RISE | Retrofit information, support & expertise

External Wall Insulation: installation phase

Supply chain advice pack

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Introduction

Starting the EWI installation phase

Installing External Wall Insulation (EWI) to PAS 2035 and PAS 2030 standards involves several technical challenges, particularly achieving full thermal coverage of the walls while avoiding cold bridging, which is specific heat loss areas in the wall e.g. Lintels and resulting moisture risks. This advice pack supports installers by outlining the coordinated approach needed across assessment, design, and installation. These coordinated activities are undertaken by roles defined by the PAS Standards:

- **Retrofit Assessor (RA)**: Visits the home to collect all the information needed
- **Retrofit Designer (RD):** Creates the detailed design based upon the retrofit assessment and the Retrofit Coordinator's plan
- **Retrofit Coordinator (RC):** Manages the PAS 2035 aspects of the retrofit from start to finish
- **Retrofit Installer (RI):** The company carrying out the work in accordance with PAS2030
- **Client**: Decides on properties considered for Retrofit and agreeing plans presented by the Retrofit Coordinator

Before work begins, a Retrofit Assessment of the dwelling allows confirmation by the Retrofit Designer of whether EWI is suitable for the building's type and condition and allows an evaluation by the Retrofit Coordinator. It identifies key risks like damp, structural issues, and ventilation.

A property specific design follows, addressing junctions, reveals, fixings, interfaces and areas prone to failure if not properly resolved. These preliminary stages are covered in **Advice Pack Part 1**, which provides guidance on risk identification and robust design.

> It is important to recognise that even a well-designed system can be compromised by poor on-site execution and equally, good installation cannot compensate for an inadequate design.

This advice pack focuses on installation, where skilled workmanship and strict quality control are essential. Installers must follow PAS 2030 standards and manufacturer instructions, ensuring correct preparation, fixing, and weatherproofing. Success depends on aligning design intent, materials, and the roles of the Retrofit Designer, Retrofit Coordinator, manufacturer, installer, and client.

Finally, practical issues like access, sequencing, resident engagement, and service penetrations must be managed to ensure a durable, compliant outcome.

Compliance standards of PAS

Delivering compliant, high-performing EWI installations requires adherence to PAS 2030:2023, PAS 2035:2023, and supporting standards.

- Specifiers must ensure system compatibility, robust detailing, certified products, and compliance with moisture, fire, and thermal standards. PAS2030 Table B4-I1[1] outlines responsibilities including coordination with installers and provision of clear instructions and handover documentation.
- Pre-installation building inspections (PIBI's), detailed in Table B4-I22[2], confirm readiness for works to commence and assess risks. These must be conducted by competent personnel with documented evidence. Inspectors must demonstrate technical knowledge, system compatibility, and understanding of retrofit design, as outlined in Table B4-I3[3].
- Installers must hold relevant qualifications (e.g. NVQ Level 2 or 3), CSCS certification, and manufacturer-approved training. All credentials must be documented and auditable.
- At handover, installers provide a full documentation pack including warranties, maintenance schedules, and contact details. The Retrofit Coordinator ensures completeness and accuracy, with data uploaded to TrustMark for funded projects.
- Additional records such as site diaries, inspection logs, and communication records, are recommended for quality assurance. EWI systems must also comply with Building Regulations, BBA certification, and BS/EN standards for fire safety, moisture control, and insulation materials, ensuring long-term safety and performance.

Getting residents on board

Resident support is vital to successful EWI retrofit projects. Clear communication, respectful practices, and early engagement help build trust and ensure access.

Residents should be informed about the benefits of EWI:

- Improved energy efficiency,
- Lower heating costs
- Enhanced comfort, and
- The project timeline and safety measures.

A Resident Liaison Officer can serve as a consistent point of contact.

Changes to the property's appearance, such as new finishes or repositioned fixtures, must be explained clearly, ideally with visual aids.

Respecting privacy and maintaining cleanliness are essential, especially in occupied homes.

[1,2& 3] PAS 2030: 2023

Pre-start surveys and building inspections

Pre-start surveys and inspections are essential to ensuring EWI works are technically appropriate, safe, and compliant with PAS 2030 and PAS 2035. The process begins with the installer reviewing the retrofit assessment to confirm system suitability and identify risks such as damp, structural movement, or ventilation issues.

A competent person must carry out the Pre-Installation Building Inspection (PIBI), checking substrate condition, moisture levels, and structural integrity. Where needed, wall load assessments and pull-out tests confirm the structure can support the insulation system.

Site preparation must follow CDM regulations, with a Health and Safety Phase Plan in place. Installers should plan for safe access, welfare facilities, material storage, and clear reporting lines to the site manager.

Some key aspects of installation

Substrate, basecoat and mesh

The substrate must be clean, dry, and stable. Defective render should be removed, and pull-out tests may be needed. The basecoat should embed mesh centrally with 100mm overlaps and extra reinforcement at stress points. Correct thickness and curing are essential.

Starter track and DPC

The starter track sets the base level and must be fixed level, typically 150mm above ground and always above the DPC. Accurate setting out prevents alignment issues.

Base plinth

The plinth protects the system's base. Exposed types use a drip edge; recessed types improve thermal continuity but require moisture control. Both must be sealed per specification.

Movement joints

Joints must align with structural breaks and be placed at corners and long runs. Expansion gaps around openings should be sealed with flexible, weatherproof materials.

Render finish

Apply in dry conditions above 5°C. Use correct thickness and compatible sealants. Beads and trims ensure clean edges. Colour and texture should be agreed in advance.

Manufacturer guidance

Follow system-specific instructions for materials, fixings, and sequencing. Only approved components should be used. Installers must be trained, and quality monitored through checks and documentation.

Source: Baily Garner – EWI Starter Track

Aspects of interfacing and detailing

Service penetrations and fixtures

Cables and pipes must pass through sleeves or grommets and be sealed with flexible, weatherproof materials. Fixtures should be fixed back to the substrate using load-bearing fixings. Meter boxes must be detailed to prevent water ingress and thermal bridging.

Openings and corners

Reinforce all corners with diagonal mesh patches and use pre-formed beads for clean edges. Drip profiles above openings direct water away. Expansion gaps around frames should be sealed with backer rod and weatherproof sealant.

Thermal bridges and features

Low walls, steps, and decorative features must be insulated or detailed to maintain thermal continuity. Recessed plinths or thermal breaks may be required.

Trims, roof details and fire barriers

Use purpose-made trims at all terminations. Roofline details must be sealed and ventilated where necessary. Fire barriers must be non-combustible, continuous, and correctly positioned.

Water ingress and flashings

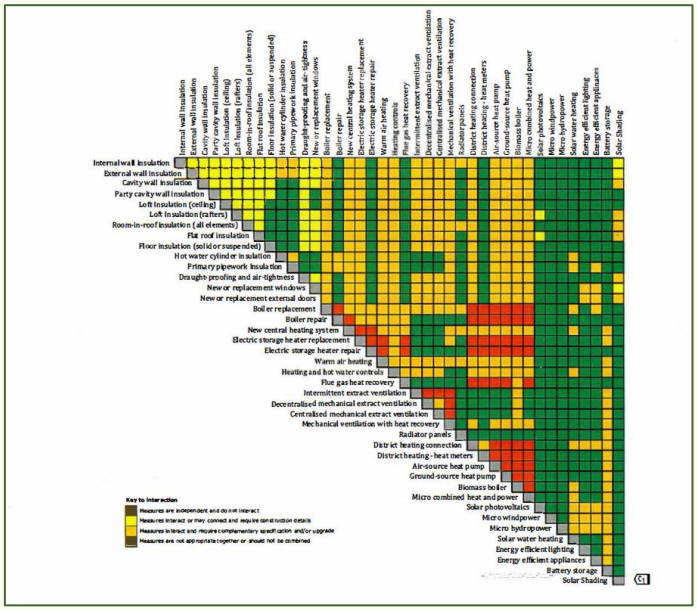
Ensure correct fall, drip detailing, and breathable finishes. Sills should project with drip edges; flashings must be fully integrated and sealed.

Sequencing of EWI

Effective coordination between trades is key to a successful EWI installation. Proper sequencing maintains airtightness, thermal continuity, and system integrity, and supports compliance with PAS 2030 and PAS 2035.

EWI should be installed after structural repairs and damp remediation but precede ventilation upgrades, heating systems, or renewables. For example, installing EWI before MVHR ensures airtightness, while sequencing it ahead of heat pumps or boilers helps reduce heating demand and improve efficiency.

The PAS 2030 Measures interaction matrix identifies to what extent measures interact with each other or where they are in conflict and should not be installed together.



Source: PAS 2030 : 2023 Table D.1 P34

- **Windows & Doors:** Sequence installations to maintain airtightness and thermal continuity.
- **Mechanical & Electrical:** Plan penetrations (vents, flues, EV chargers) early.
- **Roofing:** Coordinate fascias, gutters, soffits, and verge trims with EWI.
- **External Fixtures:** Fix items (e.g. satellite dishes, meters) back to the substrate with load-bearing brackets.

Quality and supervision throughout the project

In PAS 2030 and 2035-compliant EWI projects, the Retrofit Coordinator works with the installer to ensure quality and compliance. A useful source of information about quality processes is provided by the Insulated Cladding and Render Association (INCA) who produce best practice guides and detailing guides, which if followed, demonstrate compliance with PAS 2035 requirements.

Undertaking regular site audits to check workmanship, sequencing, and detailing is helpful. Photos must be taken to document key stages like substrate preparation, fixings, insulation coverage, and finishes.

System manufacturers can also conduct audits and provide technical support, especially for complex details. Their sign-off may be required for warranties.

Conclusion

A technically sound design can still fail if the installation is poorly executed. Ensuring high-quality workmanship and rigorous oversight is essential to the long-term performance and safety of the EWI system.

Resources

RISE advice packs:

Supply chain advice packs available here.

RISE podcasts:

Published weekly and available here.

RISE masterclasses:

Supporting the supply chain playlist available here.

This pack aims to share insights, good practices, and lessons learned from the sector. It is intended for informational purposes only and does not constitute as recommendations or endorsements of specific suppliers, products, or services or as legal advice. Please always check the latest regulations.

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