

Heritage and Carbon

Addressing the skills gap

Foreword

Heritage buildings represent the UK's rich cultural and historic legacy. They provide an irreplaceable sense of closeness to our collective past. From the mills and factories that kickstarted the Industrial Revolution to Georgian townhouses, they are a testament to the architectural achievements and cultural values of previous generations.

For hundreds of years people have acted as stewards of these buildings, contending with challenges that emerged and adapting them, ensuring future generations could continue to enjoy the cultural and economic benefits they bring to society.

For our generation, ensuring the UK's heritage buildings can play their part in a low carbon sustainable future is one of the most significant contributions we can make to preserving the country's heritage. We believe this is a necessary and achievable goal. The twin objectives of protecting the unique qualities of historic buildings and improving their energy and carbon performance are both compatible and achievable.

As the Rt Hon Chris Skidmore MP set out in his Net Zero Review, we need to grasp the historic opportunity tackling climate change offers us. The benefits touch on every aspect of society, creating new opportunities for businesses and investors, new careers, support for households and communities, and the chance for the UK to show leadership on the world stage.

The establishment of the Department for Energy Security and Net Zero is a positive development and a welcome sign of intent that the opportunities presented by the transition to a low carbon economy will be seized. Our hope is that this report will build on this momentum.

In this spirit we have joined together to highlight the skills and training challenges that will need to be overcome to ensure the UK's historic buildings contribute to a net zero future.

As a group of organisations, Grosvenor, Peabody, Historic England, The National Trust and The Crown Estate have collaborated through commissioning research and sharing insights to help identify how businesses, industry and Government can work together on this shared opportunity.

This report outlines key findings from our research and makes recommendations which have been developed through discussion with partners.

Our research has identified a need for 205,000 workers to focus solely on retrofitting historic buildings every year from now until 2050 in order to meet the UK's net zero targets. This is more than double the number of workers we estimate currently have the necessary skills¹.

Whilst a significant challenge, the opportunities this represents considerably outweigh the scale of the task. Mobilising to meet this challenge would generate £35bn of output annually, 290,000 jobs, more efficient homes that are less expensive to heat, in the process reducing fuel poverty and future proofing our built heritage².

As a group of organisations, we are passionate about the historic built environment and the health and wellbeing of the people who live in, work in and visit them. We are determined to use our resources and experience to play our part, working alongside Government, industry and civil society to seize the opportunities presented by the transition to a low carbon future.

As set out in the following pages, it is only through co-ordinated action and a shared desire to prepare the historic built environment for the challenges of climate change that we can hope to be successful. It is our hope that by working in partnership to produce this report, we can encourage others to do the same.

Simon Harding Roots

Managing Director,
London, The Crown
Estate

Lord Kerslake

Chair of the Board of
Peabody Trust

Dr Ingrid Samuel OBE

Placemaking and
Heritage Director,
National Trust

Tor Burrows

Executive Director of
Sustainability and
Innovation, Grosvenor

Ian Morrison OBE

Director of Policy and
Evidence, Historic
England



National Retrofit Strategy

Government should work with industry to package together skills, training, funding, standards and advice into a National Retrofit Strategy. This will provide the long-term certainty needed for businesses, training providers and local Government to build capacity and will provide clarity to consumers, clients and employers. Within this strategy, help must be made available to support the training, upskilling and consumer advice necessary to effectively improve the energy efficiency of the country's historic built environment.



Industry standards that support historic retrofit

Practical quality is at the heart of the successful retrofit of historic buildings, with defined codes of practice and standards essential to achieving this. We recommend Government and the BSI work with the heritage sector to review the training available for the construction sector and ensure knowledge of effective retrofit of modern and traditional buildings is appropriately covered, widely available, and encouraged to be taken up. For instance, reviewing how PAS 2035 can be amended, training requirements expanded and how it can be made more widely accessible.



Local Skills Improvement Plans

We recommend the organisations bringing forward Local Skills Improvement Plans (LSIPs), referred to as 'Employer Representative Bodies', use the data in our report to support their evidence base and develop proposals to build skills and capacity in the retrofit sector and the green economy.

To ensure the goals of the LSIPs are achieved, we recommend Government continues to provide the resources necessary to support training providers and colleges to provide retrofit training in line with the needs of local employers.



Area-based schemes

We believe area-based schemes are an effective way to build local demand and create pipelines that provide local retrofit businesses with the certainty they need to build capacity. Government should consider providing greater support to enabling place-based retrofit that matches supply to demand, addresses training requirements and supports households to make informed decisions.



The Apprenticeship Levy

We recommend that Government looks to make apprenticeship levy funding more flexible by allowing unspent funds to be used to improve the reach and delivery of existing retrofit qualifications in the supply chain. This would enable organisations to better address these challenges through their own activity.

With £3.3bn of Apprenticeship Levy having been returned to the Treasury unspent between May 2019 and July 2022, Government should consider increasing the proportion of the Apprenticeship Levy that can be transferred, enabling smaller businesses to access a larger pot of funding.

Grosvenor will pledge up to £50,000 of its Apprenticeship Levy transfer, and The Crown Estate will pledge the maximum allowance of its Apprenticeship Levy transfer, per year to support the development of heritage retrofit skills. Both organisations will continue to review their pledge based on policy and guidance. As coalition partners we wish to demonstrate a proactive approach to addressing the skills gap and will seek to encourage other organisations with unspent levy to look at options for how they can support SMEs to build their capacity and train their workforce.

Summary of recommendations

Shrewsbury Flaxmill Maltings
Credit - Historic England

The opportunity for the UK's historic built environment

Historic buildings play an important role in society. They provide meaningful connections to the past, add character to our streets and are central to people's sense of place and their civic pride.

This theme has been recognised in the Government's Levelling Up strategy, with one of its key pillars focussed on building the connection between place and individuals.

Research commissioned by Historic England underlines the link between historic buildings and pride in place, finding that historic buildings come only behind local parks and other members of the community in generating civic pride and pride of place³.

They are also an important source of economic prosperity and growth, with the heritage sector directly contributing £14.7bn annually to the economy in 2019⁴.

Our analysis estimates that nearly a quarter of all UK homes, 6.2m properties, are historic buildings (built prior to 1919). In addition, there are around 600,000 historic commercial properties in the UK, accounting for almost a third of commercial buildings.

With buildings responsible for nearly one fifth of the UK's greenhouse gas emissions, historic buildings can and should be considered integral to decarbonising the built environment and contribute positively towards the Government meeting its legal commitment to achieving net-zero by 2050.

Despite this, the UK does not currently have a joined-up strategy for tackling the energy efficiency of the UK's buildings. Without a long-term energy efficiency strategy that specifically considers historic buildings, we risk failing to fully tackle one of the biggest sources of carbon emissions and the potential damage or obsolescence of our built heritage.



The opportunity cont.

Environmental benefits

Whilst the diverse nature of the UK’s historic buildings and their planning designations can make retrofitting historic buildings challenging, the scale of the potential carbon reduction achievable by improving their energy efficiency is colossal, both for the UK as a whole and the people who live and work in them.

Just as with the UK’s non-historic building stock, retrofitting historic properties to improve their energy efficiency has a wide range of benefits for the people living and working in them. These benefits include reducing energy demand, improving health and wellbeing and increasing thermal comfort⁵. Energy efficiency can also play a key role in reducing energy consumption, helping to alleviate fuel poverty and improve the UK’s energy security.

In its 2021 assessment of the energy efficiency potential of historic buildings in England and Wales, Verco, commissioned by Grosvenor, concluded that fabric improvements to listed buildings could generate up to 2 - 3MtCO2 of carbon savings per annum, equivalent to 12% of the UK’s Sixth Carbon Budget⁶. Whilst this is an estimated maximum potential figure it gives a sense of what could be achieved.

Combining listed buildings with unlisted historic dwellings in Conservation Areas, the operational carbon saving would amount to 4.6 - 7.7 MtCO2 per year. This broadly equates to 5% of the UK’s carbon emissions associated with buildings in 2019 and approximately 30% of the annual reductions in UK carbon emissions required to meet a Sixth Carbon Budget.

That so many older buildings survive, and continue to be used, is proof of their durability and adaptability.

Building conservation has played an important role in their success and longevity, adapting, upgrading, repairing and maintaining historic buildings so they remain useful and viable. This makes good sense in social and economic terms and has significant environmental benefits⁷. For instance, retrofitting 50% of pre-1919 residential buildings over a 10-year period could lead to carbon savings of 39.6 million tCO_{2e} and an estimated monetary saving of £3.4 billion worth of CO2 reductions by 2050⁸.

Buildings contribute to climate change over their whole lives: when we build, maintain, use and demolish or re-purpose them. Extracting raw materials, transport, construction and demolition create carbon – known as embodied carbon. With all energy efficiency improvements to historic properties, there is an additional embodied carbon benefit.

When a typical historic building, such as a Victorian Terrace, is sympathetically refurbished and retrofitted, it will emit significantly less carbon by 2050 than a new building, when factoring in the embodied carbon emissions⁹. As such, retrofitting can prolong the lifecycle of a building, in some cases negating the need for its replacement, thus avoiding the significant embodied carbon involved in demolition and construction.

Annual economic activity supported in the UK with 105,000 additional full time equivalent workers retrofitting traditional properties, constant 2018 prices

	Direct output	Output supported through supply chains	Output supported through employee spending	Total output supported
Primary activities and energy	0.0	0.5	0.4	1.0
Manufacturing	0.0	2.8	0.5	3.3
Construction	14.2	8.8	0.1	23.2
Wholesale and retail	0.0	0.9	1.7	2.6
Professional services, finance and IT	0.0	1.2	1.2	2.4
Other services	0.0	0.8	1.4	2.3
Total	14.2	15.1	5.4	34.8

The economic benefits

Our evidence shows scaling up the construction sector with the skills necessary to retrofit the UK’s historic buildings would lead to an additional £35 billion of output annually, supporting around 290,000 jobs.

This additional output will be created through activity in the construction sector and through knock-on benefits for the rest of the economy. Output from retrofitting activity will stimulate spending in firms’ supply chains, generating revenues for a wider pool of businesses in the construction sector, as well as benefitting the tourism and hospitality sectors which rely on the heritage sector.

Additionally, heritage can, and should, support green jobs, and play a key role in the transition to a green economy.

Building retrofit is a labour-intensive activity. It has been estimated that for every €1 million invested in energy renovation of buildings, an average of 18 jobs are created

in the EU. This is roughly equivalent to the number of new jobs created per £1 million of UK Government grant funding invested in innovation sectors such as biotechnology, medical equipment engineering and high-tech manufacturing.¹⁰

To summarise, ensuring historic buildings are fit for the future is crucial. We believe doing so will support the UK to meet its carbon reduction targets and deliver a wide range of socio-economic benefits. It will also safeguard our built heritage for future generations by ensuring they remain habitable and affordable for people who live in them and those who visit them.

Why is it necessary to differentiate between the needs of historic buildings and their modern counterparts?

Beyond the passion we have for the historic built environment and the benefits set out in the previous chapter, we have focussed solely on the retrofit needs of historic buildings because they are constructed and designed in a different way to modern buildings. This poses unique challenges that must be accounted for in how we train people to work on retrofit and the advice provided to consumers.

In its simplest terms, historic buildings are constructed from different materials and designed to operate differently to modern buildings, necessitating a more sensitive approach to retrofit. For example, one of the key differences between historic and modern buildings is how each building type manages air flow and moisture.

Whereas modern buildings are built to be airtight and impermeable to improve their energy efficiency and protect the building's structure, historic buildings were designed

to allow air and moisture to pass from inside the building, through the structure to the outside. This was intended to prevent a build-up of moisture which could cause components of the building, such as timber beams to decay.

As living standards have changed, with showers, heating systems and washing and drying all forming essential parts of our homes, the risk of moisture build-up has significantly increased.

Ill-judged solutions can lead to the accumulation of moisture, mould and infestation, and the accelerated decay of the building fabric. They can also lead to higher maintenance and repair costs and depreciation in asset value, and often fails to achieve predicted environmental benefits¹¹.

Furthermore, the impact of poor quality retrofit on people living and working in historic buildings is a vital

consideration. Inappropriate changes can threaten the health and comfort of building occupants by creating poor indoor air quality and summer overheating (which in turn can lead to higher energy costs if mechanical cooling becomes necessary) and can lead to significant health issues including asthma¹².

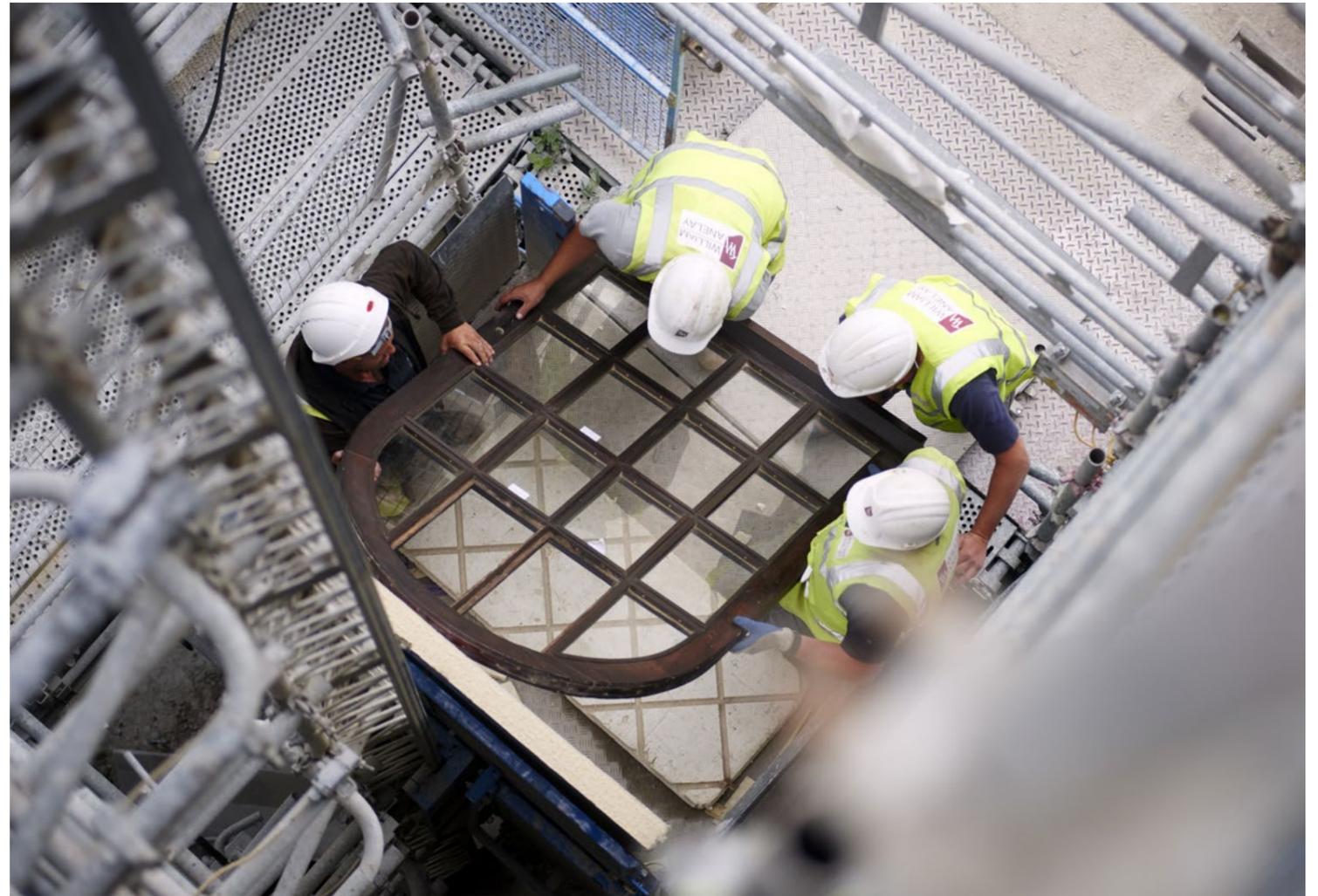
The risk of inappropriate interventions leading to overheating is a particularly important issue as UK temperatures increase and heatwaves become more common. The government's 'Third Climate Change Risk Assessment' identified this as a key risk for the health and productivity of people in the UK¹³.

Despite their historic nature, assumptions about the poor performance of buildings of historical construction are not always justified.¹⁴ Research has shown that energy use is far higher than estimated for modern eco-buildings and far lower than estimated for older buildings.¹⁵

Even so, the energy use of many historic buildings can be improved by effective retrofit.¹⁶ Research has shown that as well as historic windows having a longer lifespan than their modern counterparts, secondary glazing fitted to an existing historic window can reduce heat loss (and noise) as, or more effectively than a replacement double glazed unit provided it is installed by someone with the necessary skills.¹⁷

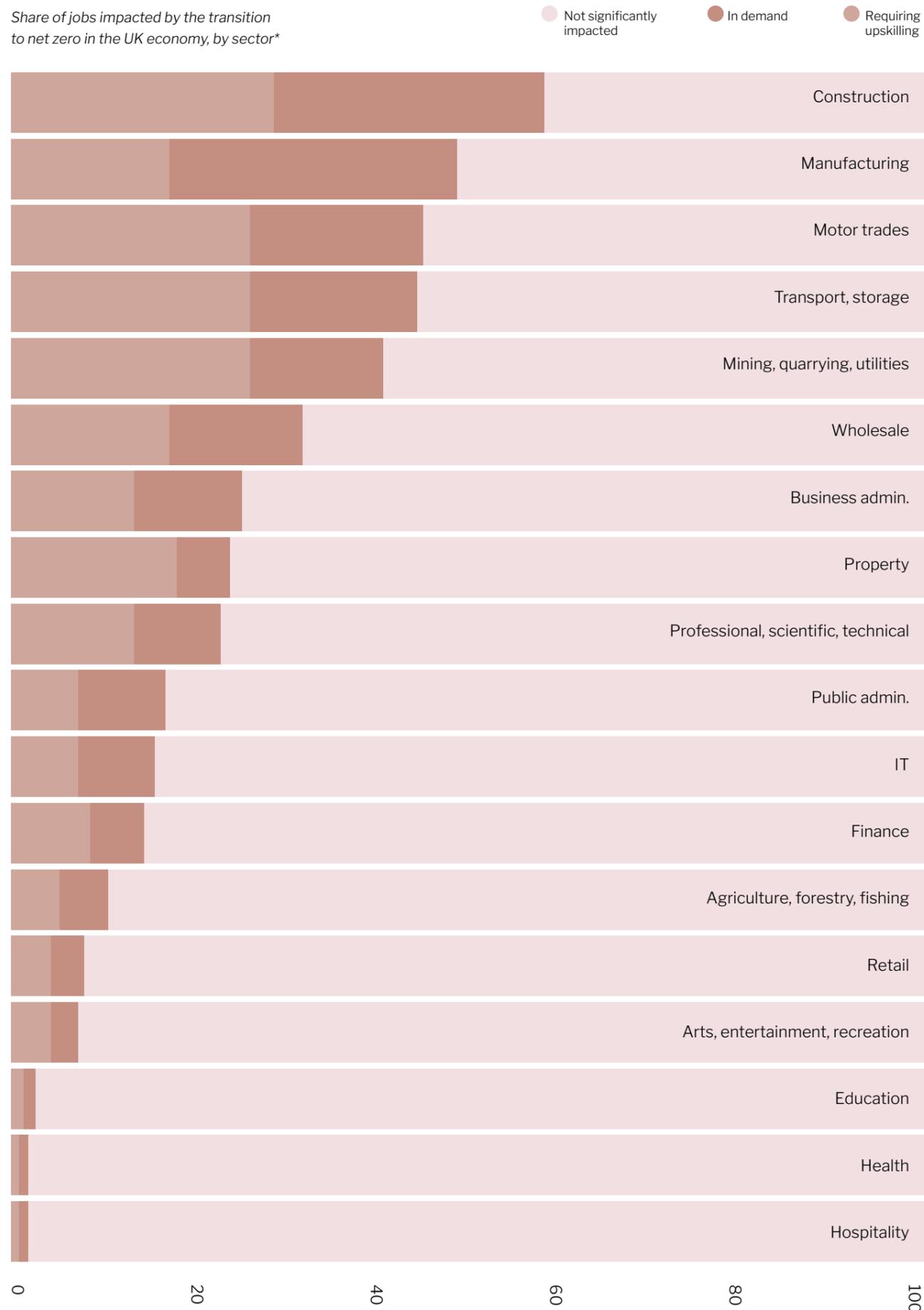
The longevity of historic buildings is a testament to the success of their design principles, and whilst there are numerous examples of highly successful retrofit projects on a wide range of historic buildings, poor workmanship or the installation of inappropriate materials and energy efficiency measures can damage historic buildings and negatively impact the health of people living and working in them.

It is possible to avoid these negative outcomes by ensuring those carrying out retrofit works have the necessary training and skills.



NTPL Commissioned(NTPL)
©National TrustImages/William Shaw

Share of jobs impacted by the transition to net zero in the UK economy, by sector*



The Construction Sector Challenge

To support the UK economy to achieve net zero, there will need to be significant growth in the low carbon economy, with estimates that it could rise from around two per cent of UK GDP in 2015 to eight per cent in 2030¹⁸.

Workers in the construction sector will play a key role in the transition to support a green economy, with 30% of existing roles being in demand and a further 29% of the current workforce needing to undertake retraining¹⁹.

As such, nearly two thirds of the existing construction sector workforce are set to be impacted by the UK's transition to the green economy, the highest proportion of jobs of any sector²⁰.

This will necessitate a significant increase in the size of the construction industry, with the Construction Industry Training Board (CITB) estimating that 350,000 additional workers will be needed in the late 2020s to achieve net zero in the built environment. An increase of this scale will require new entrants and the retraining of people already working in related professions²¹.

Despite this, since the start of 2021, pandemic-related factors and Brexit have contributed to skills shortages in construction and labour supply, a trend which is likely to continue due to an ageing construction workforce.

There is already a shortage of construction workers with the skills to retrofit historic buildings. A 2019 CEBR report estimates that in the heritage sector overall, about half of which relates to construction, 11% of employers reported a skills gap and 6% reported a skills shortage²².

Given this challenging context, we commissioned Capital Economics to assess the current skills gaps in the historic building retrofit sector and produce a model that would provide an indicative estimate of the workforce and professions needed to complete a retrofit programme of the UK's historic buildings.

Capital Economics' final report was shared with us in September 2022.

Future demand: The right workforce

Our analysis estimates there to be 100,000 people currently working with historic buildings, in occupations relevant to retrofit.

Our analysis points to the need for an additional 105,000 full time workers to retrofit historic buildings each year through to 2050. This is on top of the 100,000 already working in professions associated with the retrofit of historic properties.

Within this 105,000, 81,000 workers will be required to retrofit residential historic buildings and 24,000 will be required for historic commercial stock.

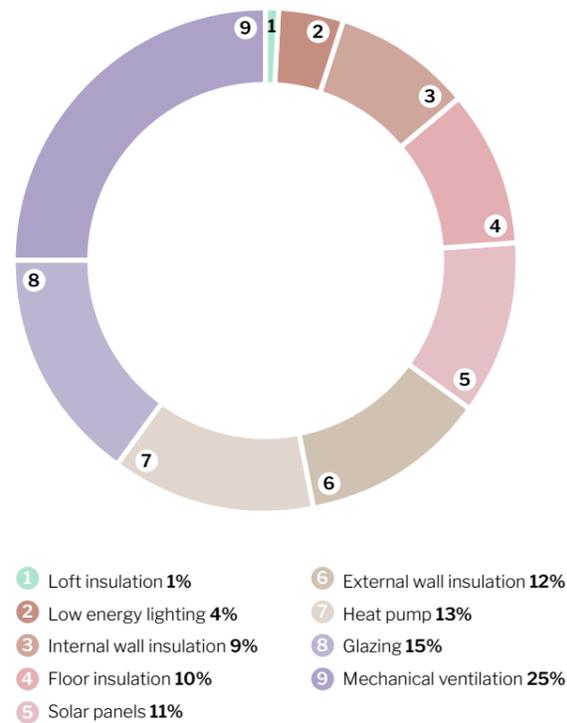
This split accounts for the fact that many non-domestic properties are likely to take relatively longer to retrofit because they tend to have larger average floorspaces. For example, our estimates suggest that an industrial property built pre 1919 could be on average around 7.3 times the size of a historic terraced property.

Skilled plumbers and heating and ventilation installers will be most urgently required

Breaking down the need for additional workers by the types of energy efficiency improvements historic buildings will need to undergo, the highest demand will be from installing and repairing/ replacing mechanical ventilation, which around a quarter of these workers will need to focus on. Meanwhile, 15% of the additional demand for workers comes from glazing windows, and an additional 13% is in the demand for heat pump work, including the installation and subsequent repair, maintenance and potential replacement of these systems.

Of the additional 105,000 workers required each year, our model suggests around 14% need to be electricians and a further 14% should be plumbers, heating and ventilation installers. This translates to 14,500 and 14,300 workers, respectively.

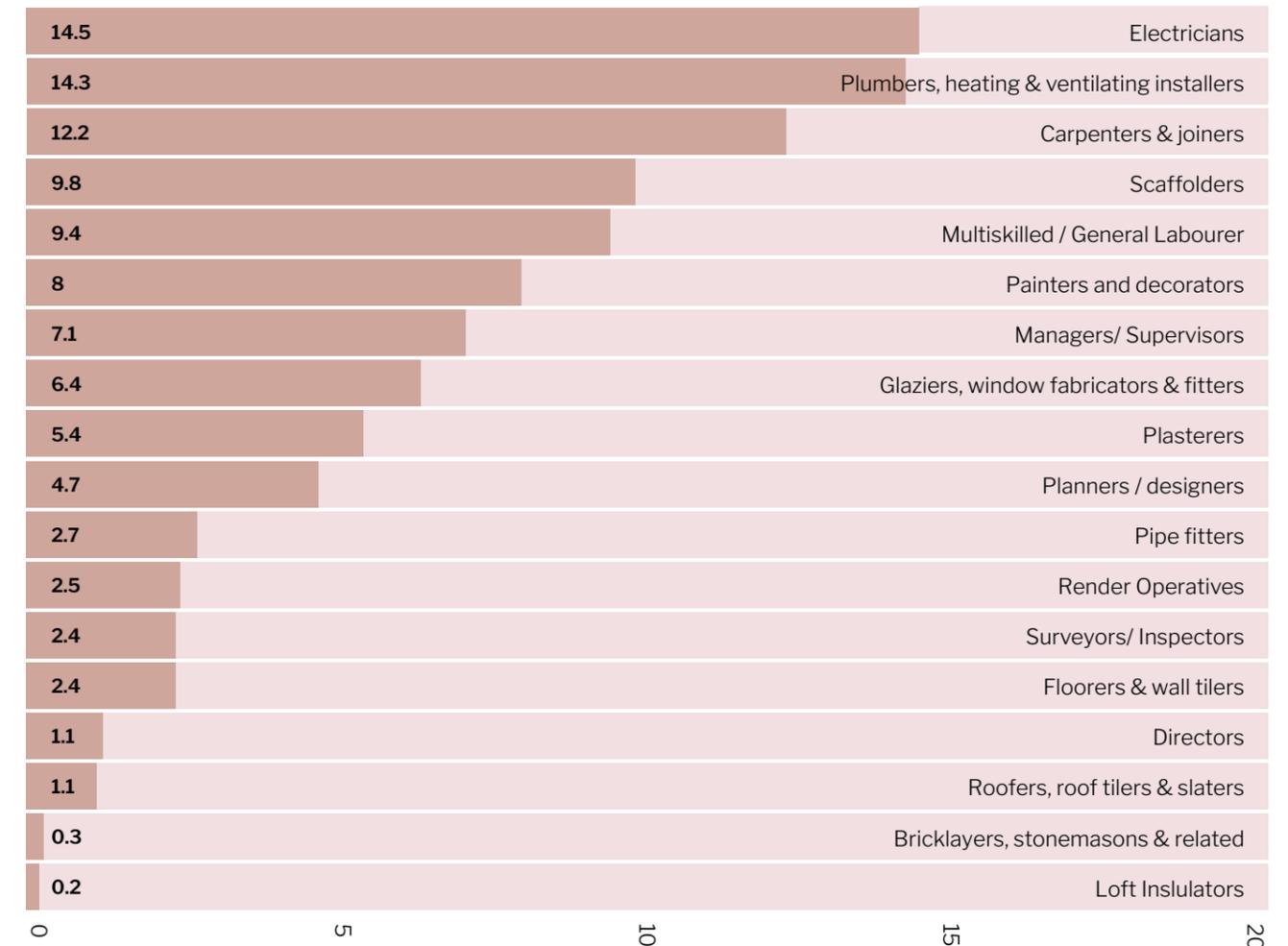
The average number of additional* workers per year required to retrofit traditional properties by intervention in the base case, share by intervention (%)



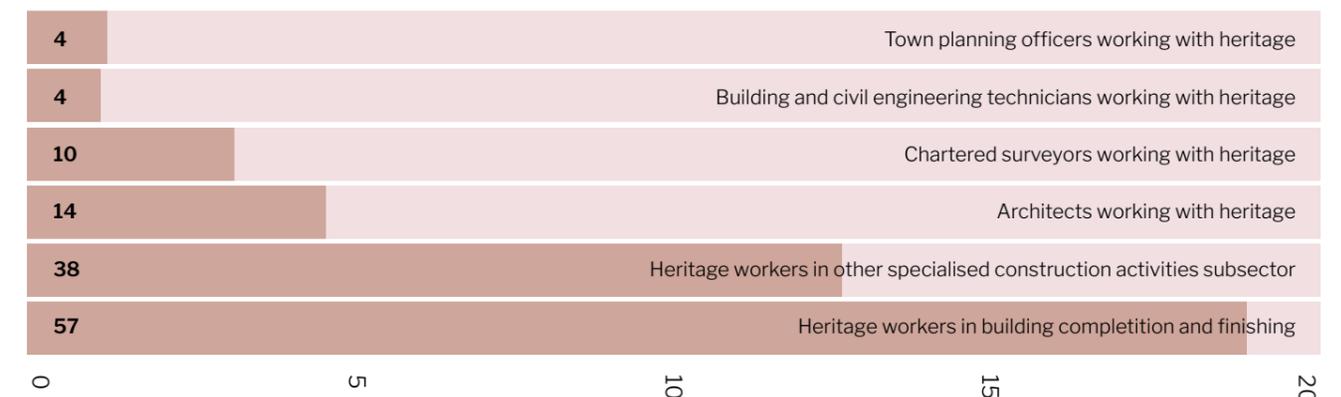
The fact that these figures account for 13% of the UK's existing electricians and 18% of the UK's plumbers illustrates the scale of the increase required, especially considering these figures relate solely to the country's historic buildings.

To avoid creating a backlog of work and a surge in demand for the right skills in the 2030s it's vital to develop the necessary capacity and skills within the construction industry. As we explore in the later chapters, this will require a joined-up approach from Government, businesses, training providers and consumers.

Additional* number of workers required in the UK on average each year between 2021 and 2050 to retrofit traditional properties by job occupation in the base case (thousands)



CEBR estimates the workforce of England's heritage sector presented for occupations relevant to traditional building retrofit (2019, thousands)





Installation of Solar Edge
Buckingham Palace Road

Future demand: the right skills

Equally important to scaling up the construction sector is ensuring those working on retrofitting historic buildings have the necessary skills and training.

Research conducted in 2013 by English Heritage (now Historic England), Historic Scotland and the CITB found that 75% of contractors surveyed in England (72% in Scotland) had not completed any training for pre 1919 building work in the past 4-5 years²³.

These results, although a few years old, highlight the need to ensure that as the construction sector builds capacity, the UK has the standards and training in place that will develop people with the skills required to retrofit historic buildings.

Historic England recommends practitioners follow a 'whole house approach' when planning energy efficiency improvements to historic residential buildings. This uses an understanding of a building in its context to find balanced solutions that save energy, sustain heritage significance, and maintain a comfortable and healthy indoor environment.

This process starts with assessing whether the building is in a good state of repair. One of the most effective ways to improve the thermal efficiency of a historic building is by carrying out repairs promptly and through regular maintenance. This is a generally overlooked principle, with greater weight given to adding new energy efficiency measures to buildings.

A whole house approach also considers wider environmental, cultural, community and economic issues, including energy supply. It ensures improvements are suitable, proportionate, timely, well integrated, properly coordinated, effective and sustainable, and helps to highlight and resolve uncertainties, reconcile conflicting aims, and manage the risks of unintended consequences.

A whole house approach is recommended in PAS 2035, the UK's benchmark for domestic retrofit work. A 'Publicly Available Specification', it is used for historic and modern residential properties. Published by the British Standards Institute, its production was sponsored by BEIS and coordinated by the Retrofit Standards Task Group. It sits alongside PAS 2038:2021 which is the standard for retrofitting non-domestic buildings.

Within PAS 2035, the processes of undertaking a retrofit are split between different roles, each with specific responsibilities. These roles are Retrofit Advisor, Retrofit Assessor, Retrofit Coordinator, Retrofit Designer and Retrofit Evaluator. For each of these roles, there are specific training requirements and professional qualifications practitioners are required to possess.

As the UK looks to retrofit the built environment, these roles will be crucial, with the CITB estimating that 250,000 retrofit Coordinators and Designers will be required to tackle the UK's historic and modern building stock in order for the country to reach net zero²⁴.

As the key document for domestic retrofit, ensuring PAS 2035 and its associated training provides people with the knowledge necessary to retrofit the UK's 6.2 million historic residential buildings is essential. It is important to highlight that this training is not only necessary for new entrants but also for those already working in construction.

***75% of contractors surveyed
in 2013 had not completed any
training for pre 1919 building
work in the past 4-5 years***

Closing

Building a workforce with the skills and capacity to effectively retrofit the UK's historic buildings will require interventions from national and local Government, industry and training providers. In this section we set out our recommendations for how different stakeholders can play their part.

the gap

National Retrofit Strategy

Improving the energy efficiency of the UK's housing stock will require a concerted effort across the public and private sectors. In January 2022 the Environmental Audit Committee referred to the need for a “national war effort” on energy savings and energy efficiency, underlining the urgency of the task²⁵.

The UK needs a long-term national strategy clearly setting out how it will bring together skills and training, funding, standards and advice to tackle the country's building stock, including its historic buildings.

We see this is as essential to providing industry, businesses, investors and training providers with the confidence they need to invest and scale up, whilst reassuring consumers that works will be carried out professionally and have the desired impact.

Addressing both the supply and demand side together is an essential part of ensuring successful implementation. A National Retrofit Strategy would address this by providing this long-term certainty, creating the conditions for investment, training and the retrofit sector to mature.

Government should work with industry to package together skills, training, funding, standards and advice into a National Retrofit Strategy. This will provide the long-term certainty needed for businesses, training providers and local Government to build capacity and will provide clarity to consumers, clients and employers. Within this strategy, help must be made available to support the training, upskilling and consumer advice necessary to effectively improve the energy efficiency of the country's historic built environment.

Industry standards that support historic retrofit

Within this strategy, given the high proportion of historic buildings that make up the UK's built environment, any National Retrofit Strategy must consider the production, revision and use of standards that address the needs of the sector and specifically support appropriate and knowledgeable retrofit of historic buildings.

Despite being designed for both modern and historic residential properties, PAS 2035 is widely seen as a positive step forward for historic buildings, encouraging a whole building approach that considers how any proposed works may negatively impact other aspects of the building.

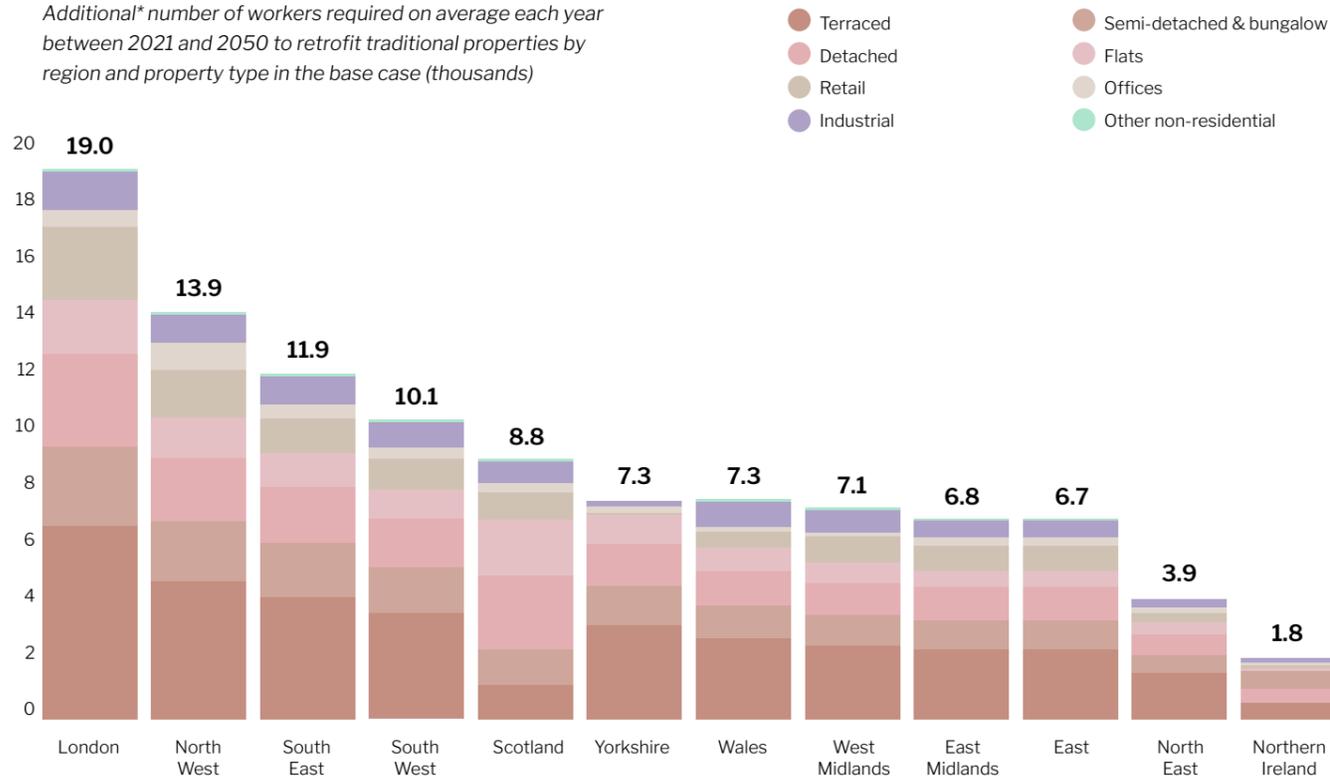
Since 30th June 2021, compliance with PAS 2035 and PAS 2030 have been mandatory for all TrustMark scheme companies installing energy efficiency measures, including domestic retrofit. PAS 2035 must also be applied to retrofit projects outside the TrustMark quality assurance framework where public finance is involved, particularly through The Public Sector Decarbonisation Scheme.

Given its widespread application and how it underpins a number of the key roles in the retrofit process, we believe there are changes that could be made to PAS 2035 that would lead to better outcomes for historic buildings.

- PAS2035 should expressly promote repair and maintenance as a way to improve the energy efficiency of a building, not just as a starting point for installing energy efficiency measures. This would bring PAS2035 into line with Historic England's guidance.
- Within the PAS 2035 framework there is a need for many different yet interlinking roles. Of these roles, only Retrofit Assessors and Retrofit Evaluators are required to undertake specific training concerning the energy efficiency of historic buildings. At present this would mean obtaining a Level 3 Award in Energy Efficiency Measures for Older and Traditional Buildings²⁶. Given that nearly a quarter of all the UK's homes are historic buildings, professionals are highly likely to encounter them as part of their work. For this reason we believe all roles should be required to undertake appropriate accredited training.
- Whilst PAS 2035 is a 'Publicly Available Standard', it is not freely accessible. Funding from Government to make it freely accessible would encourage take up from a wider range of professionals.
- Additionally, Government is considering moving away from PAS 2035 for certain energy efficiency measures funded through the new ECO+ scheme. Whilst we appreciate this approach is only being considered for a small number of energy efficiency measures, retaining PAS2035 will encourage a broader proportion of the retrofit industry to become PAS certified, something that will benefit the retrofit sector in the long-term.

Practical quality is at the heart of the successful retrofit of historic buildings, with defined codes of practice and standards essential to achieving this. We recommend Government and the BSI work with the heritage sector to review the training available for the construction sector and ensure knowledge of effective retrofit of modern and traditional buildings is appropriately covered, widely available, and encouraged to be taken up. For instance, reviewing how PAS 2035 can be amended, training requirements expanded and how it can be made more widely accessible.

Additional* number of workers required on average each year between 2021 and 2050 to retrofit traditional properties by region and property type in the base case (thousands)



Local approaches to retrofit, skills and training

Whilst a long-term national strategy is the key to unlocking many of the components essential to the delivery of a successful national retrofit programme, local approaches are key to the delivery of skills, training and creating a pipeline of demand.

Local Skills Improvement Plans

As part of our research we have broken down the types of historic buildings across different regions as well as the types of building most prevalent in each region – terraced homes, retail, industry etc.

For example, the greatest need for workers to retrofit historic buildings will be in London, with 30% of its homes built prior to 1919. An annual average of 19,000 additional workers will be required between 2021 and 2050, with approximately a third being required to work on terraced homes.

Both the scale of the workforce required in each region and the breakdown of building types offer local areas insight that can inform their skills and training requirements.

A key process for determining these are Local Skills Improvement Plans (LSIPs). Introduced in the Department for Education’s Skills for Jobs White Paper in 2021 they are intended to provide detailed assessments of employer skills needs at a local level and develop strategies to meet them.

With business groups largely tasked with developing LSIPs, they are hoped to address concerns that employers do not currently have enough influence over the skills provision offered in their locality and struggle to find staff to fill their skills gaps.

Funding from Government is supporting the delivery of 38 LSIPs across England, in addition to eight initial trailblazer LSIPs. The guidance provided to support the development of LSIPs includes a requirement for them to consider the skills, capabilities and expertise required to support the UK’s net zero targets, adaption to climate change and other environmental goals.

This is a positive step forward to developing strategies for local skills and training that support the green economy.

We recommend the organisations bringing forward Local Skills Improvement Plans, referred to as ‘Employer Representative Bodies’, use the data in our report to support their evidence base and develop proposals to build skills and capacity in the retrofit sector and the green economy.

To ensure the goals of the LSIPs are achieved, we recommend Government continues to provide the resources necessary to support training providers and colleges to provide retrofit training in line with the needs of local employers.

Area-Based Schemes

Across the country, area-based schemes are being set up to create demand by supporting householders to retrofit their properties and build capacity in the retrofit sector.

Manchester’s People Powered Retrofit, supported by community energy co-operative Carbon-co-op brings together training, contractors and advice and support for consumers.

It offers a one stop shop of services to support the design of a project, support procuring contractors, advice and quality assurance as well as managing the entire process on behalf of households. It also offers contractor training services, helping to upskill people working in the construction industry and new entrants.

Other projects are similarly focussing on how to bring demand and supply closer together by simplifying the retrofit process for households to help secure their buy-in and engagement.

In Devon, The Net Zero Hub worked with Devon County Council to explore how producing simplified guidance for rural households would encourage them to install heat pumps.

Working with Regen and Parity Projects the project reviewed Devon’s housing stock to determine the smallest number of building types that would best represent the wide variety of rural homes, and the most appropriate measures and costs to achieve carbon-reductions.

Simple visuals were developed to engage people in how to upgrade their homes to achieve carbon and energy cost savings, with the overall aim of increasing delivery of retrofit measures.

Through community engagement with householders with the resources to pay for energy efficiency improvements, over two thirds of those approached agreed to the concept of having a Home Improvement Plan for their property. Whilst less than half were comfortable spending the money on the home improvement plan the tools developed are now being used to overcome reticence some households have due to the perceived complexity of retrofit.

Beyond this consumer focussed approach, area-based initiatives such as Historic England’s High Street Heritage Action Zone programme are supporting the revitalisation of high streets across the country. Working closely with local

authorities, Historic England has supported more than 60 areas to develop and deliver schemes that will transform and restore disused and dilapidated buildings into new homes, shops, workplaces and community spaces, restoring historic character and improving public realm.

We believe schemes such as this are an effective way to build local demand and create pipelines that provide local retrofit businesses with the certainty they need to build capacity. Government should consider providing greater support to enabling place-based retrofit that matches supply to demand, addresses training requirements and supports households to make informed decisions.

Role of industry

Whilst many of our recommendations have focussed on actions for Government, there is more that industry can do to support the growth of the construction and retrofit sector and address the skills shortage. These recommendations can be put in place immediately and could be further enhanced by changes to Government policy.

A more accessible Apprenticeship Levy

The Apprenticeship Levy is a Government initiative designed to support the creation of apprenticeships. Introduced in 2017, all employers paying a wage bill of more than £3m are required to pay 0.5% of their payroll each month into a digital fund, with Government adding a 10% contribution on top of this amount. This funding pot can then be used by the employer to pay for apprenticeship training on a monthly basis.

Contributions are held in the digital fund for 24 months. If they are unspent in this timeframe they are then transferred back to the Treasury. Data collected by the London Progression Collaboration in July 2022 showed that between May 2019 and July 2022, £3.3bn of unspent Apprenticeship Levy was returned to the Treasury²⁷.

This presents an opportunity to repurpose unspent levy to fund retrofit training with the aim of tackling the considerable retrofit skills gap. However, the constraints of the scheme are barriers to its effective use. Currently there are limited apprenticeship standards that address the skill gaps highlighted in this report. Whilst the development of apprenticeship standards such as Heritage Construction Specialist and Low Carbon Heating Technician are currently being developed, we feel more immediate intervention can be achieved by upskilling the existing construction sector workforce, including through short courses and Retrofit Bootcamps.

We recommend that Government looks to make apprenticeship levy funding more flexible by allowing unspent funds to be used to improve the reach and delivery of existing retrofit qualifications in the supply chain. This would enable organisations to better address these challenges through their own activity.

Increasing funding for retrofit through the Apprenticeship Levy

Currently, companies are able to reallocate up to 25% of their Apprenticeship Levy to smaller businesses, allowing SMEs to use this funding to start apprenticeships and develop existing staff's skills.

We welcome the Government's work over the past five years to review the proportion of Apprenticeship Levy that businesses are able to transfer. These reforms have enabled significant investment in SMEs and non-levy paying organisations, supporting their ability to invest in their workforce through upskilling and creating new apprenticeships.

As we continue to seek to upskill a broader cohort of workers to tackle the UK's heritage retrofit needs, we would recommend Government consider a further review of the Levy transfer allowance to enable non-levy paying businesses to access vital funds that contribute to better career progression and growth.

As a collective, we believe there is potential for Levy paying businesses in the private sector, not for profit organisations and parts of the public sector to contribute positively to retrofit skills and training by transferring their unspent Apprenticeship Levy to smaller businesses.

For large organisations, this transfer offers a particularly effective way to meet their strategic goals by supporting businesses or sectors that will help them build capacity in their supply chains or meet broader objectives such as addressing social or environmental issues.

Ensuring historic buildings are adapted to meet carbon targets is a concern shared by many organisations. By transferring a proportion of their unspent levy it would be possible for businesses to directly benefit SMEs looking to scale up or provide training.

With £3.3bn of Apprenticeship Levy having been returned to the Treasury unspent between May 2019 and July 2022, Government should consider increasing the proportion of the Apprenticeship Levy that can be transferred, enabling smaller businesses to access a larger pot of funding.

Grosvenor will pledge up to £50,000 of its Apprenticeship Levy transfer, and The Crown Estate will pledge the maximum allowance of its Apprenticeship Levy transfer, per year to support the development of heritage retrofit skills. Both organisations will continue to review their pledge based on policy and guidance. As coalition partners we wish to demonstrate a proactive approach to addressing the skills gap and will seek to encourage other organisations with unspent levy to look at options for how they can support SMEs to build their capacity and train their workforce.



Glossary

¹Capital Economics - Retrofitting traditional buildings helping progress to net zero: An analysis of the current skills gap and economic impacts of implementing a full retrofit programme for traditional buildings – September 2022

²Capital Economics, September 2022

³Heritage and Civic Pride: Public First Report for Historic England May 2022

⁴Heritage and the Economy (historicengland.org.uk)

⁵Mission Zero – Independent Review of Net Zero – Rt Hon Chris Skidmore MP 2023

⁶Assessment of the energy efficiency potential in heritage buildings in England and Wales, Verco, May 2021

⁷Heritage Counts 2019 <https://historicengland.org.uk/content/heritage-counts/pub/2019/hc2019-re-use-recycle-to-reduce-carbon/>

⁸Dorpalan, B (2019); Valuing carbon in pre-1919 residential buildings; Historic England; available at <https://historicengland.org.uk/content/docs/research/valuing-carbon-pre-1919-residential-buildings/>

⁹Heritage Counts 2020 <https://historicengland.org.uk/content/heritage-counts/pub/2020/hc2020-know-your-home-know-your-carbon/>

¹⁰<https://www.buildingsandcities.org/insights/commentaries/retrofit-buildings-recovery.html>

¹¹Historic England: External Wall Insulation in Traditional Buildings 2017

¹²Health and Moisture in Buildings, The Centre for Moisture in Buildings 2019

¹³UK Climate Change Risk Assessment 2022 (publishing.service.gov.uk)

¹⁴Li, F.G.N., Smith, A.Z.P., Biddulph, P., Hamilton, I.G., Lowe, R., Mavrogianni, A., Oikonomou, E., Raslan, R., Stamp, S., Stone, A., Summerfield, A.J., Veitch, D., Gori, V. and Oreszczyn, T. (2015), "Solid-wall Uvalues: heat flux measurements compared with standard assumptions", Building Research and Information, Vol. 43 No. 2, pp. 238-252, available at: 10.1080/09613218.2014.967977.

¹⁵Laurent, M-H., Galvin, R., Oreszczyn, T., Tigchelaar, C., Allibe, B., Hamilton, I. (2013) Back to reality: How domestic energy efficiency policies in four European countries can be improved by using empirical data instead of normative calculation. ECEEE Summer Proceedings. https://www.eceee.org/library/conference_proceedings/eceee_Summer_Studies/2013/7-monitoring-and-evaluation/back-to-reality-how-domestic-energy-efficiency-policies-in-four-european-countries-can-be-improved-by-using-empirical-data-instead-of-normative-calculation/

¹⁶Rhee-Duverne, S and Baker, P. 2015. A Retrofit of a Victorian Terrace House in New Bolsover: A Whole House Thermal Performance Assessment. Historic England Research Report 103/2015

¹⁷Wood, C., Bordass, B., Baker, P. (2009). Research into the thermal performance of traditional windows: timber sash windows. London: English Heritage. <https://research.historicengland.org.uk/Report.aspx?i=16035&ru=%2fResults.aspx%3fp%3d1%26n%3d10%26a%3d5111%26ns%3d>

¹⁸Ricardo Energy & Environment, UK business opportunities of moving to a low carbon economy, 2017. (Capital Economics report page 26

¹⁹Ricardo Energy & Environment, UK business opportunities of moving to a low carbon economy

²⁰Place Based Climate Action Network, Tracking local employment in the Green Economy: The PCAN Just Transition Jobs Tracker <https://pcancities.org.uk/tracking-local-employment-green-economy-pcan-just-transition-jobs-tracker>

²¹Construction Industry Training Board, Building Skills for Net Zero (Eunomia: Bristol), 2021.

²²Skills gap/needs in the Heritage Sector – A report for Historic England – April 2019

²³English Heritage, Historic Scotland and CITB, Skills Needs Analysis 2013, 2013.

²⁴Construction Industry Training Board, Building Skills for Net Zero (Eunomia: Bristol), 2021

²⁵National 'war effort' mobilisation needed to improve energy efficiency, install solar panels on new developments and set clear date to end oil and gas licensing - Committees - UK Parliament

²⁶<https://www.sqa.org.uk/sqa/95908.html>

²⁷<https://www.ft.com/content/32ace572-46c3-48b8-9202-b6d7ac27f8c9>

This paper has been written by Matthew O'Connell of Grosvenor. It has been written in collaboration with The Crown Estate, Historic England, the National Trust and Peabody, drawing on their advice and experience as well as independent research by Capital Economics.

