

Session 3B

"External Wall Insulation Report: New NAO report - Energy efficiency installations under the ECO scheme" Getting it right

Speakers:

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Stephen Gapik, Soltherm

Chaired by: Andrew Burke, NHMF

Room: Room D



NHMF
Maintenance
Conference
2026





Summary of NAO findings, issues identified & NIHE experience with EWI

What is the NAO report?

- This NAO report is about the recent failures with the quality of installations of external and internal wall insulation and suspected fraud on the Energy Company Obligation (ECO).
- ECO is a government scheme intended to tackle fuel poverty and reduce carbon emissions in England, Scotland and Wales, but not Northern Ireland.

Key Findings / Issues identified

1. Poor quality of external and internal wall insulation under ECO4 and GBIS

- 98% of homes with external wall insulation have major issues requiring remediation (between 22,000 and 23,000 homes)
- 29% of homes with internal wall insulation have major issues requiring remediation (between 9,000 and 13,000 homes)

Key Findings / Issues identified

- **Root causes of widespread quality issues**
 - The government had limited oversight
 - The government created an overly complex system that ultimately failed.
 - TrustMark's funding arrangements limited its ability to scale up its operations:
 - TrustMark and the certification bodies collectively conducted insufficient audit and monitoring:

Key Findings / Issues identified

2. Suspected fraud

Three weaknesses in DESNZ's approach to fraud in ECO

- i. Inherent risks in the scheme design and its operation
- ii. DESNZ did not carry out a fraud risk assessment during the design of ECO4 or assign responsibility for managing specific fraud risks
- iii. Ofgem relies on others to detect and report fraud, but the other organisations have no requirement to look for it and poor information sharing hinders their ability to do so

Key Findings / Issues identified

3. System reform

- DENZ is considering how to apply lessons to future policies and system reform
- The two challenges DENSZ now face are to ensure that the relevant businesses meet their obligations to remediate all the affected homes as quickly as possible and to reform the system so that this cannot happen again.

NIHE experience with EWI.

- **Recently delivered ERDF Programme - Pre-Site**

- Separation of the various roles and responsibilities is key to successful retrofitting
- Before commencing on the journey of retrofitting, we had **`Meet the Buyers Day`**
- Design and Build contracts, so the contractor/design teams were required to comply with the **spirit of PAS 2035 & PAS 2030**
- Detailed Specification is paramount- very similar to the new BS40104:2025 – Retrofit Assessment for domestic dwellings
- Quality Improvement's Project Managers and Surveying staff undertook all the pre-survey findings

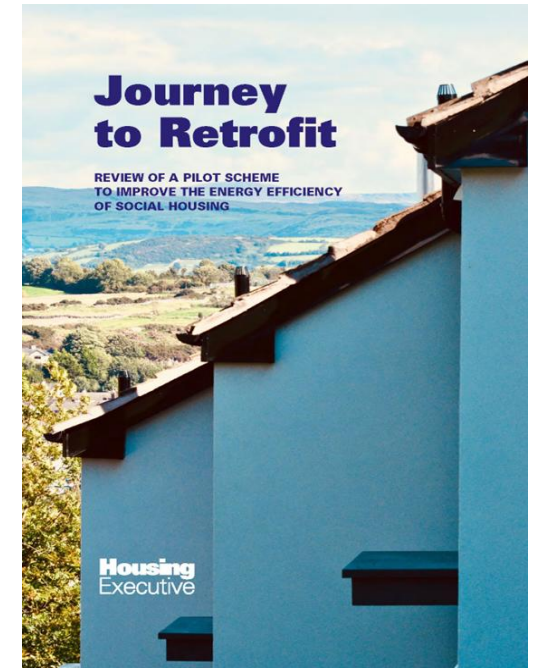
NIHE experience with EWI.

- **Recently delivered ERDF Programme- Post Site**

- Quality Improvement performed the **PAS 2035** assessments at Outline Submission stage
- On site, these schemes were managed by the in-house Project Managers from Project Delivery and inspected by the NIHE's Clerks of Works, including M&E Inspectors.
- Particular attention was paid to details on site
 - moving boilers away from walls to allow the insulation to be fitted directly to the wall before reinstating the boiler
 - The roof parapet was extended at the gables to cover and protect the external wall insulation
 - The insulation was also installed below ground level (500-600mm) around the perimeter of the dwelling to minimise thermal bridges
 - Existing and new windows moved to the insulation layer
 - A decentralised ventilation system installed in Kitchens and bathrooms

NIHE experience with EWI.

- **Recently delivered ERDF Programme:- Lessons Learnt**
 - On completion, a comprehensive ` **Lessons Learnt** ` document was produced, to ensure ongoing continuous improvements were being made.
 - Other useful publications



<https://www.nihe.gov.uk/Documents/Energy/journey-to-Retrofit>

Unintended Consequences

James Berry, Property Care Association

22 January 2026





An example of good insulation?

- Very well insulated
- MVHR fitted
- Occupant very enthusiastic about reduced heating bills
- Excessive moisture to suspended timber floor



It's all in the detail.....

- Discontinuity causes cold bridges and risk of damp and mould
- Retrofit alters moisture balance
- Ventilation performance cannot be assumed

Retrofit can be done right but requires skill and attention to detail.



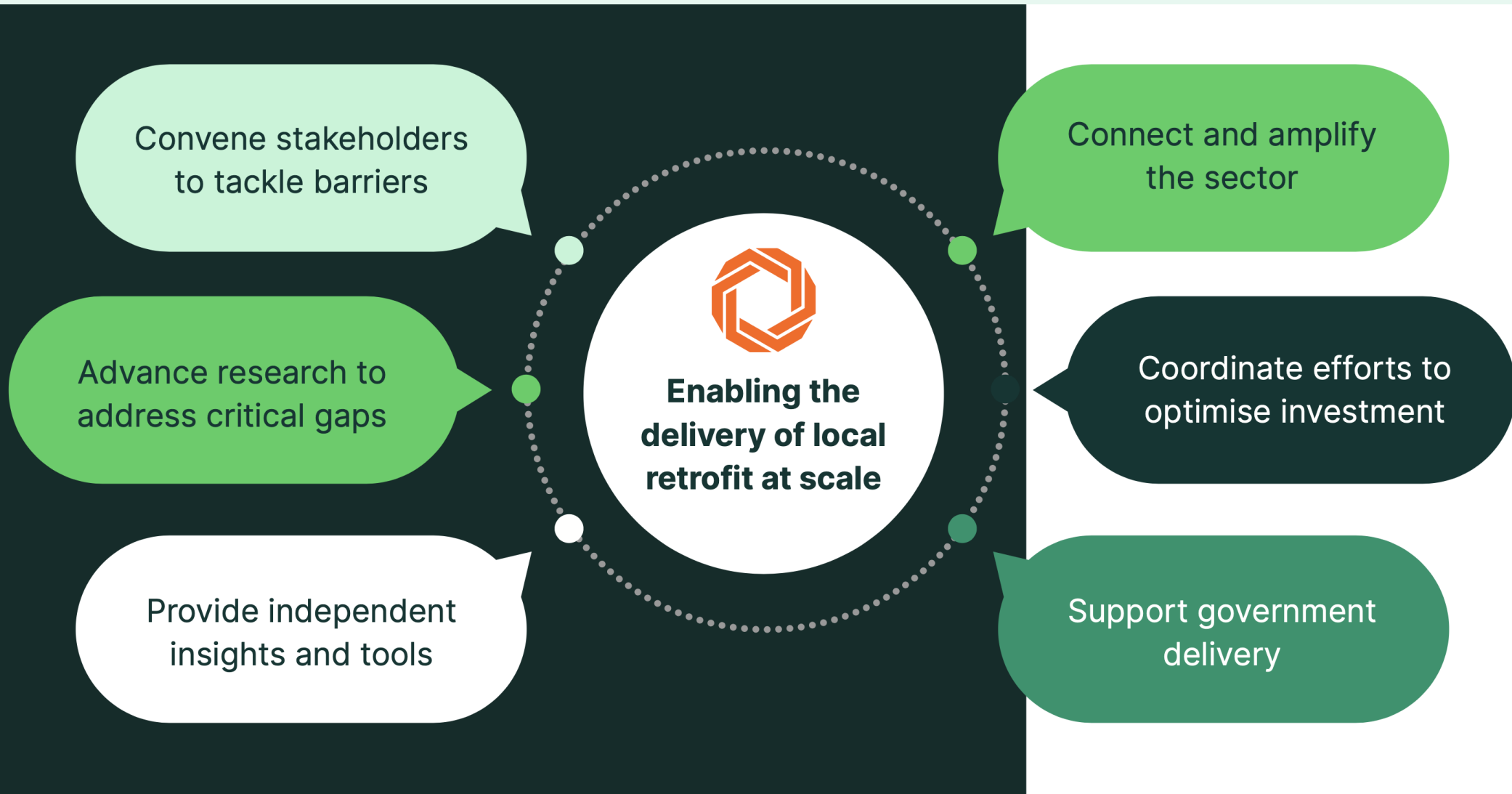
INTRODUCING THE NATIONAL RETROFIT HUB

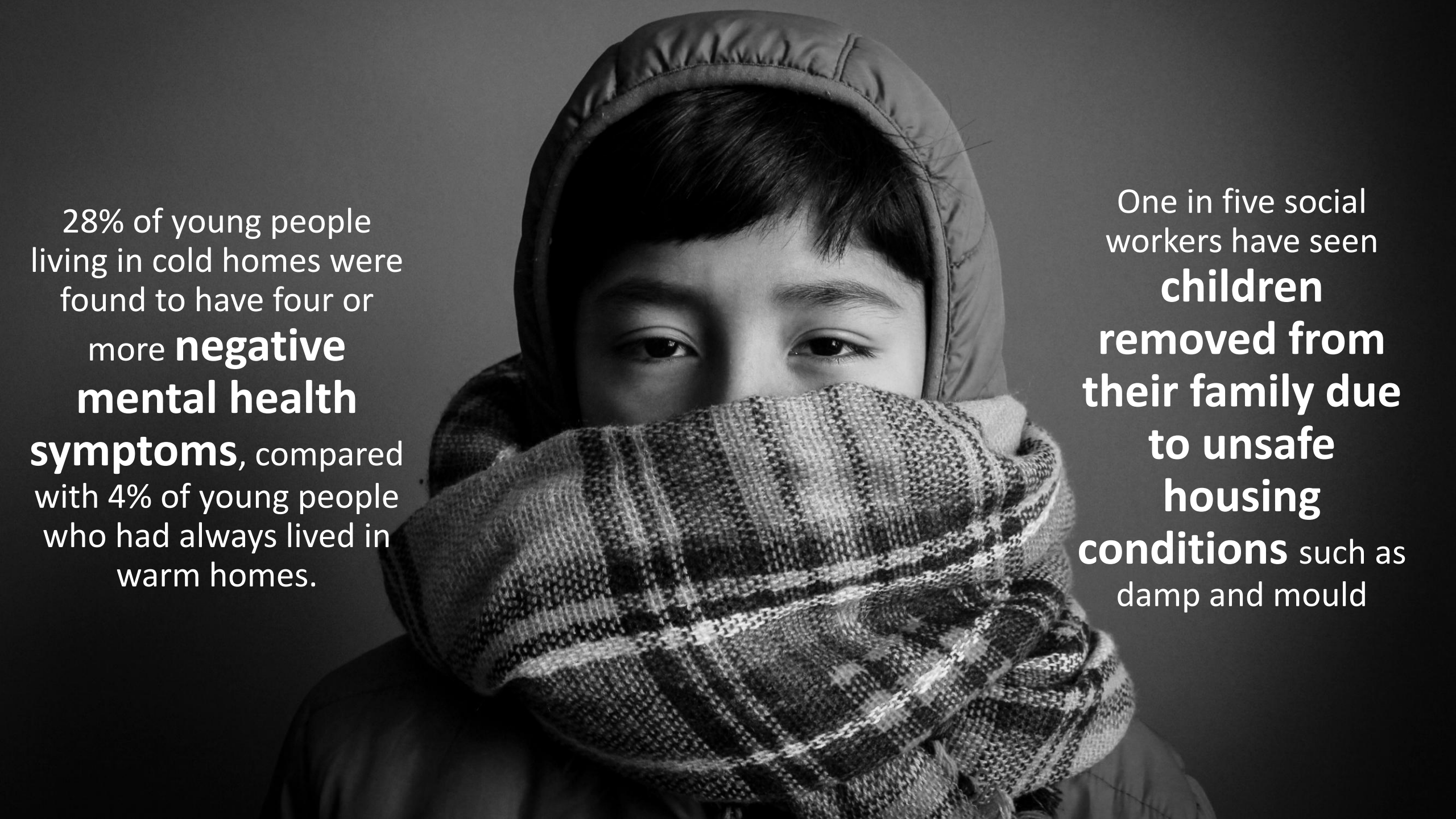
The National Retrofit Hub is a **nonprofit Community Interest Company** that brings together all those involved in the retrofit sector to share their expertise and work together to **enable the local delivery of retrofit at scale in line with a National Retrofit Strategy.**





THE ROLE AND PURPOSE OF THE NATIONAL RETROFIT HUB





28% of young people living in cold homes were found to have four or more **negative mental health symptoms**, compared with 4% of young people who had always lived in warm homes.

One in five social workers have seen **children removed from their family due to unsafe housing conditions** such as damp and mould

A black and white photograph of a person sitting at a desk, focused on their work. The person is wearing a light-colored button-down shirt under a dark cardigan. Their right hand holds a pen over a document, while their left hand, adorned with a ring, rests on a spiral-bound notebook. On the desk are a large black calculator, a pair of glasses, and a smartphone. In the background, two white mugs are visible. Overlaid on the center of the image is the text:

More than
**1 in 10 households in England are
in fuel poverty.**



**In 2023, 3.8
million
dwellings
(15%) failed
the Decent
Homes
Standard.**

**Our changing climate places
buildings at higher risk of
degradation, damp, mould and
condensation.**





THE BENEFITS OF RETROFIT



**REDUCED GRID LOAD
+ ENERGY SECURITY**



**INNOVATION
AND GROWTH**



NEW JOBS



**REDUCED
ENERGY BILLS**



**COMFORTABLE,
HEALTHY HOMES**



**REDUCED
EMISSIONS**

Tens of thousands of homes insulated under government schemes need repairs



| Mohammed Mahedi noticed problems almost immediately following insulation work in his home in 2023



WE ARE LEAVING OUT:



SO,



WHAT ARE THE NRH DOING?



HOW THE INDUSTRY CAN BE PART OF THE SOLUTION:

Better
performance
monitoring and
reporting

Supporting skills
development
and local supply
chains

Designing for
local typologies

Understanding
community and
occupant needs

Enabling
innovation



WHAT ARE THE NRH DOING?

MEASURING OUTCOMES & IMPACT EVALUATION

Better
performance
monitoring and
reporting





WHAT ARE THE NRH DOING?

POLICY RECOMMENDATIONS FOR A NATIONAL RETROFIT WORKFORCE STRATEGY

Supporting skills
development and
local supply
chains





WHAT ARE THE NRH DOING?

ARCHETYPES DESIGN GUIDE AND LIBRARY

ARCHETYPING FOR RETROFIT: BEST PRACTICE METHODOLOGY

Archotyping is a well-used and powerful tool to understand or segment a building stock. This document will help those identifying archetypes, and designing retrofit interventions based on archetypes, to produce good quality results, fit for their specific use case.



This guide is supported by:



Designing for
local typologies



 Studio Partington, RJ Barw... Title Retrofit guide: Non-traditional arc... Archetypes Included Wimpey No-fines 2-storey Region UK Link https://cdn.prod.website-files.co...	 Surrey County Council Title The Surrey Home Energy Improve... Archetypes Included Small Terrace Medium Semi-d Region Surrey Link https://www.surreycc.gov.uk/_da...	 Above Ground, Street Spac... Title Saltire Retrofit Reimagined Archetypes Included Sandstone walled mid-terrace Region Shirely Link https://www.above-ground.co.uk/...	 Levitt Bernstein, Etude and... Title ESSA Retrofit Guide Archetypes Included Victorian house Mansion block Region London Link https://www.essay8.com/resources	 FCBStudio Title Devon Retrofit Guide: Energy Savi... Archetypes Included Mid Century - Cavity detached Region Devon Link https://www.energysavingdevon.o...						
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WHAT ARE THE NRH DOING?

PLACE-BASED PROJECT – IN PROGRESS

Enable widespread adoption of place-based retrofit approaches.

Ensure approaches are effective and just.

Create actionable tools, resources, and policy recommendations.

Support evaluation and scaling of successful models.

Understanding community and occupant needs





WHAT ARE THE NRH DOING?

RETRO NET ZERO: CHALLENGE 7: INNOVATION & CO BENEFITS



We want to hear about your experiences so that we can:



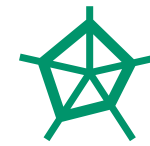
Support Local Authorities and Housing Providers through the changes in procurement to work with innovators



Enable procurement teams to engage with innovation to deliver better outcomes



Resources, indicators or guides to support those procuring to improve health and wellbeing via the adoption of innovation



Resources to enable innovators to demonstrate the impact of their solutions to procurement teams

Enabling innovation



**NATIONAL
RETROFIT HUB**



External Wall Quality Assurance

Strengthening Quality in External Wall
Insulation Design & Delivery

Technical Service and Support



U Value Calculation, Condensation and Risk Analysis

A technical team always ready to provide calculations relevant to your project.



WUFI Calculation

Assess moisture risk within externally insulated walls, predicting condensation and mould issues to ensure durability, occupant health, and building fabric safety.



CAD Drawing

A suite of standard details and a technical team capable of producing bespoke drawing quickly and efficiently as per your project requirements.



Registered Contractors

A national network of highly trained and experienced contractors.



Wind Load Calculation

Qualified engineers within the technical department calculate wind loads in accordance with Eurocode EN 1991 - 1-4. This provides a very quick turnaround for high rise specifications.



Site Support

A team of external Technical Managers to provide on-site support and training.



Thermal Transmittance Calculation

Detailed measurement of whole-house heat loss (U-value, W/m^2K) through building all elements, assessing effectiveness of multi-point insulation to inform retrofit decisions and ensure regulatory compliance.



Innovative

Soltherm are an innovative company with innovative systems allowing clients to extract additional funding.

What the NAO Report Found

Summary of Findings:

1. ~98% of external wall insulation installations under ECO4/GBIS have major issues requiring remediation
2. ~92% had major issues requiring remediation because they will affect the insulation's performance, often creating the risk of water ingress and mould
3. ~6% of EWI installations pose immediate health & safety risks (e.g., blocked ventilation)
4. ~1% had minor issues that may affect insulation performance over time
5. ~1% fully met the PAS 2035 standard

Common Defects Identified:

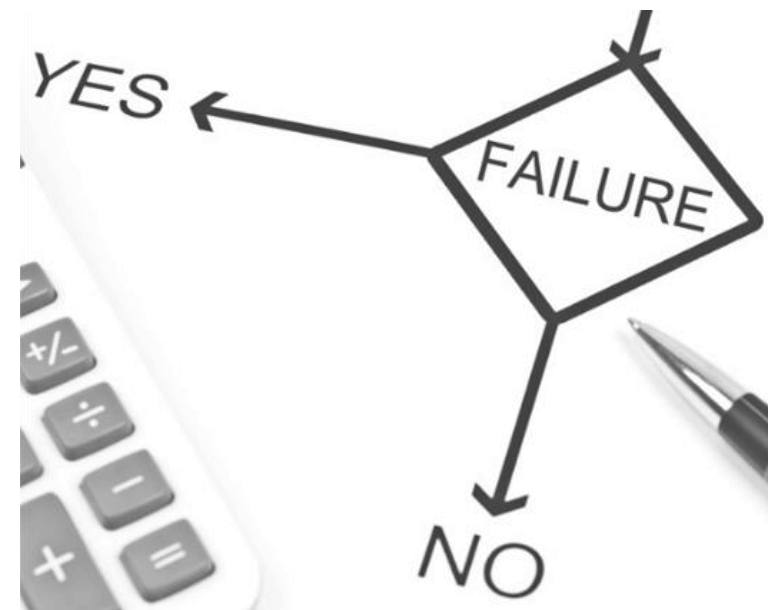
- Poor workmanship – missing fixings, unsealed gaps, incorrect detailing
- Inadequate ventilation or moisture control leading to damp or mould
- Suspected fraud and over-claiming for work not done
- Weak oversight and delayed detection of failures by quality assurance bodies



Why Failures Happened

Root Causes From NAO Report:

- 1. Under-skilled workforce** – The workforce for government insulation schemes may be less well qualified than on other government energy efficiency and low-carbon heating retrofit schemes. For example, certified installers may subcontract to others who are not competent or registered with TrustMark.
- 2. Cutting corners and non-compliance** – Some poor-quality work may be intentional; for example, as retrofit businesses attempt to minimise costs or use designs that are not bespoke to the property. They may have little incentive to meet quality standards when there is limited oversight and where consumers lack the expertise to identify poor-quality work.
- 3. Unclear standards and ambiguous responsibilities** - There are unclear and fragmented roles, responsibilities and accountabilities among DESNZ, Ofgem, TrustMark, UKAS, certification bodies and scheme providers. These were not properly understood by all stakeholders, with poor process mapping and scenario planning.
- 4. Ineffective quality assurance framework** – TrustMark and the certification bodies collectively conducted insufficient audit and monitoring.



Lessons Learnt



Lesson 1 – Competency matters

Formal qualifications and experience are essential



Lesson 2 – Standards must be clear and enforced

Ambiguous specifications lead to poor outcomes



Lesson 3 – Oversight and Supervision must be active not passive

Early inspections and audits prevent large scale failure



Lesson 4 – Accountability and Traceability

Track who did what, when, and how with documented evidence

10 Pillars of Wisdom

Pillar 1 – Manufacture

Pillar 2 – Procurement & Homogenous

Pillar 3 – Pre Construction Appraisal

Pillar 4 – Specification & Design

Pillar 5 – Regulatory & Compliance

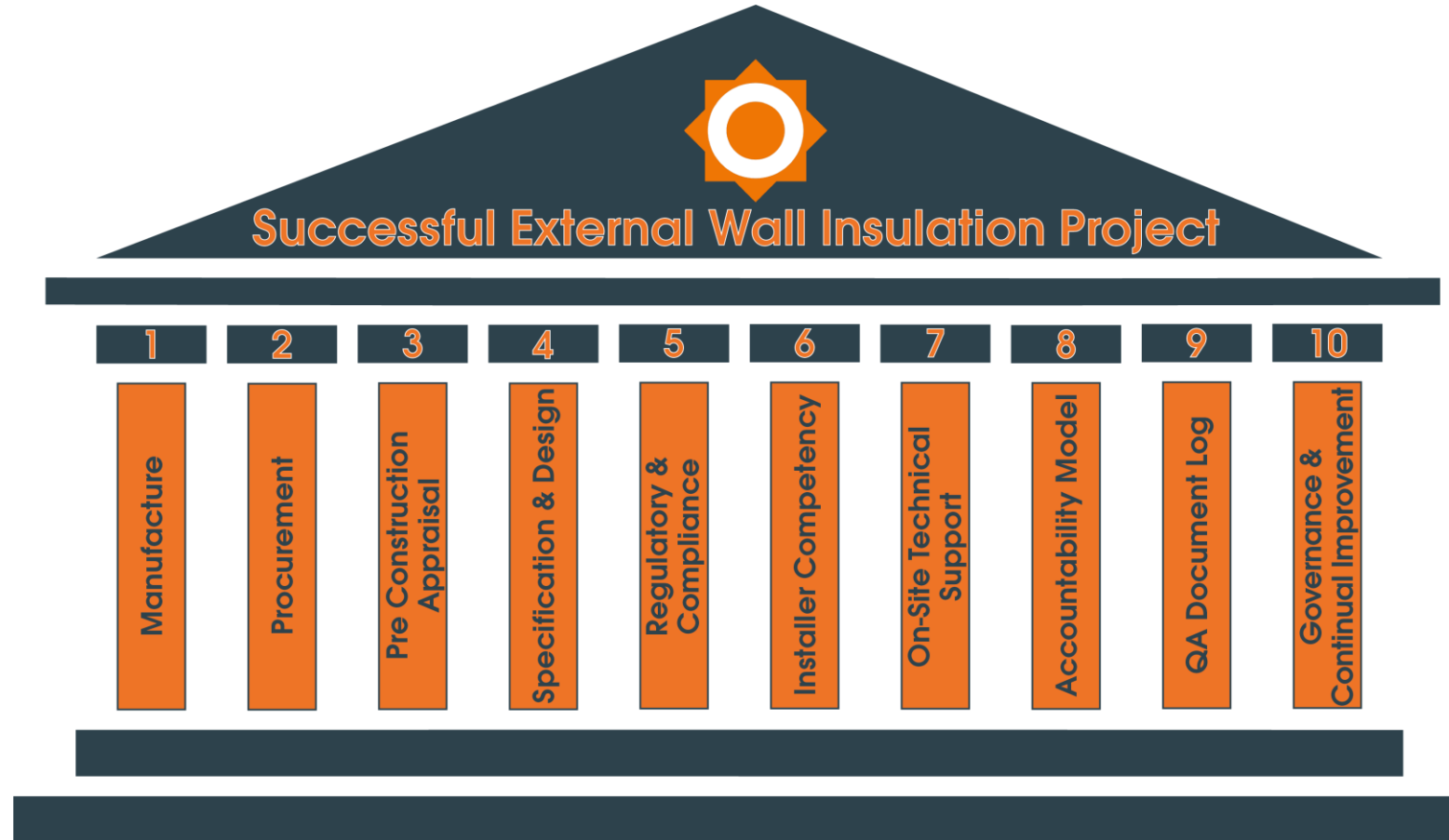
Pillar 6 – Installer Competency

Pillar 7 – On-Site Technical Support

Pillar 8 – Accountability Model

Pillar 9 – QA Document Log

Pillar 10 – Governance & Continual Improvement

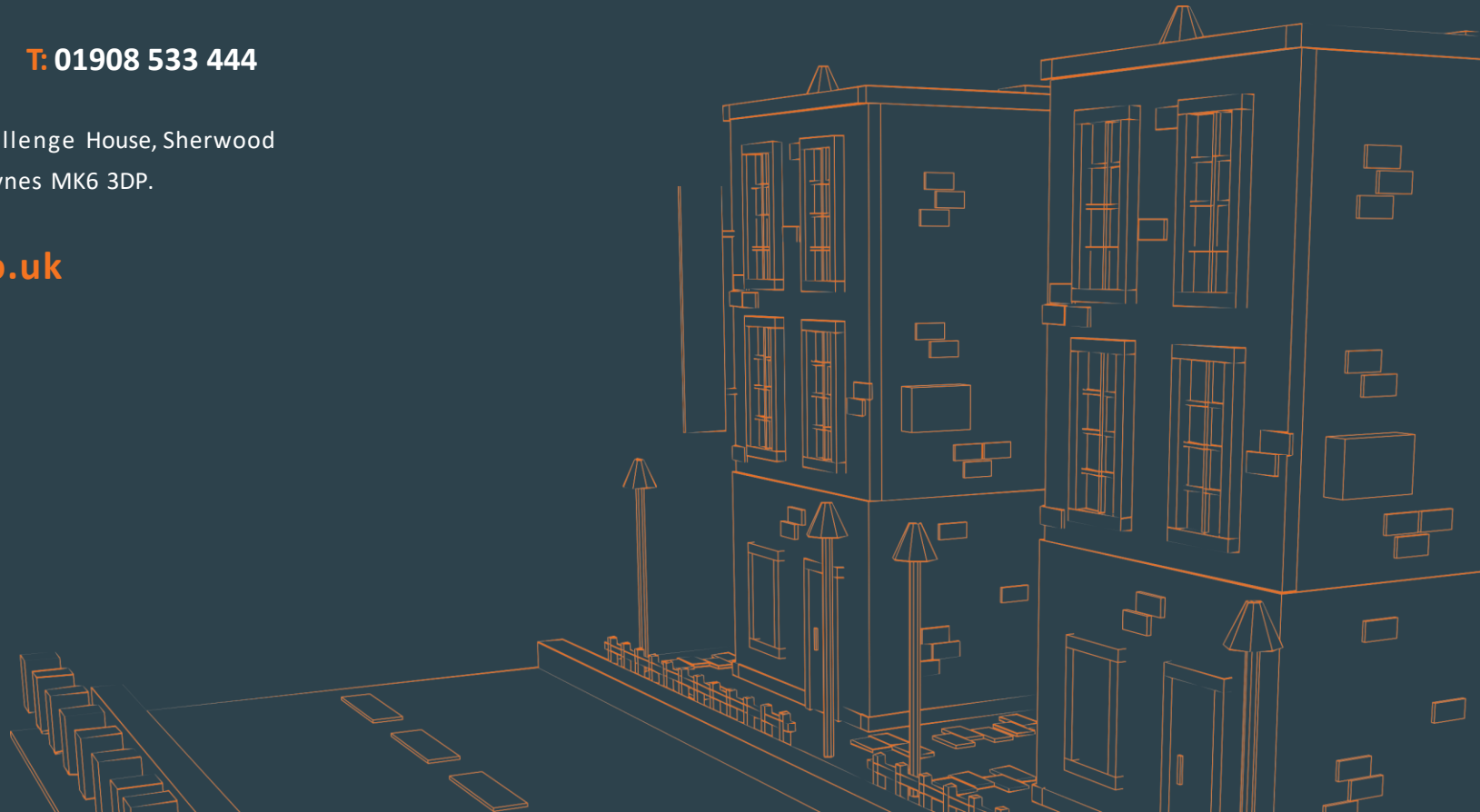




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Thank you.

See you at the
next conference!



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