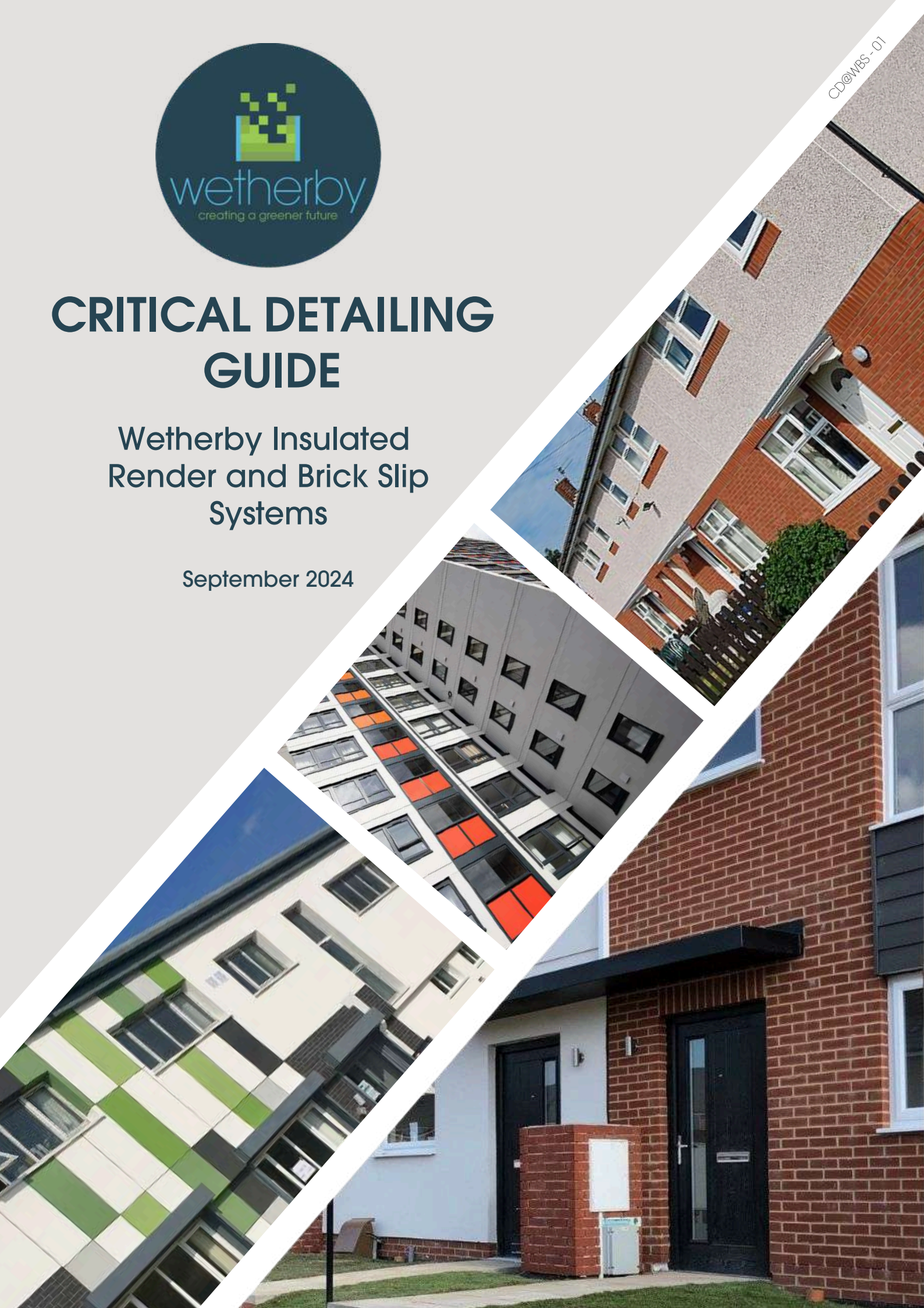




CRITICAL DETAILING GUIDE

Wetherby Insulated
Render and Brick Slip
Systems

September 2024



Importance of Critical Detailing

Installing the Wetherby EWI System correctly is imperative in ensuring the systems remains effective and reduces the risk of failures or damage for many years after installation. The longevity of the system is dictated by the projects detailing and, if detailed and installed correctly, will massively reduce the risk of failure and staining/ maintenance.

This document provides simple guidance on the Wetherby EWI systems critical details. The photos included are of various EWI system manufacturers and installers, many unknown.

The details covered in this document are specific areas for attention to improve installation. A project specific specification and full detail drawing pack should always be provided to operatives before installing Wetherby Systems.



Contents

1.0	Substrate Preparation/ Enabling Works	3-4
1.1	Bedding Adhesive Application	5-6
1.2	Insulation Board Fixing Pattern	7-8
1.3	Fixing Through Mesh	9-10
1.4	Fixing Insulation Around Openings/ At Corners	11-12
1.5	Base Bead Detail	13-14
1.6	Scrim Patches, Lapping Mesh and Meshing into Beads	15-16
1.7	Roofline Closure System/ Parapet Detail	17-18
1.8	Window Cill Detail	19-20
1.9	Flashing/ Cill Overhang Information	21-22
1.10	Rendering Above a Flashing/ Cill	23-34
1.11	Window Return Detail	25-26
1.12	Movement Joints/ Slip Joints	27-28
1.13	Canopy Detail/ Roof Abutment Detail	29-30
1.14	Air Vents	31-32
1.15	Gas Box/ Pipes/ Flues	33-34
1.16	Fixtures and Fittings	35-36

1.0 Substrate Preparation/ Enabling



Pull out test completed to confirm fixing suitability



Biocidal wash applied to remove algae

- Survey must be completed to identify damp issues. (Must be rectified/ remedials)
- Substrate must be structurally sound. (Structural engineer report may be required)
- All substrate remedials must be completed prior to system application.
- Any loose existing render must be removed and substrate dubbed out where required.
- Any algae must be removed using a biocidal wash and brush/ jet wash where required.
- RWG sleeves and protection at EWI terminations required to prevent water ingress or streaking down newly installed renders.
- Surrounding surfaces, should be protected e.g. windows, cills, features etc.
- Pipework/ drainage must be repositioned to allow for full EWI system to be installed.
- Where required, pull out testing should be completed to ensure the substrate is suitable to accept the EWI fixings.



Pipework repositioned to allow for EWI system



RWG sleeve used to protect EWI during installation

1.0 Substrate Preparation/ Enabling

HOW NOT TO DO IT



Inadequate protection of surrounding surfaces



Structural movement requires investigation and should not simply be insulated over



Pipe buried in render

Not correctly preparing the substrate, completing remedials and carrying out enabling works can lead to:

- Future damage to property where remedials have not been completed.
- EWI systems installed to substrates not structurally stable.
- Existing render delaminating behind the EWI, causing the system to become unstable.
- Water ingressing into the system or streaking down the system, damaging render during curing.
- Damage to surrounding surfaces, windows, cills, etc where render spillage is difficult to remove.
- Pipes buried in the system, causing a cold bridge and likely future system failure.
- Invalidated Wetherby guarantee.



Substrate requiring investigation/ remedials prior to EWI installation



Inadequate protection allowing water to streak down and damage newly installed system



Unstable blockwork showing signs of movement/ cracking, requiring investigation

1.1 Bedding Adhesive Application

Insulation bedding adhesive may be required subject to specification. Below are the different methods of application.

- Boards must be installed level and firmly pushed into place.
- Initial fixings are required to hold the boards in place whilst the bedding adhesive sets.
- Insulation bedding adhesive can be used to level boards on uneven substrates.

Low Rise - Dot + Dab

Continuous strip applied around perimeter of board.

3 additional dabs applied uniformly across board.

Minimum 40% insulation board coverage.



High Rise - Notch Trowel

Trowel apply adhesive to back of board.

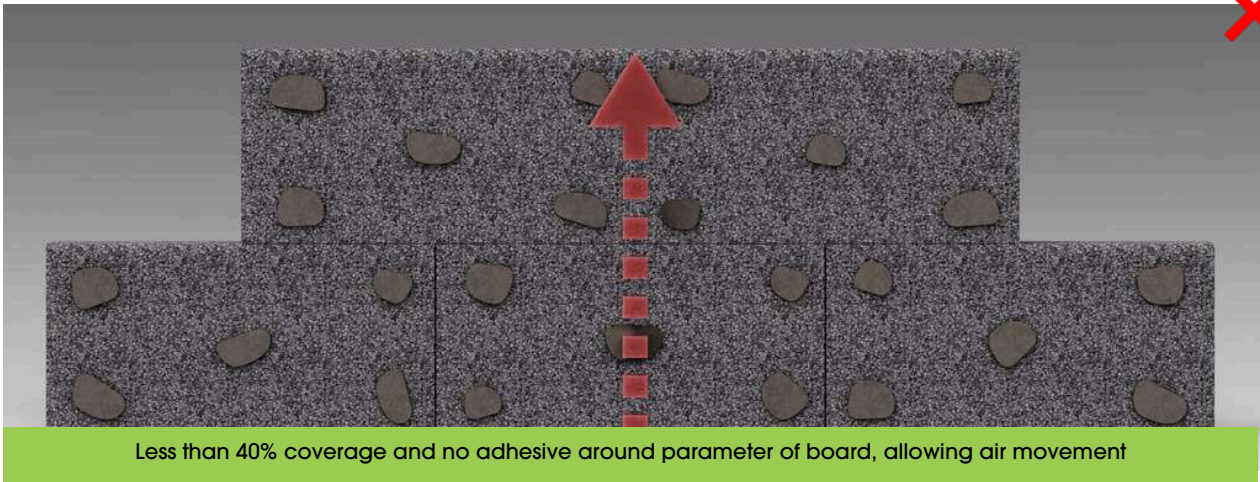
Min 10mm notch trowel used to level adhesive and ensure uniform thickness.

Entire insulation board to be covered, ensuring no gaps in adhesive.

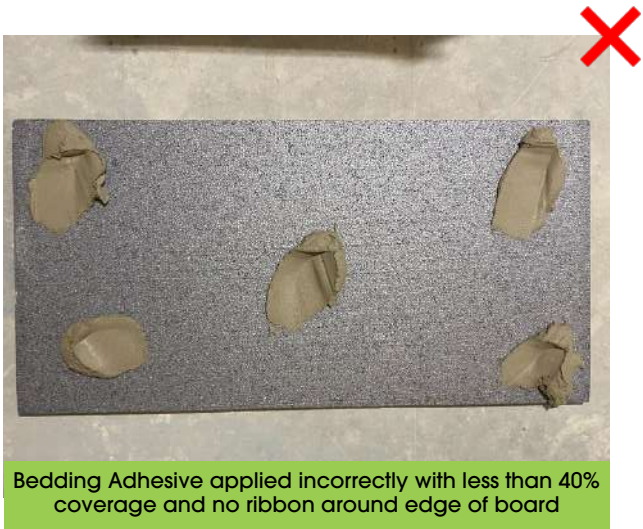


1.1 Bedding Adhesive Application

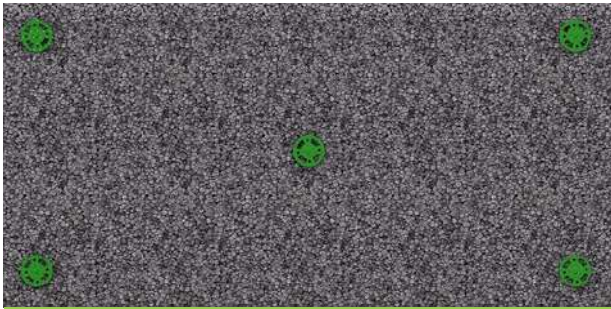
HOW NOT TO DO IT



- Always apply a continuous perimeter of adhesive and do not leave gaps around boards, as this will allow air movement behind the system.
- Do not apply at less than 40%, this is to ensure that boards are stable and fully supported.
- Not firmly pressing the boards into adhesive and installing initial fixings can effect the adhesives bond to the substrate.
- Ensure board are installed line and level, as steps will effect the aesthetics of the final finish.



1.2 Insulation Board Fixing Pattern



Standard 5 fixings per board.



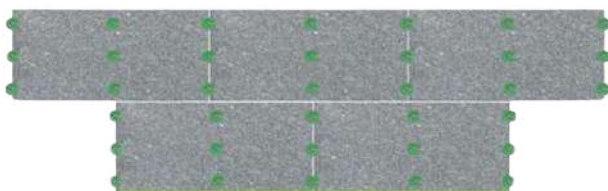
Cavity rail fixing pattern or fixing directly into studwork

- Standard 5 fixings per board*.
- Total of 6 fixings per board for Rail System/ Timber Batten OR for fixing directly into studwork*.
- Boards staggered and butt jointed.
- Overlapped at building corner and no board joints within 200mm of corners or openings.
- Sealing tape required when abutting dissimilar materials/ flashings.
- Gaps foam filled (EPS) or slivers packed between boards. (Stone Wool)
- Boards to be no smaller than 200mm.

Fixings pattern subject to wind load calculations completed for the project



Standard 5 fixings per board



Epsitec fixing pattern



90mm insulation Washer required with Stone wool insulation

1.2 Insulation Board Fixing Pattern

HOW NOT TO DO IT



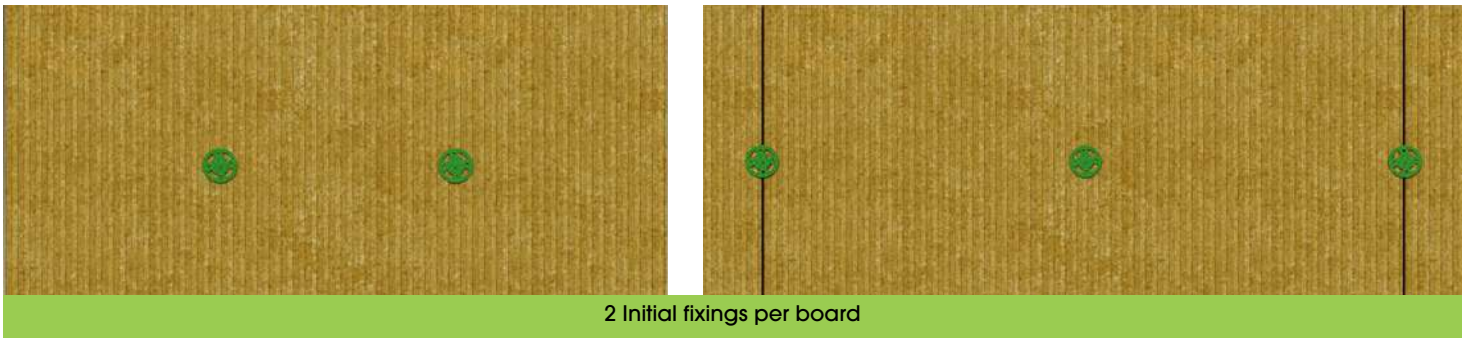
Fixing Insulation boards incorrectly can result in the following:

- The system being unstable and not securely fixed.
- Boards not being fully supported, allowing the system to move on the wall.
- Cracking from straight joints, gaps and unstable boards.
- An increased risk of cracking where boards less than 200mm are used.
- Invalidated Wetherby guarantee.

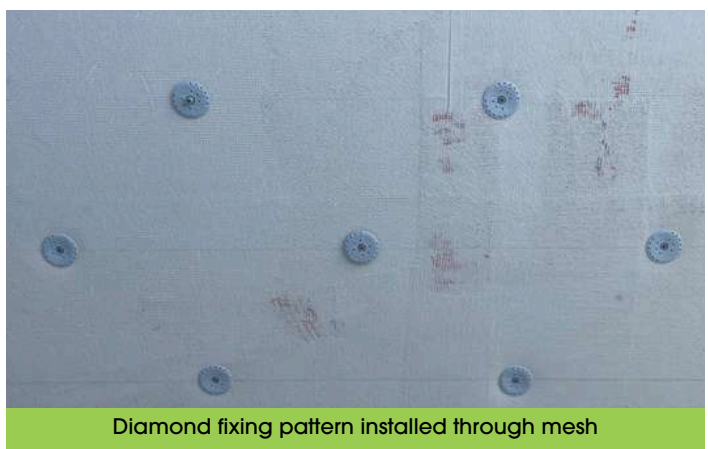


1.3 Fixing Through Mesh

Some specifications will require insulation board fixings to be installed through the scrim adhesive/alkali resistant mesh.



- 2 initial fixings to be installed through insulation board only.
- Wetherby scrim adhesive and mesh to be installed to specification (typically 4-6mm).
- Insulation fixings installed through WET scrim adhesive as per fixing pattern in specification.
- Fixings must be pulled approx. 1-2mm into the adhesive.
- Fixings at 300cts around openings.
- Scrim patches installed over each fixing head or alternatively a second layer of mesh installed, ensuring a flat finish (no bumps).

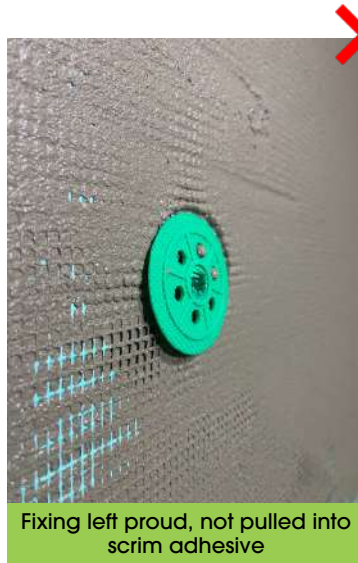


1.3 Fixing Through Mesh

HOW NOT TO DO IT



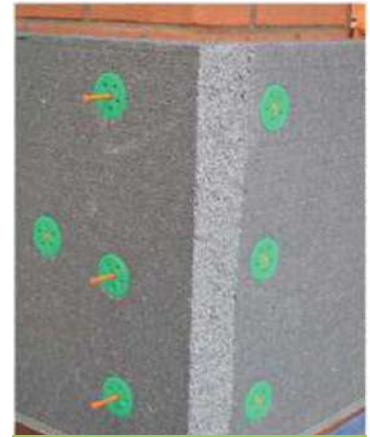
- Installing insulation fixings into dry scrim adhesive can crack/ damage the basecoat layer.
- Over driving/ hammering fixings will push the alkali resistant mesh too far back into the system and increase the risk of cracking.
- Leaving fixings proud will leave bumps in the final finish.
- Not installing patches/ scrim adhesive over fixing heads will leave fixings visible.



1.4 Fixing Insulation Around Openings/ At Corners

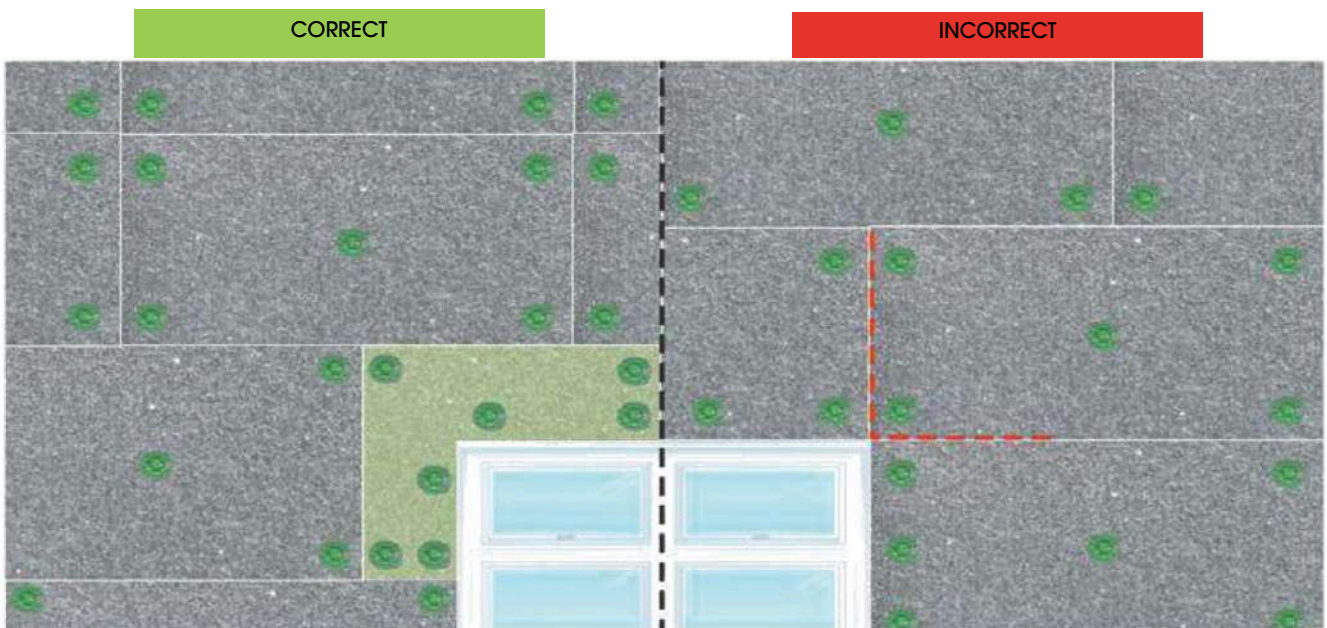


'L' shape around openings



Fixings at 300 max. cts at corners and around openings

- No straight joints at window/ door corners.
- 'L' shapes installed around all openings.
- Fixings at max. 300cts at building corners and around all openings.
- No board joints within 200mm of openings/ corners.
- Boards securely fixed back to substrate.



1.4 Fixing Insulation Around Openings/ At Corners

HOW NOT TO DO IT



Straight joints at window corners leading to cracking in the render system

Fixing Insulation boards incorrectly around openings/ at corners can result in the following:

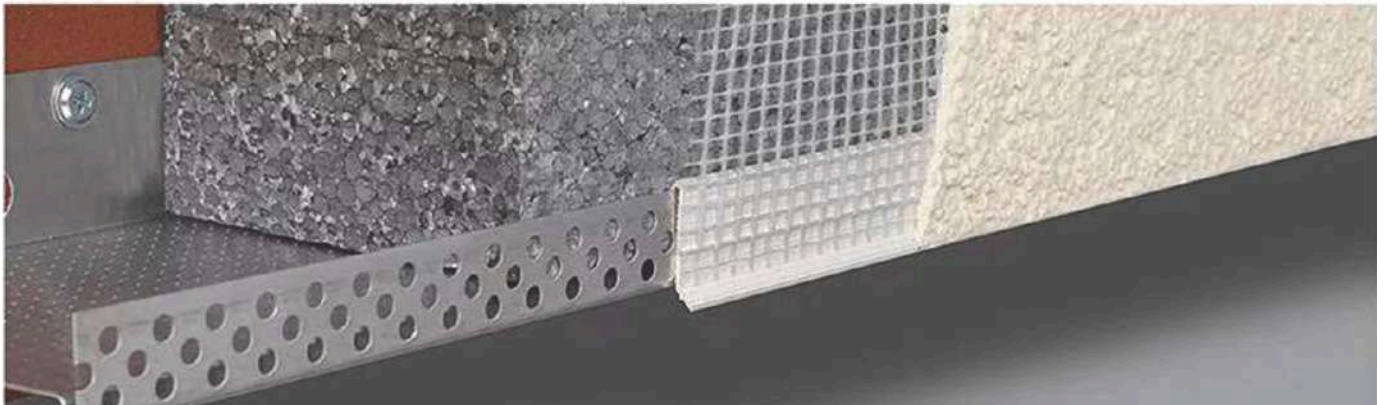
- Cracks at straight joints through the render.
- Unstable boards due to insulation not being securely fixed.
- Cracking between render and substrate/ window.
- Invalidated Wetherby guarantee.

N.B Corners receive higher wind loads and the system installed around openings is subject to the stresses of windows/ doors being opened and closed.



Straight joints at window corners lead to cracking in the render system

1.5 Base Bead Detail



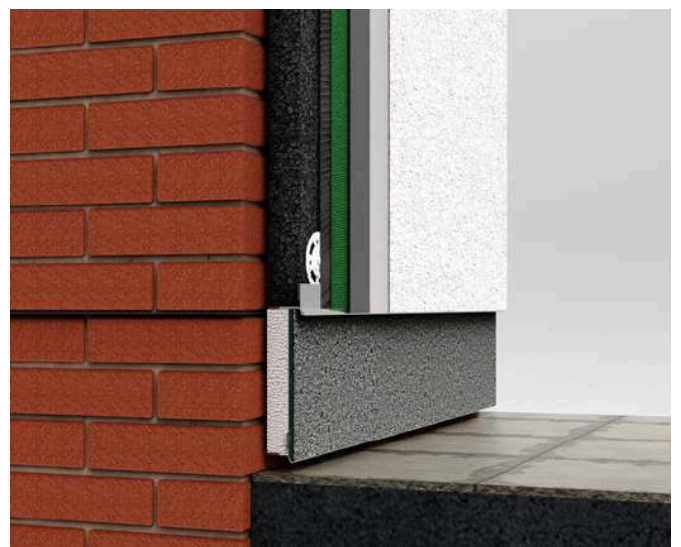
Silicone Render base bead with clip

-  Install base bead above DPC ensuring DPC is not bridged.
-  Install 150mm min. from ground to protect from water damage and staining.
-  Always use correct beading, type and size.
-  Fix at max. 300cts and 50mm from each end.
-  Minimise bell of render and finish flat to reduce risk of staining.
-  Maintenance of ground around base bead will protect the system from surrounding greenery, soil, staining, etc.
-  Below DPC should be insulated if a thermal bridge is created.
-  Standard practice is to use a second starter track 10mm from ground and products suitable for below DPC area. e.g. High Density EPS/ WBS Quartz Render

Contact Wetherby for info on suitable products to be used below DPC



Base bead installed 150mm from ground



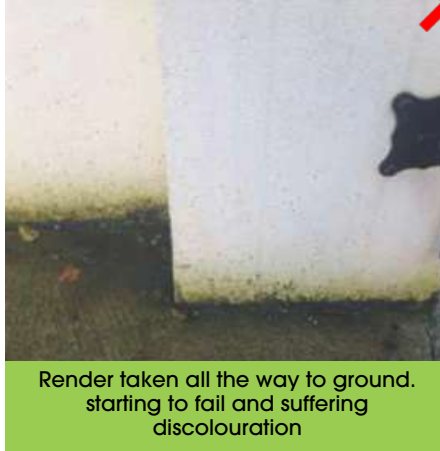
Insulation installed below DPC stepped back min 20mm from main system

1.5 Base Bead Detail

HOW NOT TO DO IT



Ledge left on front of bead for water to sit on



Render taken all the way to ground, starting to fail and suffering discolouration



Base bead incorrectly installed

Installing the system down to ground or installing a base bead incorrectly can result in:

- Cracking at the junction between the ground and system, allowing water ingress.
- Cracking between render and bead where incorrect type or size of bead is used.
- Constant soaking of the system from splash back, damaging the render through freeze-thaw
- Bridging DPC may allow rising damp to track around the structures DPC, causing damp problems in the walls.
- Staining is likely to occur in a short timeframe where beads are installed less than 150mm from the ground.
- Invalidated Wetherby guarantee.



Large cold bridge allowing heat loss and creating potential condensation issues



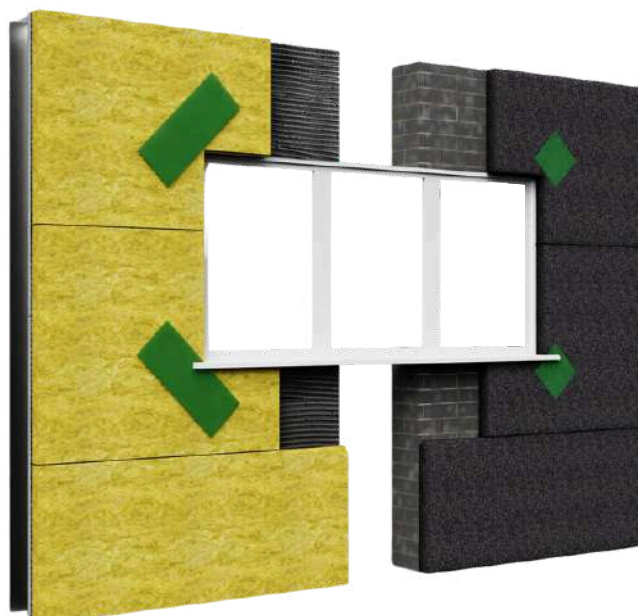
Base bead too close to ground and bridging DPC

1.6 Scrim Patches, Lapping Mesh & Meshing into Beads



- Mesh must be overlapped by 75mm minimum, and all beads must be fully meshed in, to prevent cracking.
- Mesh must be returned into all window heads/ reveals which are stress areas on a render system.
- Minimum 250mm x 200mm scrim patches are advised for masonry projects.
- 500mm x 200mm scrim patches advised for steel frame/ timber frame/ SIPS projects to combat the extra movement of a frame.

500mm x 200mm minimum
scrim patches advised for steel
frame/ timber frame/ SIPS



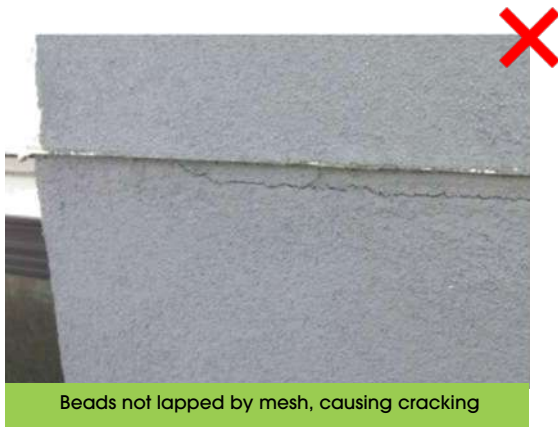
250mm x 200mm minimum
scrim patches installed at all
opening corners

1.6 Scrim Patches, Lapping Mesh & Meshing into Beads

HOW NOT TO DO IT



Crack due to scrim cloth not being overlapped



Beads not lapped by mesh, causing cracking

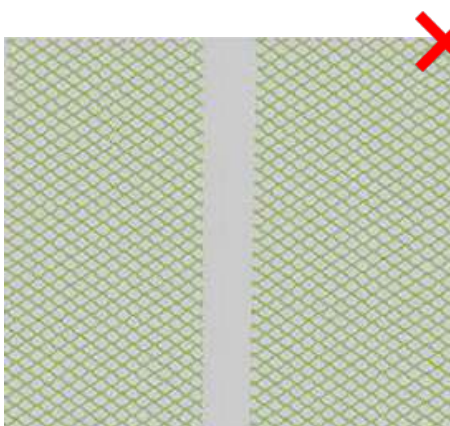
Not overlapping mesh or fully meshing into beads can result in:

- Increased risk of cracking at areas unprotected by mesh.
- Large vertical/ horizontal cracks.
- Damage to render at junction with beads, allowing water ingress.
- Invalidated Wetherby guarantee.

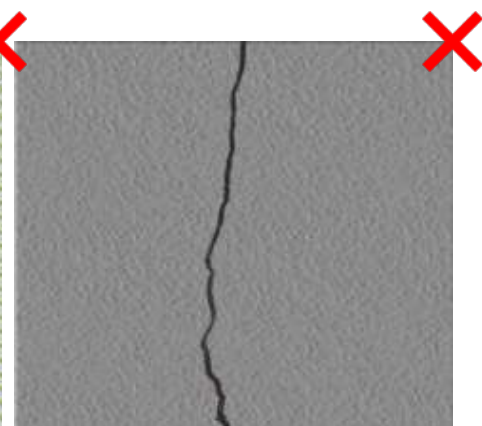
Not installing scrim patches can result in:

- Increased risk of cracking at opening corners (often diagonal).
- Invalidated Wetherby guarantee.

N.B. Mesh is designed as an anti-crack product to strengthen the EWI system.



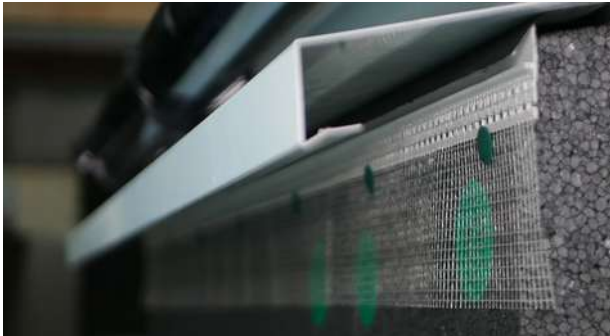
Where scrim cloth is not lapped, cracks may occur in the render system



Cracks caused by no scrim patches installed

1.7 Roofline Closure System/ Parapet Detail

Standard Verge trims are no longer acceptable on PAS projects



Secondary layer of protection provided by membrane



Second layer of protection provided by secondary flashing

- 2 lines of weathering protection required to protect system. (Second Flashing or Membrane)
- 40mm/ 50mm* overhang of EWI is required. (Subject to exposure zone)
- At eaves, a secondary membrane/ flashing must tuck under the existing roofline felt where 40mm/ 50mm* existing overhang is not present.
- On verges, flashings must be embedded into masonry where existing overhang is less than 40mm/ 50mm*.
- Prefabricated apex's and gable to eaves junctions must be used.
- EWI system must be sealed up underneath flashings.

* = 40/ 50mm dimension will be dictated by project exposure zone



Wetherby Roofline Closure Systems Guide



Flashing taken under existing roofing felt (where required)



Parapet flashing

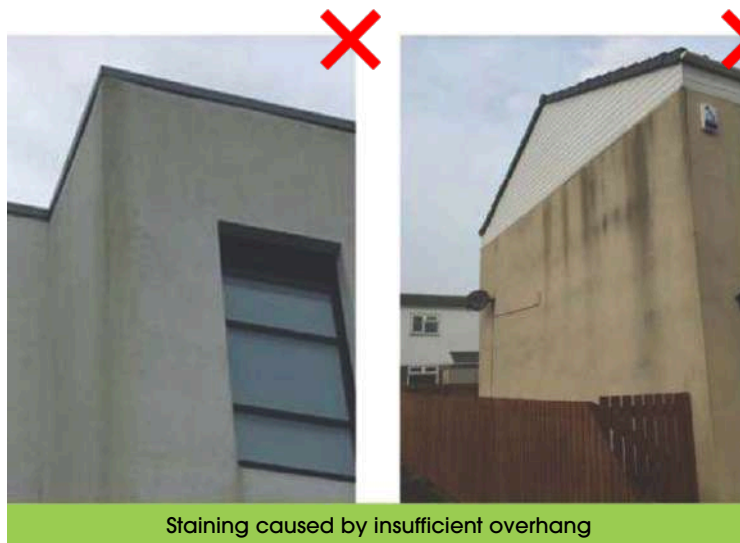
1.7 Roofline Closure System/ Parapet Detail

HOW NOT TO DO IT



Not detailing/ installing Roofline Closure Systems/ Parapet flashings correctly can result in:

- ❏ Water ingress into the system which will damage the render and insulation below.
- ❏ Staining in lines from water flowing through failed flashing joints.
- ❏ Staining from insufficient overhang as substrate is constantly soaked due to the lack of protection.
- ❏ Water ingress under flashings where the system is not finished and sealed correctly to flashing.
- ❏ Invalidated Wetherby guarantee.



1.8 Window Cill Detail



Completed Overcill



New Cill with Correct Overhang



Completed Undercills

- All cills must be fully sealed.
- Correct fall channelling water away from the render system. (min 10°)
- Securely fixed, ensuring no movement.
- 40mm min. overhang. 50mm advised in exposed locations.
- Render and insulation sealed to underside of cill.
- Cills must be accurately sized. tightly abutting reveal and allowing robust seal.
- End caps strongly advised.



Undercill



Overcill

1.8 Window Cill Detail

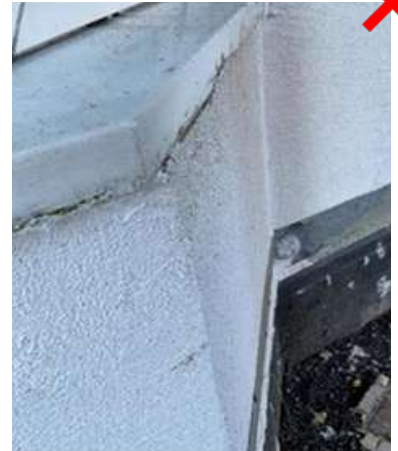
HOW NOT TO DO IT



System not protected or sealed



Cill too short causing staining and water ingress



No cill overhang

Detailing and installing cills incorrectly can result in:

- Water ingress around cills which will damage the EWI system.
- Sitting water on flat cills which will eventually damage and ingress into the EWI system.
- Damaged cills/ system where not installed securely.
- Staining from insufficient overhang where the cill is not protecting the render below.
- Invalidated Wetherby guarantee.



Cill rendered into system and providing no overhang/ protection.



Rendered cill providing no protection

1.9 Flashing/ Cill Overhang Information



Flashings and cills providing full protection and overhang

- Wetherby specify a minimum 40mm overhang in specifications and drawings to protect the render system.
- 50mm overhang advised in severe/ very severe exposure zones.
- Overhangs less than 40mm are likely to result in staining to the render system.
- Water staining and algae are inevitable when water runs off flashing or cill and down the face of the render.
- Keeping the render dry and protected will massively increase its aesthetic lifespan.



Flashings providing adequate overhang

1.9 Flashing/ Cill Overhang Information

HOW NOT TO DO IT

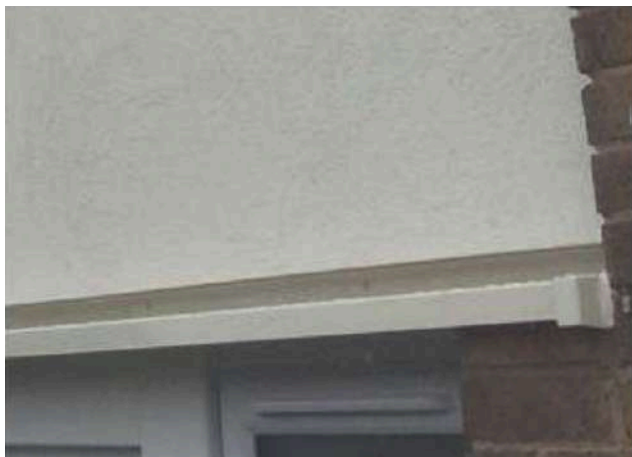


Trims and flashings not providing a 40/ 50mm overhang can result in:

- Water staining as water streaks down face of system, staining the finish.
- Algae staining from constantly soaked render which provides an ideal surface for algae growth.
- Dirt/ greenery collecting on roofs or flashing will constantly wash down face and stain render.
- Damage to EWI where system is not fully protected.
- Invalidated Wetherby guarantee.



1.10 Rendering above a Flashing



Starter track installed above a flashing

- Rendering down onto a flashing is a poor detail, creating a weak point in the EWI system.
- Any moisture is prevented from draining out of the base of the system.
- The joint between render and flashing will likely fail in a short time frame, leaving the bottom of the system at risk of water ingress and damage.
- A starter track is always advised to ensure a durable and lasting detail.
- A 20mm minimum gap should be left between flashing and front of the starter track.
- Flashings must always fall away from the EWI system, ensuring moisture can not sit against the finish.



Starter track installed above a flashing

1.10 Rendering above a Flashing

HOW NOT TO DO IT



EWI Systems rendered directly down onto a flashing

Rendering down onto a flashing can result in:

- Sealant failing between render and flashing.
- Water soaking the render, from sitting water or splash back.
- Render failure, water ingress and failure above flashing.
- Staining to render from splash back/ soaked render.
- Invalidated Wetherby guarantee.

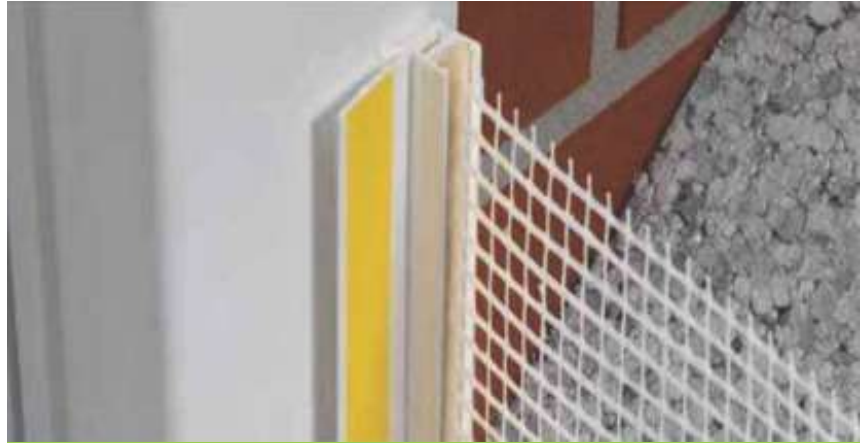


EWI Systems rendered directly down onto a flashing

1.11 Window Return Detail/ Silicone Sealant

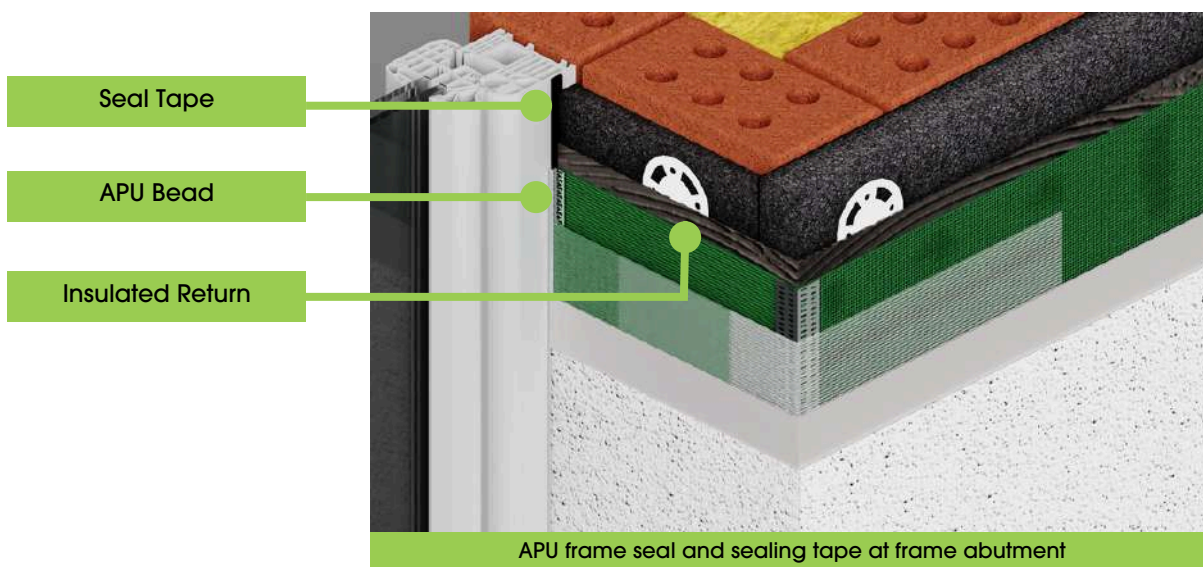


Window return detail



APU bead

- The majority of EWI system failures are a result of water ingress at either roofline or around openings.
- Wetherby detailing includes a double seal using an APU bead/ seal tape/ silicone sealant.
- Wetherby 25 year life expectancy silicone sealant should always be used to ensure a long lasting seal.
- The surface the APU bead/ seal tape/ silicone sealant is being applied to, must be clean and suitable for application to ensure adhesion.
- Silicone sealant can be applied to the finished render or basecoat when using a spar dash finish.
- Failure to seal openings will inevitably lead to water ingress and failure of the EWI system.



1.11 Window Return Detail/ Silicone Sealant

HOW NOT TO DO IT



Render half way across window



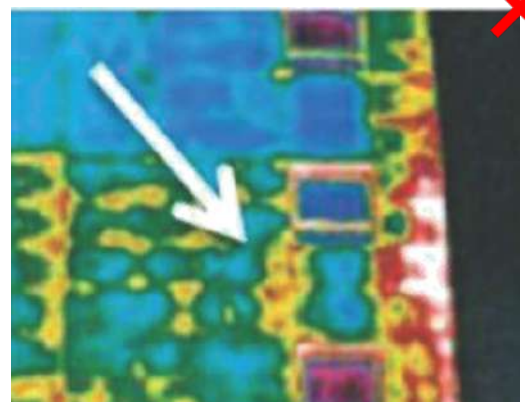
Window rendered in preventing it from opening

Failure to install insulation/ render to a reveal or window return correctly can result in:

- Sealant failing in a short time frame if poorly applied to render.
- Sealant/ seal tape/ APU bead not adhering properly due to dirty/ wet unsuitable substrate.
- Water ingress at junction, causing damage to insulation/ render.
- Windows rendered in, and unable to be opened which is unsafe.
- Invalidated Wetherby guarantee.



Badly cut out system to allow window to open



Water ingress can be seen in red and yellow on the thermal image as wet insulation cannot perform

1.12 Movement Joints/ Slip Joints



Movement Joint



Slip Joint

- Movement Joints/ slip joints must be installed to replicate any structural movement in the substrate, both horizontally and vertically.
- Changes in substrate will require movement joints where movement is expected.
- It is advised that Spar Dash, Brick Effect render and Mineral render finishes install movement joints approx. every 7m in large unbroken elevations.
- A gap must be left in the insulation behind movement joints/ slip joints for the system to accept the movement.
- Movement joints/ slip joints must be fully meshed into system, with mesh lapping fully across wing.



Mesh fully lapped into movement joint



Galvanised Steel Movement Bead

1.12 Movement Joints/ Slip Joints

HOW NOT TO DO IT

Failure to design and install the system to incorporate movement can result in:

- Cracking in the render where no allowance for structural movement/ change in substrate is made.
- Splitting/ popped movement joints from too much movement, allowing water ingress/ system failure.
- Water ingress from mastic being applied incorrectly to back to back stop beads.
- Damage/ cracking due to butted insulation not allowing for movement behind movement joint/ slip joint.
- Invalidated Wetherby guarantee.



Movement Joint created with no beads and incomplete mastic, allowing water ingress



Excessive substrate movement



Movement causing cracking where no movement joint is installed

1.13 Canopy/ Roof Abutment Detail



Canopy detail using a flashings and stop bead to protect the system

- Canopies and roof abutments must be correctly detailed to prevent water ingress and staining.
- Base beads should be set 100mm above a pitched roof, and 150mm above a flat roof.
- Stop beads (vertical at side) and flashings (below) will likely be required and must be fully sealed and neatly jointed, ensuring water run off.
- Insulation can be installed behind the roof flashing below the base bead, to reduce cold bridging.
- Canopy/ roof must provide a fall away from the system, to prevent pooling water.



Roof abutment detail leaving a 100mm/ 150mm gap between starter track and roof

1.13 Canopy/ Roof Abutment Detail

HOW NOT TO DO IT

Failure to install an EWI system around a canopy or roof abutment correctly can result in:

- Damage to the render and water ingress where the system is sealed against canopy/ conservatory.
- Staining and damage to render where brought down directly onto canopy/ roof.
- Water ingress at either side and below canopy where render is not adequately protected by stop beads/ flashing trims.
- Damage and staining to EWI system where no fall on canopy/ roof, allows water to sit/ pool close to system.
- Staining caused by canopy run off pushing water against and down the face of the render system.
- Invalidated Wetherby guarantee.



System finished on top of flat canopy with no protection to areas below



Canopy badly rendered around creating a ledge



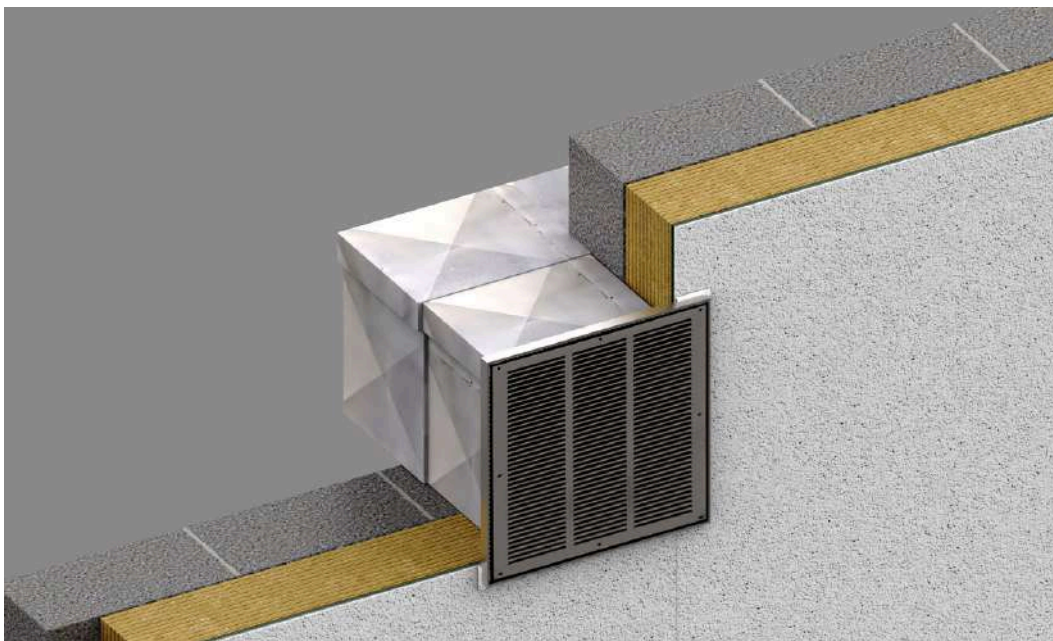
Canopies and conservatories rendered into the system creating areas for water ingress.

1.14 Air Vents



Through wall vents

- Through wall vents are advised to prevent water ingress.
- Vent covers must not simply be sealed to the render face, with insulation left unprotected behind.
- Sealing tape and sealant must be used to seal the vent against the EWI system.
- Dummy Vents can be used to hide mast climber/ scaffold attachment points, but must be appropriately sealed and water tight.
- Existing wall vents must not be blocked unless confirmed redundant.
- Ventilation checks should be made on a property prior to install, in line with PAS guidance.



Through wall vent

1.14 Air Vents

HOW NOT TO DO IT



Blocked vent



Vent buried in system

Failure to install vents correctly can result in:

- Water ingress through poorly sealed vents.
- Exposed insulation behind surface mounted vent, which can be a fire risk and can allow moisture ingress into the system.
- Blocking up live vents, which can cause ventilation, condensation and moisture issues within building.
- Invalidated Wetherby guarantee.



Blocked vent



Vents not sealed, resulting in water ingress







1.15 Gas Boxes/ Pipes/ Flues



Insulation installed behind gas box which has been moved



SWI-FIX fixings used to fit gas box

-  Preference is always to move gas boxes away from the wall and insulate behind to stop cold bridging (where detail/ program allows).
-  Otherwise insulate around/ within gas boxes where possible in line with guidance/ detail drawings.
-  Install insulated gas boxes where suitable/ appropriate.
-  Do not bury gas pipes within the EWI system (major health and safety issue).
-  Box in gas pipes using Z Flashings and Cover Plate, with removable insulation where appropriate.
-  EWI must be installed around flues in line with Wetherby details/ PAS specification for the installation of EWI, ensuring the safety and operation of fuel burning appliances.



Insulated Gas box

1.15 Gas Boxes/ Pipes/ Flues

HOW NOT TO DO IT



Flue under window



Uninsulated area around pipe causing cold bridge



Flues should never be blocked

- Burying gas pipes in the EWI system is dangerous and a major non conformance.
- Not insulating behind/ around gas boxes or gas pipes can cause a large cold bridge (subject to assessment/ calculation).
- Restricting access to the shut off valve can prevent gas being shut off in a fire/ emergency.
- Blocking flues or restricting ventilation to flues can be dangerous to tenants.
- Damaging gas pipes/ metres or flues during works can be extremely dangerous. Appropriate checks should be made.

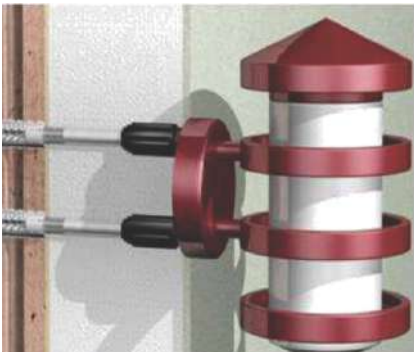


Large cold bridge around gas boxes



Non-extended flue with inadequate air flow

1.16 Fixtures and Fittings



Specialist EWI fixings



SWI-FIX space tube



FID fixing for lightweight fixtures only

- Badly fitted fixtures and fittings damage and crush the EWI system, allowing water ingress and causing a larger system failure.
- SWI-FIX spacers are advised for protecting and sealing.
- Specialist EWI fixings are also available e.g. Thermax, Dart and FID fixings.
- Additions should be installed to prevent water running down the face of the EWI system causing staining.



Balcony railing fixed with specialist Thermax EWI fixings

1.16 Fixtures and Fittings

HOW NOT TO DO IT



System exposed and damaged through fixing fixtures to the wall incorrectly

Failure to install fixtures and fittings correctly can result in:

- Water ingress through poorly sealed areas.
- Damage to the EWI system due to crushing the system behind the item.
- Cracking caused by movement from larger objects not securely fixed.
- Water staining/ algae growth from water run off channelled down the render face.
- Invalidated Wetherby guarantee.



Satellite dish install completely incorrect



System left open around cables

2.0 Contact Details and Further Information

Wetherby Technical Department

For further information, please contact our Technical department on:

Technical Helpline Tel:
Email:

08458 382380
Info@wbs-ltd.co.uk

Wetherby Depots



Wetherby Building Systems Ltd - Main Depot
1 Kid Glove Road
Golborne Enterprise Park
Golborne
Greater Manchester
WA3 3GS

Opening Hours: 07:30 - 16:30
Main Tel: 01942 717100
Email: Tradecounterhq@wbs-ltd.co.uk



Distribution Depot (Scotland)
62 Hyde Park Street
Glasgow
Lanarkshire
G3 8BW

Opening Hours: 07:30 - 16:30
Main Tel: 0141 221 8115



Distribution Depot (South Wales)
Unit 17A, Brynmenyn Industrial Estate
Millers Avenue
Bridgend
CF32 9TD

Opening Hours: 07:30 - 16:30
Main Tel: 01656 720422



Distribution Depot (London)
14 Greycaine Road
Watford
WD24 7GP
CF32 9TD

Opening Hours: 07:30 - 16:30
Main Tel: 01923 901 628