



POLICY RECOMMENDATIONS FOR A
NATIONAL RETROFIT WORKFORCE STRATEGY



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This collaborative review, derived from the National Retrofit Hub's Workforce Growth & Skills Development Working Group, sets out the scale of the skills gap, the opportunity for jobs and community benefit, and the urgent actions needed across industry, education, and government.

It is published on behalf of the retrofit sector to inform, influence, and inspire action.

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Meeting the UK's climate, energy, and economic goals depends on scaling up the retrofit of homes, making them warmer, healthier, and more energy efficient. Improving the energy performance of the UK's homes not only reduces carbon emissions and reliance on fossil fuels, but also delivers significant co-benefits for health, productivity, energy security, climate resilience, and economic prosperity. Yet, as many respected industry analyses have shown, this ambition cannot be achieved without a corresponding ramp-up of the skilled workforce needed to deliver it.

To meet government targets, we need to increase delivery from around 250,000 retrofits per year to 1.5 million per year by 2035, requiring a six-fold increase in delivery capacity across all housing tenures.¹ This represents a national workforce challenge and a huge opportunity for job creation, community benefit, and economic growth across the UK.

This paper responds to that challenge. Derived from the National Retrofit Hub's Workforce Growth & Skills Development Working Group, it builds on significant research and analysis undertaken in recent years. This includes, but is not limited to:

[CLC National Retrofit Strategy \(2021\)](#)

[UKGBC Retrofit Playbook \(2021\)](#)

[Connected Places Catapult's Workforce 2050: Campaigns for Change \(Dec 2023\)](#)

[The Retrofit Academy & NHDG Retrofit Workforce Roadmap \(2024\)](#)

[CLC Roadmap of Skills for Net Zero: Competencies for Domestic Retrofit \(May 2024\)](#)

[CITB's Net Zero Workforce Report \(Feb 2025\)](#)

The findings in this report were also shaped by the following task and finish groups comprised of retrofit professionals from the National Retrofit Hub's Workforce Growth & Skills Development Working Group.

Workforce Growth & Skills Development Working Group (WG3) Task & Finish Groups

Spring 2023 to Autumn 2024



¹ National Retrofit Hub, State of the Nation Review, August 2024



Building on the insight, evidence, and recommendations already developed across the sector, this paper brings together the latest thinking from industry, government, and education to identify what needs to happen next.

It provides:

- **A clear summary of the scale of the challenge** – including the pace of workforce growth required and the range of roles that need to be filled.
- **A review of progress to date** – recognising the work already underway across the UK to build capacity, develop qualifications, and stimulate demand.
- **A set of practical, evidence-based recommendations** – reflecting consensus across the sector on the priorities for policy, investment, and action.

It builds on the strong foundations already in place and seeks to add focus to what the sector says is needed now to unlock delivery at scale.

At the heart of this paper are ten priorities for action that, if implemented, will help to build the capacity, competence, and clarity needed to scale up retrofit delivery; creating good jobs, supporting businesses, and delivering warmer, healthier homes across the UK.

Ten priorities for action

The paper identifies ten clear priorities to help the UK secure the workforce needed to scale up delivery:

- 1. A National Retrofit Workforce Strategy to drive delivery** - National leadership and coordination to align workforce development with a long-term, government-backed National Retrofit Strategy.
- 2. Clear, consistent policy direction to build confidence and unlock investment** - A visible 10-year government commitment to stimulate demand, provide market certainty, and give businesses the confidence to invest in people, skills, and supply chains.
- 3. Defined skills pathways and high-quality training provision** - Clear routes into a wide range of retrofit roles, with nationally consistent standards and mandatory training to build competence and confidence in delivery.
- 4. Reformed funding models to drive skills via public sector procurement** - Embed skills mandates into all publicly procured work, reform programme models, and equip grant recipients with the skills and capacity to deliver local and regional retrofit skills initiatives.
- 5. A competent workforce delivering better quality outcomes** - Mandatory skills and quality requirements in all publicly funded retrofit work, with improved inspection and enforcement, ending subcontracting models that undermine investment in people and quality delivery.
- 6. Targeted public investment to expand training capacity and support a diversity of workers** - Long-term funding to grow training provision, develop new courses and qualifications, including soft skills such as resident engagement, and train the trainers to scale up learning across the UK.
- 7. Reformed apprenticeships with clear retrofit pathways** - Updated apprenticeship standards that reflect retrofit needs, with better employer support, hands-on learning opportunities, shared apprenticeship schemes, and incentives to help SMEs bring new talent into the sector.
- 8. A national awareness campaign for retrofit careers** - A high-profile campaign to promote retrofit as a rewarding, secure career—raising awareness of the social, economic, and environmental benefits, and encouraging more people to get involved.



9. Creating the conditions to attract a diverse workforce - By promoting equity and access to training, the sector becomes more appealing and representative of varied communities. This diversity drives innovation, creates more welcoming work environments, and boosts overall productivity across retrofit projects.

10. Support for SMEs and microbusinesses to build capacity and access contracts - Practical support to help SMEs navigate standards, build business resilience, and participate in both publicly funded and private retrofit markets.

What else needs to happen?

In addition to these ten priorities, the paper highlights several wider actions and system changes needed to accelerate workforce development:

- **Stronger and clearer policy signals** - Long-term clarity on the future of gas, the role of hydrogen, and energy efficiency policy is essential. Clear, consistent direction on Minimum Energy Efficiency Standards (MEES) in the private rented sector will help unlock market demand and give industry the confidence to invest in skills and supply chains.
- **Coordinated action at national, regional, and local levels** - Strong leadership from the Office for Clean Energy Jobs, supported by regional and local delivery bodies to build supply chains, strengthen procurement, and monitor skills needs on the ground.



1. A National Retrofit Workforce Strategy to drive delivery

NEED IDENTIFIED	POLICY ASKS	OUTCOMES
<p>A COHESIVE APPROACH TO RETROFIT SKILLS</p>	<ul style="list-style-type: none"> • 10-year National Retrofit Strategy, signalling commitment to retrofit, underpinned by <ul style="list-style-type: none"> - a sector-approved integrated delivery plan - retrofit given a distinct remit within the Office of Clean Energy Jobs - a co-ordinated, collaborative approach to delivering retrofit skills, with full cross-Government support 	<p>A cohesive cross-sector and cross-government approach to building a skilled retrofit workforce, equipped to deliver quality retrofit that secures the UK's energy future</p>

 **QUICK WIN:** Retrofit foregrounded in the work of the Office for Clean Energy Jobs

2. Clear, consistent policy direction to build confidence and unlock investment

NEED IDENTIFIED	POLICY ASKS	OUTCOMES
<p>CLEAR, LONG TERM GOVERNMENT COMMITMENT TO RETROFIT AND RETROFIT SKILLS</p>	<ul style="list-style-type: none"> • Long term commitment to invest in retrofit and retrofit skills (evidenced by a 10-year Warm Homes Plan and National Retrofit Workforce Strategy) • Continuity of funding • Not just more money, but better funding models with <ul style="list-style-type: none"> - integrated, long-term, non-competitive funding pots - simplified delivery and less onerous compliance mechanisms 	<p>Confidence to invest in the retrofit skills pipeline to meet the UK's ambitious net zero targets, with big returns to the economy and the nation's health and well-being</p>

SUMMARY OF POLICY ASKS



<p>CLEAR, LONG TERM GOVERNMENT COMMITMENT TO RETROFIT AND RETROFIT SKILLS</p>	<ul style="list-style-type: none"> • Clear policy direction around <ul style="list-style-type: none"> - phase out of gas for home heating - the negligible role for hydrogen - the importance of fabric measures v fossil fuel replacement - the UK's long-term commitment to low carbon heat • Policy drivers to stimulate the market and reward upskilling, including a policy and funding package for the private rental sector 	<p>Confidence to invest in the retrofit skills pipeline to meet the UK's ambitious net zero targets, with big returns to the economy and the nation's health and well-being</p>
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★ **QUICK WIN:** Clear policy direction on the phasing out of gas for home heating and a commitment to low carbon alternatives

3. Defined skills pathways and high-quality training provision

NEED IDENTIFIED	POLICY ASKS	OUTCOMES
<p>CLEAR SKILLS PATHWAYS, QUALIFICATIONS AND TRAINING OPTIONS MAPPING ACROSS ALL RETROFIT AND RETROFIT-ADJACENT CAREERS</p>	<ul style="list-style-type: none"> • Create clear skills pathways for all retrofit and retrofit-adjacent roles including customer-facing roles, site inspection / quality assurance and upskilling / capacity building within local authorities • Consult the sector and build on existing initiatives, for example: <ul style="list-style-type: none"> - the CITB's RMI / retrofit skills strategy - NRH soft-skills mapping against retrofit customer journeys - regional skills initiatives and mapping exercises - trade bodies and associations wishing to develop retrofit training for their members 	<p>Professionalising retrofit and attracting a larger, broader workforce into retrofit careers, motivated by clear training and qualification pathways across a broader set of well-defined roles</p>

★ **QUICK WIN:** Mapping skills pathways against all the roles on the Definitive List of Retrofit Skills and Roles which has been developed in consultation with the sector (see P24)



4. Reformed funding models to drive skills via public sector procurement

NEED IDENTIFIED	POLICY ASKS	OUTCOMES
<p>UTILISING PUBLIC FUNDING MECHANISMS AS A DRIVER FOR SYSTEMIC CHANGE</p>	<ul style="list-style-type: none"> • Embed skills targets / mandates into all publicly funded retrofit work • Increase resource for capacity building and upskilling to enable retrofit clients to deliver skills outcomes through procurement • Adapt programme funding models to support patient local and regional holistic skills initiatives • Office for Clean Energy Jobs remit expanded to: <ul style="list-style-type: none"> - deliver retrofit skills strategy - guide, co-ordinate, monitor and enforce the regional & local skills development initiatives mandated by public funded schemes / social value - deliver guidance & upskilling to improve retrofit clienting in public sector - provide pre-bid advice and support to bring SMEs on board 	<p>Grant funded social housing retrofit programmes act as powerful levers for local authorities and housing associations who use their spending power at procurement stage to drive local retrofit skills initiatives</p>

★ **QUICK WIN:** Increase resource and training to improve local authority clienting, to drive more strategic delivery of retrofit skills outcomes via procurement

5. A competent workforce delivering better quality outcomes

NEED IDENTIFIED	POLICY ASKS	OUTCOMES
<p>A TRAINING SYSTEM THAT DELIVERS A COMPETENT WORKFORCE</p>	<ul style="list-style-type: none"> • Retrofit qualifications aligned with competency expectations • Mandatory training for all retrofit operatives 	<p>A competent workforce delivering quality retrofit</p>

SUMMARY OF POLICY ASKS



<p>A TRAINING SYSTEM THAT DELIVERS A COMPETENT WORKFORCE</p>	<ul style="list-style-type: none"> • Embed compulsory retrofit units (including building physics) in all existing construction courses • Consider a new professional body for PAS2035 roles • Develop qualifications and training for new retrofit roles • Stronger quality assurance in government retrofit schemes to identify quality failures and skills gaps 	<p>A competent workforce delivering quality retrofit</p>
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★ **QUICK WIN:** Mandate stronger evaluation of work at completion stage to identify quality failures and skills gaps

6. Expanded training capacity to support a diversity of workers

NEED IDENTIFIED	POLICY ASKS	OUTCOMES
<p>CONSISTENT STANDARD OF TRAINING PROVISION THAT LINKS LEARNERS TO WORK EXPERIENCE AND JOBS</p>	<ul style="list-style-type: none"> • Improve the quality of teaching through train-the-trainer programmes, more efficient use of resources and fast track 'trades to trainer' recruitment • Stable homes decarbonisation skills funding for training providers • Better linkages between training to relevant retrofit work experience and jobs • Drive demand through licensing and mandatory training 	<p>Training across the country that equips school leavers & workers of all ages & backgrounds to enter the retrofit workforce, backed by a strong trainer support network and nationwide training rigs to support classroom / online learning</p>

★ **QUICK WIN:** Stable homes decarbonisation skills funding for training providers



7. Reformed apprenticeships with clear retrofit pathways

NEED IDENTIFIED	POLICY ASKS	OUTCOMES
<p>SUPPORT FOR STRONG APPRENTICESHIPS</p>	<ul style="list-style-type: none"> • Improve apprenticeship completion rate by supporting employers, using foundation apprenticeships, and establishing local works and training organisations • Streamline the development of new apprenticeships including incentives for smaller employers to get involved • Support SMEs and microbusinesses to take on apprentices through shared apprenticeship schemes and higher apprenticeship incentive payment • Raise the first year apprenticeship wage 	<p>Higher take up of retrofit and renovation apprenticeships leading to good jobs and better quality work</p>

★ **QUICK WIN:** Higher apprenticeship incentive payment for SMEs and microbusinesses

8. A national awareness campaign for retrofit careers

NEED IDENTIFIED	POLICY ASKS	OUTCOMES
<p>NATIONAL RETROFIT CAREERS CAMPAIGN</p>	<ul style="list-style-type: none"> • Meaningful engagement and training for careers advisors, local colleges and career accelerators • A central-government-led national campaign to attract talent, raise awareness and improve the image of retrofit, working with careers advisors, schools and colleges and job centres • PR / counter-awareness strategies to challenge misconceptions around hydrogen and the efficacy of heat pumps in the face of mainstream green 'push back' 	<p>Raised awareness of retrofit as a rewarding, secure, long term career</p>

★ **QUICK WIN:** Awareness campaign to cement the nation's commitment to low carbon heating



9. Creating the conditions to attract a diverse workforce

NEED IDENTIFIED	POLICY ASKS	OUTCOMES
<p>MORE NEEDS TO BE DONE TO FOSTER EQUALITY, DIVERSITY AND INCLUSION</p>	<ul style="list-style-type: none"> Put retrofit on the table within the current Pathways to Work strategy Release extra funding for initiatives to connect employers with diverse jobseekers, who risk being excluded from the sector 	<p>Systems and support to grow a diverse workforce, tapping into a wider pool of talent within traditionally marginalised groups</p>

★ QUICK WIN: Scale up and replicate already-successful initiatives, such as B4Box and GoodPeople

10. Support for SMEs and microbusinesses to build capacity and access contracts

NEED IDENTIFIED	POLICY ASKS	OUTCOMES
<p>MORE SUPPORT FOR SMEs AND MICROBUSINESSES TO GET INVOLVED IN RETROFIT WORK</p>	<ul style="list-style-type: none"> Increase demand for home retrofit across all housing tenures through incentives and regulation Stronger business management support for SME tradespeople Transition to 'licence to trade' for all builders in private domestic market to drive training Support for SMEs to access publicly-procured works Long-term funding to subsidise retrofit training for SMEs (including cover for loss of earnings) 	<p>More SMEs and microbusinesses engaged in retrofit work, reducing supply chain complexity and risk, stimulating local jobs and prosperity</p>

★ QUICK WIN: Support SMEs to access publicly-procured works



1. A NATIONAL WORKFORCE STRATEGY





INTRODUCTION

As an emergent sector, retrofit faces pressure to meet unprecedented growth and market expansion targets - which in turn brings unprecedented challenges in growing a competent, sufficiently skilled workforce, to meet the technical and social challenges ahead. The most recent Parliamentary enquiry into [gaps in workforce planning to deliver clean, secure energy](#) suggests a coordinated home retrofit programme in England alone could sustain over 400,000 direct jobs and 500,000 indirect jobs by 2030, and more than 1.2m direct jobs and 1.5m indirect jobs by 2050.

Whilst it is hugely positive to see the UK's domestic retrofit ambitions aligned with the new government's Clean Energy Mission¹, and Skills England's report² acknowledging retrofit skills as one of the 'future megatrends that will impact the UK labour market', the UK needs to adopt a much more strategic and intentional approach to building retrofit skills if it is to train, recruit and retain hundreds of thousands of competent retrofit professionals over the next ten years.

To date, the primary driver for government-mandated retrofit has been environmental: if we do not deliver retrofit at scale, the UK will miss legally mandated decarbonisation targets. But growing economic factors add to the urgency: with global supply instability, escalating energy costs have plunged more and more households into fuel poverty, leaving millions of people in cold damp homes, and record levels of household energy debt³. Research shows that investment in retrofit skills can deliver a 'triple win' for the government – decent, well-paid jobs in communities across the country, high quality retrofits that protect people from high energy bills, and rapid decarbonisation. Lifting people out of fuel poverty also has far-reaching impacts across the nation's health and well-being, productivity, and wider economy.

However, there are also risks in failing to act cohesively on retrofit skills. If we ramp up retrofit at scale, without investing in development of a highly skilled workforce who are trained and monitored to guarantee quality retrofits, we risk a generation of damaged homes. Creating a legacy of sub-standard and uninhabitable buildings will have dire impacts on the health and well-being of occupants - and disastrous economic and environmental outcomes.

THE PROBLEM

The retrofit sector lacks a dedicated, coherent retrofit skills and jobs strategy

In 2021, the [Construction Leadership Council](#) published the second iteration of the [National Retrofit Strategy](#), setting out the economic, social and environmental case for scaling up the retrofit of the UK's existing housing, and ways in which the construction industry can work with the government to retrofit the nation's homes. Other organisations, such as the [CITB](#) and [Federation of Master Builders](#) (FMB) are developing a specific strategy for retrofit skills within their Repair, Maintenance and Improvement (RMI) Sector Skills Plan. Yet, to date, neither of these endeavours have been formally integrated into a government-level National Retrofit Strategy, or a cohesive National Retrofit Workforce Strategy.

Without a National Retrofit Strategy, the sector remains unclear on the scale, timing and scope of government funding, incentives and regulation that in turn drives the demand for - and supports the growth of - retrofit skills.

1 UK Government, 'Clean Energy Mission', GOV.UK.

2 Department for Education, 'Skills England Report', GOV.UK, September 2024.

3 End Fuel Poverty Coalition, 'Fuel Poverty Statistics Reveal Households Hit Hard by Crisis', End Fuel Poverty, February 2024.

1.1 A COHESIVE APPROACH TO RETROFIT SKILLS



Without a National Retrofit Workforce Strategy, it remains difficult to accurately forecast national workforce growth needs or make plans at a local level for retrofit skills initiatives.

Ambitious building plans put further constraints on a constrained workforce

These issues are not limited to retrofit alone. Whilst we welcome the inclusion of the clean energy industry as one of the eight growth-driving sectors to be prioritised in the new modern industrial strategy, we would also like to see recognition of the foundational role of the construction sector in driving growth. In particular, the need for a coherent approach to developing skills within an already constrained construction sector, to undertake both large scale retrofit and meet the government's goal to deliver 1.5m sustainable new homes in parallel.

Whether attracting existing workers or new ones, the sector faces stiff competition

The need to rapidly attract half a million workers into retrofit and retrofit-adjacent roles such as customer service and project management comes at a time of unprecedented skills shortages across the UK, which is affecting all sectors. Construction is especially facing a shortage of skilled workers, due to its ageing workforce⁴, post-Brexit exodus, and increased demands caused by ambitious new build targets⁵.

Failure to invest in retrofit skills, education and training risks devastating consequences

The financial and emotional impact of sub-standard retrofit became highly visible in late 2024, after routine checks revealed widespread poor-quality solid wall insulation installed under legacy government-funded schemes. Homeowners giving evidence at the Energy Security and Net Zero Committee enquiry into Retrofitting Homes for Net Zero⁶ (February 2025) spoke of homes destroyed, and the huge emotional and financial toll.

Whilst the Government's swift action in banning 39 Trustmark-approved installers⁷ linked to substandard installations is laudable, homeowners should not have to endure financial loss, stress, and disruption due to inadequate quality of work. Instead of relying on after-the-fact penalties, a stronger, systemic approach to prevention is essential. This includes rigorous vetting of installers, stricter quality control standards during and after install, and enhanced training requirements to ensure all installations meet the highest standards from day one.

We need a new approach to skills and training if we are to unblock bottlenecks

Despite large-scale government grants to pump-prime the market, and nationwide retrofit pilots, commensurate growth of a skilled workforce has not materialised. The sporadic nature and pressured delivery cycles of retrofit grant funding have not provided a sufficiently steady or certain signal to the sector to invest, or delivered sufficiently robust skills mandates. This is further exacerbated by the UK construction sector operating in a low skills equilibrium⁸. These factors combine to perpetuate a reluctance to train and retain accredited local retrofit workforces. Additionally, it is hard for local authorities and businesses to leverage their buying power or invest in their own retrofit skills initiatives in this short-term, high pressure context.

4 Home Builders Federation, 'Non-EU labour plugs post-Brexit skills shortfall in home building sector, new research finds', HBF, June 2023.

5 UK Government, 'Housing Targets Increased to Get Britain Building Again', GOV.UK, July 2024.

6 UK Parliament, 'Parliament Live TV: Event', Parliament Live TV, February 2025.

7 TrustMark, 'Notice Regarding Businesses and Solid Wall Trades', TrustMark.

8 G. Killip, 'A reform agenda for UK construction education and practice', Buildings and Cities, vol. 1, no. 1, 2020, pp. 525–537.



RECOMMENDATIONS

A 10-year National Retrofit Strategy with an integrated workforce growth and delivery plan

The government should work together with existing retrofit organisations to develop, implement and deliver a National Retrofit Strategy, setting a clear 10-year policy direction.

This should include clarity on government priorities around fabric measures versus fossil fuel replacement, in light of the increasing understanding of the role of fabric measures in improving occupant health.

As well as demonstrating commitment to retrofit, this strategy would positively influence business investment and unlock private finance. The 10-year National Retrofit Strategy will need a detailed delivery plan, agreed at cabinet level and with multiple departments committing to a cohesive, integrated approach to the wholesale upgrade of homes nationwide, at pace and scale.

The 10-year National Retrofit Strategy should be supported by the development of a sector-approved National Retrofit Workforce Strategy, aligning national objectives with local needs, and prioritising the creation of good inclusive local jobs driven by strategic structuring of government grant funding. Given the economic and environmental importance, retrofit should be placed on a par with other green initiatives, and retrofit skills given equal airtime and representation at the policy table as other clean energy and construction initiatives.

Retrofit gets a 'seat at the table'

Whilst it is encouraging to see retrofit, heat pumps and solar forecasts in the Heat and Buildings section of the [Clean Power 2030 Action Plan's assessment of the clean energy skills challenge](#), we would like to see retrofit skills foregrounded in the work of the [Office for Clean Energy Jobs](#). We would also like to see their remit for retrofit broadened to include guiding and monitoring the way in which good local jobs are delivered via publicly-funded retrofit programmes.

We would like recognition of the value of investing in retrofit skills, and the mission-critical role of retrofit skills in driving a culture of quality within the retrofit market. This in turn will help engender consumer confidence, foster growth and deliver economic benefits via market stimulus and large scale reduction of fuel poverty.

A co-ordinated and collaborative approach across government

Developing the workforce to meet the demand for quality retrofit cannot be done in siloes, but is a wider challenge spanning multiple government ministries. Delivery of the National Retrofit Workforce Strategy demands a co-ordinated and collaborative approach across multiple departments - The Department for Energy Security & Net Zero (DESNZ), The Ministry of Housing, Communities and Local Government (MHCLG), Department for Education (DfE), The Department for Business and Trade (DBT), the Department for Work and Pensions (DWP) and the Department for Culture, Media and Sport (DCMS).



SUMMARY

1. A National Retrofit Workforce Strategy to drive delivery

NEED IDENTIFIED	POLICY ASKS	OUTCOMES
<p>A COHESIVE APPROACH TO RETROFIT SKILLS</p>	<ul style="list-style-type: none"> • 10-year National Retrofit Strategy, signalling commitment to retrofit, underpinned by <ul style="list-style-type: none"> - a sector-approved integrated delivery plan - retrofit given a distinct remit within the Office of Clean Energy Jobs - a co-ordinated, collaborative approach to delivering retrofit skills, with full cross-government support 	<p>A cohesive cross-sector and cross-government approach to building a skilled retrofit workforce, equipped to deliver quality retrofit that secures the UK's energy future</p>

 **QUICK WIN:** Retrofit foregrounded in the work of the Office for Clean Energy Jobs

1.2 CLEAR POLICY DIRECTION



INTRODUCTION

Since 2021, the UK government has invested considerable sums in domestic retrofit stimulus schemes and retrofit skills and heat pump training. However, despite this investment in market stimulation, the sector has not seen the skilled workforce grow at a commensurate rate. The reasons are multi-layered.

THE PROBLEM

Retrofit does not have a 'place' at the policy table

In terms of national policy drivers, retrofit (despite its significance) does not have a 'place at the table'. In fact, the construction sector as a whole was notably absent from the new Government's Industrial Strategy green paper.

Stop-start funding inhibits longer term skills development

Within the social housing sector, many of the skills and training issues can be traced to the sporadic nature, short time frames and uncertainty endemic in the grant funding intended to drive retrofit at scale. Tight application cycles and stiff competition creates supply chain bottlenecks and risks monopolies of the market. Once awarded, the typically short grant funding cycles do not match the long lead time needed for capacity building and skills development, nor does the structure of grant funding allow for - or reward - investment in skills.

Skills building takes time

Time pressures are also reported as problematic in interventions to boost heat decarbonisation training. Whilst the government-funded competitions have undoubtedly increased training to some degree, the delivery timescales of a year or less during the competition phases did not provide sufficient long-term certainty for training providers to invest.

Lack of policy direction causing stagnation in the private housing sector

The private housing sector is beset by a lack of clear policy direction around the future of gas and hydrogen, which contributes to market uncertainty for domestic consumers. Beyond the Boiler Upgrade Scheme, there are currently few policy incentives for private owner-occupiers to improve the efficiency of their homes. Faced with mixed signals and an uncertain market, the supply chain is reluctant to invest in acquiring retrofit skills training.

Similarly, the scrapping of Minimum Energy Efficiency Standards (MEES) in September 2023 with no clear future guidance has left the Private Rental Sector (PRS) in stasis. We welcome the recent announcement of a consultation¹ on the new government's proposals to raise the minimum energy efficiency standard for privately rented homes in England and Wales to the equivalent of Energy Performance Certificate (EPC) C by 2028 for existing tenancies and 2030 for new tenancies.

¹ UK Government, 'Improving the Energy Performance of Privately Rented Homes: 2025 Update', GOV.UK, February 2025.



RECOMMENDATIONS

Clear government commitment to retrofit and retrofit skills

Across the board, clear policy direction and strong market signals will be essential to drive confidence and prompt public and private sector investment in retrofit skills development and training.

Construction - and its sub-sector, retrofit - needs to be firmly embedded in the government's Industrial strategy, with recognition given to the critical role a strong retrofit delivery plan will play in the UK's fuel security, economic growth, the health and wealth of its citizens, and in meeting fast-approaching net zero deadlines.

The government must also recognise that the retrofit market will not build itself, nor will the sector self-organise to drive the skills it needs. The current situation will not resolve without considerable policy direction and well-structured strategies to fix the imbalance between supply and demand, ambition and reality.

Clear policy direction on home heating

We would like to see clear policy direction around:

- the phase out of gas for home heating
- the role of hydrogen, and the negligible role it will play in the future of domestic heat
- the importance of fabric measures versus fossil fuel replacement, in light of the increasing understanding of the role of fabric measures in improving occupant health
- the UK's long-term commitment to low carbon heating

Commitment for public sector funding

We would like to see a commitment from the government for continuity of funding for public-sector retrofit programmes.

Not just 'more money', but improved funding models that foster continuity and sustainable skills development:

- integrated, long-term, needs-based funding pots - removing the constraint of retrofit programme delivery cycles
- simplified compliance mechanisms, with less time pressure and realistic timeframes for local authorities to act as anchor organisations and build skills networks within their regions
- skills mandates and funding incentives within government funding that reward investment in growing social capital and developing long-term local skills initiatives
- success metrics based on wider social impacts - such as occupant health, alleviation of fuel poverty, % of community uptake - not just the number of measures installed
- success metrics and remuneration based on longer-term evaluations of user satisfaction, energy demand reduction and unintended consequences such as mould and damp.

A commitment to retrofit skills

We would welcome clear policy signals to ensure the workforce is sufficiently trained to avoid unintended consequences from poor retrofit, including training and licensing mandates, to ensure all operatives installing retrofit measures (including those in subcontractor organisations) receive mandatory training.

1.2 CLEAR POLICY DIRECTION



Commitment to boosting take up among private homeowners

We would like to see improved funding incentives designed to stimulate the private-purchased market, supported by additional policy drivers to further drive take up, for example:

- a Warm Homes Stamp Duty Incentive (as recommended in the UKGBC² Warm Homes Stamp Duty Incentive Briefing, Autumn 2024)
- low- and no-interest loans³ for householders undertaking retrofit works with rapid expansion of already proven local authority schemes⁴
- EPC reform⁵, (as recommended by the National Retrofit Hub), including more detailed recommendations and signposting in EPC reports

A policy and funding package for the private rental sector

Following the current consultation, we would like to see [Minimum Energy Efficiency Standards \(MEES\) reinstated for the private rented sector](#) without delay to an ambitious and achievable target, supported by clear, consistent policies, incentives and finance options to foster compliance and encourage significant activity, without destabilising the rental market, for example:

- the government response to the consultation on raising MEES standards published as soon as possible to remove market uncertainty
- incentives and support including capital offset incentives, to encourage landlords to take early action
- funding and protection mechanisms to bridge the 'trust gap' between landlords and tenants
- define and enforce freeholders and management companies responsibilities to enable retrofit
- flexibility for landlords to use their own (accredited) supply chains within grant structures
- funding and support for local authorities to appoint MEES enforcement officers and enabling services within their boroughs.

Driving skills through government stimulus

We would like all future grants and retrofit stimulus packages and incentives to feature:

- Realistic, practicable in-built mechanisms designed to drive upskilling throughout the supply chain - fully recognising the sector is predisposed to avoid investment in skills training and will not self-organise or self-regulate unless mandated to do so
- Checks and balances in place to ensure quality outcomes, plus incentives to reward 'good' practice
- Pre-emptive safeguards against unintended consequences and unsafe practices
- Early warning systems with published audits of any government-funded installations that are in dispute.

These measures would ensure the retrofit sector moves forward with the certainty, scope and support to invest in skills and training to deliver retrofit to the highest standard, mitigating risk of unintended consequences and a legacy of sub-standard homes.

2 UK Green Building Council, 'Warm Homes Stamp Duty: Briefing', UKGBC, Autumn 2024.

3 C.Kumar, C. Jaccarini P. Yunda, New Economics Foundation, 'A Blueprint For Warmer Homes: How to deliver a retrofit revolution', NEF.

4 Lendology CIC, 'About', Lendology.

5 National Retrofit Hub, 'EPC Reform', National Retrofit Hub.

1.2 CLEAR POLICY DIRECTION



As well as developing the capacity and skills base to deliver retrofit at a scale in order to meet the UK's ambitious decarbonisation targets, the economy will see an average ROI of £4.60 capital expenditure for every £1⁶ of government investment, along with multiple secondary benefits such as fuel security, alleviation of fuel poverty and improved health.

⁶ C.Kumar, C. Jaccarini P. Yunda, New Economics Foundation, 'A Blueprint For Warmer Homes: How to deliver a retrofit revolution', NEF.



SUMMARY

2. Clear, consistent policy direction to build confidence and unlock investment

NEED IDENTIFIED	POLICY ASKS	OUTCOMES
<p>CLEAR, LONG TERM GOVERNMENT COMMITTED TO RETROFIT AND RETROFIT SKILLS</p>	<ul style="list-style-type: none"> • Long term commitment to invest in retrofit and retrofit skills (evidenced by a 10-year Warm Homes Plan and National Retrofit Workforce Strategy) • Continuity of funding • Not just more money, but better funding models with <ul style="list-style-type: none"> - integrated, long-term, non-competitive funding pots - simplified delivery and less onerous compliance mechanisms • Clear policy direction around <ul style="list-style-type: none"> - phase out of gas for home heating - the negligible role for hydrogen - the importance of fabric measures v fossil fuel replacement - the UK's long-term commitment to low carbon heat • Policy drivers to stimulate the market and reward upskilling, including a policy and funding package for the private rental sector 	<p>Confidence to invest in the retrofit skills pipeline to meet the UK's ambitious net zero targets, with big returns to the economy and the nation's health and well-being</p>

 **QUICK WIN:** Clear policy direction on the phasing out of gas for home heating and a commitment to low carbon alternatives

1.3 WELL-DEFINED SKILLS PATHWAYS



INTRODUCTION

CITB's 2021 analysis of the retrofit skills gap for net zero forecasted an additional 350,000 FTE workers would be needed by 2028, across a multitude of site roles, from plumbers to retrofit coordinators to insulation installers. Meanwhile, the mandate for PAS roles within government-funded programmes has seen a plethora of targeted subsidies focused on scaling up training for key PAS2035 and PAS2030 related roles.

Whilst these initiatives have been welcomed, more needs to be done. Furthermore, recent research and programme analysis¹ highlights that to effectively deliver retrofit programmes at scale, there are numerous overlooked retrofit and retrofit-adjacent roles, far beyond the traditional site roles, and PAS-specified roles that have been the primary focus to date.

Research also shows² that career pathways are often unclear for low carbon roles across the board, and the various qualifications and different types of training courses can be very confusing for employers, as well as people who intend to pursue a career in the energy efficiency / low carbon technologies sector.

We find the sector requires urgent attention to developing clear skills pathways, with supporting strategies and campaigns and outreach programmes to raise awareness for all retrofit and retrofit-adjacent roles - not just those specified by PAS2035 - if we are to build national delivery capability.

THE PROBLEM

Retrofit roles are highly specialised, demanding a high level of skills, and a raft of new and updated qualifications

Because retrofit is complex and technical, most retrofit installation roles require specialist skills beyond those of mainstream construction. In practical terms, retrofit is more closely aligned to renovation than being a 'green skill' per se. Like poorly executed repairs, or a badly built extension, a poorly executed retrofit can have serious consequences such as damp, mould and dereliction, affecting occupant health and living conditions and resulting in devaluation of the asset.

So as well as having general building skills, retrofit installers require a specific understanding of how a building works as a whole - how heat, air, moisture and materials behave, and how changes will impact each of those elements. This includes an understanding of buildings of different ages and those built using different materials. As a further safeguard, all works require inspection by an experienced Site Manager with the knowledge and remit to check quality standards and preemptively identify defects. This oversight was formerly the responsibility of the Clerk of Works, and the loss of this authoritative role has been cited in a recent [parliamentary enquiry into consumer issues](#), as a major factor in retrofit quality failures.

Specific roles like installing insulation, fitting air source heat pumps, or retrofitting heritage buildings need a workforce with more specialised training, experience and supervision to mitigate risk. This means a raft of new courses and qualifications will be called for, as well as training up a huge number of trainers to teach academic and practical courses, and provide on-site supervision.

¹ The British Academy, 'Warmer Homes: How Can Grant Subsidy Schemes Improve Engagement with Participants?', The British Academy, 2024.

² Greater South East Net Zero Hub, Domestic Retrofit Market Intelligence & Skills Assessment: Summary Report, November 2022.

1.3 WELL-DEFINED SKILLS PATHWAYS



Current retrofit skills subsidies overlook the plethora of 'soft' skills needed, such as advocacy and communication

For those on the receiving end, retrofit can be messy and disruptive, and new technologies can be confusing. So those responsible for sensitising communities to retrofit need to be able to translate technical jargon into clear, compelling communications - including educating people about how to use new technology and ventilation systems after install. Resident engagement and advocacy - educating and handholding people through the retrofit process - requires well-trained engagement officers and advocates with excellent interpersonal skills to deliver good customer service and build trust.

Delivery at scale will involve myriad retrofit-adjacent roles which we need to plan for now. Professionals such as architects, engineers, architectural technologists and surveyors also need upskilling, to understand the imperative of retrofit, and how it alters their current practices, such as risk assessments and their sales proposition. Planning and conservation officers need a better knowledge of retrofit so they can make robust decisions that meet local and national net zero targets.

MANAGEMENT

- Administrators
- Funding / bid managers
- Retrofit procurement managers
- Sustainability Managers (*within Housing Associations & Local Authorities*)
- Retrofit project managers

ADVISORY SERVICES

- Citizen campaign developers
- Energy efficiency advisors
- Customer service & customer support agents
- Financial advisors
- Sales representatives
- Retrofit advisors
- Quality Assurance advisors
- Heritage Consultants
- Ecologists

GREEN FINANCE

- Green grant administrators
- Green loans / mortgages
- Social loans providers
- Product development
- Underwriters
- Advisors
- Administrators

COMMUNITY

- Social prescribers
- Community champions
- Resident liaison officers

DESIGN

- Masterplanning (*inc urban greening / climate proofing*)
- Architects
- Building Services
- Retrofit programme designers
- Retrofit Designer*

MATERIALS & FABRIC

- Multi-trades
- Bricklayers
- Wood and interior carpenters
- Double glazing installers
- Specialist & secondary glaziers
- Plasterers
- Roofers
- Scaffolders
- Stonemasons
- Floor layers
- Insulation installers
- Cavity wall
- Internal wall
- External wall
- Underfloor
- Loft Drillers
- Conservators
- Structural Engineers
- Sustainable drainage

RETROFIT PROFESSIONAL ROLES

- Energy assessors
- Clerk of works /Site inspectors
- Retrofit Advisors*
- Retrofit Assessors*
- Retrofit Coordinators*
- Retrofit Evaluator*

RETAIL / TRADE

- Key account managers
- Retrofit materials advisors
- Material (collect / recycle / grade)
- Re-use & refurb / material suppliers
- Retail / trade supply staff

ENERGY

- Energy service / tariff designers
- Heating engineers (design & install)
- Gas (decommission / convert)
- Electricians
- Air-source HP installers
- Ground source HP installers
- Solar thermal / PV (design & install)
- Plumbers
- Electrical engineers
- Building Services engineers
- Mechanical ventilation engineers
- EV charging installers

TRAINERS

- Retrofit project management
- Retrofit professional roles
- Renewables trainers
- Construction trades trainers
- Construction site supervisor training
- Apprenticeships / other mentors
- School / college career advisors
- EDI outreach / recruitment specialists

PLANNING / REGS

- Local Authority Planning
- Building Officers
- Environmental health
- Conservation Officers
- Archaeologists
- Net zero planning
- Building control
 - New build
 - Refurbishments
 - Retrofit
- MEES inspection officers
- Circular economy / materials

MANUFACTURING

- Innovation / funding specialists
- Sustainable material developers
- Insulation manufacturers (mfrs)
- HP / PV / battery mfrs
- Glazing & timber mfrs
- Heat pump mfrs & distributors

MAINTAIN & MONITOR

- Maintenance & conversion of legacy systems
- Soft landings specialists
- Building maintenance operatives
- Facilities management
- Data system design & analysis
- Technical monitors
- New / low carbon systems repairs & maintenance
- Smart meters
- Digital twinning

A Definitive List of Retrofit Roles & Skills

Revised April 2025

A DEFINITIVE LIST OF RETROFIT ROLES
Data for this list has been drawn from multiple academic and non-academic sources and developed in consultation with the sector.

The first iteration of the list was published in *Retrofit Skills: Building the local net zero workforce in the Borough of Lambeth*; P.Palmer & A.Gillich, revised May 2022.



*roles marked with an asterisk are PAS2035 mandated

Fig 1 - A definitive list of retrofit skills and roles, first published by LSBU Net Zero Building Centre in 2023; updated April 2025 after sector consultation, for inclusion in this paper.³

3 P. Palmer et al., 'NZBC: Retrofit Skills: Building the local net zero workforce in The Borough of Lambeth', NZBC, July 2023.



Local authorities and housing associations need help to get 'retrofit ready'

Commissioners of retrofit programmes – housing providers and councils - need capacity building and upskilling to ensure retrofit programmes are delivered effectively and efficiently, and in a way that contributes to local skills building. Local authority planning teams need adequate resources and competency to approve consents in line with local retrofit ambitions, including those involving [conservation and heritage properties](#). Asset managers need to upskill in-house teams and framework contractors to enable retrofit to be integrated into regular maintenance workstreams, and home improvement agency staff and handyman teams⁴ equipped to specify and install simple energy efficiency measures such as draughtproofing.

Mainstream construction workforces need retrofit knowledge to maximise efficiencies

Skills pathways and retrofit training should also recognise efficiencies from combining renovation with retrofit work, to allow more efficient use of the existing workforce. For example, roofing installers could be trained to undertake solar panel installation and trained to specify and install loft insulation whilst carrying out general roofing works. This approach would also reduce the need for extra scaffolders, which are already in short supply.

RECOMMENDATIONS

More flexible government funding

To achieve these capacity building, integration and programme efficiencies, government funding must be more flexible. For example, short term delivery timescales and narrow measures eligibility have limited the ability for social housing providers to combine retrofit with regular asset maintenance. The competitive nature of programme funding plus limits on time and budget for outreach and engagement strategies, means vital services and skills such as communication, advocacy and trust building remain underdeveloped.

Mandatory retrofit training with better supervision

We recommend that all existing operatives installing retrofit measures (including those in subcontractor organisations) receive mandatory training to avoid unintended consequences from poor retrofit. This includes site inspectors, site supervisors or clerk of works who will need specialist retrofit knowledge to oversee the installation of multiple measures or large-scale programmes.

Because retrofit demands a move from 'piecework' and siloed responsibilities, training should include an understanding of 'whole of house' principles and collaborative team work.

Clear skills pathways for all retrofit and retrofit-adjacent roles

We would like to see a National Retrofit Workforce Strategy supported with clear skills pathways and training development plans across the entire range of retrofit and retrofit-adjacent roles - not just construction trades but also resident engagement officers, surveyors, architects, planners and conservation officers who all require a knowledge of retrofit, as well as non-specialist roles such as scaffolders, who will be critical to delivering retrofit at scale.

4 Ashden, 'Retrofit: Solving the Skills Crisis', Ashden.

1.3 WELL-DEFINED SKILLS PATHWAYS



Consult the sector and build on existing initiatives

Many sector skills forecasts and plans exist, and need to be brought together to create a comprehensive picture of retrofit skills requirements across the wide range of roles now known to be critical to large scale retrofit delivery.

Early stage pathways mapping against the customer journey is underway by researchers at the National Retrofit Hub, using the definitive list of retrofit skills and roles⁵ (Fig 1) developed in 2022 in consultation with sector stakeholders, by Palmer et al, at LSBU's Net Zero Building Centre. The CITB is developing a retrofit skills map as part of its RMI strategy. Additionally, regional and local government in some parts of the country have developed useful resources and valuable insights into skills and skills pathways, such as the West of England Combined Authority⁶ and the South London Partnership⁷.

The roles and skills pathways mapping should be conducted collaboratively with those working in the sector, in order to build on existing knowledge and ensure workable, co-created solutions.

5 P. Palmer et al., 'NZBC: Retrofit Skills: Building the local net zero workforce in The Borough of Lambeth', NZBC, July 2023.

6 Skills Connect, 'Construction skills in domestic retrofit', Skills Connect.

7 Retrofit Skills Centre, 'Resources', Retrofit Skills Centre.



SUMMARY

3. Defined skills pathways and high-quality training provision

NEED IDENTIFIED	POLICY ASKS	OUTCOMES
<p>CLEAR SKILLS PATHWAYS, QUALIFICATIONS AND TRAINING OPTIONS MAPPING ACROSS ALL RETROFIT AND RETROFIT-ADJACENT CAREERS</p>	<ul style="list-style-type: none"> • Create clear skills pathways for all retrofit and retrofit-adjacent roles including customer-facing roles, site inspection / quality assurance and upskilling / capacity building within local authorities • Consult the sector and build on existing initiatives, for example: <ul style="list-style-type: none"> - the CITB's RMI / retrofit skills strategy - NRH soft-skills mapping against retrofit customer journeys - regional skills initiatives and mapping exercises - trade bodies and associations wishing to develop retrofit training for their members 	<p>Professionalising retrofit and attracting a larger, broader workforce into retrofit careers, motivated by clear training and qualification pathways across a broader set of well-defined roles</p>

★ QUICK WIN: Mapping skills pathways against all the roles on the Definitive List of Retrofit Skills and Roles which has been developed in consultation with the sector (see P24)

1.4 DRIVE SKILLS DEVELOPMENT VIA PUBLICLY FUNDED RETROFIT



INTRODUCTION

Public sector procurement for grant funded retrofit programmes such as Warm Homes: Local and Social Housing Fund could be powerful levers for retrofit skills development, with local authorities leveraging their purchasing power to build social capital and prosperity through local skills initiatives.

However, in practice, not only has it been challenging to incorporate skills development into these grant funded schemes, current procurement practices perpetuate retrofit skills shortages – leading to negative impacts on the local economy, stifling skills and job creation, and risking future ambitions for the sector to professionalise and scale.

THE PROBLEM

Current grant funding structure is not driving the skills growth needed

Grant funding structure is instrumental in shaping how projects are procured, which in turn dictates how supply chains are formed, how risk and profit are managed, and what investment is made in building the local skills base.

We have seen how stop/start funding cycles fail to send the market signals the supply chain needs in order to invest. This makes it hard for local authorities to plan or commit to longer term skills initiatives from the client side. But continuity of funding is not the only problem.

Sub-contracting creates a fragmented supply chain

Competitive bidding for grants, with uncertain outcomes but rapid deployment, makes it hard for local authorities and housing associations to plan future workforces in a constrained labour market.

Under pressure to deliver, with little time or resources to build local skills themselves, and facing high risks and costs if they fail to galvanise a workforce, local authority and social housing procurement teams often default to a Tier 1 contractor. At face value, this appears to be a good 'turnkey' solution, as it also provides a portion of client-side programme and quality management. But in reality, it is only a short-term fix, as it precludes embedding longer-term retrofit capabilities in commissioning organisations and simply pushes risks 'down the line'.

In terms of actual delivery, the Tier 1 contractor commits to contractual terms and KPIs and promises value for money up-front, but will often have little to no in-house resources of their own to actually deliver. Instead, they transfer delivery obligations to Tier 2 sub-contractors who often employ others on a similar basis. With multiple layers of subcontracting, the original contractor who holds the obligation to the client is several steps removed from those actually delivering the work.

A further issue reported from multi-layered supply chains is that despite it being a funding and contractual stipulation for the installation firm to be PAS2030-accredited, operatives within the sub-contractor supply chain may not have received training - it is contractually sufficient for the qualification to belong to an organisation further up the Tier. In other scenarios where there is scarcity, or higher wage, the actual qualified installers are often brought in from outside the area on short term, piecework contracts.

1.4 DRIVE SKILLS DEVELOPMENT VIA PUBLICLY FUNDED RETROFIT



Current procurement practices perpetuate local skills shortages

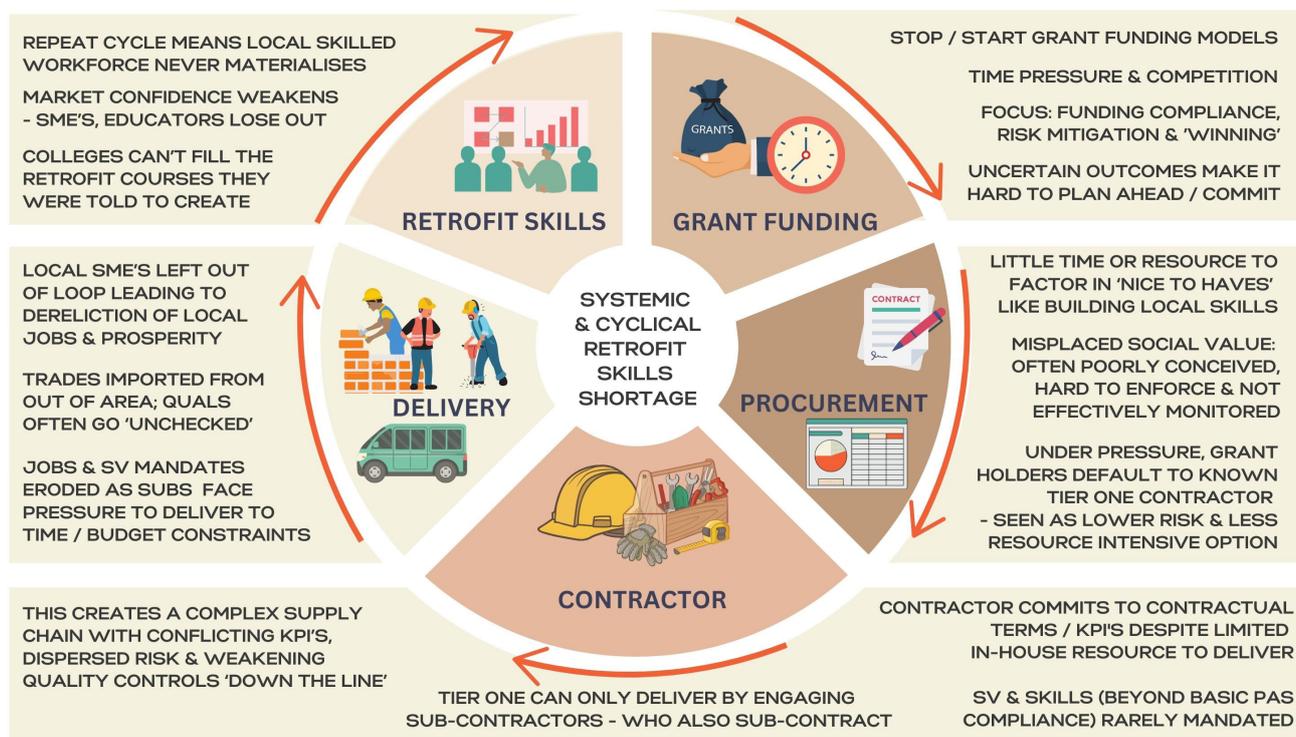


Fig 2 - demonstrates how current procurement and project practices - especially fragmented supply chains - keeps the sector in a cycle whereby local skilled workforces fail to develop.

A perpetual cycle of low skills delivery

At the next round of funding, faced with the same time pressures and funding constraints, and the same insufficient local retrofit skill pool, social housing landlords often reappoint the same contractor – even if there have been issues with prior quality and performance.

The sector therefore remains stuck in a low skills / low quality cycle. Analysis of government funded schemes¹ suggest these issues are unlikely to be dealt with without intervention from central government.

Social value – a missed opportunity

Obligatory social value (SV) clauses within these retrofit contracts represent another missed opportunity. Whilst recent government policy has encouraged fostering local skills via SV, housing providers and other commissioners report that in practice, lack of resource, skills and auditing means that, SV is often more a misplaced 'sticking plaster' than a genuine driver of change.

Whilst there are examples of good practice (see case study below), elsewhere we find widespread accounts of SV applied inconsistently, or unrealistically, with poor monitoring and variable effectiveness, or used for extraneous activities such as tree planting – meaning the opportunity to develop retrofit skills and create local jobs are lost.

¹ The British Academy, 'Warmer Homes: How Can Grant Subsidy Schemes Improve Engagement with Participants?', The British Academy, 2024.

1.4 DRIVE SKILLS DEVELOPMENT VIA PUBLICLY FUNDED RETROFIT



Non-financial reporting standards are developing fastest on the international stage², although mandates to better audit non-financial social value metrics may take 3-5 years to implement. But the retrofit sector needs solutions now.

Limited metrics to measure programme outcomes

The far-reaching consequences of these procurement and employment practices largely go unnoticed, because programme success is not measured by the number of good jobs, local prosperity or impact on longer term sector resilience, but on narrower metrics of compliance with funding criteria, and the number of retrofit measures installed.

RECOMMENDATIONS

Utilising funding mechanisms as a driver for systemic change

Although recent improvements to government grant funding are welcomed, such as improved programme cycles within the Warm Homes: Local Grant, and the move to awarding points for commitment to future scale-up of retrofit at Warm Homes: Social Housing Fund bid stage - these don't go far enough.

Grant funded social housing retrofit could be used as a powerful tool for local authorities to leverage their spending power at procurement stage to drive local retrofit skills initiatives. We would like to see government grant funding and programmes radically re-structured so they act as a key driver for change, with sector-building positioned as one of the core objectives and KPIs reformed to embed local skills development at the heart of programme design.

This shift in programme emphasis would drive wholesale systemic change, by creating a demand for skilled, qualified workers, trained by local training providers, primed and ready to deliver local retrofit programmes. As well as removing a major barrier facing ambitions to scale public housing retrofit, the professionalism of retrofit and accelerated workforce growth would impact the private domestic retrofit market. Buoyant local retrofit services, manned by skilled workers in fair jobs with good prospects, would in turn build social capital and contribute to local prosperity. Social value and other inclusion initiatives could be structured to 'train and retain' those normally marginalised from employment due to gender, race or other barriers.

Broader funding scope with tighter mandates

For these initiatives to succeed, the scope of retrofit programme funding needs to be broadened to reflect the highly relational and reciprocal nature of skills building, with patient timelines that allow grant holders to build education and employment networks, create social connections and employ strategic use of social capital.

Funding mechanisms should be flexible enough to consider – and reward – new models for building skills. Two very different examples are B4Box³, whose unique procurement contract builds local long term skills, and Liverpool City Region Combined Authority⁴ who act as an anchor organisation and adopt a holistic regional long-term approach to solving the skills problem.

² HACT, 'Assurance White Paper', HACT, June 2024.

³ B4Box, 'B4Box.co.uk'.

⁴ Liverpool City Region Combined Authority, 'Housing Retrofit'.

1.4 DRIVE SKILLS DEVELOPMENT VIA PUBLICLY FUNDED RETROFIT



Case study 1

B4Box is a construction works and training organisation which undertakes renovation and retrofit of void properties for Stockport Homes and other clients. B4Box has a unique procurement contract whereby the company is paid by Stockport Homes to deliver training to local residents. The company recruits learners from within a 5 mile radius and reaches people who've been out of employment for some time, paying a living wage and offering multi-skilled training and mentoring from the start. They report staff morale is higher when people have permanent jobs and can create consistent teams. Customer satisfaction is higher when the same team is in their home for the duration of the work. This is not generally the case in traditional procurement which squeezes SMEs into low margins and seasonal work.

In January 2025, Ashden published a [report](#) on how B4Box's 'works and training' approach could be replicated.

Case study 2

Liverpool City Region Combined Authority has embedded social value (SV) into its procurement strategy, integrating it holistically rather than treating it as an add-on. Their approach is based on an adapted version of the TOMS framework⁵ (the UK standard for Social Value measurement) and aligns workforce development with procurement, ensuring a strong local retrofit workforce.

As the anchor organisation, the Combined Authority leads holistic skills building initiatives:

- *Labour market analysis and market engagement to assess needs and opportunities.*
- *Collaboration with colleges to streamline training and avoid course duplication.*
- *Fair Employment Charter for contractors, promoting decent work conditions.*
- *'Ways to Work' Programme to engage economically inactive individuals.*
- *Clear monitoring and data-sharing agreements to ensure compliance.*

Most importantly, success is measured not just by the number of installs, but by workforce development and sustainable employment. This approach has strengthened the local skills pipeline, making Liverpool City Region one of the country's top-performing retrofit regions, demonstrating the long-term value of procurement-driven social impact.

Embed skills into retrofit programme design

The explicit criteria for skills development (including social value) must be embedded within programme design, with skills-building initiatives predicated on a viable theory of change, and the exact model, with express deliverables mandated at procurement stage. Adequate resourcing and upskilling within local authorities is needed to enable good social value frameworks for retrofit projects to be developed and audited.

Skills building initiatives should be audited across a wider range of metrics to evaluate outcomes, across a broader social model⁶, not just the number of installs and delivery deadlines.

To enable this level of systems change, there is a case for creating parallel funding streams (e.g. Innovate UK) to help deliver longer term regional skills and job creation initiatives in tandem with DESNZ grant funding for retrofit programmes (i.e. Warm Homes, ECO etc).

⁵ Social Value Portal, Measurement: Social Value TOM System™.

⁶ Centre for Community Engagement, 'Person-Centred Retrofit: A fuel poverty vulnerability led approach', CC Site Media, February 2022.

1.4 DRIVE SKILLS DEVELOPMENT VIA PUBLICLY FUNDED RETROFIT



Skills mandates for all publicly funded retrofit work

We would like to see mandated skills targets for all publicly-funded retrofit work, applicable to all contractors, sub-contractors and suppliers delivering Warm Homes and ECO schemes.

We also recommend that all operatives in the retrofit supply chain for publicly-procured work have mandatory training.

Improve public sector clienting capacity and capability

Grant funded social housing retrofit programmes can act as powerful levers for retrofit skills development, but public sector clients need capacity-building and upskilling if they are to leverage their spending power and drive local retrofit skills initiatives at procurement stage.

We would like to see increased funding for training and capacity-building to help commissioners of large retrofit programmes achieve jobs and skills targets, use social value effectively and monitor delivery against these broader social targets.

Consider establishing or supporting local partnerships, or partnerships with NGOs such as Public Practice⁷, to provide local authorities in receipt of grant funding with the extra capacity and skills to deliver on retrofit skills and social value mandates.

Create a dedicated forum, or space within existing forums, specifically to share best practice between regional-level jobs and skills initiatives, and across devolved nations.

A national body to guide and monitor

We propose a national body, such as The Office for Clean Energy Jobs expands its remit to specifically include delivery of retrofit skills, with responsibility to guide, oversee, and co-ordinate regional and local skills development initiatives mandated by public funded retrofit schemes (including Social Value).

This body would also deliver guidance and oversee upskilling

- to help shape training and support to improve retrofit clienting in public sector
- pre-bid advice and support to SMEs to join the retrofit workforce
- monitoring, evaluating and enforcement of social value and retrofit skills initiatives across the sector

7 Public Practice, 'publicpractice.org.uk'.

1.4 DRIVE SKILLS DEVELOPMENT VIA PUBLICLY FUNDED RETROFIT



SUMMARY

4. Reformed funding models to drive skills via public sector procurement

NEED IDENTIFIED	POLICY ASKS	OUTCOMES
<p>UTILISING PUBLIC FUNDING MECHANISMS AS A DRIVER FOR SYSTEMIC CHANGE</p>	<ul style="list-style-type: none"> • Embed skills targets / mandates into all publicly funded retrofit work • Increase resource for capacity building and upskilling to enable retrofit clients to deliver skills outcomes through procurement • Adapt programme funding models to support patient local and regional holistic skills initiatives • Office for Clean Energy Jobs remit expanded to: <ul style="list-style-type: none"> - deliver retrofit skills strategy - guide, co-ordinate, monitor and enforce the regional & local skills development initiatives mandated by public funded schemes / social value - deliver guidance & upskilling to improve retrofit clienting in public sector - provide pre-bid advice and support to bring SMEs on board 	<p>Grant funded social housing retrofit programmes act as powerful levers for local authorities who use their spending power at procurement stage to drive local retrofit skills initiatives</p>

★ QUICK WIN: Increase resource and training to improve local authority clienting, to drive more strategic delivery of retrofit skills outcomes via procurement



2. A TRAINING SYSTEM THAT DELIVERS A COMPETENT WORKFORCE





INTRODUCTION

There are regular news stories about retrofits that have gone wrong, because they have been undertaken by installers without the right skills, even if their employers are accredited. The retrofit workforce must be competent to avoid poor quality work with unintended consequences for the health of buildings and their occupants.

Home decarbonisation at scale requires retrofit professional roles – the PAS2035 roles such as Retrofit Coordinator – as well as trades roles in installation of energy efficiency measures and low carbon heating, and site management roles to supervise work. Keeping our homes warm and free of draughts also requires competent general repairs and maintenance operatives - a home in poor repair won't be energy efficient.

Occupational standards are used to define the performance required of individuals across different sectors of the economy including construction. National Occupational Standards (NOS) have been in use over many years, more recently Occupational Standards (OS) were introduced in England by the Institute for Apprenticeships and Technical Education (IfATE), now part of Skills England. The occupational standards are expected to drive the design and development of qualifications. Some retrofit and retrofit-related roles are underpinned by occupational standards, whilst some including the PAS2035 roles have occupational standards in development.

Following the introduction of the Building Safety Act, the Construction Leadership Council¹ is defining competency (skills, knowledge, experience and behaviour) for different construction roles across installation, design and management. Many retrofit and retrofit-related roles fall under the Installer working group (WG2). Ultimately these competency frameworks which define the Skills, Knowledge, Experience and Behaviour needed for competence are expected to underpin both National Occupational Standards and Occupational Standards.

There has been a rapid growth of retrofit qualifications in recent years. The National Retrofit Hub has published a directory of [qualifications and training](#) which demonstrates a wide range of accredited courses developed by a variety of organisations. Green skills bootcamp courses have also developed at pace - these may be accredited and/or linked to occupational standards. There is also plenty of informal training, both online and in person available for installation and professional roles.

Sustainability knowledge is being incorporated into occupational standards (NOS and OS) as they are being revised. New apprenticeships have been launched or are in progress such as Low Carbon Heating Technician, Retrofit Coordinator and Insulation and Building Treatment Installer. Work has started on a new multi-trade General Builder apprenticeship which will boost building renovation skills and understanding of a 'whole house' approach.

THE PROBLEM

Qualifications do not always ensure competency

Our research found considerable duplication and inconsistency in the training system – different awarding bodies develop similar qualifications, and each college often develops their own training materials. Not all qualifications are aligned with occupational standards (NOS or OS). This can be confusing for learners and training providers.

¹ Construction Leadership Council, 'Competence', Construction Leadership Council.

2.1 DRIVING COMPETENCE



Training for insulation installers is not mandatory

Current standards for government-funded retrofit work only require the installation supervisor to be trained, and not all operatives. In addition, there are no standards for insulation work that is purchased privately. This can result in poor quality work, with unintended consequences including damp and mould.

Renovation/retrofit are underrepresented in mainstream construction training

Multiple retrofit practitioners told us that training for people working in the home repairs and maintenance (RMI) sector has long been neglected, compared to training that focuses on new build construction. Training has been siloed between trades, with little focus on the whole house and on understanding building physics (how buildings work as a system) including the movement of heat, air and moisture through buildings. This needs to be urgently addressed to avoid poor quality work, and unintended consequences – such as introducing damp and mould through insulation work. This is a particular concern for traditionally constructed buildings, as reported by Historic England²; understanding of how these buildings perform should also be included in retrofit and construction training.

PAS2035 roles not covered by a professional body

The PAS2035 roles are not currently covered by a professional body such as RICS or RIBA (although individuals practicing these roles may belong to one of these bodies). This means there is no standard code of conduct or CPD requirements.

New retrofit roles require training too

Experience from recent large-scale retrofit schemes shows that other roles beyond those currently defined by PAS2035 are required for programmes to succeed. These include resident engagement – hand-holding people through the retrofit process, and site managers/clerks of works to ensure quality and performance where multiple measures are being installed as part of a whole house retrofit. These roles require appropriate training and qualifications.

Poor quality assurance on government schemes means skills deficits are missed

Damp, mould and dry rot have been found in many homes retrofitted through government schemes, despite mandatory use of PAS2035 standards. Insufficient checks on work as it is being done and after completion can have devastating consequences for occupants. Furthermore, skills deficits in installation teams are not identified.

RECOMMENDATIONS

Align retrofit and retrofit-related qualifications with competency expectations

As the Construction Leadership Council's competency framework is developed, occupational standards for retrofit and retrofit-related roles should be aligned. Qualifications should then be aligned with these occupational standards.

² Brennan, J., Legard, J., and Purdy, K., 'Skills Needs Analysis 2024: For the Repair, Maintenance and Retrofit of Traditional (Pre-1919) Buildings in England', Historic England, September 2024.



Mandatory training for all retrofit operatives

We recommend training should become mandatory for all operatives installing measures through government retrofit schemes, and following consultation on the best approach, for all individuals involved in retrofitting or the changeover to low carbon heating.

Embed compulsory retrofit units (including building physics) in all existing construction courses

All construction learners should have a basic understanding of building physics - how buildings of different age, construction type and material work - including the movement of heat, air and moisture - as well as the different types of measures to decarbonise homes, interactions between measures and fabric, risk mitigation and particular considerations for traditional buildings. This understanding must be included in all construction competency frameworks and occupational standards. Learners should be taught why this matters - both carbon reduction and improving the health of buildings and their occupants. This will also equip learners to make changes to buildings that have already been retrofitted without compromising them.

Consider a new professional body for PAS2035 roles

Consideration should be given to establishing a new professional body for PAS2035 roles, or requiring retrofit professionals to be part of an existing professional body such as RICS or RIBA.

Develop qualifications and training for new retrofit roles

Qualifications and training should be developed for resident engagement officers to provide them with the knowledge and communication skills to hand-hold people through major changes to their homes. Qualifications for site managers should also be enhanced so that managers have the right skills to understand retrofit designs and assess if work has been delivered as specified.

Stronger quality assurance in government retrofit schemes

Delivery of government funded retrofit must include adequate checks that work is being completed as specified and better performance evaluation of homes retrofitted. From this evaluation, if major skills gaps are found in operatives working for PAS accredited firms, continued accreditation status should be dependent on training being completed.



SUMMARY

5. A competent workforce delivering better quality outcomes

NEED IDENTIFIED	POLICY ASKS	OUTCOMES
<p>A TRAINING SYSTEM THAT DELIVERS A COMPETENT WORKFORCE</p>	<ul style="list-style-type: none"> • Retrofit qualifications aligned with competency expectations • Mandatory training for all retrofit operatives • Embed compulsory retrofit units (including building physics) in all existing construction courses • Consider a new professional body for PAS2035 roles • Develop qualifications and training for new retrofit roles • Stronger quality assurance in government retrofit schemes to identify quality failures and skills gaps 	<p>A competent workforce delivering quality retrofit</p>

 **QUICK WIN:** Mandate stronger evaluation of work at completion stage to identify quality failures and skills gaps

2.2 IMPROVED TRAINING PROVISION



INTRODUCTION

Training for retrofit and related roles is provided by a mix of FE Colleges, private training providers, manufacturers and employers. To train the number of people required to the quality and competence needed, the skills and training system must deliver consistent training quality and should be accessible to learners and employers across the country.

In recent years, the skills and training system has started to focus more on the decarbonisation challenge. Many colleges are investing in green construction training using government funds such as Local Skills Improvement Fund (LSIF) and Shared Prosperity Fund, and are offering an increasing number of retrofit courses. The government's Heat Training Grant and green skills bootcamp funding have supported new training provision across both public and private providers. In March 2025, the government announced £600 million of new investment to boost construction training including funding for 10 new Technical Excellence Colleges. A new Warm Homes Skills Programme running until July 2026 was announced by government in April 2025.

THE PROBLEM

Inconsistent training quality

For good learning outcomes, training providers need good trainers, training materials and robust assessment processes.

Most training providers struggle to recruit trainers and assessors in both construction¹ and building services², and this is made harder by low pay. The FE sector lost significant funding between 2010-2024 and the Association of Colleges reports that college lecturers are now paid up to £9000 less than secondary school teachers³. This makes it particularly hard to recruit lecturers with good construction experience, and even harder to recruit those with retrofit expertise. This can be less of a concern for some private trainers who can offer higher day rates and more flexibility to trainers.

Our discussions with industry stakeholders suggested variable quality of assessment of qualifications such as NVQs for the existing workforce, particularly the assessment of on-site work undertaken by operatives. To ensure competence, better assessment standards are required.

Stop/start competitive government funding with limited auditing

Colleges and private training providers need long term stable funding to facilitate the development and delivery of retrofit training programmes. Short term training competitions such as the heat decarbonisation skills training competition run by the previous government did not provide that certainty. Furthermore, the quality of training that has been provided to date through recent government interventions has not been audited.

Training provision is not linked to jobs

Many training providers have taken advantage of capital funding to develop new 'green construction academies'

1 Association of Colleges, 'Financial Times: Colleges in England struggle to find teachers for critical skills subjects', AoC, August 2022.

2 Building Engineering Services Association, 'BESA assessor scheme to address 'critical shortage'', BESA, February 2025.

3 Association of Colleges, 'Autumn budget: college leaders unite to call for urgent investment', AoC, October 2024.

2.2 IMPROVED TRAINING PROVISION



or 'retrofit skills centres'. But providers have often been disappointed by a lack of demand by learners and employers⁴. One cause is a lack of coordination between demand side policy (e.g government-funded retrofit programmes) and supply interventions (e.g training grants). Too often short term, competitive funding has led to Tier 1 contractors moving labour teams around the country to where the work is, rather than developing local skills.

Installers don't have to train, undermining demand for courses

Another reason for under-investment in training by employers is that current standards for publicly procured work only require the installation supervisor to be trained, and not all operatives. Furthermore, there is no licensing or accreditation of builders working in the private domestic market which also dampens training demand. In relation to professional retrofit roles, there is currently no requirement for CPD. All of this can result in poor quality retrofit work, with unintended consequences.

RECOMMENDATIONS

Improve the quality of teaching through train-the-trainer programmes, more efficient use of resources and fast track 'trades to trainer' recruitment

Colleges are innovating to address recruitment challenges. Exeter College is collaborating with employers to bring in guest lecturers via their Green Skills Advisory Panel⁵, which they are now expanding to other colleges across the UK. Some city region authorities are working with colleges to coordinate provision so that each college doesn't need to have specialist trainers.

But regardless of these excellent initiatives, colleges need more funding to recruit and retain trainers and assessors. According to a recent survey⁶ of over 1200 SMEs and microbusinesses working in repairs and maintenance, 55% of respondents coming to the end of their careers 'want to give something back'. We recommend a national construction trainer recruitment programme with a fast track for mature/pre-retirees to train as trainers.

The shortage of trainers is compounded by unnecessary tasks. Currently many providers develop their own training materials resulting in varying quality. There are opportunities to develop shared training materials in 'core' learning - for example, Energy Systems Catapult are funding the development of a free set of materials to teach basic building physics for construction learners to be delivered online and in the classroom. The development of shared AR/VR training resources could also be beneficial. Likewise, strategic deployment of new and existing technologies, including AI and social media, could accelerate content creation, improve reach and enrich the learning experience.

Stable homes decarbonisation skills funding for training providers

Long term stable funding via a new 'green skills fund' to training providers and local authorities to facilitate the development and delivery of retrofit training programmes. Training quality and outcomes should be audited to ensure funding is well used.

4 Ravenscroft, C, 'Retrofit Report', Gatsby Foundation, 2025.

5 Green Skills Advisory Panel, 'gsap.org.uk'.

6 TrustMark, 'Introducing Our Skills Gap Research', TrustMark, March 2025.

2.2 IMPROVED TRAINING PROVISION



Better linkages between training to relevant retrofit work experience and jobs

Long term demand-side national homes decarbonisation policy with an explicit focus on skills development will help link learners to jobs. Regional and local government can also play a significant role in delivering a place-based approach to the development of retrofit skills, convening housing providers, education providers and employers. Better procurement by housing associations and councils that embeds local skills outcomes should lead to more work experience, apprenticeships and jobs for learners.

More should be done to support newly qualified learners in construction, including retrofit, into work. The sector is often not conducive to new starters, with little mentoring, and a lot of self-employment. Employers can and should be doing more to ensure that qualified learners can get decent jobs. Regional and local government could run programmes to support those new to the construction workforce.

There is also a role for new works and training companies, along the lines of the B4Box in Greater Manchester (see P31) where training is integral to their business model. All job destination outcomes should be tracked for government funded training.

Drive demand through licensing and mandatory training

We recommend that all operatives installing retrofit measures, including those in subcontractor organisations, receive mandatory training, and that a 'license to trade' is introduced for building firms in the private homes sector.

Case Study 1

The **Retrofit Academy**, set up in 2016, is a training organisation dedicated to upskilling professionals in the retrofit sector. It offers training across all of the PAS2035 roles including Retrofit Co-ordinator, Retrofit Assessor, Retrofit Designer and Retrofit Assessor. The Retrofit Academy aims to train 50,000 retrofit professionals by 2030; by 2025, the Academy had enrolled over 7,000 learners.

The Retrofit Academy has established regional training hubs to support established training providers to deliver its qualifications, and is also piloting Virtual Reality (VR) training modules. Competence is a key priority for the Retrofit Academy and qualifications have been designed against the PAS2035 standards from the start, and offer both theoretical knowledge and practical skills.



SUMMARY

6. Expanded training capacity to support a diversity of workers

NEED IDENTIFIED	POLICY ASKS	OUTCOMES
<p>CONSISTENT STANDARD OF TRAINING PROVISION THAT LINKS LEARNERS TO WORK EXPERIENCE AND JOBS</p>	<ul style="list-style-type: none"> • Improve the quality of teaching through train-the-trainer programmes, more efficient use of resources and fast track 'trades to trainer' recruitment • Stable homes decarbonisation skills funding for training providers • Better linkages between training to relevant retrofit work experience and jobs • Drive demand through licensing and mandatory training 	<p>Training across the country that equips school leavers & workers of all ages & backgrounds to enter the retrofit workforce, backed by a strong trainer support network and nationwide training rigs to support classroom / online learning</p>

 **QUICK WIN:** Stable homes decarbonisation skills funding for training providers

2.3 SUPPORTING APPRENTICESHIPS



INTRODUCTION

Apprenticeships have a crucial role to play in developing retrofit skills. Most of the carpenters, plasterers, plumbers and electricians that are now undertaking insulation and renewable energy installation started their careers through apprenticeships. Feedback from industry stakeholders showed that apprenticeships were strongly valued by the retrofit sector, providing the right mix of on-site experience and classroom training.

To meet the government's house building and net zero targets, industry forecasts suggest¹ 350,000 new construction and trades apprentices will be needed over the next 10 years. They also report there has been a sharp decline in intermediate apprenticeships, with just 8,620 completions in 2022/2023 compared to 12,400 in 2017/18.

Only 40% of Further Education learners studying construction courses progress into the industry² - 26% employed, 14% starting an apprenticeship. So there is vast untapped potential. Reasons for this include an inadequate supply of apprenticeships, lack of support for new apprentices and low first year apprenticeship pay. New apprenticeship standards relevant to retrofit such as Low Carbon Heating Technician have been launched with more in development, such as Insulation and Building Treatments and Retrofit Coordinator. New apprenticeship standards currently take several years to develop.

In September 2024, the government announced a new growth and skills levy which will replace the existing apprenticeship levy and include new foundation apprenticeships.

THE PROBLEM

New apprenticeship standards are too slow to develop

It has taken too long to develop apprenticeship standards for retrofit roles. In part this is because the process is market-led, and uncertainties about long term retrofit policy has led to a lack of prioritisation by employers. But even once the industry agrees a need for a new apprenticeship, the standards can often take two or more years to develop.

The current process for developing new standards rightly seeks to put employers at the heart. In England, employer-led 'trailblazer groups' lead the process, but this relies on considerable volunteer hours from employer representatives who fit in alongside busy schedules, and this time commitment can exclude SMEs, and other sector experts. The approval process can also be lengthy.

SMEs are not taking on enough apprentices

Processes to take on and retain apprentices can be bureaucratic for small businesses without HR departments, and as the Aldersgate Group has identified³, more incentives to support SMEs to take on, train, pay and retain apprenticeships are required.

¹ Checkatrade, 'Checkatrade Publishes Annual UK Trade Skills Index 2024', Checkatrade.

² Construction Industry Training Board, 'Written evidence submitted by the Construction Industry Training Board', UK Parliament, January 2022.

³ Aldersgate Group, 'Beyond the Levy: Ensuring the Effective Implementation of the Growth and Skills Levy', Aldersgate Group, October 2024.

2.3 SUPPORTING APPRENTICESHIPS



Low apprenticeship completion rate

Of those starting a construction apprenticeship only around 50% go on to complete it⁴. One of the reasons may be that many construction employers are SMEs and microbusinesses, and lack the time and resources to nurture and retain their apprentices.

Apprenticeship wage is still too low

Though the first year apprenticeship wage has been raised in April 2025, it is still lower than the minimum living wage for workers aged 18 or over, and not competitive with pay in the hospitality, retail and logistics sectors.

Apprenticeships are too siloed

Renovation and retrofit are more efficient when builders are able to undertake multiple types of work - but training is currently siloed between different trades, which also reduces understanding of how different components of the building interact. Work has started on a new multi-skilled General Builder apprenticeship but progress has been slow.

RECOMMENDATIONS

Improve apprenticeship completion rate by supporting employers, using foundation apprenticeships, and establishing local works and training organisations

To raise the apprenticeship completion rate, better support is required for smaller businesses. This is best provided at a local level, through employer support networks, involving colleges and local government.

Shorter foundational apprenticeships recently proposed by the government may improve completion rates, but it is important that the quality of training is not compromised. As set out in the section on 'Driving Competence' there is a minimum set of skills, knowledge, experience and behaviour needed for building installation roles, including retrofit, and foundational apprenticeships should be seen as the first step to achieve these.

Another route to secure better apprenticeship completion rates would be to encourage local 'works and training organisations'⁵ such as B4Box or Canopy Housing which combine training with hands-on construction work, and also offer mentoring and support resulting in better retention of learners.

Streamline the development of new apprenticeships including incentives for smaller employers to get involved

To introduce new apprenticeship standards more quickly, a more inclusive approach is needed with incentives for smaller employers and other sector experts to get involved. A proactive forecasting approach, which anticipates new roles and changes to existing roles, would avoid playing catch up after a sector has changed.

4 NOCN Group, 'Construction Apprenticeship Achievement rates crisis: Good practice solutions', NOCN, September 2024.

5 Ashden, 'Creating good local retrofit jobs – a role for local Works and Training Organisations?', Ashden, January 2025.

2.3 SUPPORTING APPRENTICESHIPS



Support SMEs to take on apprentices through shared apprenticeship schemes and higher apprenticeship incentive payment

A local employer support network can help SMEs to take on apprentices, as well as shared apprenticeship schemes (flexi-job apprenticeships) such as the Built Environment Shared Apprenticeship Scheme (BESAS)⁶. Manufacturers can also help smaller installation firms to recruit and retain apprentices, such as Vaillant who are working in partnership with Derby College and SME heat pump installer IMS to train Low Carbon Heat Technician apprentices. Helping SMEs and microbusinesses to take on apprentices should also be a priority for the CITB's evolving RMI Sector Skills Plan.

Large Tier 1 and Tier 2 contractors can work with their supply chains to support smaller businesses to take on apprentices. Longer term retrofit contracts will facilitate this. Local and regional government can play an important convening role, and provide guidance on procurement that embeds apprenticeships.

Further financial incentives to support SMEs to take on, train, pay and retain apprentices are required. We welcome the government's recent announcement⁷ to provide construction employers with £2000 for every foundation apprentice they take on - this should be targeted at SMEs, and should apply to all construction and building services L2 and L3 apprentices.

Raise the first year apprenticeship wage

Support SMEs to raise the first year apprenticeship wage, at no additional cost to the SME, by allowing the Growth and Skills Levy, or other education funding, to be used for wages.

A new low carbon multi-skilled General Builder apprenticeship and all intermediate construction apprenticeships to include basic building physics

Skills England should work with sector experts to speed up the creation of a new low carbon multi-skilled General Builder apprenticeship to increase the efficiency of renovation and retrofit.

All occupational standards (OS and NOS) for intermediate level construction apprenticeships should include Knowledge requirements on basic building physics. This should include an understanding of how buildings of different age, construction type and material work - including the movement of heat, air and moisture - as well as the different types of measures to decarbonise homes. Consideration should be given to a requirement for all construction apprentices to have three months experience working on an existing building.

⁶ BESAS, 'besas.co.uk'.

⁷ UK Government, 'Government Unleashes Next Generation of Construction Workers to Build 1.5m Homes', GOV.UK, March 2025.



SUMMARY

7. Reformed apprenticeships with clear retrofit pathways

NEED IDENTIFIED	POLICY ASKS	OUTCOMES
<p>SUPPORT FOR STRONG APPRENTICESHIPS</p>	<ul style="list-style-type: none"> • Improve apprenticeship completion rate by supporting employers, using foundation apprenticeships, and establishing local works and training organisations • Streamline the development of new apprenticeships including incentives for smaller employers to get involved • Support SMEs and microbusinesses to take on apprentices through shared apprenticeship schemes and higher apprenticeship incentive payment • Raise the first year apprenticeship wage 	<p>Higher take up of retrofit and renovation apprenticeships leading to good jobs and better quality work</p>

 **QUICK WIN:** Higher apprenticeship incentive payment for SMEs and microbusinesses



3. DRIVING UPTAKE OF RETROFIT SKILLS

3.1 RAISING THE PROFILE OF RETROFIT



INTRODUCTION

If we are to attract up to half a million new entrants in the next 5 years, and build a stable, resilient workforce fit for the mammoth task we face in the next 10 to 25 years, there is a pressing need to address some systemic issues that face the retrofit sector, many of which are outlined in previous chapters. But there is also a pressing need to address some perception barriers around overall awareness of retrofit as an imperative at a domestic level and as a career opportunity.

As an emergent sector, there is a great opportunity to align retrofit policy, procurement and project practice to position retrofit positively, distancing it from prevailing perceptions of construction as dirty, strenuous, and unsafe, and an unattractive career choice. There is also scope to using policy drivers to mitigate against many of the negative recruitment and workplace practices that blight mainstream construction.

The political will to address these systemic barriers head on will be vital if the UK wishes to grow a robust retrofit workforce, in a time of **unprecedented skills shortages** across all sectors, with a shortage of people applying for low carbon roles, and in the face of stiff competition from equally constrained, but better-known sectors, such as health, retail and IT.

THE PROBLEM

Retrofit is poorly understood as a domestic proposition

At present, delivering retrofit and driving uptake falls largely on local authorities, who are key drivers of change in respect of climate action. Whilst this activity is wholly complementary to their role in creating a positive socio economic environment for citizens, recent research into engagement with **retrofit programmes** shows alarmingly low levels of public awareness - in one YouGov study¹ 71% had never heard of retrofit or had heard of it, but had no idea what it entailed.

This shows there is an urgent need for a concerted effort to improve public engagement if we are to meet the UK's ambitious net zero targets. A public education or awareness campaign to boost public awareness of retrofit - or better still, Warm Homes - would, in turn, generate parallel interest in retrofit careers. Awareness and public education around the retrofit imperative and the cultural shift to warm, healthy homes cannot be the responsibility of delivery authorities alone. Any national awareness activity must emanate from central government as a core component of the national retrofit strategy, supported by adequate funding and enabling policies.

Retrofit has an unclear position as a career choice

As with consumers, many considering careers in the field or offering career advice do not fully understand the meaning of retrofit. Additionally, while the sector classifies retrofit as a green or low-carbon career, research shows school leavers do not see 'trades' or retrofit roles as 'green' jobs. Furthermore, just as carbon mitigation is not always the sole motivator for those undergoing retrofit, it is not always the primary motivator for those pursuing careers in the field, many of whom may even be adverse to 'green hype' or consider it a passing fad. Nor is the work always site-based or technical. The sector needs thousands of recruits into customer-facing and back office roles, doing the vital organising, educating, communicating and advocacy to support communities on their retrofit journey, and help lift people out of fuel poverty.

¹ Greater London Authority, Public Attitudes and Behaviour: GLA Poll Results February 2022 – Retrofitting, February 2022.

3.1 RAISING THE PROFILE OF RETROFIT



Current pay and training practices do not present an attractive career proposition

Current retrofit procurement and project practices perpetuate a culture of sub-contracting, and zero hours contracts, which gives rise to job and income insecurity, and low skills expectations down the supply chain. These factors make retrofit an unattractive career choice but are especially discriminatory to those on benefits or those with low financial resilience. Additional barriers for less affluent learners seeking entry into good jobs and training include the cost of courses, travel and potential loss of essential household benefits during training - all of which can exclude the financially vulnerable from taking up training offers.

Lack of clarity on retrofit career pathways makes it hard to get started

The full range of retrofit and retrofit-adjacent roles have not yet been properly mapped into defined careers pathways. This makes it difficult for those contemplating a career in retrofit, or giving careers advice, to get a clear-eyed view of the roles available, the skills and qualifications required, or the return on their training investment. Without a view of their future career trajectory, many will not take the first step.

Schools and colleges lack awareness of green qualification pathways

Evidence suggests schools and colleges lack an awareness of green qualification pathways, particularly in vocational subjects and apprenticeships. An MCS Foundation research project² examined how those influencing young people's career and education decisions in England perceive green apprenticeships. They found that only 6% of teachers and 13% of careers advisers strongly agreed that 'I know enough to inform young people about opportunities in green jobs', which led to low confidence in explaining green jobs and pathways.

RECOMMENDATIONS

Meaningful engagement with careers advisors

There is a need for meaningful engagement with careers advisors at all levels to communicate the career opportunities offered by the National Retrofit Workforce Strategy. This should include in-depth training on the different careers pathways and retrofit-adjacent roles, training on the challenges the construction sector faces and the need for all types of skilled people to be attracted to help the sector get beyond old stereotypes and embrace opportunities. This training should also be extended to local colleges and organisations with outreach programmes into local communities.

Develop a national retrofit campaign to attract all stakeholders

As well as local outreach initiatives, a national campaign is needed to attract talent, raise awareness and improve the image of the sector to present it as an attractive, rewarding and worthy career for a future workforce.

Such a campaign presents an opportunity to rethink the language, positioning, and perception of retrofit, not just as an environmental solution but as a multi-faceted career, with green credentials, health and social justice benefits, job security, career progression, and competitive pay, and so broadening its appeal to a wider range of applicants.

² E. Terry, S. Renken, and S. Hayward, Getting Gen Z into Green Jobs: We Need to Talk About Apprenticeships, Shift Insight, May 2024.

3.1 RAISING THE PROFILE OF RETROFIT



Both national and regional government could then play a role in providing outreach, resources and support for career advisors, job centres, schools and colleges to put retrofit on the radar.

However, for any recruitment campaign to be credible and effective, it is imperative to address the reputational damage caused by recent scandals in ECO4, and be seen to mend the systemic failures in funding structures, procurement and project practices in social housing schemes that lead to a dereliction of local skills and risk large scale delivery of poor quality retrofit. This means putting the right training mandates and quality assurance processes in place, and providing incentives for the supply chain to invest in training a skilled workforce into secure, 'good' jobs that offer financial security, job satisfaction and career progression.



SUMMARY

8. A national awareness campaign for retrofit careers

NEED IDENTIFIED	POLICY ASKS	OUTCOMES
<p>NATIONAL RETROFIT CAREERS CAMPAIGN</p>	<ul style="list-style-type: none"> • Meaningful engagement and training for careers advisors, local colleges and career accelerators • A central-government-led national campaign to attract talent, raise awareness and improve the image retrofit, working with careers advisors, schools and colleges and job centres • PR / counter-awareness strategies to challenge misconceptions around hydrogen and the efficacy of heat pumps in the face of mainstream green 'push back' 	<p>Raised awareness of the retrofit as a rewarding, secure, long term career</p>

 **QUICK WIN:** Awareness campaign to cement the nation's commitment to low carbon heating

3.2 ATTRACTING A DIVERSE WORKFORCE



INTRODUCTION

Research by Energy System Catapult shows¹ there is a worrying lack of diversity in the current plumbing and heating workforce, which (like much of construction) is dominated by older white males. For example, despite 21% of working age people stating they did not identify as 'White British', only 5% of heating and cooling installers have an ethnic minority background and only 2% are female.

More broadly in construction, women make up 15% of the current construction workforce, but only 1% occupy manual roles. Yet with the right culture and support, many more women can be recruited and retained. At B4Box, a social enterprise based in Stockport that provides training and construction services, 15% of their current manual construction workforce is female.

This diversity gap presents a huge opportunity for the retrofit sector. Catapult's research² into skills for the retrofit market suggests that householders value the qualities that a diverse workforce can offer. Research participants spoke positively about female engineers and installers who arrived on time, worked diligently, communicated well and cleaned up after themselves, and the tradespeople coming into their homes having a shared empathy for their cultural background. These qualities are particularly valued for works that require protracted interaction and upheaval, such as retrofit and heat pump installation.

THE PROBLEM

More needs to be done to foster equality, diversity and inclusion

Net zero careers accelerator, [GoodPeople](#), reports that unemployment has increased post-pandemic with younger people, Black, Asian and minority ethnic workers and people with disabilities being disproportionately affected. Regional and demographic inequalities around income and job security have 'trickled down' to become inequalities in health and wellbeing. As well as presenting a serious equality and social justice issue, young workers, women and ethnic minorities represent an untapped talent pool that could also help address the retrofit skills shortage.

However EU and Central Government funding for employment and skills programmes has decreased dramatically over the last decade, and pressure on local authority budgets mean initiatives to shape inclusive economies and connect diverse job seekers to training and employment opportunities are currently fragmented or curtailed. This continues to have a negative impact on available investment into local employment and skills brokerage programmes across the UK.

Construction culture and site practices could be off-putting for many

Feedback from key players trying to address equality in the sector suggests certain aspects of construction culture need urgently addressing if we are to attract a diverse pool of applicants to join and stay in the retrofit careers. The current domination of older, white males has been traced to systemic biases that put up barriers to those of a different race, gender, sexuality, or with disabilities. On a practical front, facilities to accommodate different genders or those with disabilities (such as toilets or ramp access) are not mandated through the project build (only the finished product) which can create a perception of a hostile environment for minority entrants.

¹ Energy Systems Catapult, 'Increasing diversity in the heating sector to address the skills shortage and meet Net Zero', Energy Systems Catapult, February 2023.

² Energy Systems Catapult, 'Domestic Retrofit: Market Intelligence & Skills Assessment', Energy Systems Catapult, November 2022.

3.2 ATTRACTING A DIVERSE WORKFORCE



Attitudinal barriers, such as high levels of toxic masculinity, bullying, gendered expectations and racism (often passed off as 'banter') are endemic and are harmful to all - not just those who don't conform to perceived norms.

Research also shows neurodiversity is **common among construction workers**, with 1 in 4 reporting that they identify as neurodiverse (against a national average of 1 in 7). Many also report their needs are poorly accommodated, so opportunities to support, nurture and retain valuable workers can be missed. It is likely retrofit will attract the same profile of applicant, so accommodating these neurodiverse needs in training, and within the workplace, will be an important consideration.

RECOMMENDATIONS

Embed equality, diversity and inclusion into the National Retrofit Workforce Strategy

The proposed National Retrofit Workforce Strategy presents an opportunity to address issues of workforce diversity from the ground up, driving proactive strategies and cultural change through the system.

Unconscious bias training and toolkits should be developed for all retrofit contractors, and delivered from C-suite down, through middle management, and for all support roles, including on-site training and toolbox talks, to foster a healthy and inclusive environment that welcomes and retains diverse entrants.

Best practice guidelines and support should be put in place to help Tier 1 contractors and SMEs challenge macho culture, behaviours, biases in recruitment and on-site practices (including neurodiversity). These should be wrapped into procurement and social value reforms and the business case spelt out, to encourage adoption of best practice for all contractors seeking to deliver government funded programmes.

EDI training and expectations for workplace behaviour should also be embedded into all retrofit courses and apprenticeship programmes. Modules on collaborative work practices would also help reduce the 'blame and shame' culture endemic in construction, and foster the teamwork and shared responsibility that is critical to delivering good retrofit outcomes.

Consideration should be given to new courses, in both structure and content, to ease learning for neurodiverse individuals. This includes a choice of learning modes, paced learning segments, use of less dense fonts, graphic changes and use of imagery to foster neurodiverse learning.

Targeted recruitment campaigns with funding for outreach programmes would open up job opportunities to segments traditionally excluded from construction and construction-adjacent jobs due to their ethnicity, gender, or educational background. More could be done across the board to communicate retrofit as a positive career with good security, pay and prospects, to attract younger people or those looking to change careers.

Reinstate funding to European Social Fund levels

Contractors need support to achieve diversity and inclusion goals, but funding to connect employers with diverse local jobseekers has been reduced - especially since the European Social Fund withdrawal. This, plus increased pressure on local authorities and social housing landlords, means extra funding is needed more than ever to link employers with underrepresented jobseekers.

We call for diversity and inclusion to be firmly embedded within the National Retrofit Workforce Strategy, and government funding to be restored to pre-ESF levels for initiatives to reach diverse audiences and help match employers to hard-to-reach candidates. We envisage that procurement reform and skills mandates will drive large-scale localised training and recruit more people into secure, local retrofit jobs with good pay and prospects. The offer of secure, rewarding jobs will open the appeal to a more diverse pool of candidates -

3.2 ATTRACTING A DIVERSE WORKFORCE



especially women, those from diverse backgrounds or those facing financial disadvantages, who are currently excluded from training and the workforce due to the gig economy, seasonal wages, and the risks of job insecurity.

Organisations like GoodPeople are doing some great work in this area, taking a collaborative approach with local stakeholders and local communities to deliver a talent pipeline to meet the demands of the local economy.

Case study 1

Retrofit Revolution was an ESF employability project working with unemployed people aged 16+ including older career returners. As part of the project, participants took a 3 day course designed by Polln Ltd for South Bank Colleges to introduce people to retrofit as a potential career opportunity. The graphic approach, course content and pace of Retrofit Revolution was designed with neurodiversity in mind, using short sessions, hands-on experiments, low text density, and image / word scaffolding to cement core concepts.

Retrofit roles were framed around a theme of 'What's Your Superpower?' to help learners identify a career path that would play to their strengths. Early cohort feedback has been overwhelmingly positive, with learners reporting 'hugely positive' impacts on their confidence, motivation and future job prospects. Almost half (47%) immediately progressed to education or employment in a directly related field against a target of 37%, with more progressing into education or work in the sector at a later date.

Case Study 2

GoodPeople is a London-based social enterprise that works with public, private and not for profit sector clients to deliver place-based social value and impact programmes across three main Social Value areas: Employment & Skills Programmes (ESG, S106 and Social Value Delivery), Net Zero and Green Skills and Young People.

Their London-based 'Net Zero Careers Accelerator' is a collaboration between local housing associations, employers, learning providers and community organisations, in which GoodPeople creates a pipeline of talent from disadvantaged communities in target London boroughs to meet local employment priorities. By taking a relational rather than a transactional approach, GoodPeople are able to deliver a quadruple bottom line: responding to local priorities; delivering more inclusive, resilient and sustainable places; generating social and commercial benefits for clients - and most importantly, increasing Diversity, Equity and Inclusion by connecting diverse and otherwise excluded local communities to careers advice, mentoring, work experience and support into good work.



SUMMARY

9. Creating the conditions to attract a diverse workforce

NEED IDENTIFIED	POLICY ASKS	OUTCOMES
MORE NEEDS TO BE DONE TO FOSTER EQUALITY, DIVERSITY AND INCLUSION	<ul style="list-style-type: none">• Put retrofit on the table within the current Pathways to Work strategy• Release extra funding for initiatives to connect employers with diverse jobseekers, who risk being excluded from the sector	Systems and support to grow a diverse workforce, tapping into a wider pool of talent within traditionally marginalised groups

 **QUICK WIN:** Scale up and replicate already-successful initiatives, such as B4Box and GoodPeople

3.3 GETTING SMALL BUSINESSES READY FOR RETROFIT



INTRODUCTION

Small and micro businesses deliver the majority of renovation and retrofit work and these businesses will be critical to reaching home decarbonisation targets. The development of retrofit skills in small businesses differs between those firms working in the owner-occupier sector and those working on publicly-procured contracts, and also varies between different trades.

Most Repairs, Maintenance and Improvement (RMI) builders that work in the owner-occupier sector are busy, as high house prices result in people renovating rather than moving, and as more builders leave the workforce than join it¹. Builders, heating engineers and plumbers can make a decent living doing repairs and maintenance work without having to engage in retrofit.

The RMI sector is largely self employed and any time for learning and development is time not earning a living. Therefore interest in taking on new types of work such as insulation and undertaking the required training remains low. This is compounded by a recent history of stop and start policies, such as the Green Homes Grant scheme.

To undertake retrofit installation as part of a publicly-procured contract for a housing association or local authority, businesses must be certified to the PAS2030 standard. Under this standard, at least one operative per installation team should have a relevant Level 2 NVQ. This has driven SMEs to accredit some of their operatives.

Beyond insulation work, the situation for other trades is more positive, driven by helpful policy and higher energy prices. In 2023, nearly 2000 new solar installers joined the MCS scheme² (more than the previous six years combined) and nearly 8000 people completed a recognised heat pump qualification, though it is unclear how many of these are currently installing heat pumps.

Some builders merchants, where most SMEs buy supplies, are collaborating with manufacturers to offer training in home decarbonisation.

THE PROBLEM

Insufficient demand in the owner-occupier sector

The Boiler Upgrade Scheme has driven some SME heating engineers to get trained in heat pump installation. But there is currently no policy to encourage owner-occupiers to reduce the energy use of their homes, so demand for insulation work remains low, leaving builders working in the private market unwilling to upskill.

High level of business failure amongst small construction firms may limit appetite for taking on new types of business

The construction sector has a higher level of business failure than many other sectors, topping the insolvency league table in 2024 with 17% of all insolvencies in 2024³. Smaller businesses may be reluctant to move into new areas such as retrofit which are seen as risky.

1 Construction Industry Training Board, 'Construction Skills Network: Focusing on the Skills Construction Needs', CITB.

2 MCS Certified, '2023: A Record-Breaking Year for MCS and Small-Scale Renewables', MCS Certified, January 2024.

3 The Insolvency Service, 'Commentary - Company Insolvency Statistics February 2025, UK Government', February 2025.

3.3 GETTING SMALL BUSINESSES READY FOR RETROFIT



Builders working in the private domestic sector do not need to be licensed

Currently, anyone can set themselves up as a builder, leaving consumers at risk of poor quality retrofit work with disastrous unintended consequences.

SMEs are unwilling or unable to undertake publicly procured work

Many small businesses are unwilling to undertake publicly procured renovation and retrofit work. To secure such work, businesses must either directly join a procurement framework, or sub-contract with a larger contractor and in addition they must have the relevant accreditation. Smaller businesses are deterred by perceived bureaucracy in joining frameworks, small margins where work is subcontracted out multiple times, and the cost and effort of accreditation.

Small business can't take time off to acquire new retrofit skills

More funds for training have been made available for SMEs through the CITB levy (for levy payers) and through government homes decarbonisation training grants. But many small and micro-businesses can't afford to take time off work to undertake training, even if the training itself is free or low cost.

RECOMMENDATIONS

Increase demand for home retrofit across all housing tenures through incentives and regulation

Clear long term policy including incentives such as low-interest loans, or stamp duty changes to drive up demand for home retrofit will be required for SME builders to invest in upskilling. Higher minimum energy efficiency standards for private rental sector homes should be brought in as soon as possible.

Stronger business management support for SME tradespeople

Regional initiatives such as growth companies can help with basic business and financial management, helping businesses to diversify into new areas such as retrofit. Trade associations, such as the Federation of Master Builders (FMB) and trusted trader schemes such as Checkatrade can also help with business growth.

Transition to 'licence to trade' for all builders in private domestic market

We support the FMB's proposal for a ['license to build'](#) for any builder working on private homes. This combined with stronger building regulations on thermal performance for modifications to existing homes will drive small businesses to upskill. We recommend that the government sets up a trade licensing taskforce to report back in 12 months on detailed policy proposals.

Support for SMEs to access publicly-procured works

Commissioners of large retrofit programmes should work with the local supply chain, to provide better access for local small businesses. A good example is the [be:ONE partnership](#) where a North East housing provider

3.3 GETTING SMALL BUSINESSES READY FOR RETROFIT



(believe housing) has formed a partnership between a Tier 2 contractor RE:GEN and three local SMEs to deliver renovation and retrofit to nearly 6000 homes over 4 years. The admin needed to gain accreditation and lodge retrofit work under the PAS3035 and Trustmark processes should be made simpler by streamlining digital tools.

Long-term funding to subsidise retrofit training for SMEs (including cover for loss of earnings)

Free online training such as that offered by [Supply Chain Sustainability School](#) that SME tradespeople can undertake in their own time can help, but to allow people to undertake hands-on learning, Growth and Skills Levy funding could be used to make up for lost earnings.



SUMMARY

10. Support for SMEs and microbusinesses to build capacity and access contracts

NEED IDENTIFIED	POLICY ASKS	OUTCOMES
<p>MORE SUPPORT FOR SMEs AND MICROBUSINESSES TO GET INVOLVED IN RETROFIT WORK</p>	<ul style="list-style-type: none"> • Increase demand for home retrofit across all housing tenures through incentives and regulation • Stronger business management support for SME tradespeople • Transition to 'licence to trade' for all builders in private domestic market to drive training • Support for SMEs to access publicly-procured works • Long-term funding to subsidise retrofit training for SMEs (including cover for loss of earnings) 	<p>More SMEs and microbusinesses engaged in retrofit work, reducing supply chain complexity and risk, stimulating local jobs and prosperity</p>

 **QUICK WIN:** Support SMEs to access publicly-procured works



4. SECTOR INITIATIVES

4.1 STRATEGIC AUTHORITIES AND STRATEGIC PARTNERSHIPS



In the English Devolution White Paper¹ (published in December 2024), the government set out its plan for strategic authorities (akin to the current combined mayoral authorities) to cover all of England. Strategic authorities would have responsibility at a local level for developing Local Growth Plans to support the industrial strategy. They would also hold joint responsibility for Local Skills Improvement Plans (LSIP), alongside the Employer Representative Bodies that currently lead on LSIPs. From 2028, funding for retrofitting would then be devolved to strategic authorities as part of their integrated funding settlements. These changes offer potential for more joined-up retrofit rollout and retrofit skills planning at a local level.

Ahead of this change, the Warm Homes: Social fund has encouraged the setting up of Strategic Partnerships to deliver large retrofit programmes involving multiple thousands of homes. These offer opportunities to kickstart retrofit skills development through leveraging social value and making interventions across the training system.

There are a host of things the National Retrofit Hub can do to contribute to the retrofit skills gap and sector building at a regional level. It has already created a [checklist of activities](#) for a regional retrofit tasklist, to assist Policy Officers, Delivery Officers, Home Energy Leads, or similar positions, working within Net Zero Hubs, Combined Authorities, and County Councils, which should prove useful in informing strategic partnerships efforts to develop local skills.

Interventions by strategic authorities should include:

Retrofit programme procurement

- Collaborative regional/sub-regional procurement consortia, possibly with pooled social value to drive skills outcomes
- Regional procurement guidelines with skills targets
- Direct procurement of local SMEs
- Monitoring of skills delivery

Developing local SMEs

- Raise SMEs' awareness of the retrofit opportunity
- Signpost builders/trades to training and facilitate accreditation
- Consider shared/flexible apprenticeship schemes
- Business support to retrofit sector

Training providers

- Link colleges and employers to show demand, train the trainer, and identify work and apprenticeship opportunities
- Coordinate college provision to ensure that best use is made of scarce teaching resource, for example having a regional strategy so each college specialises in a particular skill area. This 'centre of excellence' approach will be most relevant for urban areas where travel for learners is easier.
- Build capacity for retrofit training within colleges and specialist training providers

¹ Ministry of Housing, Communities & Local Government, English Devolution White Paper: Power and Partnership – Foundations for Growth, GOV.UK, December 2024.

4.1 STRATEGIC AUTHORITIES AND STRATEGIC PARTNERSHIPS



Works and training organisations

As noted above, the highly fragmented nature of publicly procured construction supply chain, with multiple layers of contracting, results in limited training undertaken by the small businesses that often undertake the actual installation work.

An alternative could be to set up a Works and Training organisation, which employs learners at a decent wage to undertake training and renovation/retrofit work. As explained in [Ashden's report](#) this can result in better recruitment and retention of learners.

4.2 HOUSING PROVIDERS / LOCAL AUTHORITIES



As commissioners of large retrofit projects, either on their own or in partnership, housing providers and local authorities can directly influence skills and training outcomes, in the following ways:

- Run an integrated renovation and retrofit programme that allows long term partnerships with contractors and local SMEs to be built up and training outcomes built in
- Liaise with local Employer Representative bodies that currently have responsibility for Local Skills Improvement Plans, to ensure they are aware of local retrofit projects that will generate local demand for retrofit skills
- Train Direct Labour Operative (DLO) teams, building on their existing RMI skills to include installing and maintaining retrofit measures
- Improve in-house skills, particularly in good-clienting/procurement and retrofit programme delivery to reduce over-reliance on Tier 1 contractors.
- Work with Tier 1 contractors and wider supply chain to embed local training initiatives through effective social value clauses
- Link contractors to the housing providers' own skills and employment programmes
- Train up tenant liaison officers in home energy management so they can explain the benefits and share knowledge with residents about retrofit, ventilation and retrofit measures
- Monitor and enforce the delivery of social value, training outcomes and local jobs
- Monitor (and reward) building performance vs design
- Offer void homes for training purposes

4.3 TIER 1 AND TIER 2 CONTRACTORS



Large main contractors currently delivering retrofit programmes at scale are for the most part management contractors with limited amounts of directly employed trades. They remain well-placed to work with their supply chains to develop the skills they need to meet their contractual obligations and reduce costs and risk. Medium sized businesses could benefit from the skills development capacity that larger firms can offer them, but relationships and incentives do not yet exist and are not aligned.

Foundational work and interventions include:

- Define, align and coordinate skills development in a way that tracks through the various tiers
- Work with local SMEs to build supply chains, and offer training support e.g. plasterer to wall insulator, shared apprenticeship schemes or help local SMEs to gain accreditation
- Work with employment specialists such as social enterprise [GoodPeople](#) to on-board and grow new entrants from non-traditional backgrounds
- Participate in college/employer partnerships such as the Green Skills Advisory Panels set up by Exeter College
- Offer work experience, guest lectures and train the trainer to local colleges
- Participate in careers outreach with local schools

4.4 TRAINING PROVIDERS



Training providers from Further Education colleges to manufacturers have an essential role in improving skills in home decarbonisation, through partnerships, collaborating with others and leveraging available government funding.

- Participate in college/employer partnerships such as the Green Skills Advisory Panels, set up by Exeter College and now operating across the country
- Incorporate retrofit and basic building physics for traditional and modern construction types into all construction courses
- Incorporate soft skills, including communication and customer service into retrofit courses
- Awareness raising/myth-busting on low carbon technologies with mainstream 'non-green' employers e.g. traditional plumbing and heat engineering firms
- Take advantage of available funding eg green skills bootcamps, devolved skills funding
- Understand retrofit career pathways to improve career guidance

ABOUT THE AUTHORS



Ashden is a climate solutions charity whose mission is to accelerate the work of climate innovators creating a fairer, greener, zero carbon world; and to secure the policy, finance and market conditions needed for these innovators and others like them to achieve transformative scale. Rapid acceleration of buildings retrofit at scale is one of our strategic aims for 2025-2030. Cara Jenkinson, Cities Manager at Ashden, who has co-written this response, has authored several policy briefings on retrofit, run many learning events for local authorities and colleges and is co-Chair of the National Retrofit Hub's Workforce growth and skills development working group.



Polln Ltd is a research-based consultancy which produces evidence-based roadmaps and strategies for policy makers and organisations tasked with the challenge of a just transition. Polln's Founder and Director, Pippa Palmer, who has co-authored this report is also Research Strategist at London South Bank University. She stepped down as co-Chair of the NRH Workforce Growth and Skills Development Working Group in Jan 2025 to lead the Thriving Homes strand in the LSBU's new Building Future Communities Research Centre. Pippa's academic research focuses on the intersection of the behavioural, market and engineering challenges of net zero policy and her retrofit research portfolio covers programme evaluation, market development, channel strategy, and systems mapping for regional and local authorities and social housing organisations delivering grant-funded programmes.



We are an independent network focused on enabling the delivery of retrofit at scale. This means making it easier for everyone—communities, financiers, and professionals alike—to decarbonise homes and buildings. Achieving success requires collaboration across the entire sector to address strategic gaps and stimulate economic growth. We achieve this by providing the leverage, guidance, and infrastructure needed to align industry efforts, co-create solutions, and deliver actionable recommendations in collaboration with government and stakeholders.

ABOUT THE SPONSOR



London South Bank University (LSBU) has been providing vocational education in south London since 1892. We offer training that transforms lives, communities, businesses, and society through applied education and insight. Our mission today is to be an enterprising civic university that addresses real-world challenges and delivers industry-relevant education for all.

We have established LSBU Group, a combination of like-minded specialist secondary, further and higher education providers. This joined-up approach enables us to deliver green skills pathways at every level, from entry-level retrofit training to advanced research and innovation in energy engineering.

Our College of Technology and Environment brings together interdisciplinary research and teaching in energy systems, retrofit, and sustainable construction. The College leads nationally recognised initiatives such as GreenSCIES, Balanced Energy Networks, and the Net Zero Building Centre, delivered in partnership with BSRIA. Alongside these, LSBU supports community-focused innovation through its Energy Advice Centre and Green Skills Hub, and offers hands-on learning and retrofit skills development through short courses and technical qualifications.



The National Retrofit Hub

Our work is underpinned by three core pillars— Convene, Evidence, and Action—that define how we address barriers, align efforts, and enable progress across the sector.

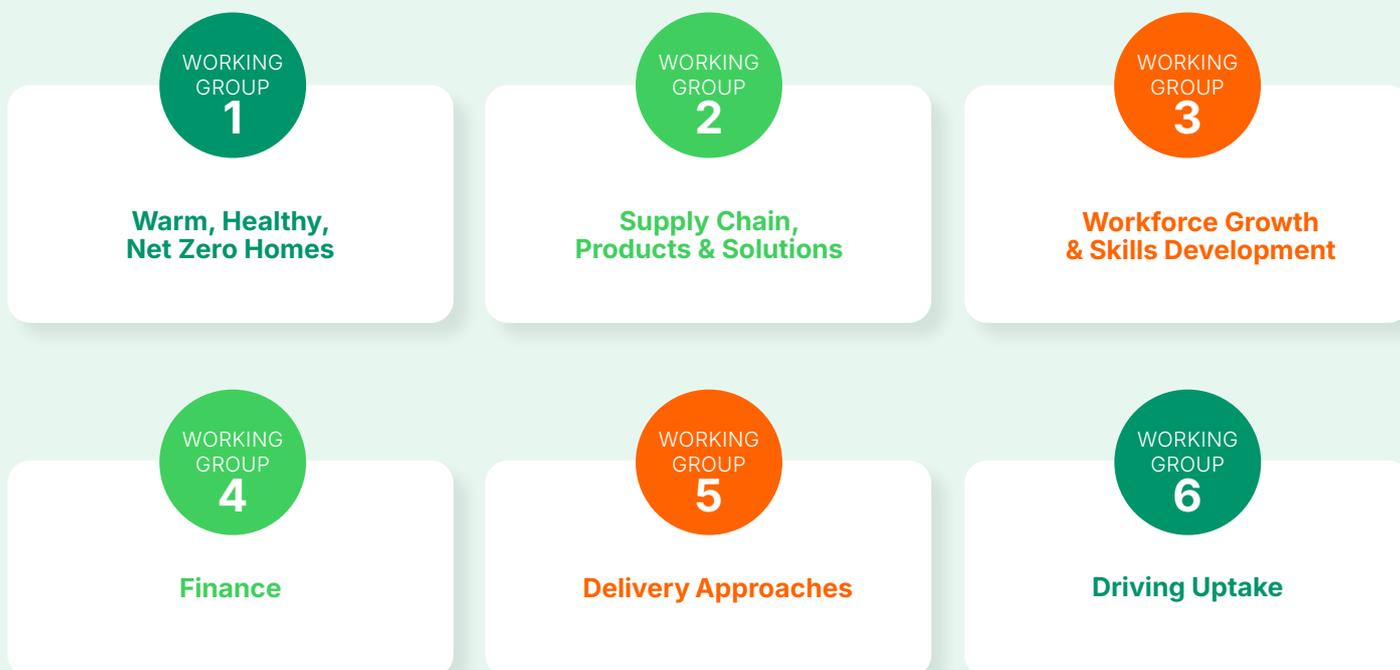
Convene: We deliver scalable, targeted solutions by overcoming barriers through convening stakeholders, fostering cross-sector collaboration, and co-creating actions that drive collective progress and long-term impact.

Evidence: We gather, distil, and build on evidence to ensure it is robust and actionable.

Action: We enable action by stimulating growth and building resilience across the retrofit sector.

NRH Working Groups

NRH has six thematic working groups, chaired by recognised industry experts, and drawing membership from a wide range of sector representatives:





This paper was co-authored by Cara Jenkinson, Cities Manager at the climate charity Ashden, and Pippa Palmer of Polln Ltd and London South Bank University (LSBU), in their role as Co-Chairs of Working Group 3: Workforce Growth & Skills Development.

Working Group 3 was established to collaborate with the domestic retrofit supply chain, training providers and retrofit clients across the UK in order to:

- Evaluate current retrofit skills and training provision for the sector
- Assess traditional, new and future skills and training models
- Make recommendations that would help steer and encourage the sector to build capacity and train a diverse and highly skilled workforce to meet the UK's net zero commitments.

The policy and funding recommendations in this paper were drawn from a holistic, systemic review of the retrofit skills sector, which included:

- Systems mapping and literature review
- Sector convening - discovery workshops and knowledge sharing events
- Six dedicated task and finish groups across:
 - 1) Roles, qualifications and career pathways,
 - 2) Training providers and training infrastructure,
 - 3) Skills for (SMEs),
 - 4) Skills for the publicly procured segment
 - 5) Workforce growth & strengthening and
 - 6) Funding and policy asks for retrofit skills
- Outputs from each Task & Finish Group fed into a new theory of change
- A National Oversight Group with representatives from Scotland and Wales, London and Regional Cities and (latterly) a Heritage lead reviewed all findings
- Final outputs were distilled into a series of policy and funding asks, and subject to peer review



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