



**STORMSHIELD**

E W I & R E N D E R

F I X I N G  
S Y S T E M S

FOR EXTERNAL WALL INSULATION



## BRADFORD ACADEMY

Johnstone's Stormshield High Performance Render System with Johnstone's Stormshield 1.5mm Silicone Enhanced Render finish applied.

# A G U I D E T O F I X I N G S Y S T E M S

Johnstone's External Wall Insulation and Render systems have been specially designed and developed to provide high performance solutions to our customers. We offer a wide range of insulation materials, fixings and finish choices to make sure that the performance and the aesthetic of our systems are perfectly aligned to your needs.

This guide has been created to provide detailed information about the approved fixing types supplied for use with Johnstone's Stormshield External Wall Insulation systems. The information contained within this guide is to provide information about the fixing options provided and is not to be used in isolation to make specification decisions. If there is any doubt about the nature of the substrate or wind loading, advice should be sought from our technical department.

Johnstone's External Wall Insulation systems should always be installed by an approved installer. Always consult with your PPG Johnstone's Technical Sales Manager in relation to any EWI project and ensure correct fixings are specified. Referral should also always be made to the other documents:

- Johnstone's Stormshield External Wall Insulation Application Guide
- The actual project specification provided by PPG
- BBA certificate for Johnstone's Stormshield EWI systems (cert. number 14/5101)

This literature on Fixings can be broadly divided into 2 key categories:

- System Fixings – those fixings supplied to ensure an EWI system is correctly and safely installed to a property and therefore can be considered part of the actual EWI system itself.
- Peripheral Fixings – those fixings and products supplied to assist the installer in the safe and compliant addition of peripheral items to EWI systems after they have been installed.

The correct installation of an EWI system is critical. Many factors will influence the exact specification but correct use of system fixings is of the utmost importance.

Furthermore due to increasing levels of focus and importance being placed to the addition of peripherals to EWI systems, in both a safe and a thermally efficient way peripheral fixing techniques need to be adapted from many of the traditional ways of doing this.

## CORRECT SYSTEM FIXING SPECIFICATION

A large number of considerations determine the appropriate type of fixings to be used with an EWI system and Johnstone's specify and supply a number of options to meet project requirements.

## SUBSTRATE IDENTIFICATION

The first consideration that should always be understood is the building substrate that the fixing is being used with. Whilst traditional masonry buildings are typically stone or brick there are many other non traditional masonry types that may be considered for EWI.



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The nature and condition of a masonry substrate will have a significant impact of the performance of the fixing. Fixings are measured in this aspect by their 'pull out' resistance.

To determine the correct insulation fixing for your project a pullout test may be required which can be arranged with your technical sales manager.

The results from this test will be calculated by PPG technical and the correct fixing will be specified.

The use of poor or substandard fixing can be fatal, EWI system can weigh in the region of 25kg per M2.

### Substrate Classifications

- A Normal Weight Concrete
- B Solid Masonry
- C Hollow or Perforated Masonry
- D Lightweight Aggregated Concrete
- E Autoclaved Aerated Concrete

## WIND LOADING

Please note that Johnstone's Trade Technical Support should be sought for guidance and clarity in relation to every EWI project. Please refer to your Johnstone's technical manager and ensure that a detailed project specific specification is in place for every EWI project undertaken.

## THE IMPORTANCE OF CORRECT SYSTEM APPLICATION

On every EWI project a large number of factors need to be considered to ensure the correct system configuration is specified. It is important to note that there are aspects of 'fixing' that must be considered beyond the performance of any fixing anchors into the substrate and which are covered in our specification approach.

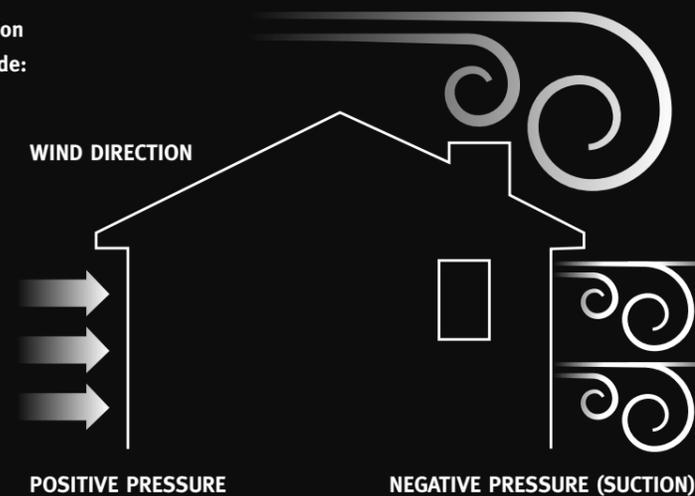
Johnstone's will consider the factors below in specifying an EWI system as all are potential points of system failure when systems are subjected to wind load pressures.

Key points to consider when approaching an EWI project and considering fixing performance are:

- The performance of the mechanical anchor in the building substrate (referred to as pull out performance).
- The performance of the installation relative to the face plate or head or the fixing to prevent the installation panel being pulled off the fixing (referred to as pull through performance). This performance varies significantly depending on the type of insulation utilized and the thickness of the insulation used.
- The performance of the render in relation to its bond to the insulation material (referred to as render bond strength) and the strength of the insulation material itself (referred to as tensile strength).

There many factors that will have an influence on the performance of a system (and therefore the specification provided) relative to the above points and these include:

- Building location
- Building altitude
- Proximity to other buildings
- Relative exposure of the building
- Building height
- Building substrate
- Insulation material
- Thickness of the insulation material
- Surface area of the system applied and number of openings in the building/system



## EJOT SBL COMBI SPREADER WASHER

Load spreading disc washer for insulation. To be used in conjunction with EJOT IDK,TID and SBHT anchors.

Size	PPG Code	QTY per box
140mm	737806	100



## EJOT VT90 COMBI SPREADER WASHER

Load spreading disc washer for insulation. To be used in conjunction with EJOT anchors.

Size	PPG Code	QTY per box
90mm	737804	100



# INSULATION PANEL ADHESIVE

A high performance cement based powder adhesive.

## Features

- A highly modified cement based adhesive used to adhere insulation panels to the substrate
- Please see technical advise for best fixing method

Size	Code
25kg	737956



# STRU 2G SCREW SET INSULATION FIXING ANCHOR

Universal screw-in anchor for countersunk and surface fixed installation.

Anchor diameter/ bit size required	
Washer head diameter	60mm
Drill hole depth into substrate	35mm – (75mm)
Embedment depth	25mm – (65mm)
Point Thermal Transmission	0.002 W/K
Masonry use categories (ETA Classification)	A,B,C,D,E
European Technical Approval	ETA-04/0023

Size	PPG Code	QTY per box	Size	PPG Code	QTY per box
95mm	N/A	100	215mm	737782	100
115mm	737777	100	235mm	737783	100
135mm	737778	100	255mm	737784	100
155mm	737779	100	275mm	737785	100
175mm	737780	100	295mm	737786	100
195mm	737781	100	STRU EPS plug	739809	500



# H1 ECO HAMMER SET INSULATION FIXING ANCHOR

Universal hammer fixed anchor for all substrates. ■ Approved for concrete, solid and perforated masonry

Anchor diameter/ bit size required	
Washer head diameter	60mm
Drill hole depth into substrate	35mm –(55mm)
Embedment depth	25mm – (45mm)
Point Thermal Transmission	0.001 W/K
Masonry use categories (ETA Classification)	A,B,C,D,E
European Technical Approval	ETA-11/0192

Size	PPG Code	QTY per box	Size	PPG Code	QTY per box
95mm	737737	100	215mm	737761	100
115mm	737756	100	235mm	737762	100
135mm	737757	100	255mm	737763	100
155mm	737758	100	275mm	737764	100
175mm	737759	100	295mm	737765	100
195mm	737760	100			



# IDK HAMMER SET INSULATION FIXING ANCHOR

Screw fixing and washer for sheathing board applications.

Anchor diameter/ bit size required	
Washer head diameter	60mm
Drill hole depth into substrate	35mm
Embedment depth	25mm
Point Thermal Transmission	0,000 W/K
Masonry use categories (ETA Classification)	B
European Technical Approval	Note no ETA approval

Size	PPG Code	QTY per box
75mm	633361	200



## STRH SCREW SET FIXING ANCHOR

Screw fastener for countersunk and surface fixed installation and surface fixed installation.

Anchor diameter/ bit size required	
Washer head diameter	60mm
Screw in - depth	30mm-40mm
Screw drive	TORX T25
Point Thermal Transmission	0.002 W/K
Masonry use categories for paneled substrates	
European Technical Approval	Note no ETA approval

Size	PPG Code	QTY per box	Size	PPG Code	QTY per box
80mm	615222	100	200mm	615228	100
100mm	615223	100	220mm	615229	100
120mm	615224	100	240mm	615230	100
140mm	615225	100	260mm	615231	100
160mm	615226	100	280mm	615232	100
180mm	615227	100	300mm	615233	100



## TKR SCREW SET FIXING & UNIVERSAL WASHER

Screw fixing and washer for sheathing board applications. ■ Carbon steel with organic corrosion resistant finish

Anchor diameter/ bit size required	
Anchor diameter	4.5mm
Head diameter	9mm
Drill hole depth	N/A
Embedment depth	Max 60mm
Substrate use categories	Sheathing boards
European Technical Approval	ETA-07/0013

Size	PPG Code	QTY per box	Size	PPG Code	QTY per box
80mm	737787	100	140mm	737793	100
90mm	737788	100	150mm	737794	100
100mm	737789	100	160mm	737795	100
110mm	737790	100	170mm	737796	100
120mm	737791	100	180mm	737797	100
130mm	737792	100			

	Size	PPG Code	QTY per box
SBHT Universal Washer	65mm	737807	100



## DMH8 STAINLESS STEEL FIRE FIXINGS & DTN WASHER

Mechanical fixing of insulation on Fire Barrier details. ■ For fixing rigid insulation for high fire protection requirements to concrete, blockwork and brick (fire barrier details)

Anchor diameter/ bit size required	
Washer head diameter	35mm
Drill hole depth into substrate	Insulation thickness plus 50mm
Embedment depth	50mm min
Point Thermal Transmission	N/A
Masonry use categories	A,B,C,D,E
European Technical Approval	N/A

Size	PPG Code	QTY per box	Size	PPG Code	QTY per box
80mm	608747	100	Fire fixing Washer	639998	100
110mm	608748	100			
140mm	608749	100			
170mm	608750	100			
200mm	608751	100			
250mm	608752	100			



## DNH8 CARBON STEEL FIRE FIXINGS & DTN WASHER

Mechanical fixing of insulation on Fire Barrier details.

Anchor diameter/ bit size required	
Washer head diameter	35mm
Drill hole depth into substrate	Insulation thickness plus 50mm
Embedment depth	50mm min
Point Thermal Transmission	N/A
Masonry use categories	A,B,C,D,E
European Technical Approval	N/A

Size	PPG Code	QTY per box
80mm	639981	250
110mm	629982	250
140mm	629983	250
170mm	629984	250
200mm	629985	250
250mm	629986	100



## EWI TRIMS AND PROFILE FIXINGS

The correct fixings for beads and trims are just as important if not more so than the insulation panels and PPG technical staff will advise on which is the best / correct fixing to use.



## NK U HAMMER SET PROFILE FIXING

Hammer fixed anchor for beads and trims / profiles.

Anchor diameter/ bit size required	
Anchor diameter	8mm
Collar diameter	16mm
Drill hole depth	35mm
Embedment depth	25mm
Masonry use categories	A,B,C
European Technical Approval	ETA-05/0009

Size	PPG Code	QTY per box
45mm	737808	100
65mm	737809	100
85mm	737810	100



## BASE TRACK

Johnstone's High Performance Basecoat (Applied to 6mm and reinforced with Johnstone's alkali resistant mesh cloth)

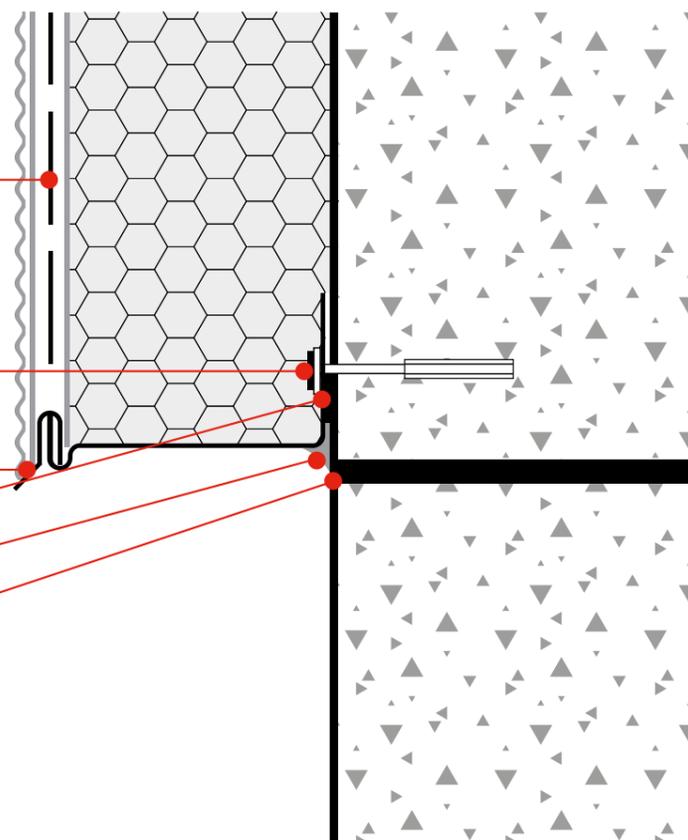
Johnstone's approved profile fixings (Fixed at max 300mm centres)

Johnstone's approved base track

Compressible seal

Mastic sealant

Damp proof course line (do not bridge DPC)



## SDK U SCREW SET PROFILE FIXING

Screw in fixing for beads and trims/ profiles for weaker substrates.

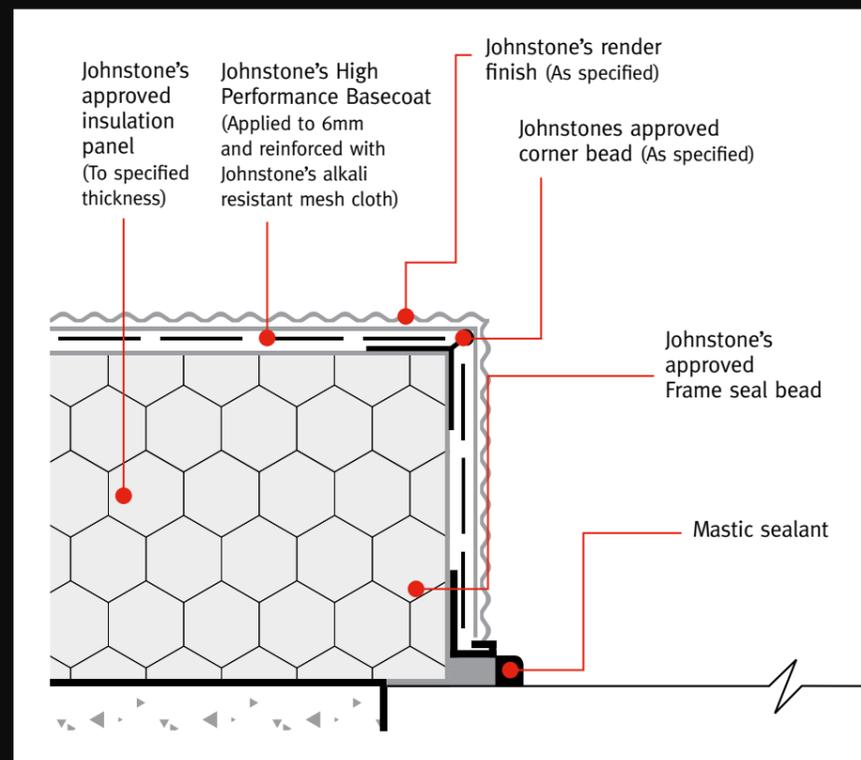
Anchor diameter/ bit size required	
Anchor diameter	8mm
Collar diameter	16mm
Drill hole depth	35mm – 75mm
Embedment depth	25mm – 65mm
Masonry use categories	A,B,C,D,E
European Technical Approval	ETA-04/0023

Size	PPG Code	QTY per box
45mm	737822	100
65mm	737823	100
85mm	737824	100
105mm	737825	100



## EWI SEALING PRODUCTS

Johnstone's technical staff are able to offer advice on the exact EWI trims and profile fixings to use for a particular application and the correct specification for the exposure.

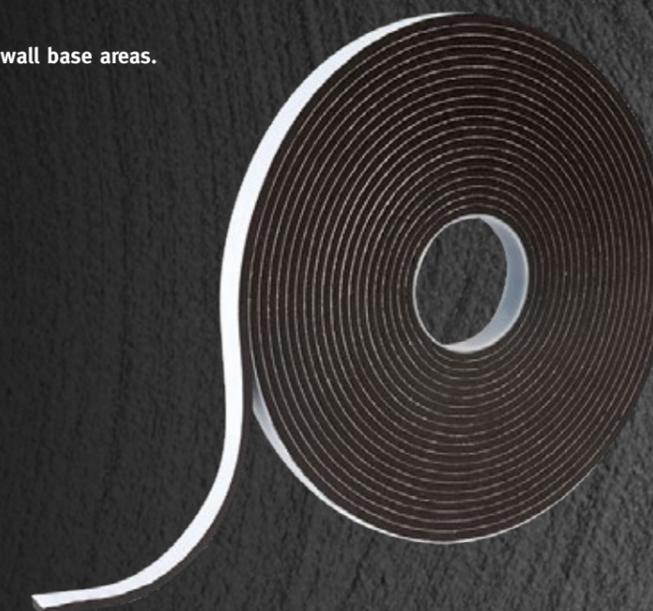


## JOHNSTONE'S STORMSHIELD COMPRESSIBLE SEAL TAPE

Sealing tape for a variety of EWI Systems.

For the use around windows, doors roof and wall base areas.

Size	PPG Code	QTY per box
10m	639968	1



## VERGE TRIM

Johnstone's approved profile fixings (Fixed at max 300mm centres)

Mastic sealant

Johnstone's approved insulation panel (To specified thickness)

Mastic seal

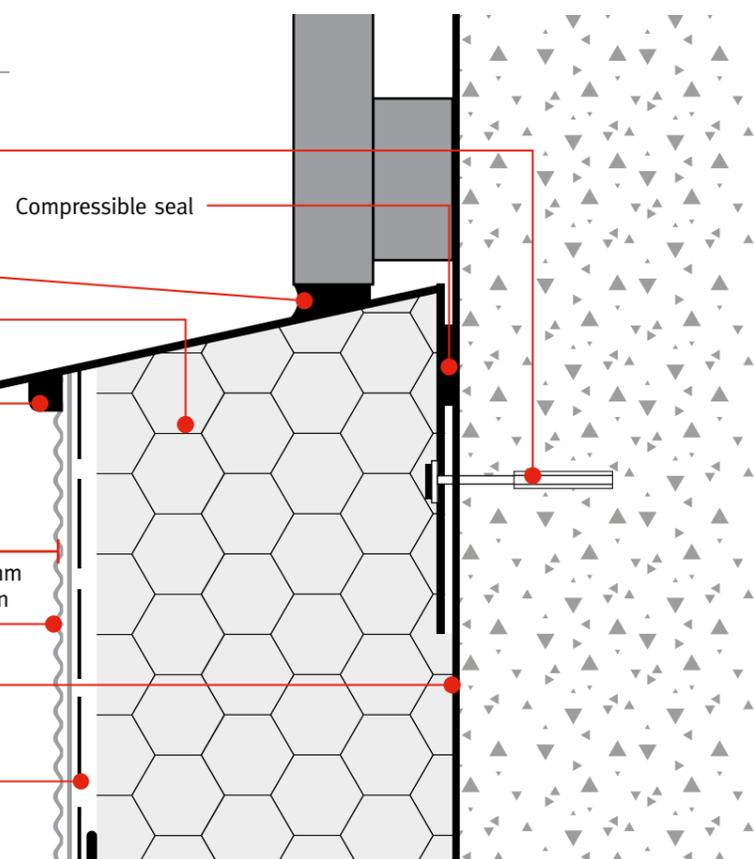
Johnstone's approved verge trim profile

40mm Min

Johnstone's render finish (As specified)

Johnstone's insulation panel adhesive (As specified)

Johnstone's High Performance Basecoat (Applied to 6mm and reinforced with Johnstone's alkali resistant mesh cloth)



## EVERBUILD LOW MODULUS TECNIC 825 SILICONE SEALANT

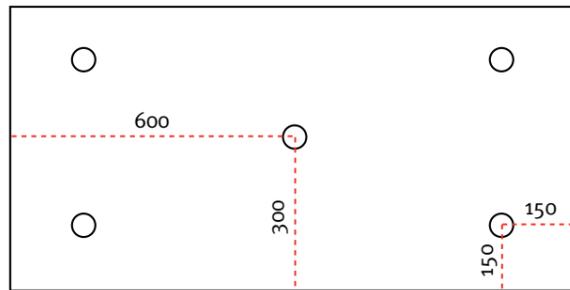
Used for expansion joints to stone, brick, concrete and composite panels, perimeter pointing around all types of window and door frames, weatherproofing sealing to most external applications, construction and dilation joints where stress does not occur until fully cured.

Size	PPG Code	QTY per box
380ml	737443	25

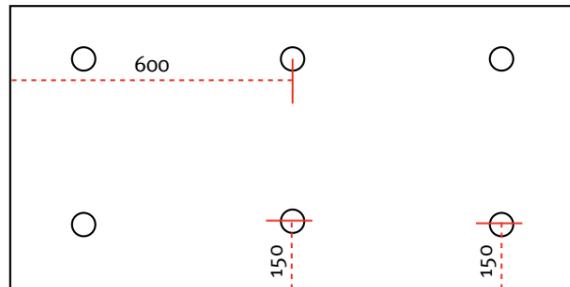


# FIXING PATTERNS

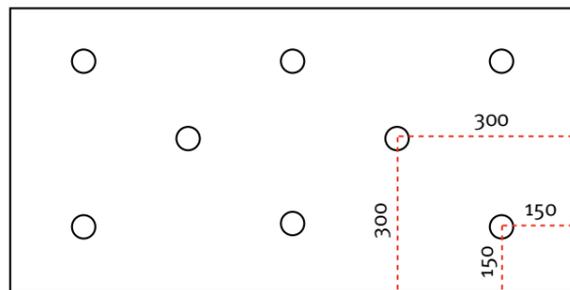
**Option 1: 5 pin**



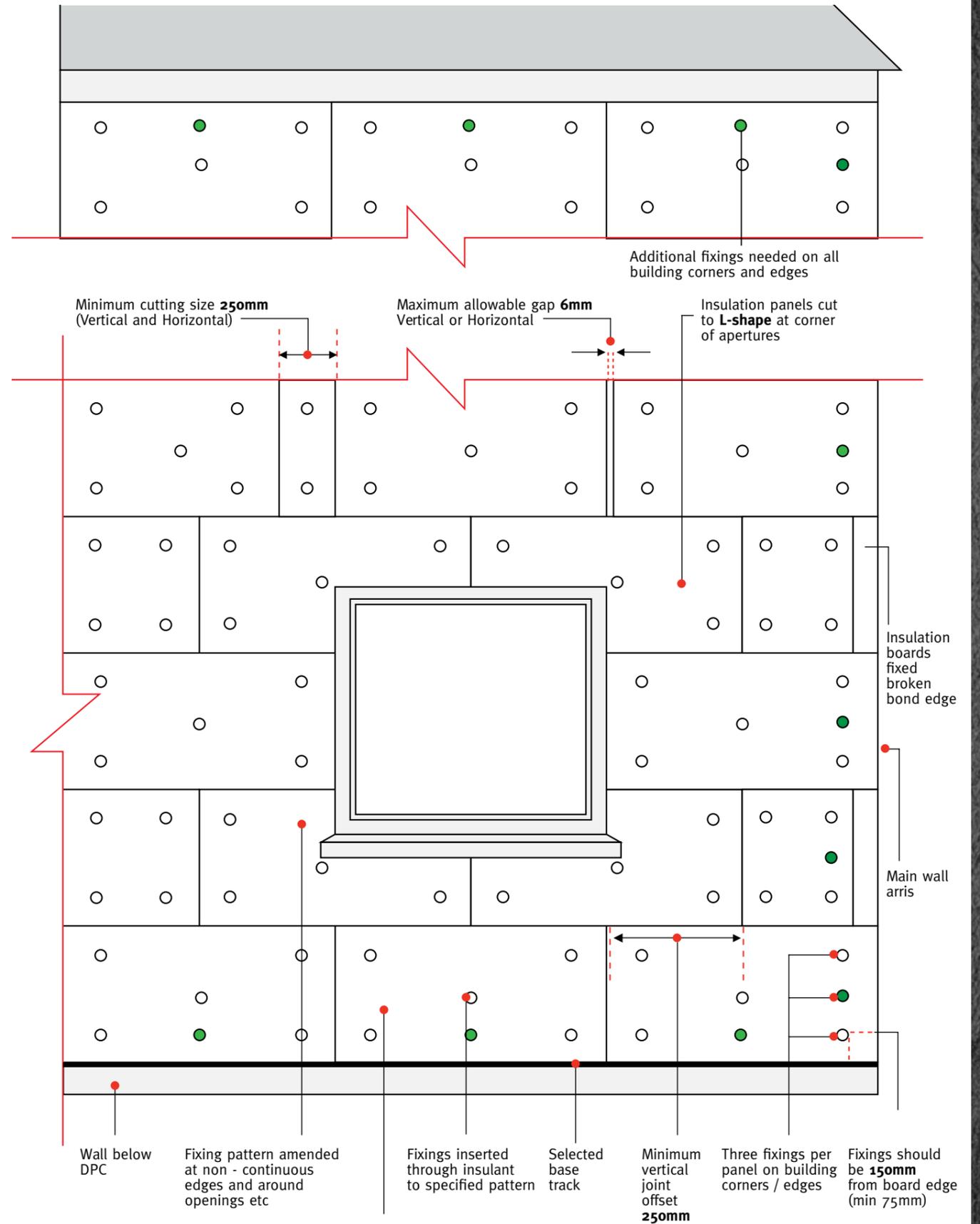
**Option 2: 6 pin**



**Option 3: 8 pin**

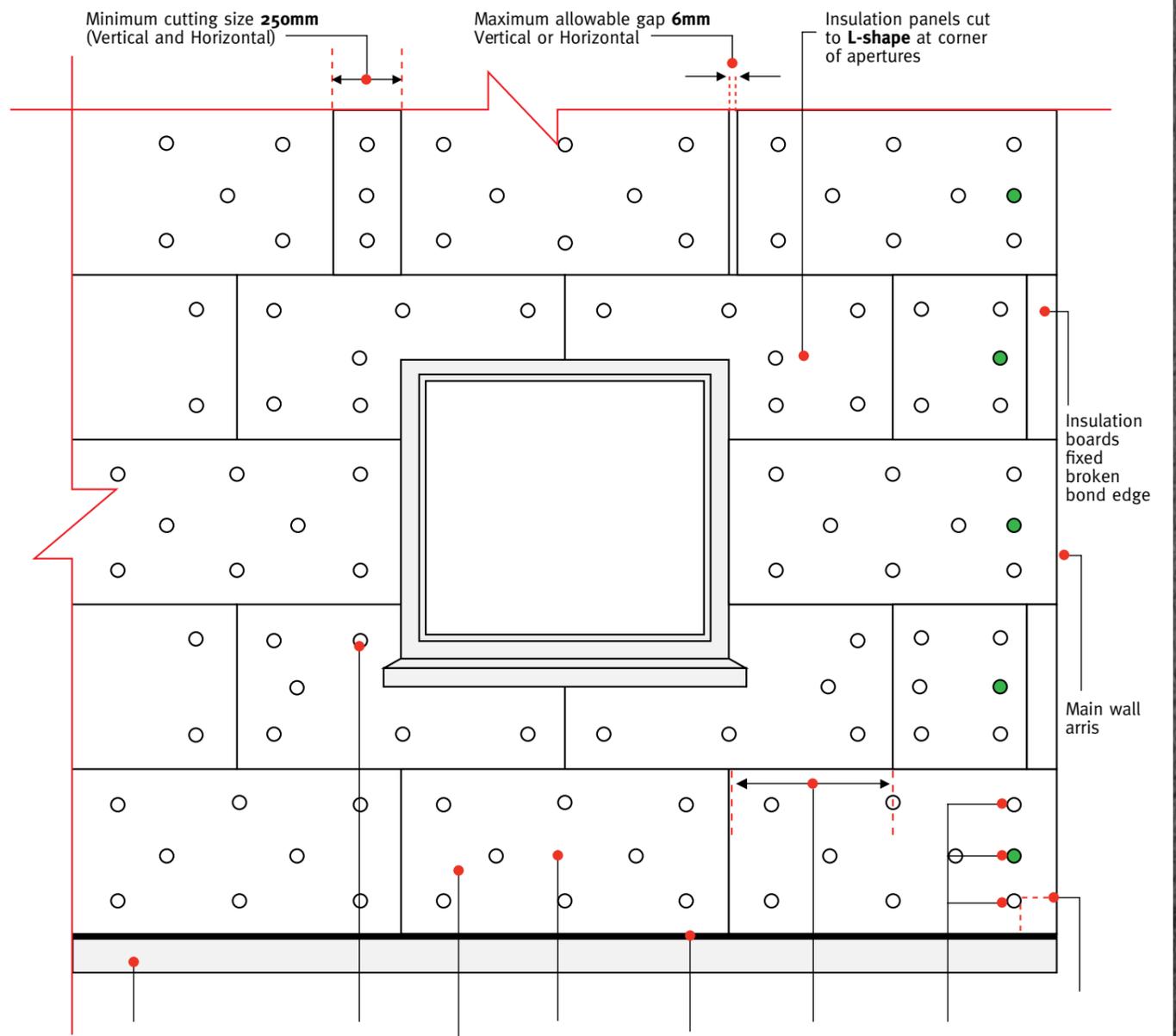
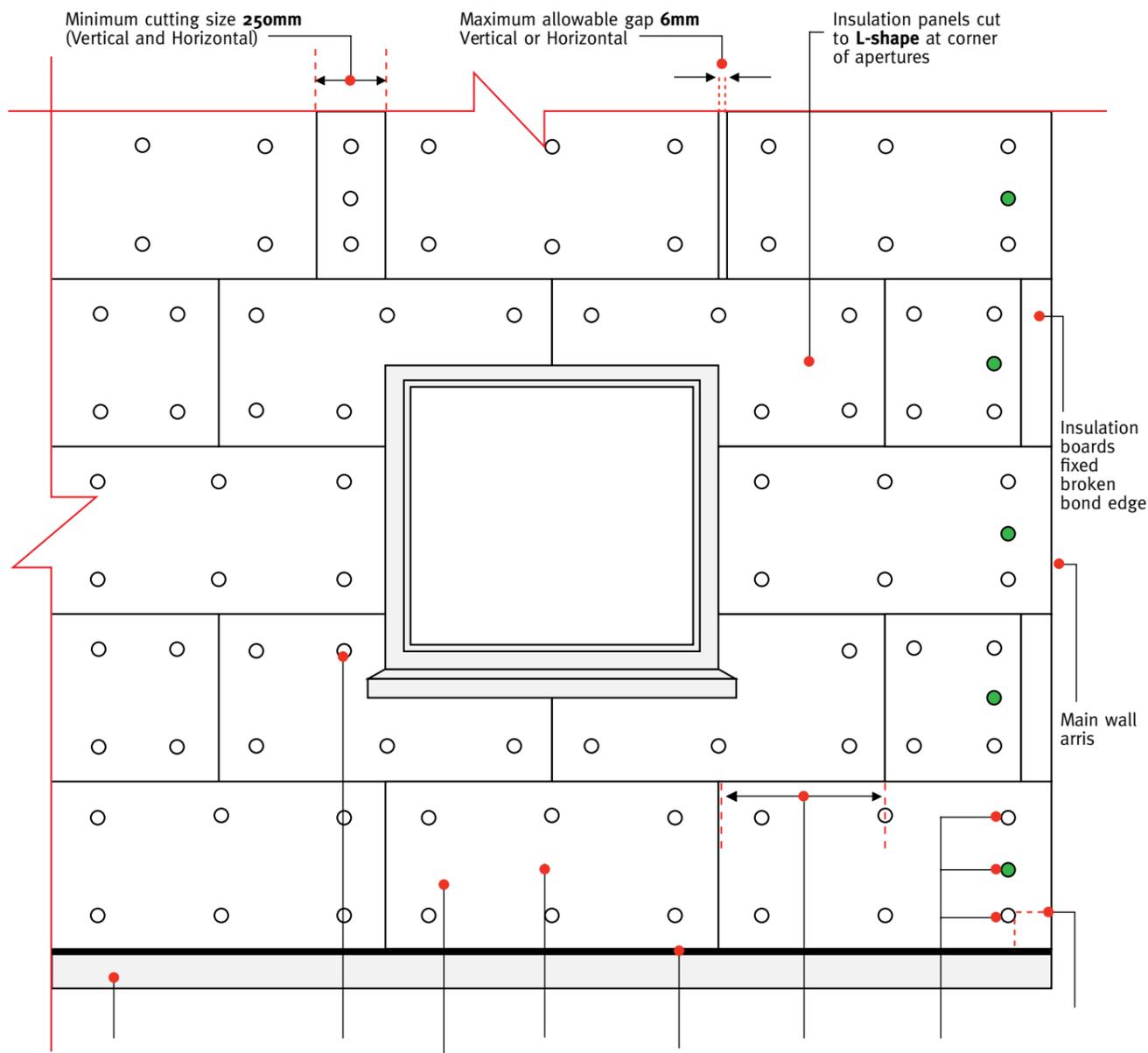
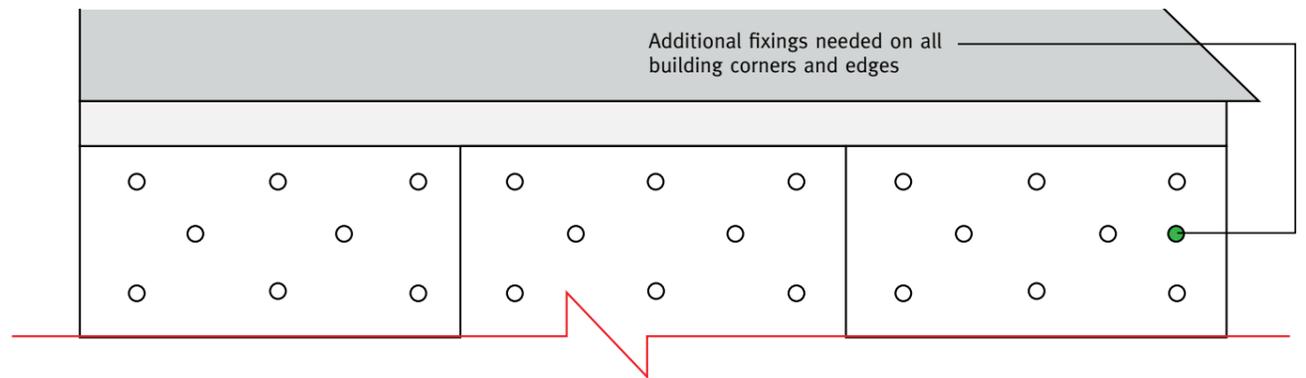
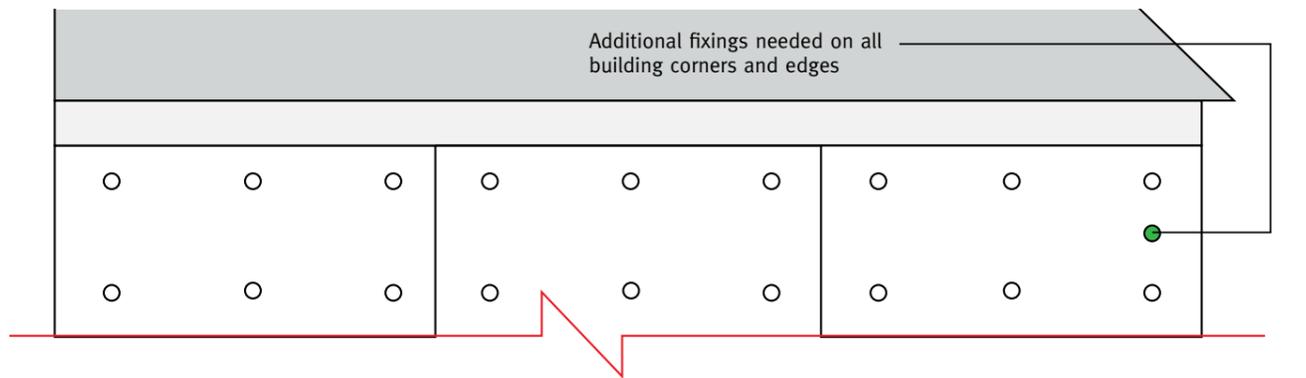


# OPTION 1: FIXING PATTERN 5 PIN



## OPTION 2: FIXING PATTERN 6 PIN

## OPTION 3: FIXING PATTERN 8 PIN



Wall below DPC

Fixing pattern amended at non - continuous edges and around openings etc

Selected insulant

Fixings inserted through insulant to specified pattern

Selected base track

Minimum vertical joint offset **250mm**

Three fixings per panel on building corners / edges

Fixings should be **150mm** from board edge (min 75mm)

Wall below DPC

Fixing pattern amended at non - continuous edges and around openings etc

Selected insulant

Fixings inserted through insulant to specified pattern

Selected base track

Minimum vertical joint offset **250mm**

Three fixings per panel on building corners / edges

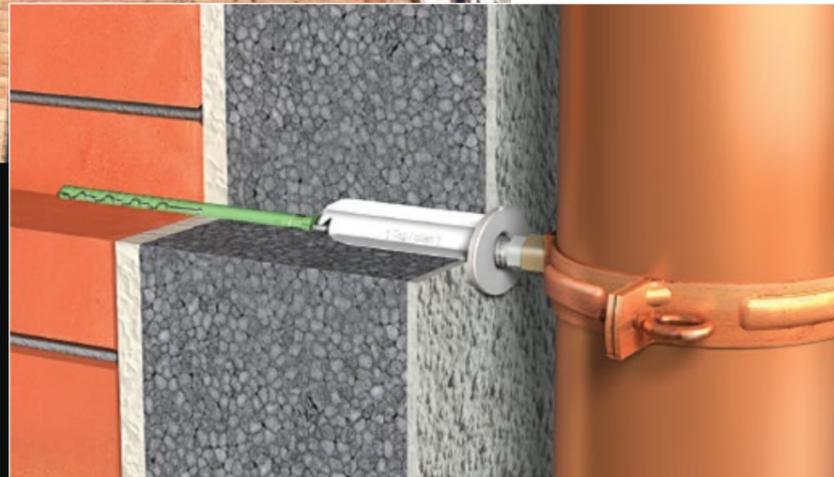
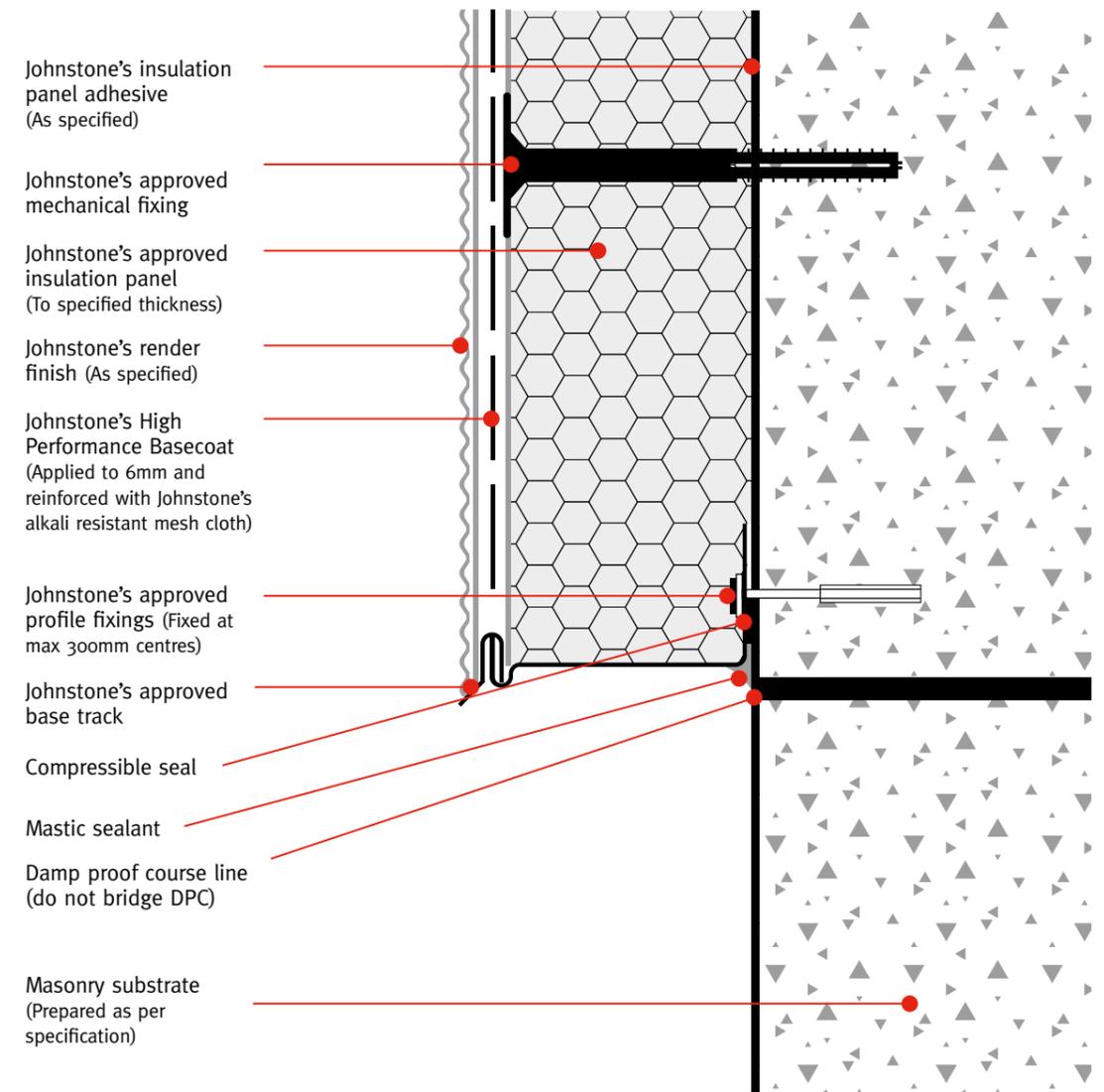
Fixings should be **150mm** from board edge (min 75mm)

# FIXING TO EWI SYSTEMS

Mechanical fixings or anchors play an important function in the way in which External Wall Insulation Systems perform under building and dynamic loadings. Johnstone's EWI Systems have been designed to support fixings to ensure a smooth and straightforward installation. This guide displays products that are available in the market place that allow for removal and refitting of fixtures and fittings without losing mechanical strength or damaging the EWI system.



## BASE TRACK DETAIL

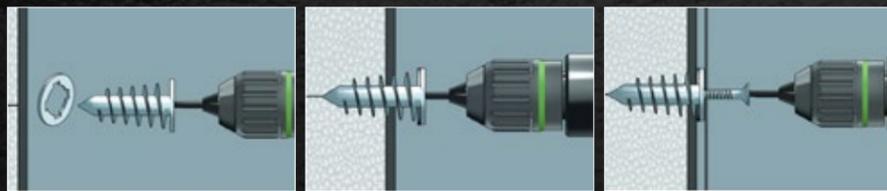


## SPIRAL ANCHOR

Spiral Anchors are designed for the application of lightweight objects to EWI systems with no thermal bridging. Typically when used with thin coat render finishes this product can be applied with no pre-drilling, but for thicker render systems a pilot hole should be drilled. Comes complete with a compressible seal gasket but additional silicone sealant should also be applied.

<b>Max load advised</b>	5kg
<b>Tools required</b>	TORX T40 bit Pilot hole bit where necessary
<b>Fixing screw</b>	4.0-5.0mm screw to attach peripheral Max length 50mm

Size	Diameter	PPG Code	QTY per box
60mm	25mm	737813	10



## FIXING DART

The fixing dart is a product designed to allow fixing back to the original substrate in EWI systems. It comprises of a wall anchor (8mm) and a plastic installation attachment which peripherals items can be fixed to. It is designed to allow the installation of light to medium weight objects to EWI systems. Although this product comes with a sealing washer additional silicone sealant should also be applied.

For use to attach peripherals including:

- Downpipe brackets ■ Signs
- Outside lights ■ Alarms and sensors

<b>Max load advised</b>	10kg
<b>Tools required</b>	Drill with masonry bit Assembly bit provided
<b>Fixing screw</b>	M8/M10 screw / bolt
<b>Quantity per bag</b>	Components to assemble 10 darts

Insulation Thickness	PPG Code	Anchor length
80	640040	100
100	640041	120
120	640042	140
140	640043	160
160	640044	180
180	640045	200
200	640046	220
220	640047	240
240	640048	260
260	640049	280
280	640050	300

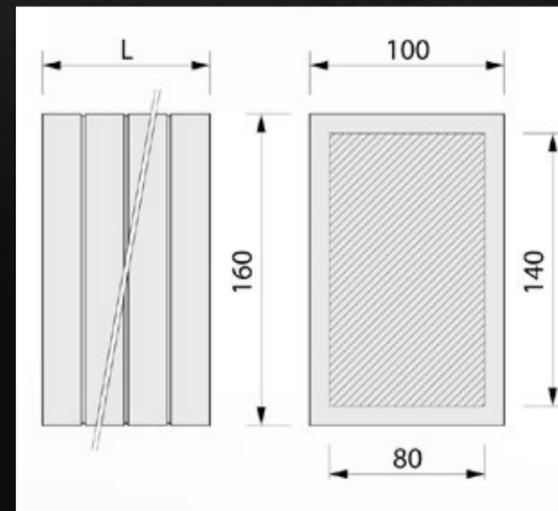


## POWER BLOCK

The Power Block is a super high density EPS block that can be cut to size as required and inserted into an EWI system. It is suitable for use with any EWI insulation type specified. As it is cut to the depth of the insulation and adhesively fixed to the substrate and surrounding insulation it is suitable for medium to heavy loads. As the Power Block is in itself constructed from insulation material it has thermal conductivity of only 0.04 W/mK. Supplied in metre long blocks it can easily be cut to the same depth as the insulation being used and flush fixed prior to rendering.

<b>Max load advised</b>	5kg
<b>Tools required</b>	Insulation saw, Johnstone's Insulation Panel Adhesive, Johnstone's approved PU foam adhesive/Gap filler, Approve EWI system anchor (as required)
<b>Fixing screw</b>	Timber or self tapping screw min 5mm diameter, Minimum embedment 60mm

Item	PPG Code	QTY per box
Power Block 1 metre	640039	4



No screw fixings to be attached within 10mm of outer edge.



1. Cut EWI system insulation to accommodate power block.



2. Cut Power Block to desired thickness



3. Apply Johnstone's Insulation Panel Adhesive to entire back face of Power Block and fix flush



4. Seal around edges of Power block with PU foam to prevent thermal bridges and add additional fixing strength



5. Insert EWI fixing anchors for extra strength if required, to sides of Power Block as left

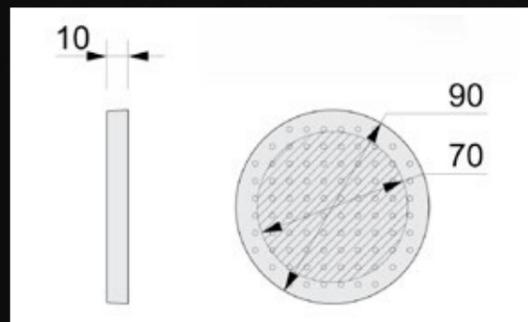
## FIXING DISC

This fixing disk is made from high quality plastic and is designed for use with EPS EWI insulation systems only. Applied into the EPS insulation during system install prior to render application and fixed in place with PU adhesive. Inner surface is textured to allow for a strong bond to the insulation and outer surface is perforated to allow for fixings to be applied. Designed for lightweight peripheral fixing only with no thermal bridging.

Max load advised	5kg
Tools required	Cutting tool, PU Adhesive
Fixing screw	Any self tapping screw Minimum embedment 20mm

Fixing Disc Depth	10mm
Fixing Disc Diameter	90mm/ No fixings with 10mm of disc edge

Item	PPG Code	QTY per box
90mm Fixing Disk	640034	20
90mm Cutting tool	640036	1
PU Adhesive Tube	640035	1



No screw fixings to be attached within 10mm of outer edge.



Tool for cutting required recess into EPS insulation.



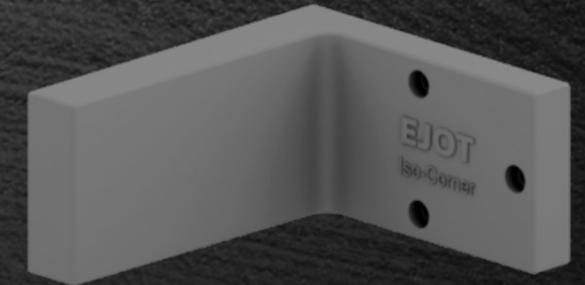
PU adhesive required to fix disks to EPS insulation.



## ISOFIX CORNER WALL BLOCKS

ETICS fixing support block for heavy loads at building corners.

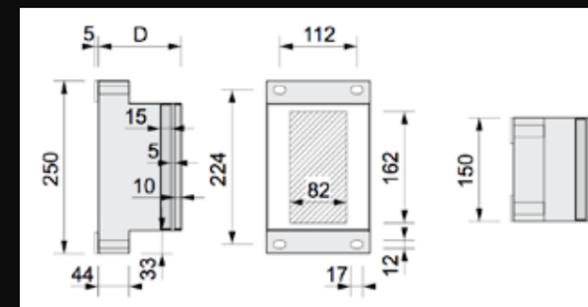
Size	PPG Code	QTY per box
Iso-Corner Kit SDF 100mm	640022	1
Iso-Corner Kit SDF 120mm	640023	1
Iso-Corner Kit SDF 140mm	640024	1
Iso-Corner Kit SDP 100mm	640025	1
Iso-Corner Kit SDP 120mm	640026	1
Iso-Corner Kit SDP 140mm	640027	1
140mm	640096	1
200mm	640097	1
300mm	640098	1



## ISOFIX WALL BLOCKS

ETICS fixing point for heavy loads.

Size	PPG Code	QTY per box
Iso-Corner Kit Injection	640028	1
EJOT Kartusche VY 300 SF	640029	12
EJOT Blow-Out Pump	640030	1
EJOT Cleaning Brush 14	640031	1
EJOT Cleaning Brush 16	640032	1
EJOT Application Gun AP 300	640033	1



## SWI S T FIXING - SINGLE

For use when fitting downpipes, soil and vent pipes, (including temporary stand off whilst insulation is completed), hanging baskets, hose reels, alarms, lights, gate and fence posts, canopies, utility boxes, hose reels – pretty much any item that requires fitting.

Size	PPG Code	Colour	QTY per box
One size	646946	Black	1
	646950	White	1



## SWI S FIXING - CABLE CONNECTION

Used for securing cables, washing lines and hanging baskets to the existing substrate.

Size	PPG Code	Colour	QTY per box
One size	646949	Black	1
	646953	White	1



## SWI S T FIXING - TAP

Used to fit an external tap through external wall insulation, providing a water tight seal.

Size	PPG Code	Colour	QTY per box
One size	646952	Black	1
	646948	White	1



## SWI S P FIXING - SATELLITE DISH

Used for refitting a standard satellite dish through EWI without the need for timber providing a complete water tight seal to fixings and cables.

Size	PPG Code	Colour	QTY per box
One size	646947	Black	1
	646951	White	1



## TECHNICAL SUPPORT

Johnstone's extensive package of technical services sits under the banner of PPG Extra - offering comprehensive advisory and consultancy services that have been developed to guide the full spectrum of appliers, clients and specifiers through key issues including legislation, building regulations, environmental concerns, social responsibility and system choices.

### PROVIDING YOU WITH BESPOKE SOLUTIONS

We are fully aware that every project and client has different requirements, which is why we go the extra mile to provide bespoke solutions tailored specifically to your needs.

Whether it is site surveys, working from plans, system performance calculations or detailed technical support, our dedicated experts and PPG Extra specialists and partner engineers will provide you with technical guidance to ensure you benefit from the most sustainable and appropriate solutions for your project.

After undertaking a comprehensive site assessment to determine the location and condition of existing substrates and application areas we will provide our clients with a detailed project specification. Our tailored specification includes information on products, preparation requirements and application details, life expectancy and the required maintenance schedules for the selected systems in order to help you plan for the future.

### THE COMPLETE RENDER SYSTEM

Johnstone's offer our customers the complete technical support package including:

- Site technical visits before specifications are written
- Full system technical specifications with bespoke detailing
- On site technical support during works
- Post installation inspections
- System samples
- Colour advice
- 3D project visualisations

VISIT US AT: [WWW.JOHNSTONESTRADE.COM](http://WWW.JOHNSTONESTRADE.COM)

ANY INQUIRES PLEASE CONTACT PPG TODAY



**STORMSHIELD**

E W I & R E N D E R

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