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Work on properties with External Wall Insulation

(EWI)

About this document ...

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Content approval

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Issue 3	24-Nov-2022	Tahsin Sabur	Addition of Bracket 52
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Table of Content

1 *Introduction*

Increasing numbers of properties across the UK are being clad with External Wall Insulation (EWI). This is provided using panels of insulation (typically polystyrene) with a rendered surface which has various finishes i.e. pebbledash, smooth render and brick effect. The work is being driven by the UK Government, through energy saving programs such as Green Deal.

EWI cladding requires a different approach for Openreach when providing / renewing its Dropwires.

This document provides information on EWI and details the technical requirements for Openreach Network Installation and Maintenance on properties which either have, or are about to have, EWI installed.

2 *What is EWI?*

External Wall Insulation (EWI) is provided using panels of insulation (typically polystyrene) which are usually between 65mm and 100mm thick. These offer no appreciable strength for fixings. The insulation is covered with a rendering which is approximately 10mm thick and has various surface finishes such as Pebbledash, Smooth Render and Brick Effect. The numbers of EWI Clad properties is growing quickly and it is estimated that up to one million will be clad within ten years.

The illustrations below show the typical make up of EWI over a masonry block, or brick wall

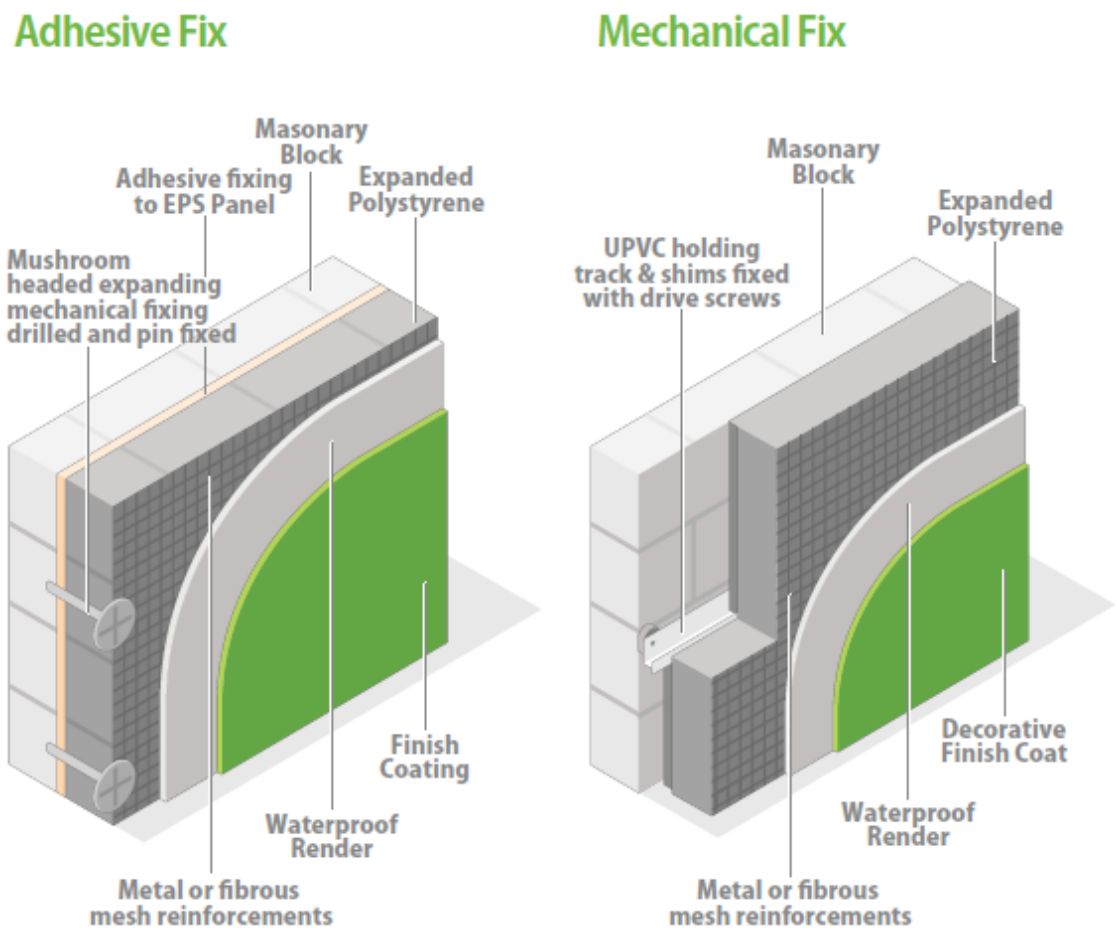

Figure 1 – Typical EWI System

The specific construction features of EWI mean that standard Openreach methods for providing a fixing for the overhead Dropwire span and for the down lead are inappropriate / ineffective and so new methods and components have been developed. These are fully detailed within this document.

3 *When EWI might be encountered*

There are two likely situations where EWI will be encountered by Openreach people and contractors.

(a) Before EWI is installed – This is where the EWI Provider is working with the Openreach Network Sales team to ensure that necessary network re-arrangement work is undertaken prior to the installation of EWI. This approach removes the possibility of the safety or future reliability of Openreach Network Infrastructure being compromised as a result of EWI works.

(b) After EWI is installed – Many properties have now been clad with EWI (some without any Openreach consultation). The technical requirements for installation and maintenance of Network infrastructure in these circumstances are quite different to scenario (a)

The technical requirements for both scenarios are detailed below.

4 *Openreach Network re-Arrangement work in advance of EWI*

Many EWI providers are now working with Openreach to ensure that necessary Network re-arrangement work is undertaken in advance of EWI.

Where Openreach has been requested to undertake re-arrangement work, the following engineering tasks will typically need to be undertaken.

- Removal of the existing Dropwire fixing and replacement with an extra-long Eyebolt or a Bracket 52, which is long enough to reach through the insulation and into the brick or masonry.
- Replacement of the overhead Dropwire span / lead in. NB: The amount of wire replaced will depend on the site circumstances.

In addition to the usual tools and components for overhead work, the following kit is specifically required for EWI re-arrangement work.

4.1 Components:

Extra-long eyebolts –

Figure 2 – Eyebolts 2B & 2C

- Eyebolt 2B – I/C 023041 - Suitable for EWI thickness of up to 90mm (inc render)
- Eyebolt 2C – I/C 069119 - Suitable for EWI thickness of up to 110mm (inc render)

Figure 3 – Bracket 52

- Bracket 52 – I/C 113407 - Suitable for for EWI thickness of up to 200mm (inc render)

4.2 Tools / Equipment:

- Ladder Top end Stability device – I/C 129363
- 16mm Drill bit - I/C (various)
- 17mm Open ended spanner – I/C (i-buy)

4.3 Carrying out the re-arrangement work

Where re-arrangement work is being undertaken **prior** to the installation of EWI and the existing eyebolt requires renewal, the following methods may be followed.

Note: When carrying out the work from a Ladder, it is **MANDATORY** to use a Ladder Top End Stability Device – I/C 129363.

4.3.1 Using Eyebolts

To install an eyebolt:

- Drill a Pilot hole using an 8mm drill Bit
- Enlarge the hole with a 16mm bit
- Insert the expanding end of the eyebolt into the hole, leaving a sufficient length of sleeve protruding from the fixing to accommodate the EWI.

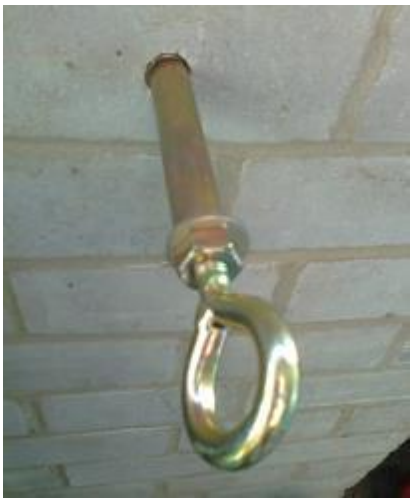

Figure 4 – Eyebolt 2C in advance of EWI

Note: EWI can vary in thickness between 65 and 100mm, so it is advisable to ascertain the specific thickness to be applied on the property in question to ensure that once the insulation is installed, the eye of the bolt will be located on the surface of the EWI, not within it!

- Using a 17mm spanner, tighten the nut on the Eyebolt until some initial resistance is felt. Then, provide 2 or 3 further turns to make a firm fixing. Important – Do not overturn as this may cause damage to the brick or masonry.
- Once the new fixing is in place, use standard practices to Provide / Recover / Replace any Dropwire requiring renewal.

4.3.2 Using Bracket 52

The bracket 52 is suitable for up to 68m span lengths (including road crossings).

The Bracket 52 (item code 113407) is secured to a brick or rendered wall using 2 Bolt Expanding 2A (item code 021689) or alternatively using 2 Eyebolt Expanding 2A (016442).

To attach the Bracket 52 to a wall, the bolt holes should be placed at least 250mm below the roofline and at least 250mm away from the edge/corner of the wall or window. Using a Bracket 44 template (item code 024247) mark the position of the pilot holes to be drilled through the template, one Bolt Expanding per brick where possible.

- Drill the two Pilot holes using an 8mm drill Bit
- Enlarge the holes with a 16mm bit
- Insert the expanding end of the eyebolt into the holes and tighten the nuts (see 4.3.1).
- When the bolts become tight, undo the nuts, remove the washers, and place the bracket over the bolts. Replace the washers and nuts and tighten the nuts to secure the bracket.
- Once the new fixing is in place, use standard practices to Provide / Recover / Replace any Dropwire requiring renewal.

Note: The amount of wire requiring renewal will depend on the site circumstances.

Attached Slides

See for details on wire renewal policy and engineering standards for EWI work.

5 *Installation / Maintenance work on properties already EWI clad*

A significant number of properties around the UK have already been clad with EWI without any Openreach consultation. As such, any existing Network on these properties is likely to have been simply clad over.

Where subsequently, Network Provision / Maintenance work is required, the following working practice / procedure should be followed.

Note: Bracket 52 cannot be retrospectively fitted to walls with EWI cladding.

5.1 Safety:

Existing Safe Systems of Work for eyebolt installation have been developed and risk assessed by Accenture to facilitate this work.

5.2 Onsite Risk Assessment:

Although the work involved is very similar to existing Openreach house end practices, there are some additional key points that engineers need to include within their usual onsite risk assessment.

On arrival at any property, carry out a visual inspection to ascertain whether it has been clad with EWI. If the property is in the process of being clad, this will be self-evident. However, where the visit is made sometime after the insulation work has been completed, it will be more difficult to identify the presence of EWI, as at a casual glance, it may look like any other rendered property.

Figure 5 above – Before and After EWI

There is though a simple visual indicator which can be easily seen at or around the damp course level. At this point, the EWI will end and there will be a clear step back to the original brickwork / masonry, which will be visible (see figure 6 below)

Deeper than usual recesses around doors and windows may also assist in identifying EWI.

Where there is any remaining doubt, ask the end user / resident.

Figure 6 – Step indicating EWI

5.3 Check for other services:

- Always conduct a visual inspection, looking for other utility services which may be supplying the property and which may have become encased behind the cladding in the area where you propose to drill / fix.
- Where a Gas supply is located externally, it should be located within a vented conduit (see Figure 7). This may not always be the case though, as can be seen in Figure 8, where the gas supply to a property has been almost totally covered by the cladding / rendering.
- In the unlikely event that the property is supplied by overhead power, pay particular attention to the route of the feed cable down the wall.
- In addition to visual checks, use a Metal / Power detector (Item Code 127623) to aide location of possible services

  Where doubt remains, speak to the householder / End User for their local knowledge

Figure 7: Gas feed in vented conduit

Figure 8 – EWI clad over Gas Feed

5.4 Carrying out work on an EWI Clad Property

External Wall Insulation is usually given a 10 year Guarantee by the manufacturer, so it is important that Openreach take care not to cause any damage which may undermine the integrity of the insulation and invalidate the guarantee.

Once a property has been identified as having EWI, the following working practices should be followed when providing a Dropwire and lead in to the premises.

Providing a span fixing:

In some cases, where the property is still being clad / or has only very recently been completed, the insulation contractor may have provided a dedicated Pattress (wooden block) to enable Openreach to make a fixing using normal methods / components i.e. bracket 22. This though is only likely to be the case where the Insulation Provider is working with the Openreach sales team.

Where there is no Pattress, the span fixing may have to be made through the insulation and into the brickwork / masonry behind. Eyebolts 2B (item code 023041) and 2C (item code 069119) are suitable this application. The 2C is capable of passing through the deepest EWI insulation and into the brickwork / masonry, whilst the eyebolt 2B can be used for shallower insulation. NB: Assess the depth of the insulation (by looking at the step at damp course level). Then select most suitable bolt. See figure 9 below for eyebolt comparisons.

Eyebolts provided through EWI are suitable for 68m span lengths (including road crossings).

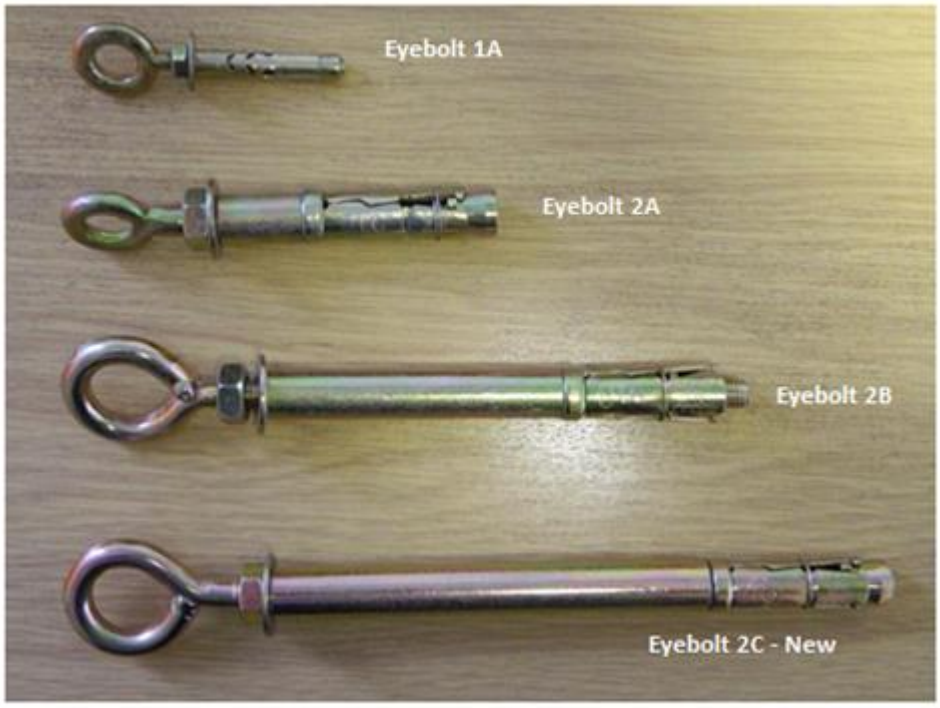

Figure 9 – Eyebolt range

Drilling a hole for the Eyebolt

The following two points are **Mandatory** when installing any 2 series eyebolt:

1. The Ladder Top End Stability Device (Item code 129363) must always be used. This provides a much better working position for drilling. Also, its soft wheels are less likely to damage to rendered surface as the ladder is moved up or down the wall.
2. An 8mm pilot hole should be drilled, followed by a 16mm final hole to accommodate the Eyebolt

To install the bolt:

- Slide the bolt into the hole ensuring that the final 25mm of the eyebolt sleeve up to the washer is well coated with clear silicone (item code 127865). This to help prevent any ingress of water into the insulation material.
- To make a fix, tighten the eyebolt with a 17mm spanner until initial resistance is felt.
- Then, provide a further 2 to 3 turns only to make the fix.

- **IMPORTANT! -** Take care not to over tighten the nut as this may crack / damage the rendered surface of the EWI.
- For further information on Eyebolts and methods of fixing. See EPT/OHP/B013 section 4.

Note: Dropwire span - As per standard practice, tensioning of the Dropwire span must always be undertaken at the Pole end.

Fixing the lead in to the wall:

Trials have indicated the standard Cleat Wiring 11B to be unsuitable for fixing onto EWI as it tends to cause the face of the render to blow off and / or, cleats to fall out. To enable a firm fixing to be made without such problems, stores item “Push in Cable Tie Mounts” (Item code 076448) should be used. This is a CH8 Black Plastic push fit bolt with a surface eye which enables the Dropwire to be attached using a Strap Cable Fixing 1A (item code 072492).

The Tie Mount should be installed by first drilling a 40mm deep with an 8mm drill bit, then injecting a small amount of clear silicone (item code 127865), before pushing the Tie Mount into position and wiping away any excess silicone. The Dropwire is then secured to the bolt head using the Strap Cable Fixing. Any excess length of strap should be removed using a Tensioner 5A (or similar) to ensure that no sharp corner is left.

Figure 10 – Push in Cable Tie Mount (CH8)

Figure 11 – lead in using CH8 and SCF1A

5.5 Dropwire entry to premises:

Standard practices apply for taking the lead in into the premises (See EPT/OHP/B011 – Section 14.6).

5.6 Summary:

- Always carry out a site risk assessment prior to starting work
- Always check to see whether the property has EWI (Look for the step back to brickwork at damp course level)
- Always check for other services before drilling
- Always use a Ladder Top End Device when drilling
- Do Not over tighten the nut on the Eyebolt

END OF DOCUMENT