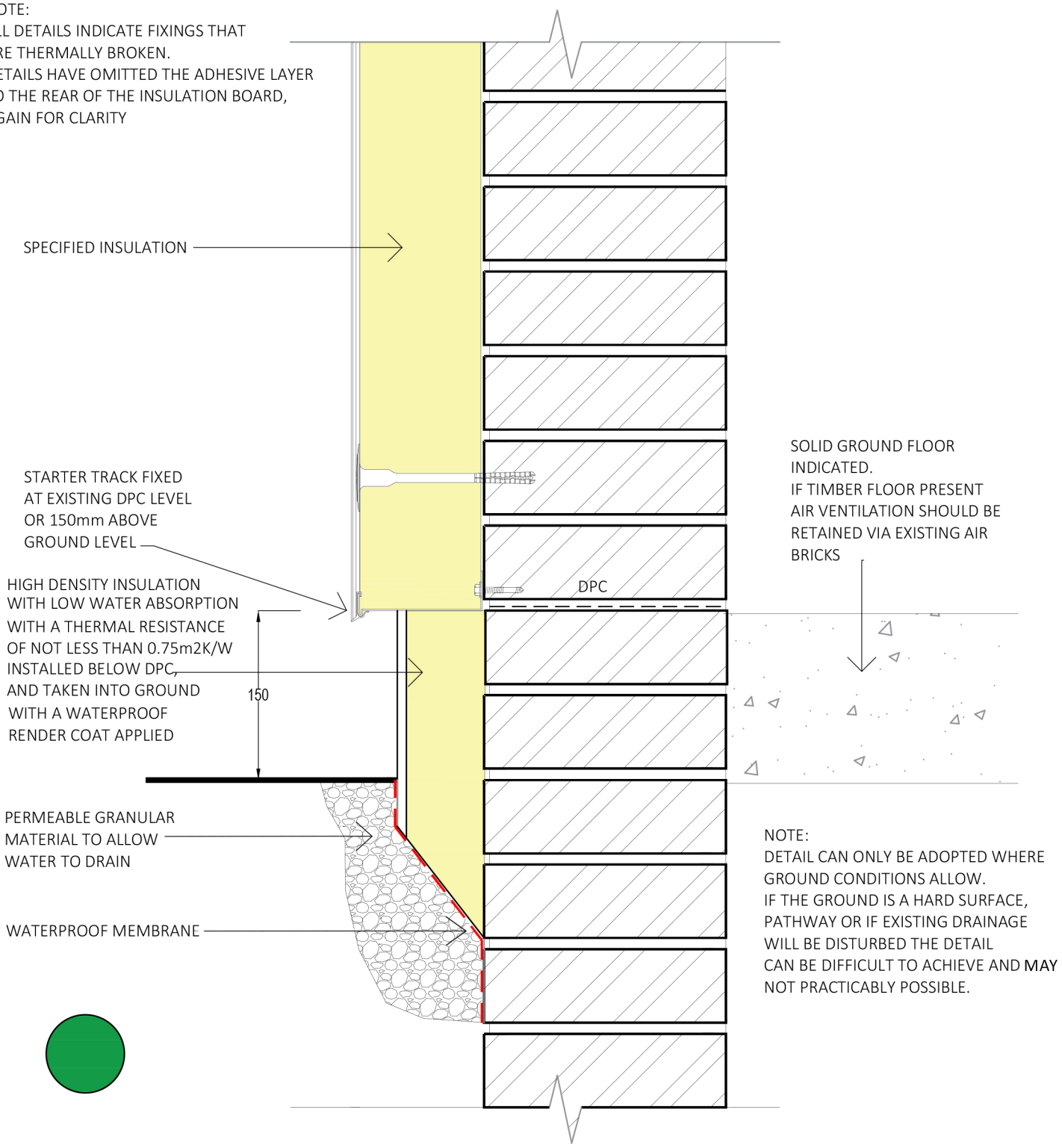

NOTE:
DETAIL CAN ONLY BE ADOPTED WHERE GROUND CONDITIONS ALLOW.
IF THE GROUND IS A HARD SURFACE, PATHWAY OR IF EXISTING DRAINAGE WILL BE DISTURBED THE DETAIL CAN BE DIFFICULT TO ACHIEVE AND MAY NOT PRACTICABLY POSSIBLE.

Title:	Insulated Plinth Detail
Dwg. No.	TBD-003
Rev.	B

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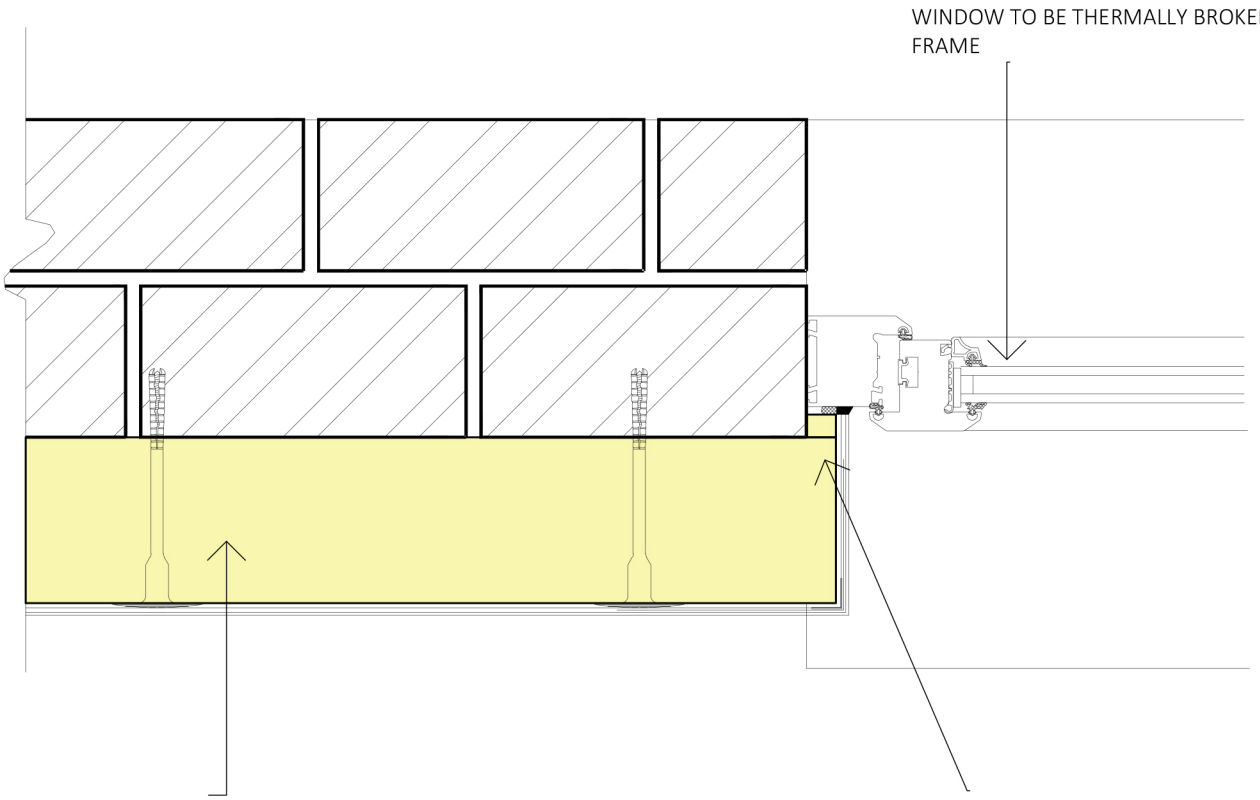
TO THE REAR OF THE INSULATION BOARD,
AGAIN FOR CLARITY



Title:	Insulation to recessed reveal
Dwg. No.	TBD-004
Rev.	B

THERMAL BRIDGING DETAILS

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ARE THERMALLY BROKEN.
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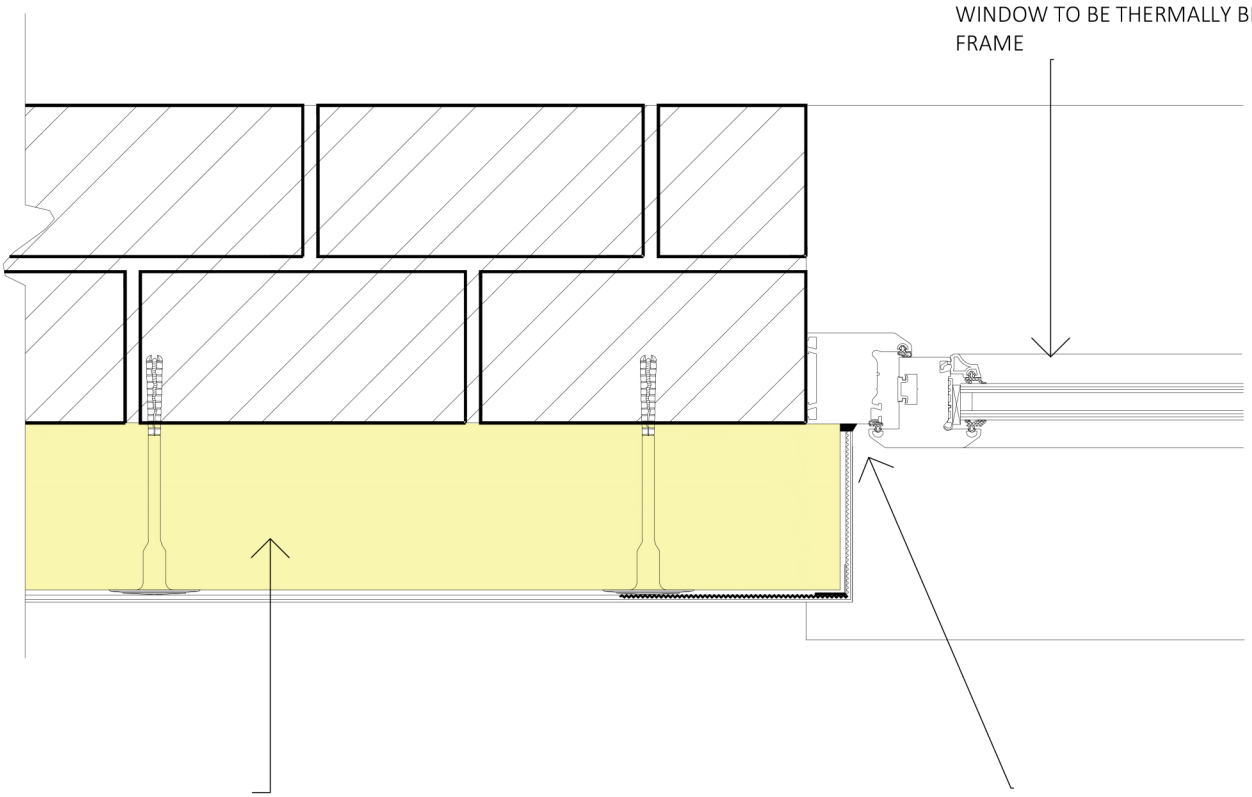
AGAIN FOR CLARITY



NOTE:
NEW WINDOWS ARE GENERALLY
BROUGHT FORWARD TO SIT FLUSH
WITH THE OUTER WALL AND THE INTERNAL
REVEALS MADE GOOD

FOR SITUATIONS WHEN AN EXISTING
OR NEWLY INSTALLED WINDOW IS FLUSH WITH
THE REVEAL.
ENSURE SPECIFIED INSULATION IS TAKEN OVER THE
WINDOW FRAME BY 15-20mm
SYSTEM SHOULD BE SEALED AGAINST THE FRAME BY
MEANS OF A HYDROPHOBIC TAPE AND MASTIC OR
PROPRIETARY STOP BEAD WITH INTEGRAL HYDROPHOBIC TAPE

Title:	Insulation over flush reveal
Dwg. No.	TBD-005
Rev.	B

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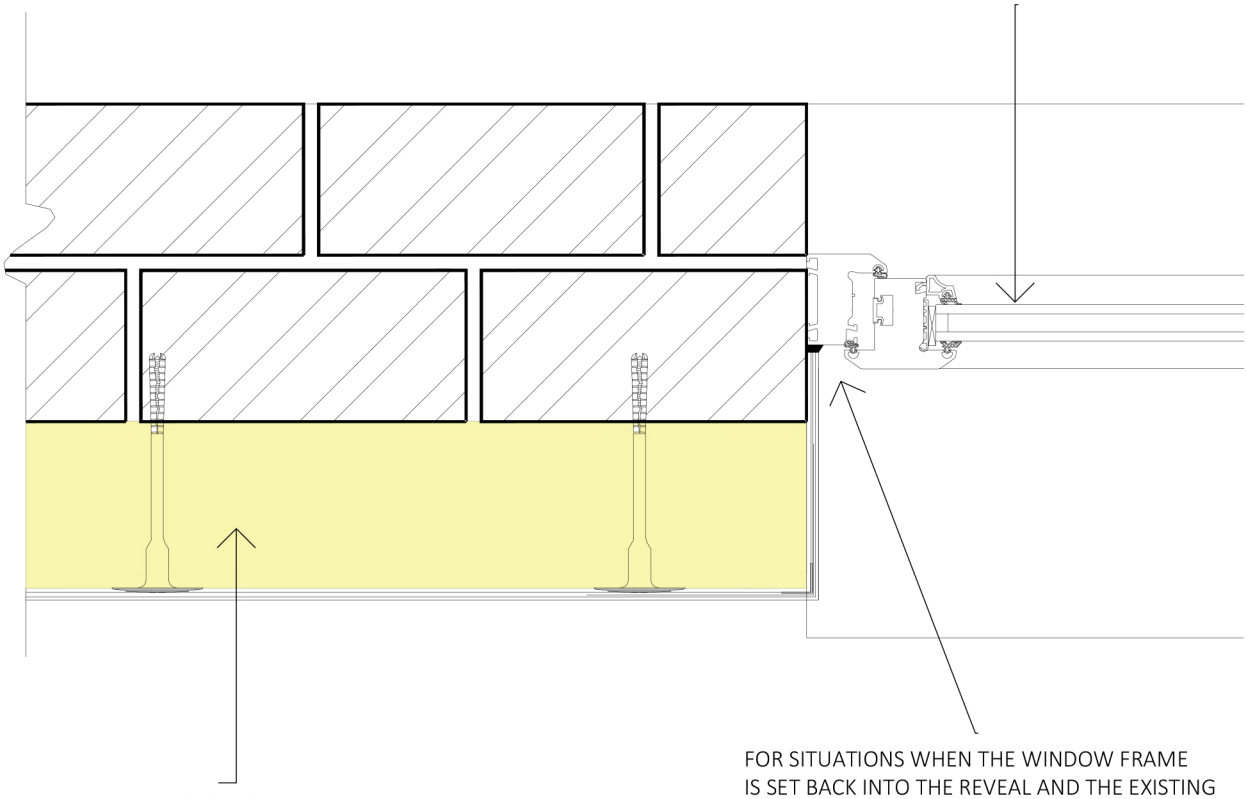
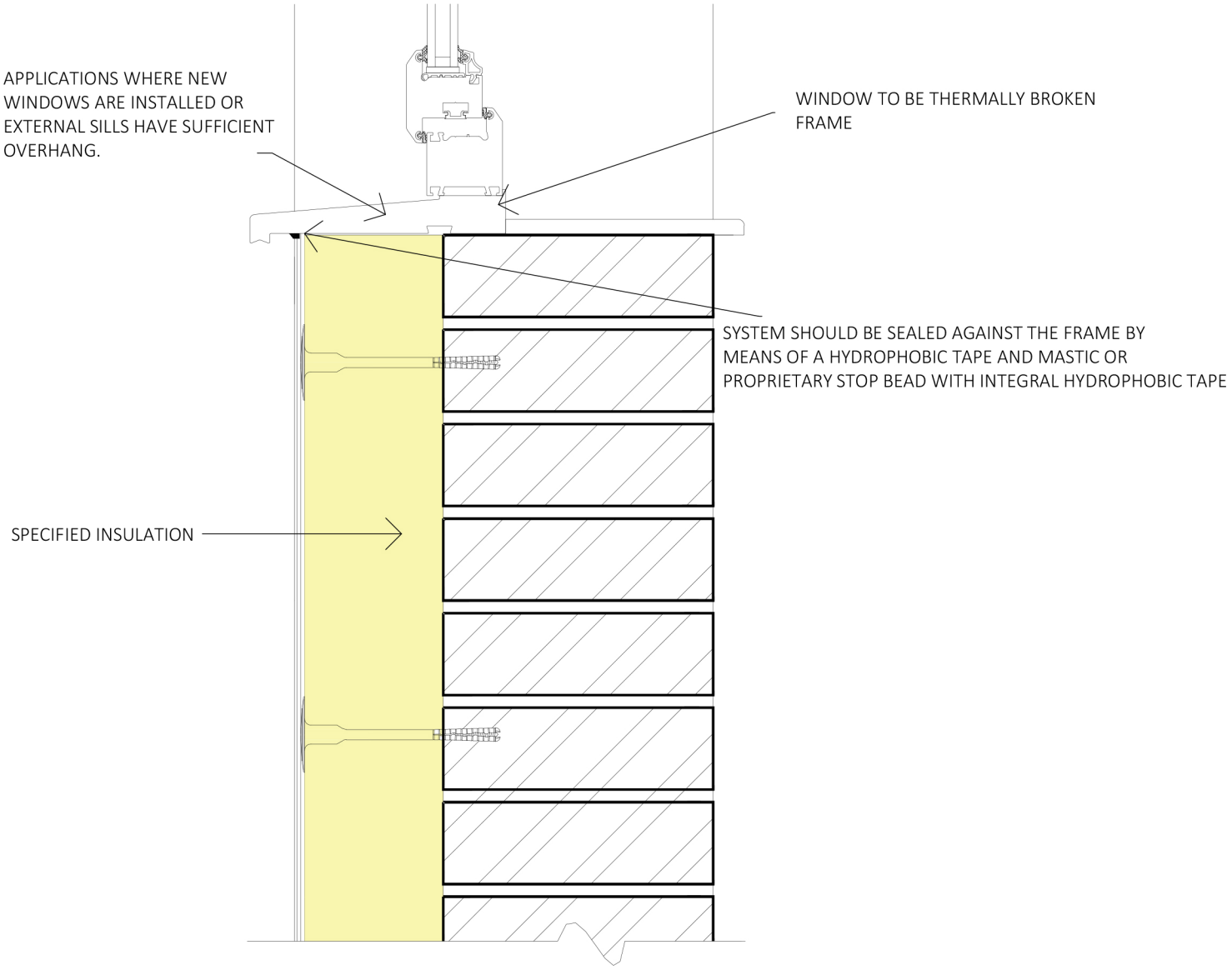


Title:	Un-Insulated Reveal
Dwg. No.	TBD-006
Rev.	B

THERMAL BRIDGING DETAILS



NOTE:
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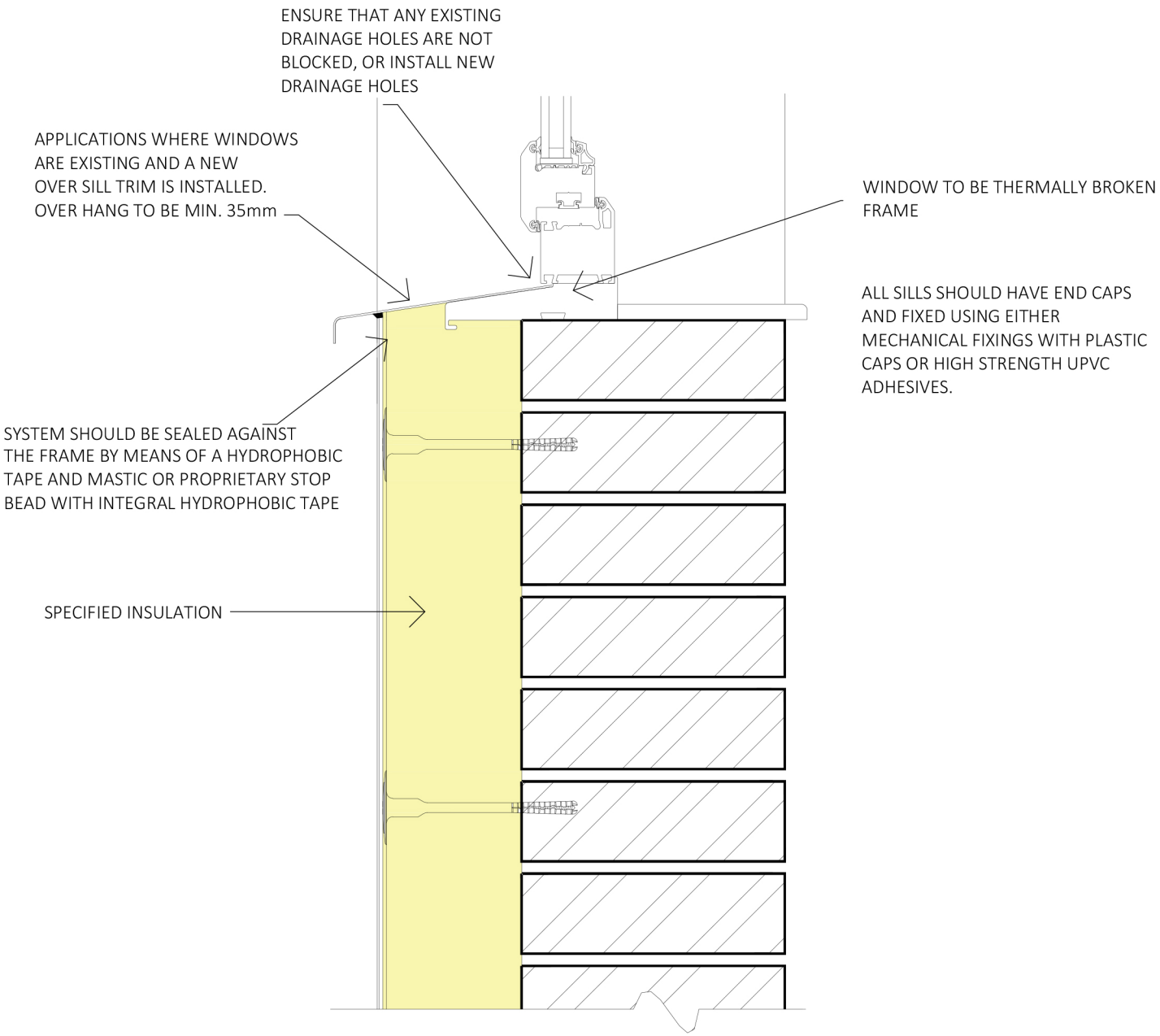
DETAILS HAVE OMITTED THE ADHESIVE LAYER TO THE REAR OF THE INSULATION BOARD, AGAIN FOR CLARITY

Title:	New window with extended sill
Dwg. No.	TBD-007
Rev.	B

THERMAL BRIDGING DETAILS



NOTE:
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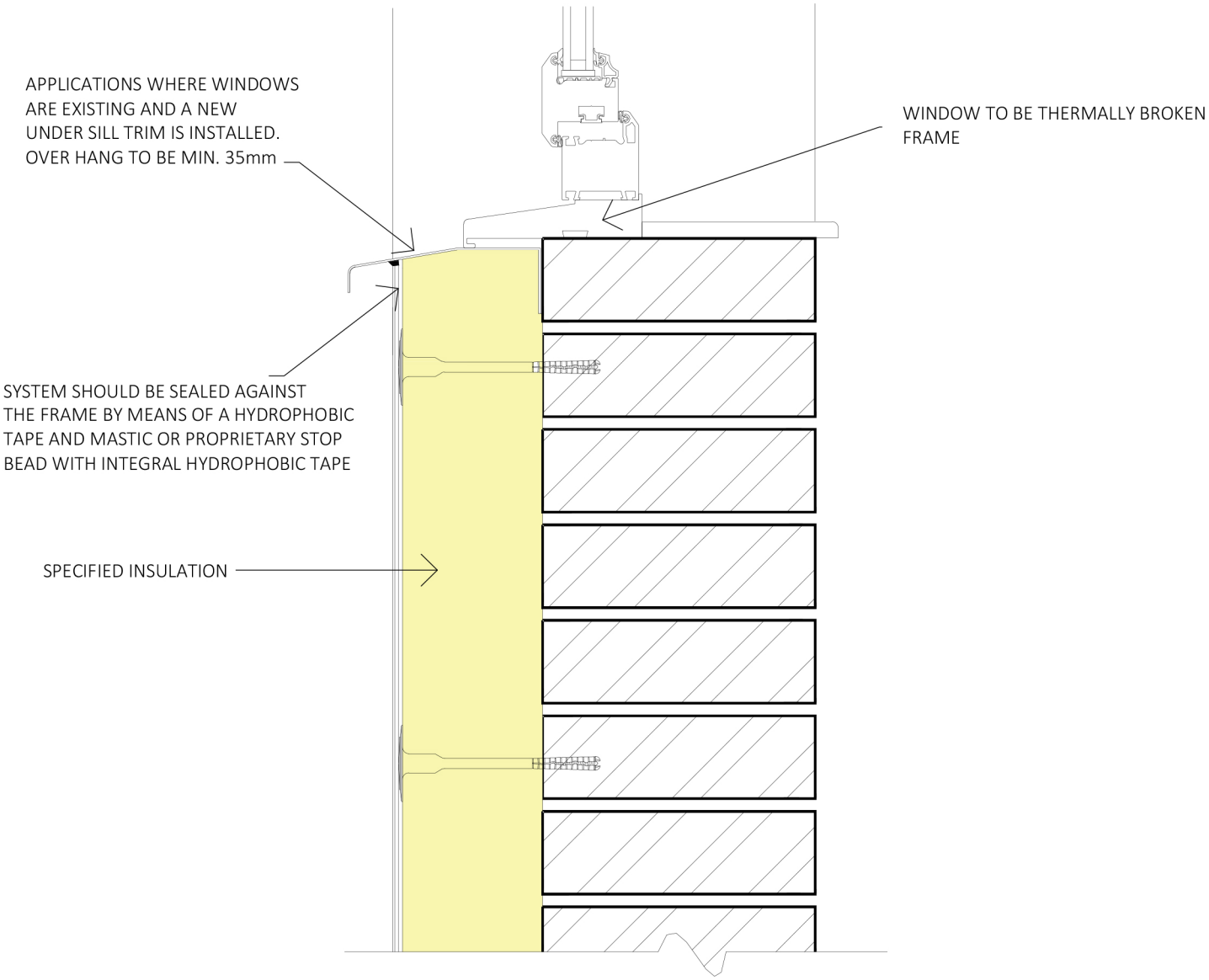
Title:	Existing window with over sill
Dwg. No.	TBD-008
Rev.	B

THERMAL BRIDGING DETAILS



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AGAIN FOR CLARITY

Title:	Existing window with over sill
Dwg. No.	TBD-009
Rev.	B

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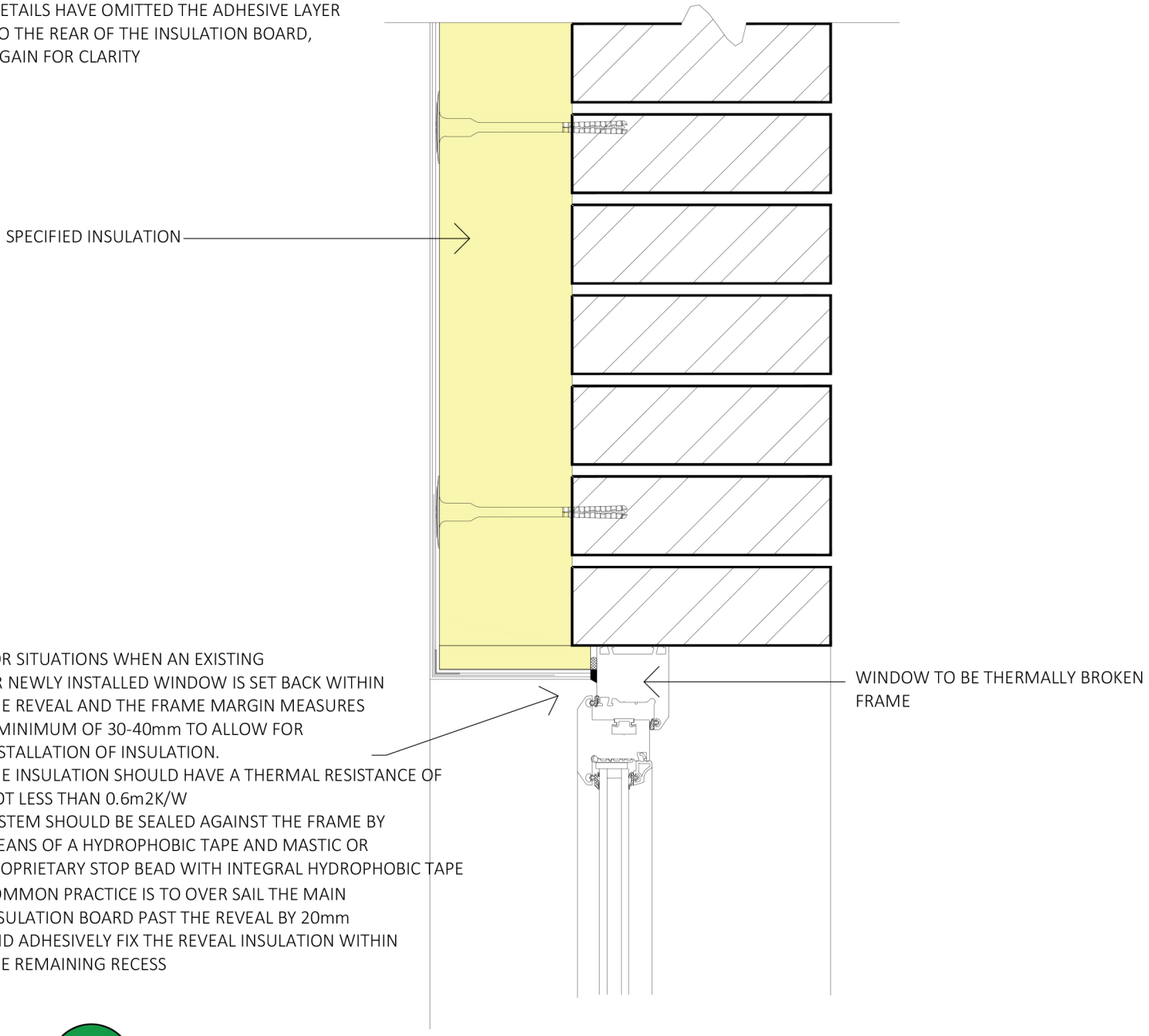

FOR SITUATIONS WHEN AN EXISTING
OR NEWLY INSTALLED WINDOW IS SET BACK WITHIN
THE REVEAL AND THE FRAME MARGIN MEASURES
A MINIMUM OF 30-40mm TO ALLOW FOR
INSTALLATION OF INSULATION.
THE INSULATION SHOULD HAVE A THERMAL RESISTANCE OF
NOT LESS THAN 0.6m2K/W
SYSTEM SHOULD BE SEALED AGAINST THE FRAME BY
MEANS OF A HYDROPHOBIC TAPE AND MASTIC OR
PROPRIETARY STOP BEAD WITH INTEGRAL HYDROPHOBIC TAPE
COMMON PRACTICE IS TO OVER SAIL THE MAIN
INSULATION BOARD PAST THE REVEAL BY 20mm
AND ADHESIVELY FIX THE REVEAL INSULATION WITHIN
THE REMAINING RECESS

Title:	Insulation to recessed head
Dwg. No.	TBD-010
Rev.	B

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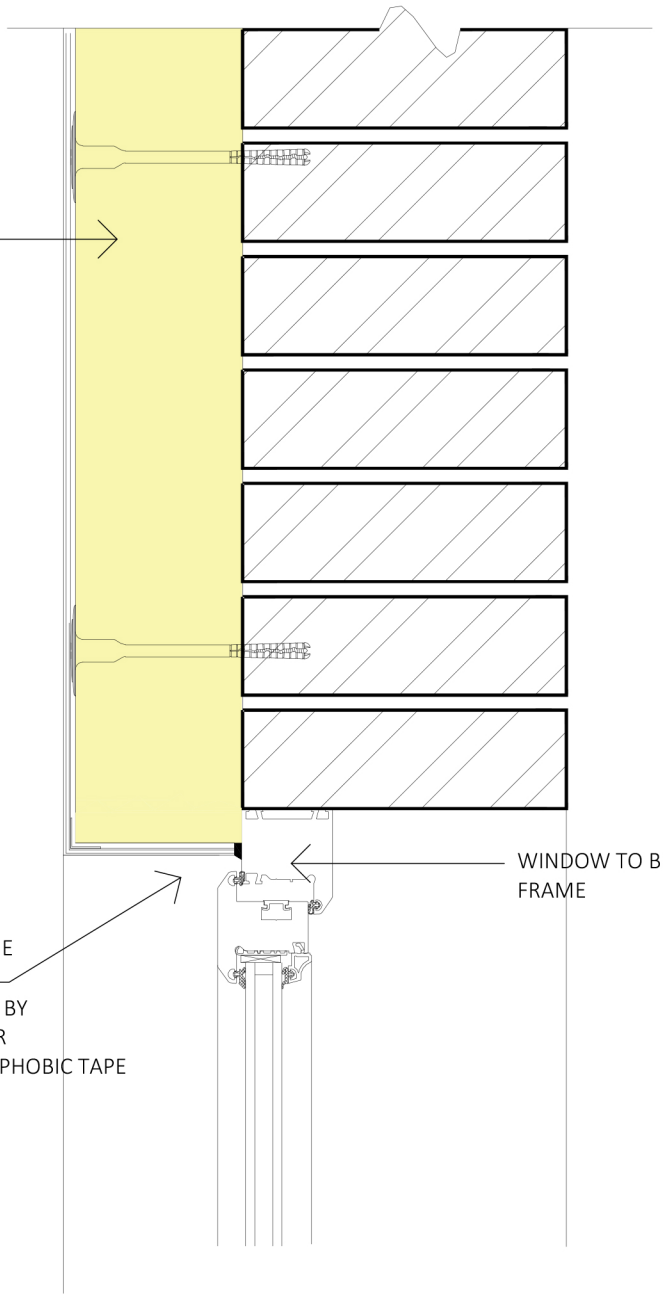

Title:	Insulation over flush head
Dwg. No.	TBD-011
Rev.	B

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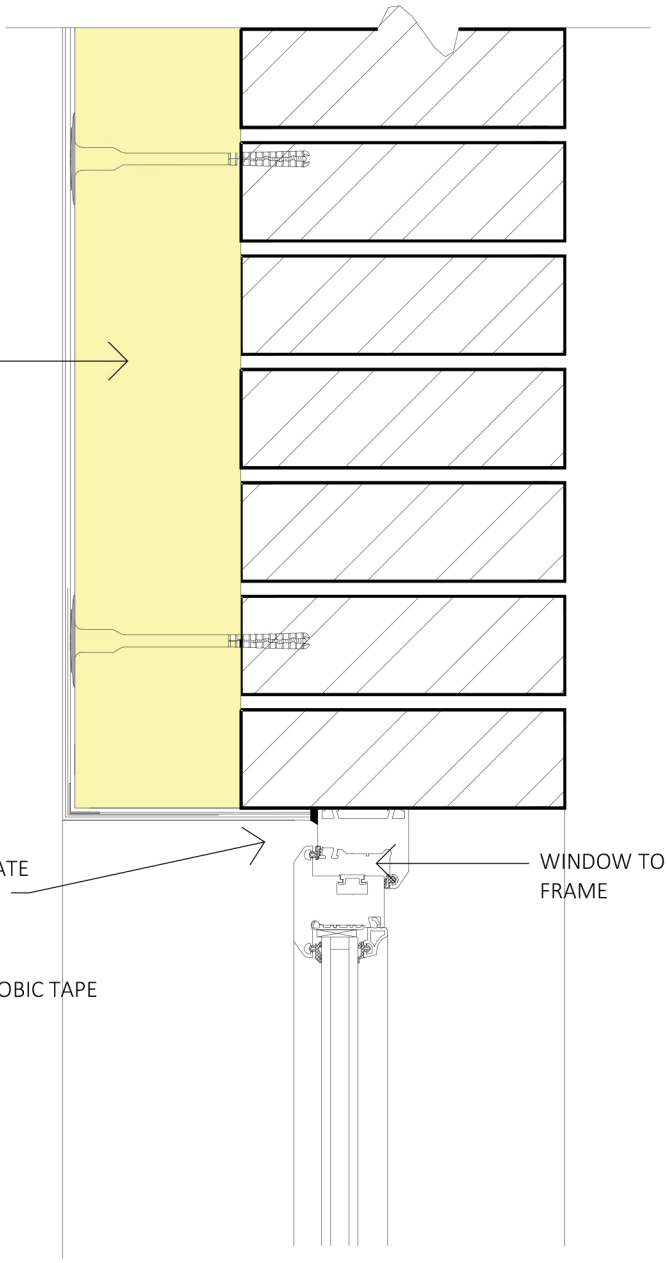

Title:	Un-Insulated Head
Dwg. No.	TBD-012
Rev.	B

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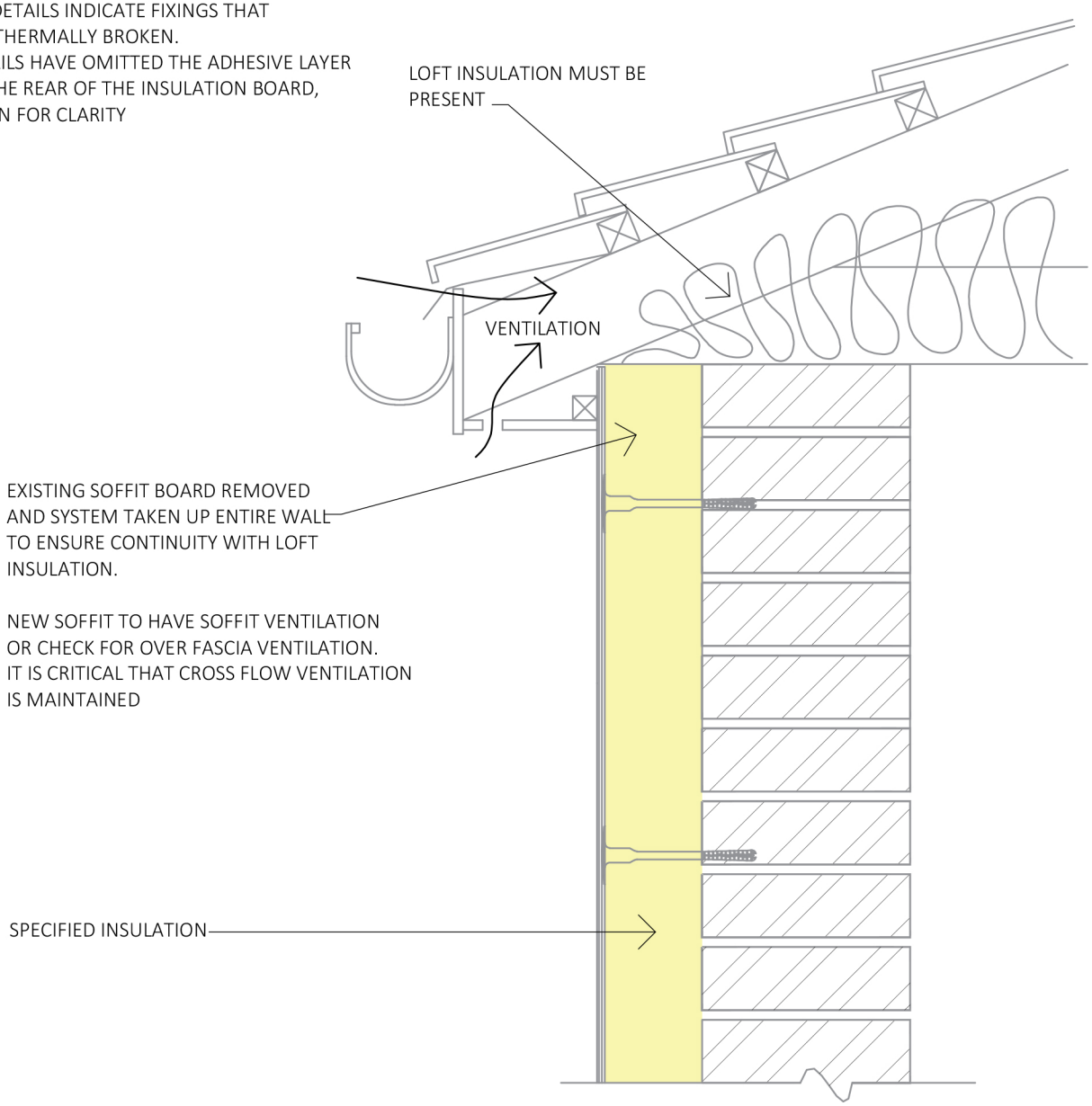

Title:	Extended/Overhanging Eaves
Dwg. No.	TBD-013
Rev.	B

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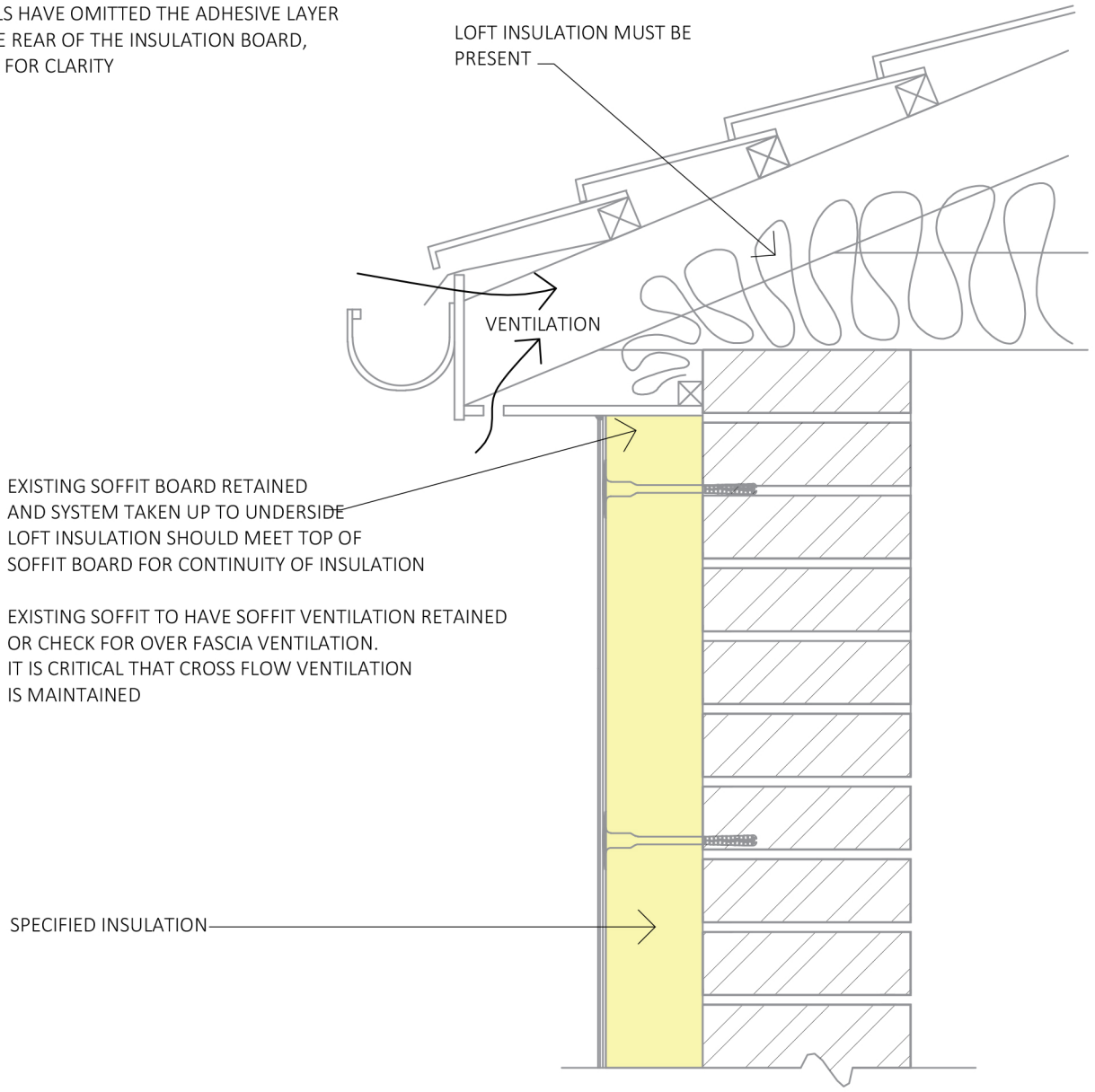

Title:	Extended/Overhanging Eaves
Dwg. No.	TBD-014
Rev.	B

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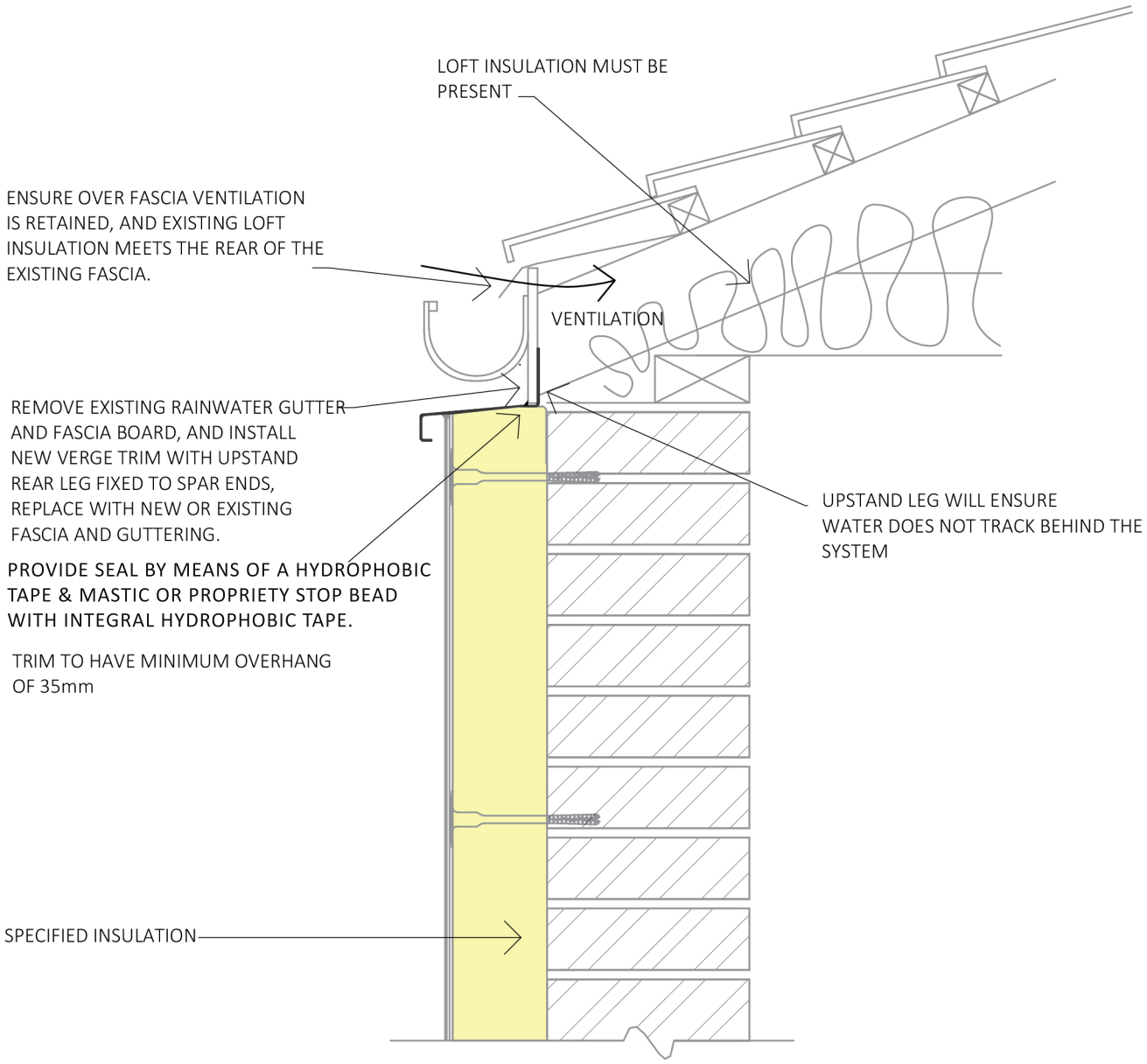

NOTE:
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DETAILS HAVE OMITTED THE ADHESIVE LAYER TO THE REAR OF THE INSULATION BOARD, AGAIN FOR CLARITY

Title:	Flush/Non-Extended Eaves
Dwg. No.	TBD-015
Rev.	B

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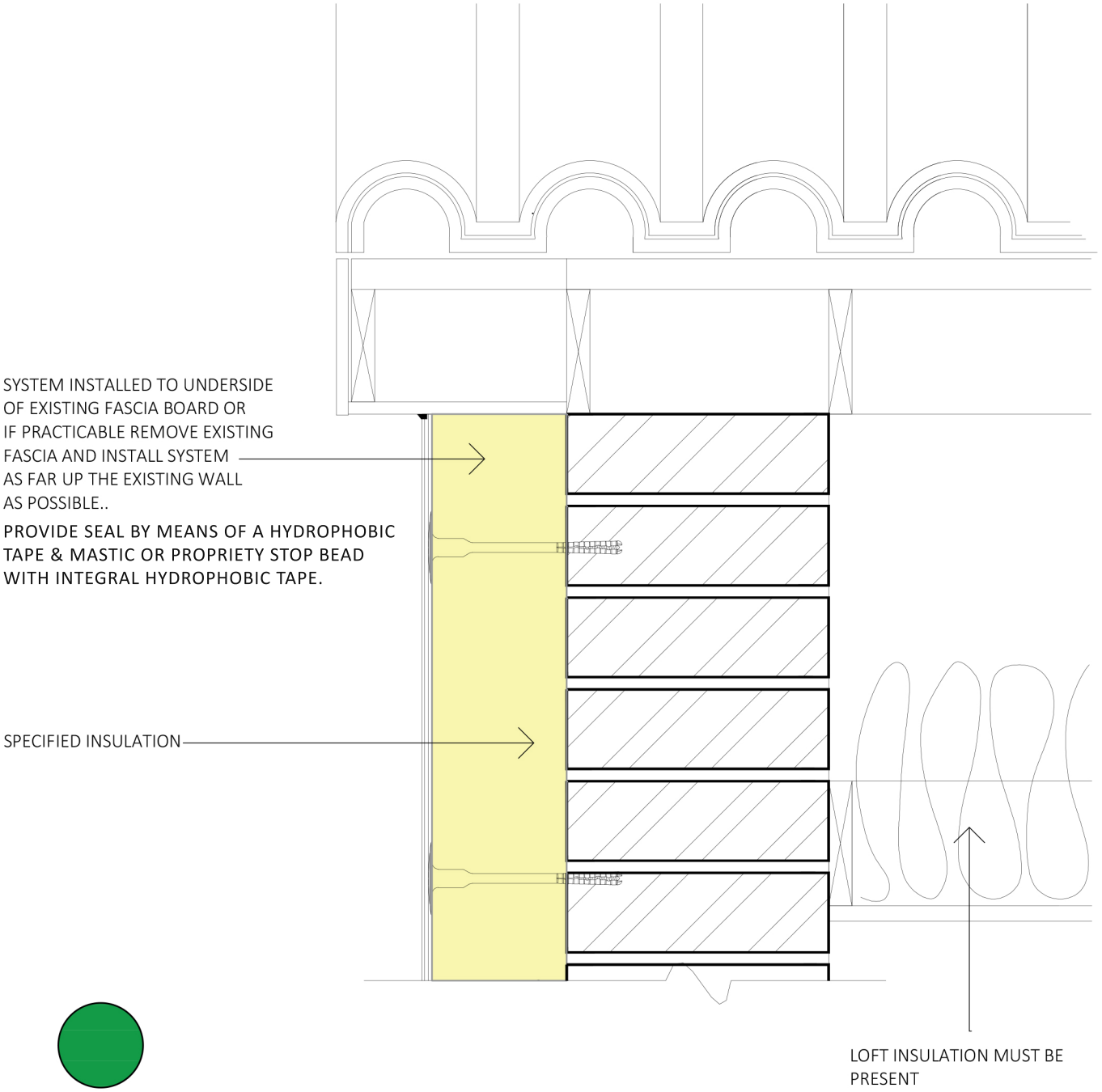


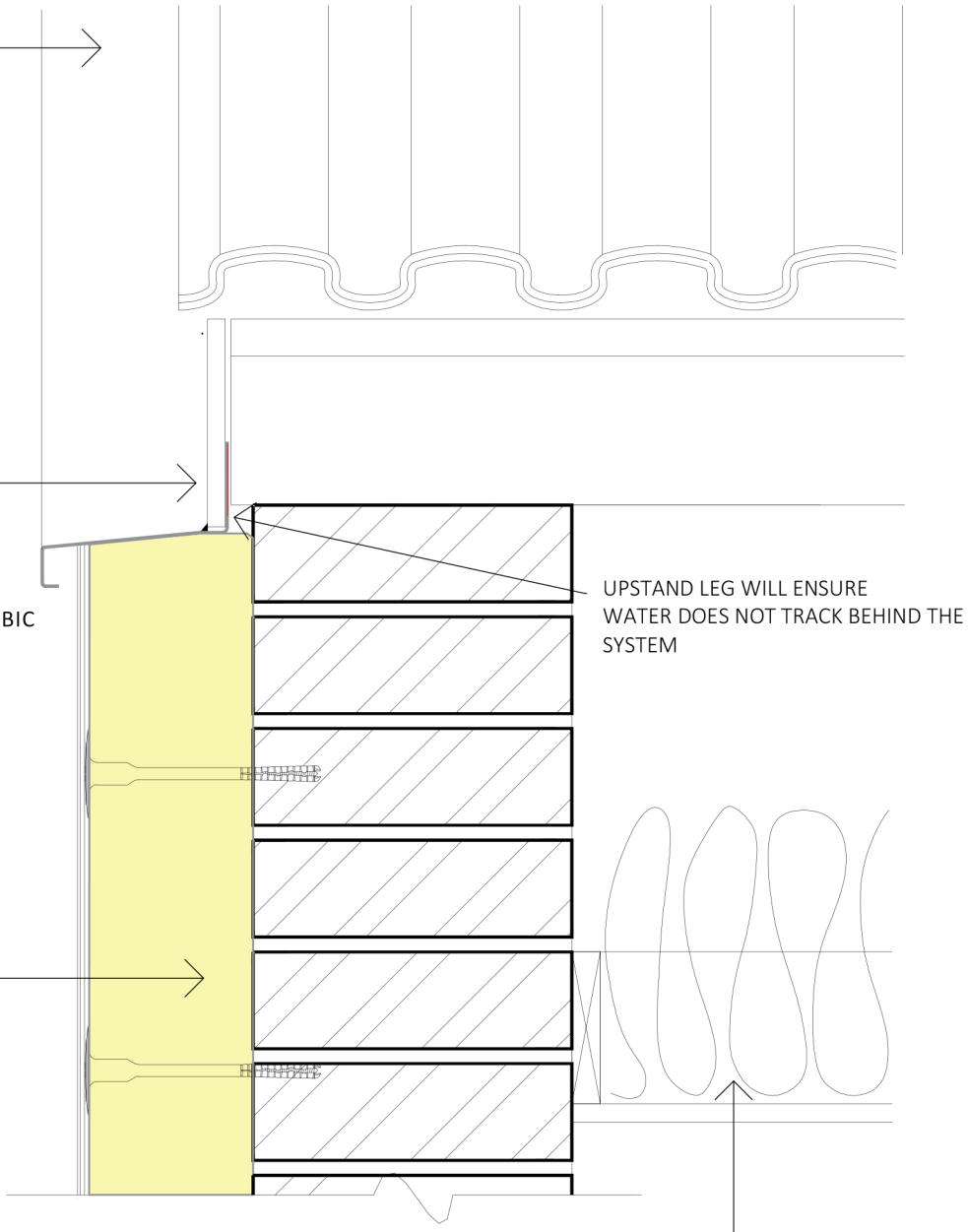
Title:	Extended/Overhanging Verge
Dwg. No.	TBD-016
Rev.	B

THERMAL BRIDGING DETAILS

ENSURE CAPPING PIECE IS APPLIED TO JUNCTION AT GABLE APEX WHERE VERGE TRIMS MEET.

REMOVE EXISTING BARGE BOARD AT VERGE AND INSTALL NEW VERGE TRIM WITH UP STAND BACK LEG FIXED TO GABLE LADDER OR TRUSS.
REPLACE BARGE BOARD WITH EXISTING OR NEW REPLACEMENT.

PROVIDE SEAL BY MEANS OF A HYDROPHOBIC TAPE & MASTIC OR PROPRIETY STOP BEAD WITH INTEGRAL HYDROPHOBIC TAPE.



UPSTAND LEG WILL ENSURE WATER DOES NOT TRACK BEHIND THE SYSTEM

SPECIFIED INSULATION

NOTE:
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DETAILS HAVE OMITTED THE ADHESIVE LAYER TO THE REAR OF THE INSULATION BOARD, AGAIN FOR CLARITY

LOFT INSULATION MUST BE PRESENT

Title:	Flush/Non-extended Verge
Dwg. No.	TBD-017
Rev.	B

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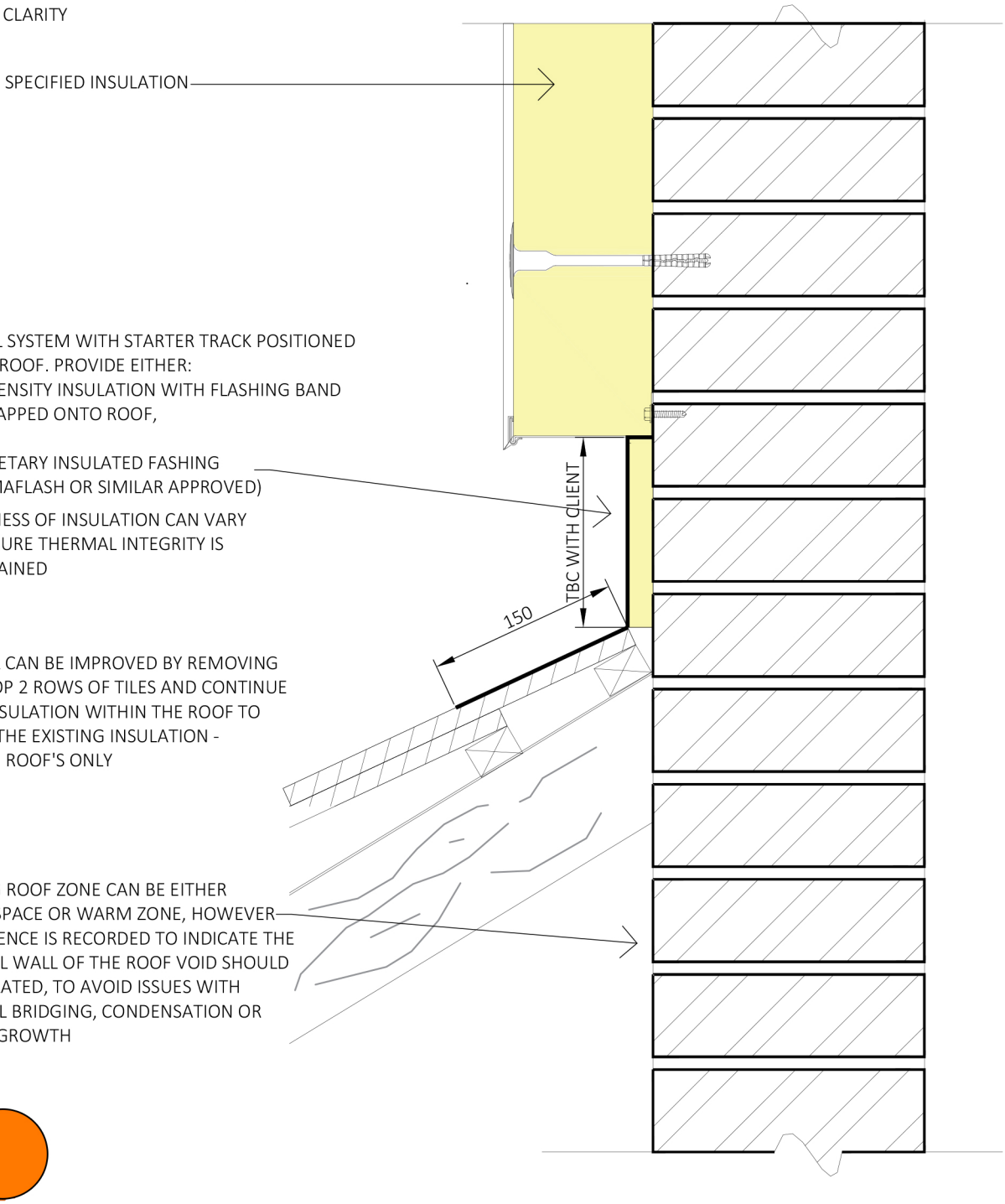

Title:	Pitched Roof Abutment
Dwg. No.	TBD-018
Rev.	B

THERMAL BRIDGING DETAILS

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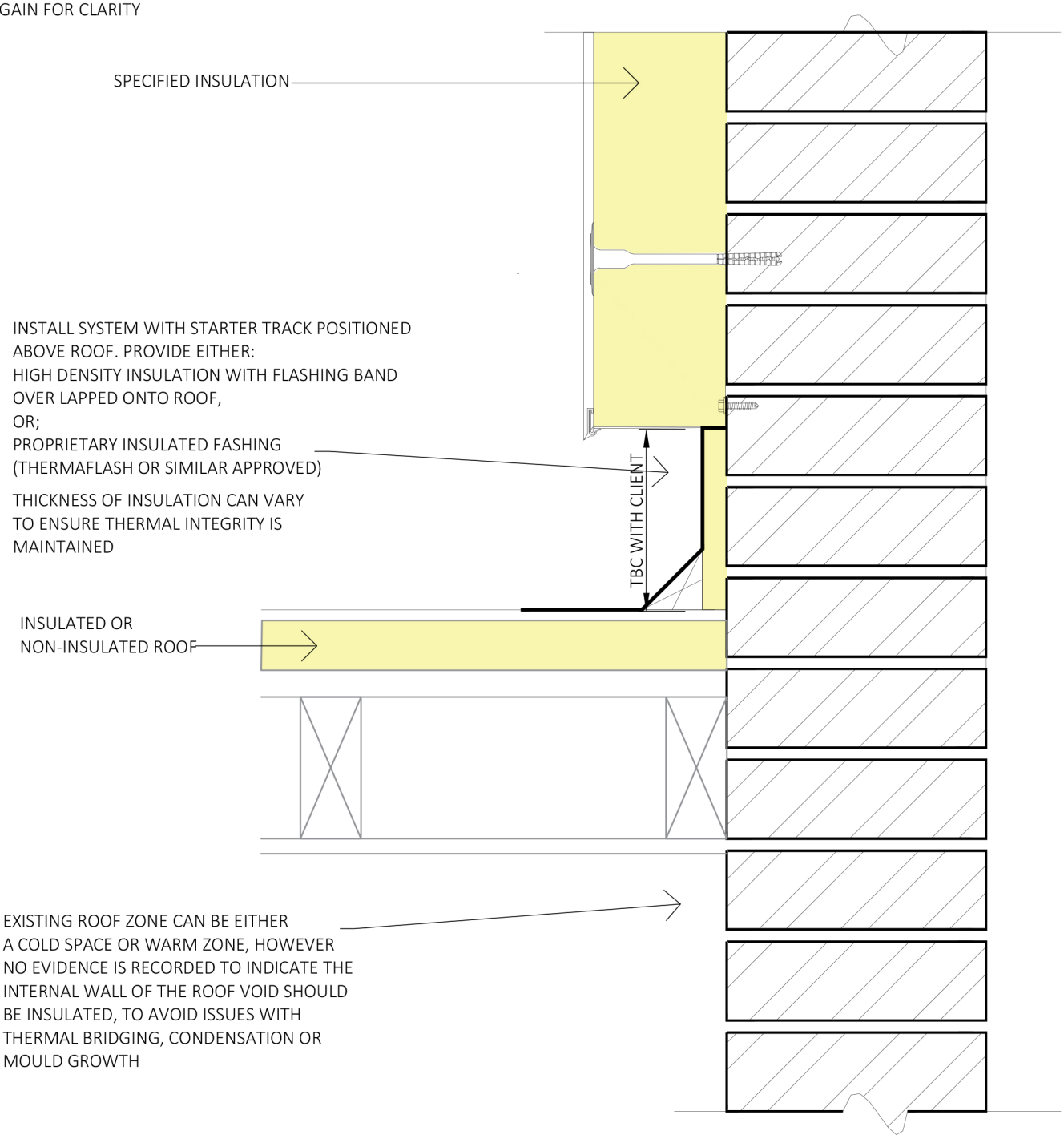
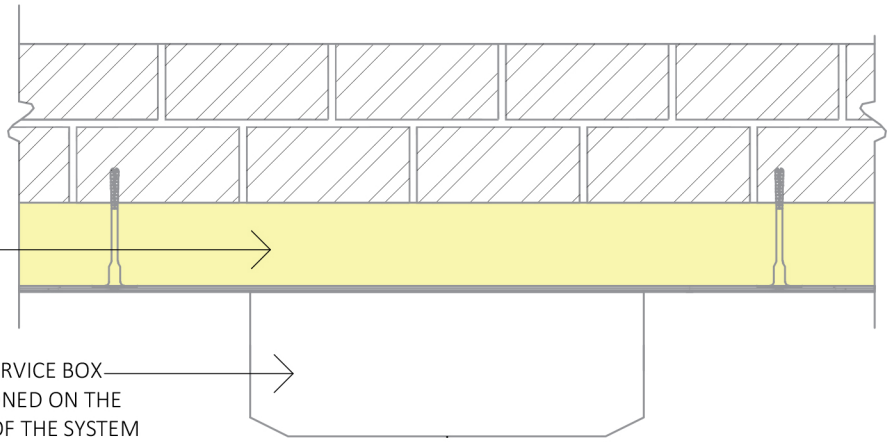
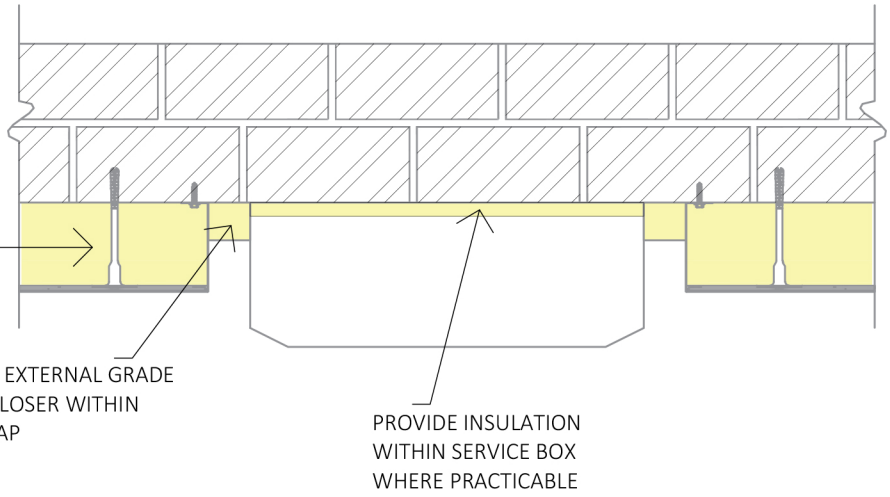


Title:	Flat Roof Abutment
Dwg. No.	TBD-019
Rev.	B

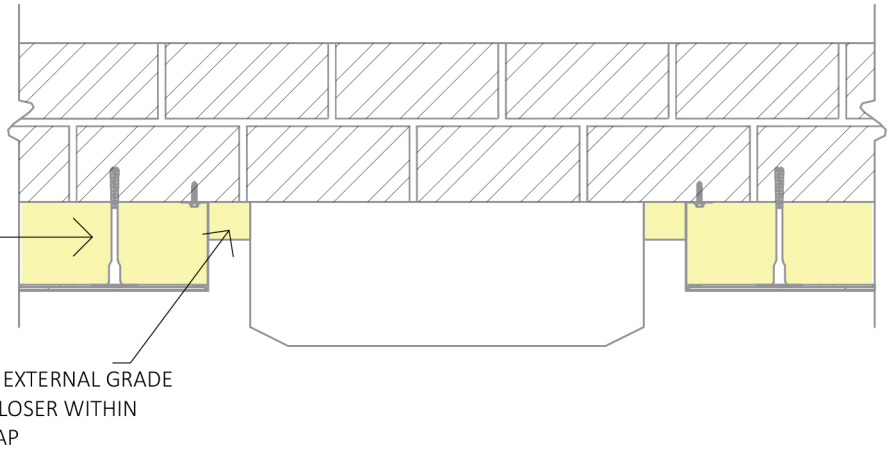
THERMAL BRIDGING DETAILS



NOTE:
MOVEMENT OF SERVICE BOXES SHOULD BE UNDERTAKEN BY THE OWNER OF THE BOX, I.E. THE UTILITY COMPANY. MOVEMENT WITHOUT CONSENT WOULD BE AN ACT OF TRESPASS.

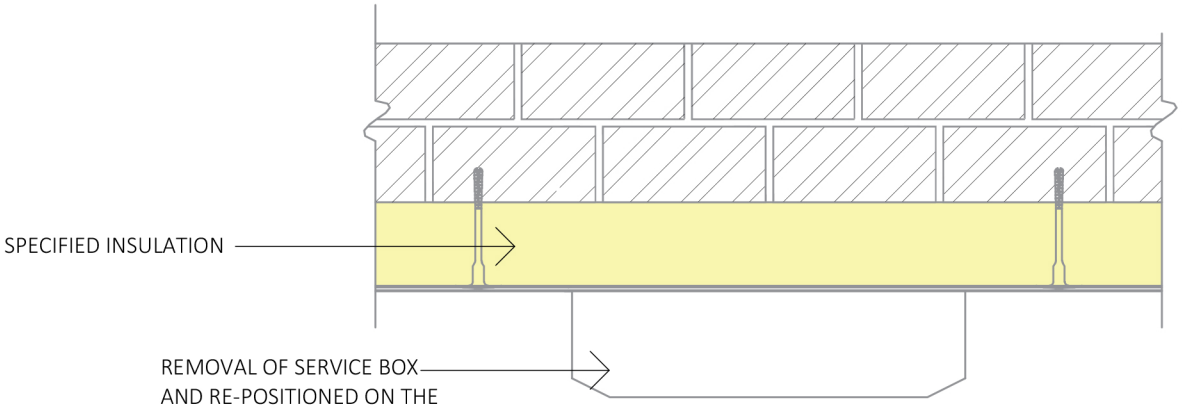


FOR GAP TO EDGES OF BOX REFER TO HHIC GUIDANCE REF T14/0069C THAT STATES ALL METER BOXES SHOULD HAVE A MIN. GAP OF 25mm FOR ACCESS AND MAINTENANCE



Title:	Service Box - Removable Box
Dwg. No.	TBD-020
Rev.	B

THERMAL BRIDGING DETAILS



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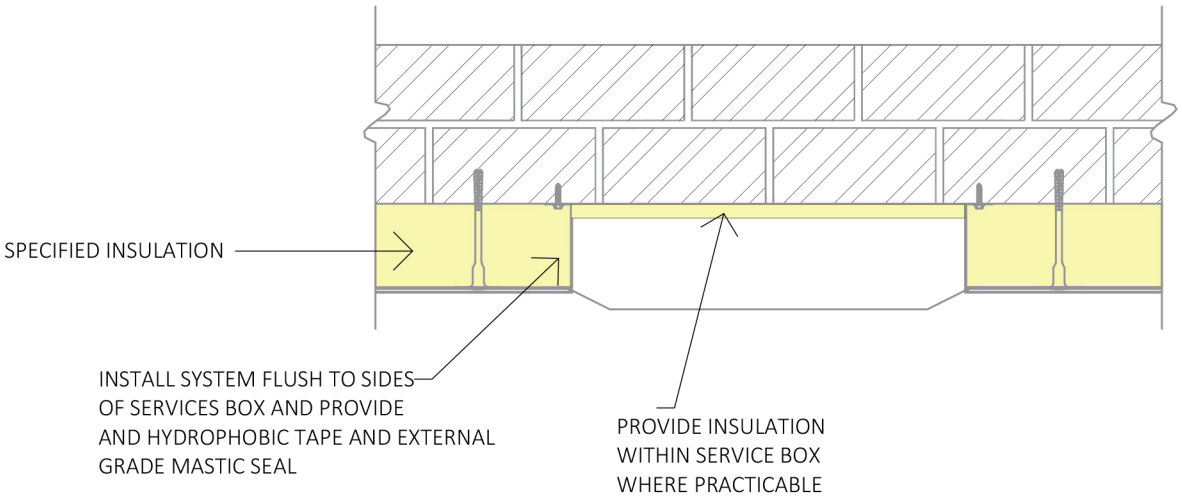

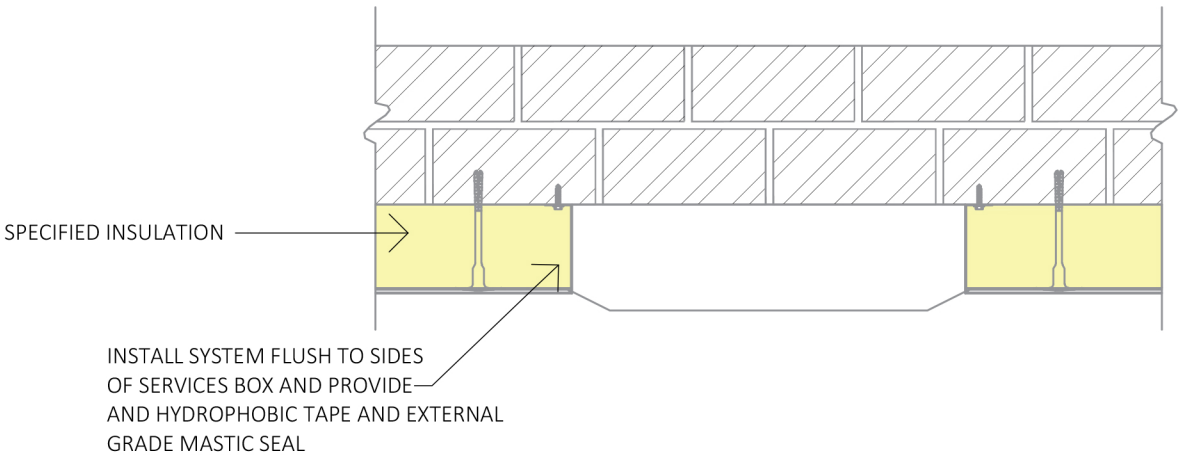

Title:	Service Box - Front Access
Dwg. No.	TBD-021
Rev.	B

THERMAL BRIDGING DETAILS

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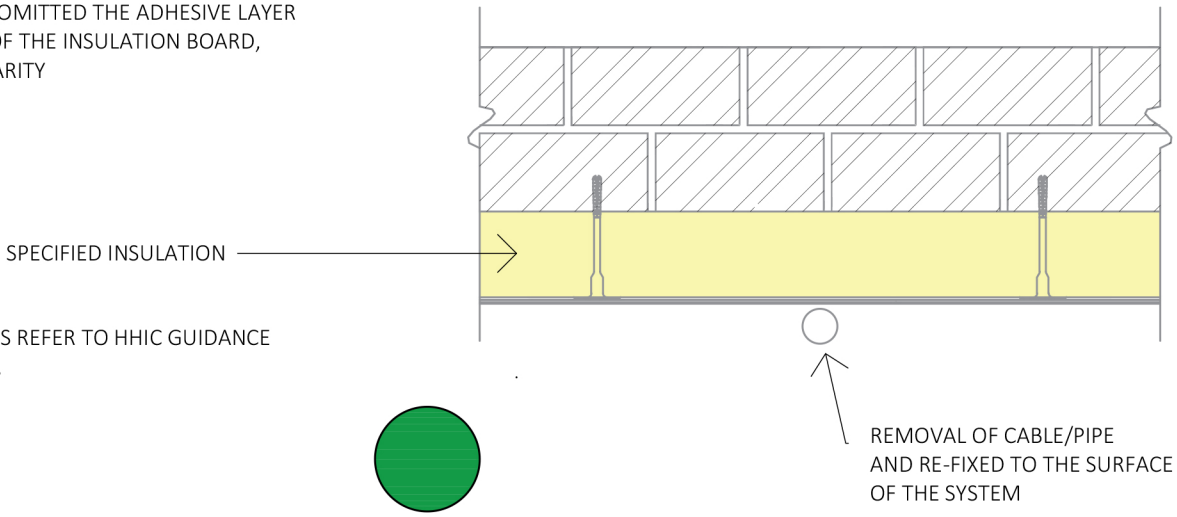
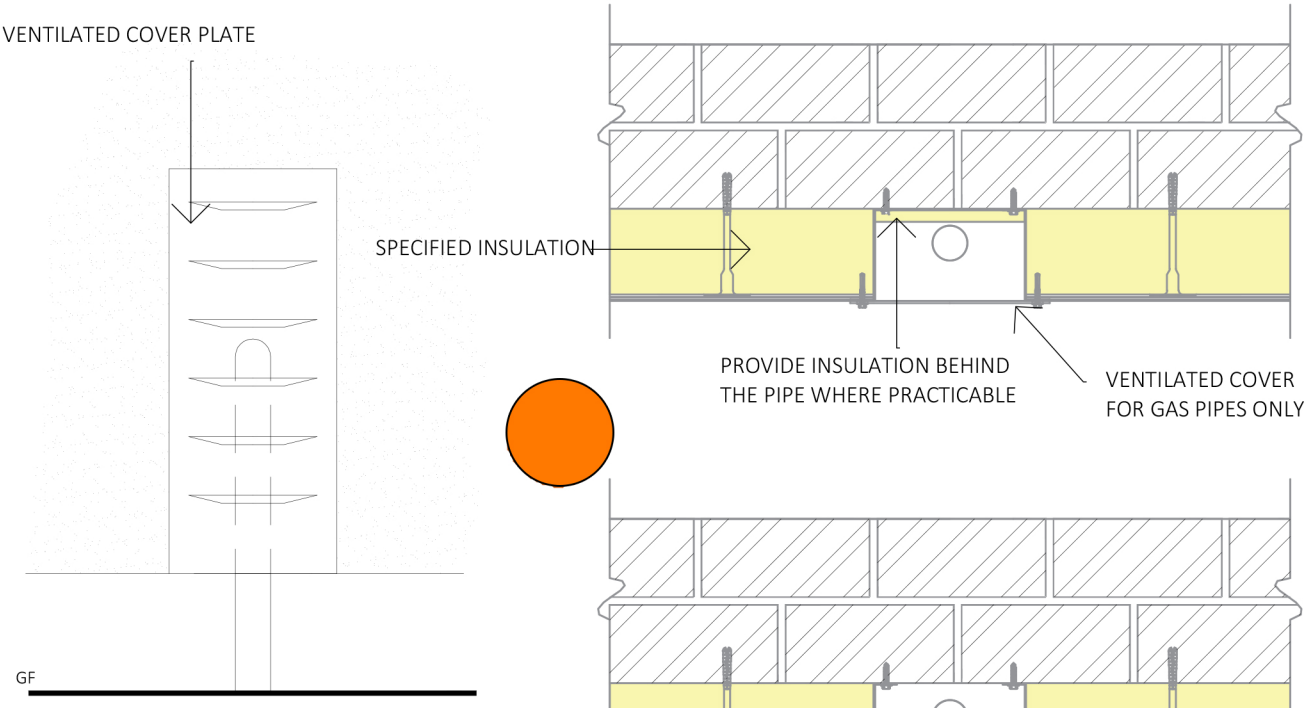


FOR GAS PIPES REFER TO HHIC GUIDANCE DOCUMENTS.

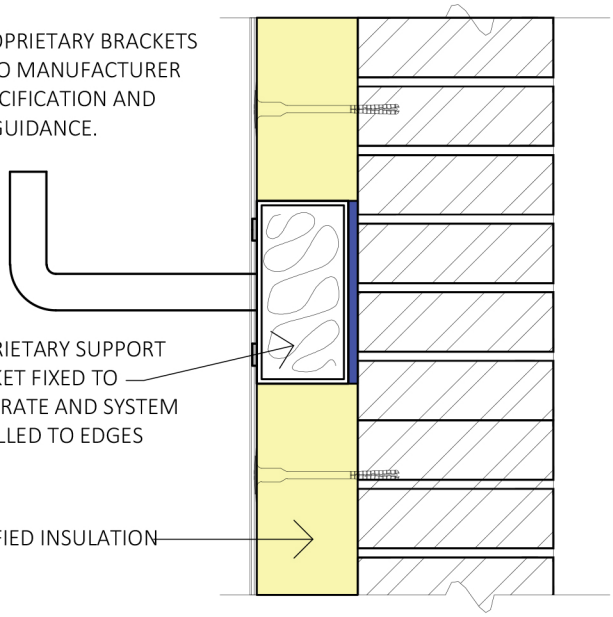


FOR ELECTRICAL CABLES
ENCASE CABLE IN LOOSE INSULATION WITHIN COVER PLATE

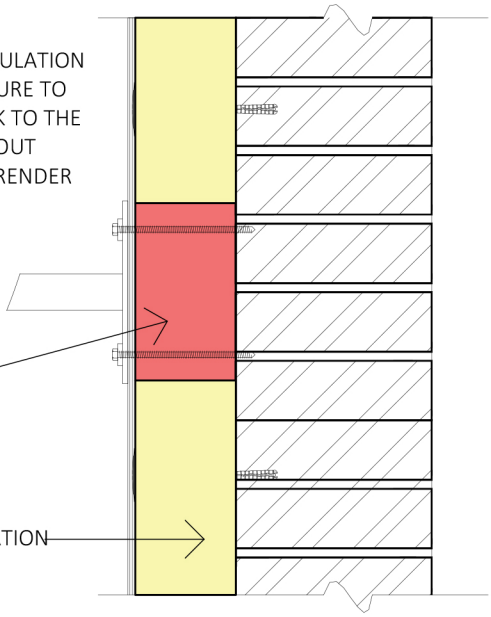
Title:	Gas Pipe / Electrical Cables
Dwg. No.	TBD-022
Rev.	B

THERMAL BRIDGING DETAILS

FOR PROPRIETARY BRACKETS REFER TO MANUFACTURER FOR SPECIFICATION AND FIXING GUIDANCE.

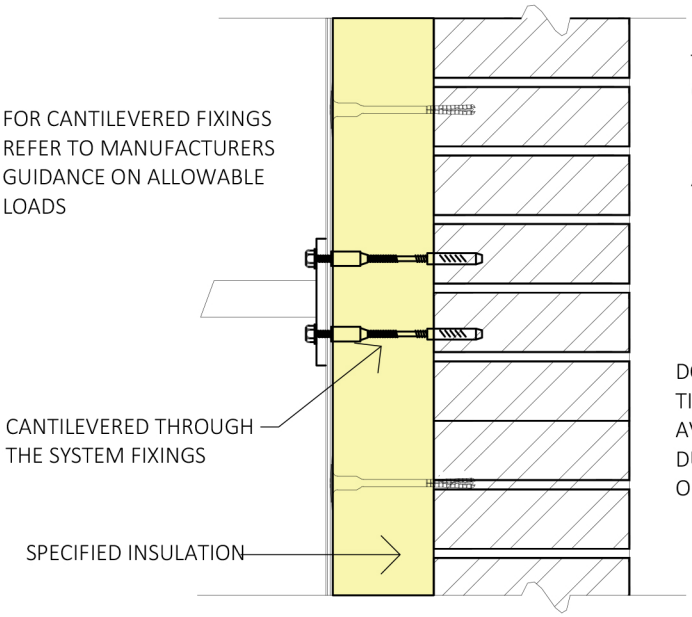


HIGH DENSITY INSULATION ALLOWS THE FIXTURE TO BE CLAMPED BACK TO THE SUBSTRATE WITHOUT DEPRESSING THE RENDER

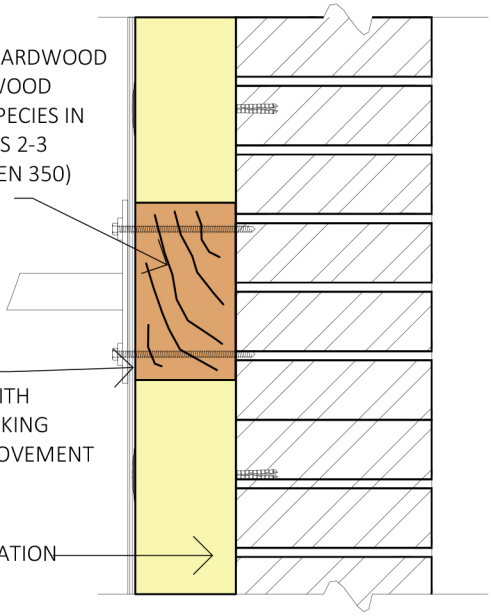


WHERE INSULATION ABUTS THE PROPRIETARY BRACKET, HD INSULATION BLOCK OR TREATED TIMBER IT SHOULD BE INSTALLED TIGHT UP WITH ALL GAPS FILLED TO THE FULL DEPTH OF THE INSULATION

FOR CANTILEVERED FIXINGS REFER TO MANUFACTURERS GUIDANCE ON ALLOWABLE LOADS



TIMBER SHALL BE HARDWOOD CUT FROM HEARTWOOD (SELECTED FROM SPECIES IN DURABILITY GROUPS 2-3 ACCORDING TO BS EN 350)



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Title:	Heavy weight external fixtures
Dwg. No.	TBD-024
Rev.	B

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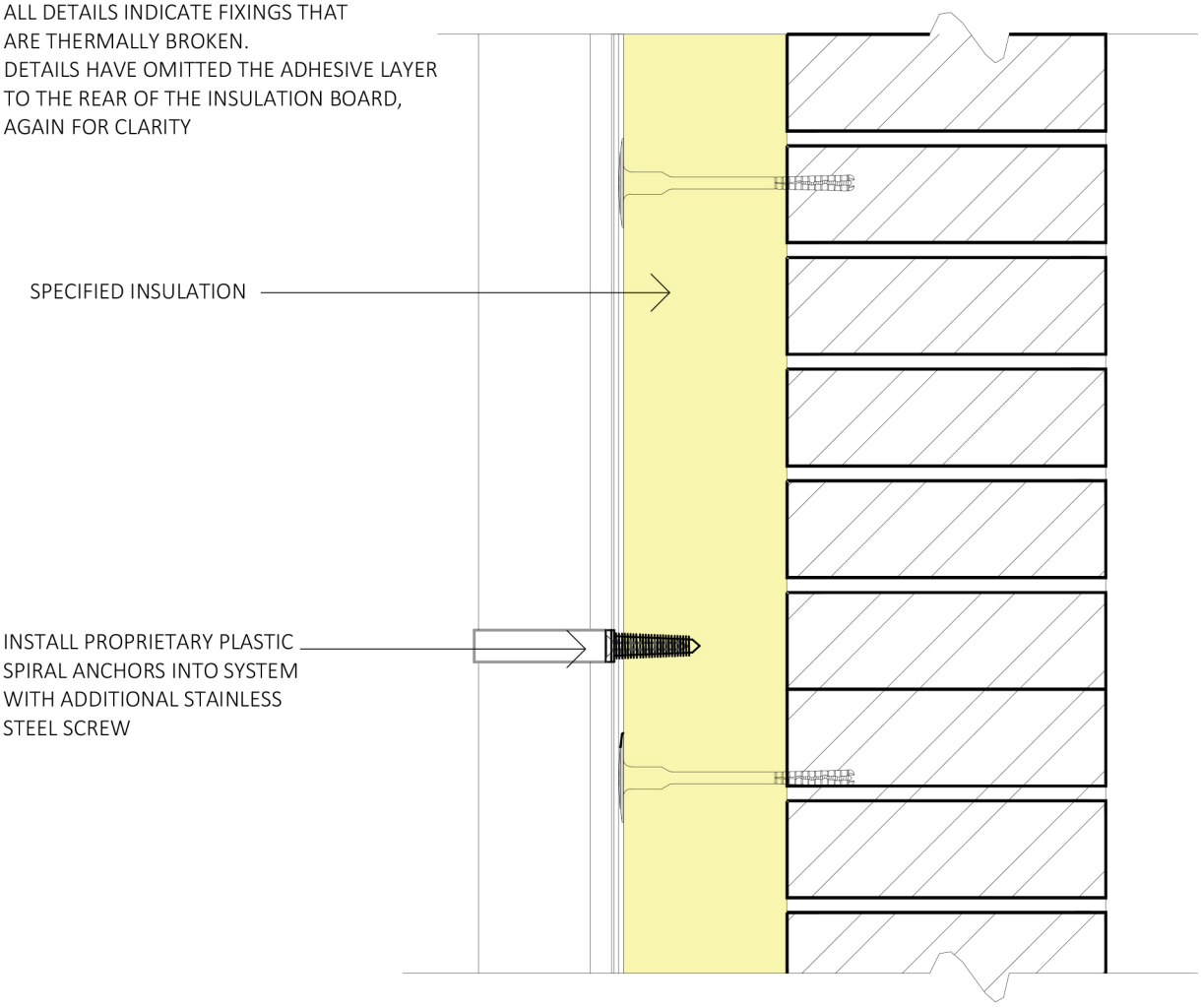
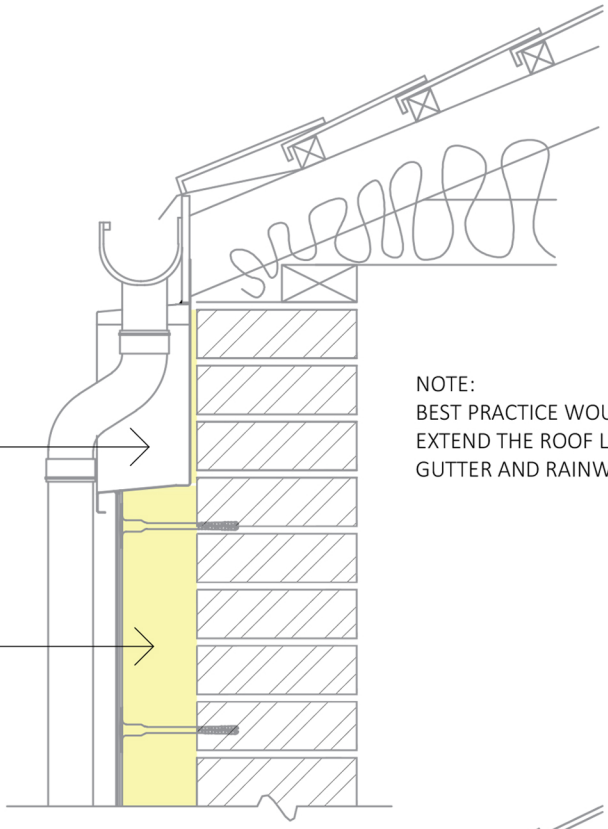


Title:	Lightweight external fixtures
Dwg. No.	TBD-024
Rev.	A

THERMAL BRIDGING DETAILS

NOTE:
ALL DETAILS INDICATE FIXINGS THAT ARE THERMALLY BROKEN.
DETAILS HAVE OMITTED THE ADHESIVE LAYER TO THE REAR OF THE INSULATION BOARD, AGAIN FOR CLARITY

IN ALL INTERFACES BETWEEN THE HOPPER ARRANGEMENT AND THE EWI SYSTEM, A DOUBLE BARRIER SHALL BE INCLUDED TO EXCLUDE WATER FROM ENTERING/DAMAGING THE SYSTEM E.G. HYDROPHOBIC EXPANDING TAPE AND SILICONE MASTIC SEALANT.

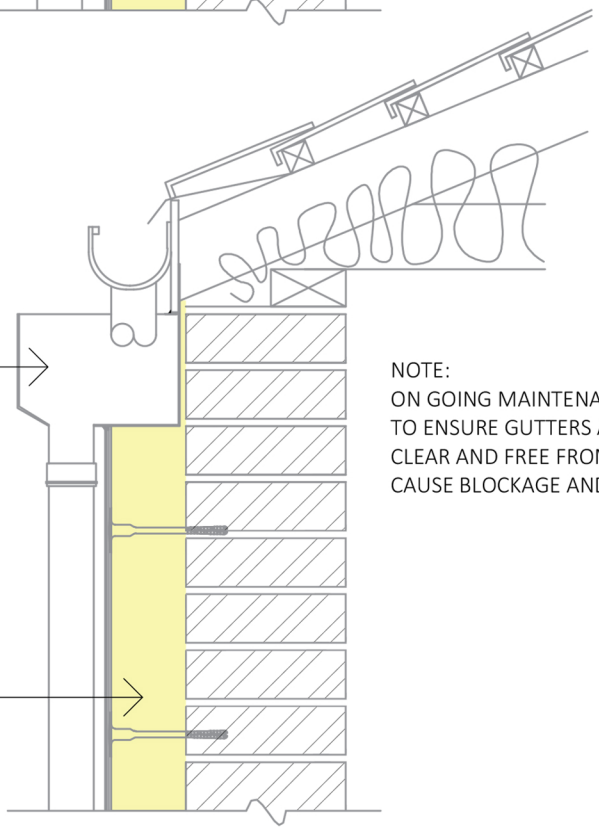


RAINWATER PIPE TO BE MOVED TO THE OUTSIDE FACE OF THE SYSTEM.
A SWAN NECK BRACKET PROVIDED.
ALLOW FOR TRIM DETAIL TO SIDES AND TOP OF SYSTEM, WITH INSULATION APPLIED BEHIND BACK LEG AND BACK LEG TAKEN UP UNDERNEATH FASCIA BOARD TO SEAL
THE INSULATION BEHIND THE SWAN NECK SHOULD BE NOT LESS THAN 0.6m2K/W

SPECIFIED INSULATION

NOTE:
BEST PRACTICE WOULD ALWAYS TO EXTEND THE ROOF LINE AND MOVE THE GUTTER AND RAINWATER PIPE.

SHOULD THE ABOVE DETAIL BE UNDERTAKEN BUT OMISSION OF INSULATION BEHIND THE TRIM



REMOVE EXISTING DOWN PIPE AND PROVIDE POWDER COATED HOPPER DEPTH TO BE CONSISTENT WITH SYSTEM DEPTH. PROVIDE INSULATION TO THE REAR OF THE HOPPER WITH AN EXTENDED BACK LEG TAKEN UP UNDERNEATH FASCIA
SYSTEM TO BE TAKEN TO SIDES OF HOPPER
THE INSULATION BEHIND THE HOPPER SHOULD BE NOT LESS THAN 0.6m2K/W

SPECIFIED INSULATION

NOTE:
ON GOING MAINTENANCE IS REQUIRED TO ENSURE GUTTERS AND HOPPERS ARE CLEAR AND FREE FROM DEBRIS THAT MAY CAUSE BLOCKAGE AND OVERFLOW.

BEST

Title:	Swan Neck Gutter and Pipe
Dwg. No.	TBD-025
Rev.	B