Commissioned by

Historic England

HARLOW CONSULTING

Skills Needs Analysis

For the Repair, Maintenance and Retrofit of Traditional (pre-1919) Buildings in England

September 2024

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Acknowledgements

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Our grateful thanks also go to DobingDesign for the design of the final report.

Contents

Glossary

Base	Number of respondents that answered a survey question
BEIS	Department for Business, Energy & Industrial Strategy[1]
BS 40104	British Standard 40104: Assessment of dwellings for retrofit
Cadw	Historic environment service of the Welsh Government
CEBR	Centre for Economics and Business Research
CITB	Construction Industry Training Board
CSCS	Construction Skills Certification Scheme
DLUHC	Department for Levelling Up, Housing & Communities
ERB	Employer Representative Body
FE	Further Education
FTE	Full-time equivalent
HARR	Heritage at Risk Register
HE	Higher Education
HES	Historic Environment Scotland
HHSRS	Housing Health and Safety Rating System
IfATE	Institute for Apprenticeships and Technical Education
LSIP	Local Skills Improvement Plan
MEND	Museum Estate and Development Fund
NHLE	National Heritage List for England
NHTG	NHTG National Heritage Training Group
ONS	Office for National Statistics
PAS 2035	Publicly Available Specification for whole house retrofit in the UK
RHSN	Regional Heritage Skills Network
VAT	Value Added Tax

1 Split in 2023 to form the Department for Business & Trade (DBT), the Department for Energy Security & Net Zeo (DESNZ) and the Department for Science, Innovation & Technology (DSIT)

Terminology and definitions

There are a range of terms and definitions used in the heritage sector about buildings which are explained below:

Listed buildings[2] in England are considered to have historic interest or architectural significance that warrants regulatory protection to preserve their characteristics, and safeguard them from harm or destruction. Listed buildings are placed on a statutory list – the **National Heritage List for England (NHLE)**[3] – maintained by Historic England.

There are three grades:[4]

- **Grade I** buildings are of exceptional interest (around 2.5% of listed buildings are Grade I);
- **Grade II*** buildings are particularly important buildings of more than special interest (around 5.8% of listed buildings are Grade II*); and
- **Grade II** buildings are of special interest (around 91.7% of all listed buildings are Grade II).

Note: the exact total of listed buildings is not known because one single entry on the NHLE can span multiple units e.g. a row of terraced houses.

Other structures can also be listed – for example, monuments, sculptures and bridges.

Scheduling is another form of heritage protection which pre-dates listing. Monuments and archaeological sites deemed to be of national significance can be classed as **scheduled monuments** if they are deemed to hold national significance. These can vary from prehistoric standing stones to medieval castles and even 20th Century remains of the coal industry. They are added to the schedule of ancient monuments that hold national significance. This schedule is also part of the NHLE.[5]

As well as listed buildings and scheduled monuments, the NHLE includes records of other forms of protected heritage:

- designed landscapes which are compiled on the **Register of Parks and Gardens of Special Historic Interest in England**;[6]
- battlefields, compiled on the **Register of Historic Battlefields**;[7] and
- the remains of selected ships and boats – **Protected Wreck Sites**.[8]

These buildings, archaeology sites, designed landscapes, battlefields and wreck sites are collectively known as **heritage assets**.[9]

In England the process of protection of such heritage assets is called **designation**. Multiple terms – 'listed', 'scheduled', 'registered', 'protected' and 'registered' – are used because the processes to achieve this protection are linked to different legislation. The term 'listing' is sometimes used as shorthand for all forms of designation.

Historic England also maintains a Heritage at Risk Register (HARR) which predominantly spans more highly designated assets e.g. Grade I and Grade II* listed buildings and scheduled monuments.

Across the heritage and built environment sector, other terms may be used to refer to listed buildings, such as **historic buildings** and **heritage buildings**. However, it may be the case that a building is described as 'historic' or 'heritage' – but is not actually listed.

The terms **traditional buildings** and **older buildings** are typically used to denote buildings that were constructed before 1919. Such buildings may or may not be listed. Some buildings built after 1919 are also of traditional – solid wall – construction.

For the purpose of this study, we have used the terms **traditional buildings, older buildings** and **buildings constructed before 1919** interchangeably throughout the report to describe those buildings in scope of the research. In a small number of cases, we use the term **historic building** to refer to evidence drawn from specific datasets or published reports, or if we are quoting a respondent. We also use the terms heritage construction or heritage construction, repair and maintenance to refer to work undertaken on buildings constructed before 1919 or to refer to training or qualifications relevant for this type of work.

2 What are Listed Buildings? How England's historic buildings are protected | Historic England.
3 Search the List – Find listed buildings, monuments, battlefields and more | Historic England.
4 What are Listed Buildings? How are listed buildings graded? | Historic England.
5 What Are Scheduled Monuments? | Historic England.
6 What Are Registered Parks and Gardens? | Historic England.
7 What Are Registered Battlefields? | Historic England.
8 What Are Protected Wreck Sites? | Historic England.
9 Introductions to Heritage Assets (IHAs) | Historic England. The National Planning Policy Framework states this technical definition of a heritage asset: A building, monument, site, place, area or landscape identified as having a degree of significance meriting consideration in planning decisions because of its heritage interest. "Heritage Asset" includes designated heritage assets and assets identified by the local planning authority (including local listing).

Foreword

Ian Morrison
Director of Policy and Evidence, Historic England

From the extraordinary to the everyday, the nation's irreplaceable heritage enriches our lives. For many, working on the traditional buildings that give character to our cities, towns and villages can provide a fulfilling, life-long career.

However, the skills needed to repair, maintain and retrofit our traditional buildings are specialist in nature, and a rise in demand for these skills is looming.

The findings laid out in this report highlight that we are headed towards a skills crisis that threatens our heritage's longevity and survival if appropriate action is not taken.

The condition of many traditional buildings is poor due to a backlog of maintenance, the once in a generation programme to restore the Palace of Westminster is on the horizon, and we need to retrofit and adapt vast numbers of traditional buildings if we are to meet our net zero commitments. Yet, new entrants are not joining the workforce in sufficient numbers to replace the highly skilled people we are losing, and the current system neither encourages nor facilitates larger numbers joining.

While the situation is challenging, this report is timely. There is a renewed enthusiasm for tackling these challenges collaboratively: the Historic Environment Skills Forum will soon launch its Historic Environment Skills and Careers Action Plan for England; the Construction Industry Training Board (CITB) is working with employers to develop Sector Skills plans across Repair, Maintenance and Improvement, and the Houses of Parliament Restoration and Renewal Programme is planning an approach to developing and maintaining skills which will benefit the whole of the UK.

At Historic England we are excited to work with the wider sector, and the new government, to meet these challenges, ensuring that we have the right people, with the right skills and in the right places, to conserve our rich heritage and adapt it for the future. We know that our historic buildings must continue to change and evolve if they are to contribute to a greener future while also continuing to be fit for purpose for the people who live in, experience and care for them.

With many thanks to all those who have contributed to this research, either by completing the telephone questionnaire, or by taking part in interviews and attending round table discussions. We are especially grateful for the contributions of CITB and English Heritage to the development of this report. We are excited and optimistic regarding what we can achieve, working together with the right support, in the coming years.

This report has been compiled with the support of CITB.

Executive summary

Traditional buildings represent a large proportion of England's building stock. Around 20% of homes and around a third of non-domestic premises were built before 1919 – the date that is usually used to mark the transition from traditional to modern construction methods.

These traditional buildings make a huge contribution to national, regional and local areas, providing a multitude of financial and non-financial benefits, as well as providing character and a sense of place to communities and landscapes. Retaining existing building stock is much less carbon intensive than building anew, meaning that they are vital potential contributors to addressing the climate emergency – especially where their environmental performance can be safely and effectively improved by 'retrofitting' energy saving measures. However, repairing, maintaining, restoring, altering and retrofitting traditional buildings requires very specific skills and materials.

There has been longstanding concern about the availability of these skills. A series of reports sponsored by the main heritage and construction sector bodies defined the issues and identified ways forward. The last major report of this kind was published over a decade ago.

Much has changed since then: Brexit, the Covid-19 pandemic, recession, and a prolonged inflationary period with particular impacts on the construction sector. Historic England has therefore commissioned this research to understand the current need for traditional building skills and identify action to be taken to meet those needs now and for the future.

Drawing on the findings of a review of recent literature, extensive engagement with more than 40 stakeholders, a major survey of 700 specialist traditional building contractors and two round table events, this report presents comprehensive insights into the demand for and supply of traditional building skills in England.

This research has found that there is a large market for work on traditional buildings. By collating all the available evidence, the current total demand for work on pre-1919 buildings is estimated at around £28 billion per year, of which over £15 billion uses traditional materials and techniques.

Meeting this demand, then, is likely to a need a fundamental change of attitude to workforce growth from contractors and sustained development of traditional building skills among the specialist workforce.

This market is currently served by a well-established and fairly secure specialist traditional buildings construction sector. Nearly six in ten survey respondents have been in business for more than 20 years; more than 90% report using traditional materials, notably traditional lime mortars; some two-thirds largely specialise in pre-1919 buildings; and they report high levels of confidence in their skills, with 84% reporting that they were 'very confident' working on the most highly listed, Grade I buildings.

They also report that there is high demand for their services; that demand has grown in the last three years; and that they expect demand to increase further in the future. Furthermore, contractors in most parts of the country also reported that specialist subcontractors in most trades were available within weeks, suggesting adequate supply of specialist skills for the current market. This perception of a secure situation is reflected in the nearly two-thirds of survey respondents who report charging a premium to work on older buildings – with this being especially likely among the contractors with the highest focus on older buildings. Moreover, nearly 60% of contractors who work predominantly on pre-1919 buildings said they wanted to increase their volume of work of this kind.

However, this is a snapshot in time. This seemingly positive picture does not seem to be backed up by likelihood of making the changes needed to increase the supply of traditional building skills. Few contractors reported wanting to expand their workforce. Nearly a fifth of contractors report skills gaps – that is to say existing employees who lack all the skills they need for the work available. These were concentrated in younger employees. A quarter report skills shortages – difficulty recruiting workers with the skills they need – with carpentry and joinery skills being especially hard to recruit. More than 40% reported that it had become more difficult to recruit over the last three years with only 4% saying it was easier. More than half raised specific concerns about skill levels in potential recruits and half cited a lack of new trainees with skills to work on pre-1919 buildings. Nearly a fifth had reported turning down work due to skills shortages. The evidence points to a workforce biased towards older workers and – with relatively fewer workers aged 35 or under – concerns about the future sustainability of the traditional buildings construction workforce.

It is therefore difficult to be confident in the longer-term sustainability of this supply of skilled workers, with serious doubts about the capacity of the supply chain to meet future demand.

Meeting this demand, then, is likely to need a fundamental intervention to support workforce growth and sustained development of traditional building skills among the specialist workforce.

There is also evidence that even the existing supply of skilled workers is not meeting the underlying need for work to traditional buildings. There is evidence of large backlogs of repair and maintenance in buildings of all ages, but especially in pre-1919 buildings.

Although there is a lack of published research to enable the backlog to be precisely quantified, the English Housing Survey suggests that nearly a third of pre-1919 homes fail to meet the decent homes standard, compared to 11% of homes constructed after 1920. The cost of remedying the defects was estimated in 2020 at around £13 billion, representing nearly 40% of the outstanding repair liability for all homes.

The supply deficit is even more concerning in light of expected drivers for significantly increased demand for traditional construction skills over the coming years and decades. Major projects, notably the Houses of Parliament Restoration and Renewal Programme, are expected to begin soon. This alone is expected to add nearly half a billion pounds a year to demand for traditional building services over a period of at least 19 and possibly more than 40 years. A second factor is the need to retrofit the nation's buildings to help meet the net zero-carbon ambition. Traditional buildings can and must be made more energy efficient to contribute carbon reduction.

The research found little evidence to suggest that current training provision is adequate to sustain the existing level of skills – let alone that required for major growth plans.

Informal on-the-job-training and practical experience emerged consistently as the primary means for gaining specialist traditional building construction skills, and word-of-mouth as the best way of attesting to these skills. This reliance on informal approaches both reflects and perpetuates a pattern of Further Education (FE) colleges and private training providers providing little training specific to the needs of traditional buildings construction, repair and maintenance.

The research found that although some 79 qualifications relevant for traditional buildings construction, repair and maintenance had been developed, 48 were either discontinued or unavailable. Although around 150 of such courses were identified through desk research, many were not readily accessible on a local or regional basis. While there is interest in taking on trainees and apprentices, especially among those contractors most focused on traditional buildings, there are concerns about accessing appropriate formal training. There are also concerns about finding suitable recruits, due to lack of awareness of the career opportunities provided by the sector.

Finally, under a third of respondents feel confident that there is the right training available to enable them to develop the additional skills needed to undertake retrofit work. The research found that traditional building contractors lacked confidence in retrofit and had little interest in becoming active in the retrofit market. Survey respondents report that only 2% of turnover on average is represented by retrofit work. In addition, fewer than 40% are very or quite confident that they have the necessary skills to undertake retrofit of older buildings – a frank assessment from a sector that is typically so assured in its abilities and skills. There were also concerns that there was a lack of consistent, authoritative, readily accessible information about best practice for retrofit. There consequently appears to be a particular gap for specialist training and qualifications for heritage and traditional building retrofit advisors to help identify appropriate retrofit measures on a building-by-building basis.

The overall picture, then, is of:

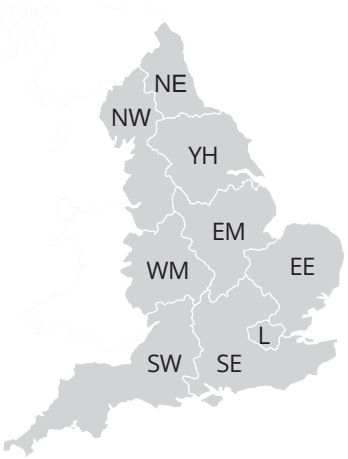
- an established and confident contractor base responding to current active market demand for work on traditional buildings, with many charging a premium for doing so;
- this supply nevertheless failing to meet the underlying need for traditional building skills;
- major drivers for increased demand for work on traditional buildings in the coming years;
- strong reliance on informal training and experience, coupled with insufficient supply and quality of formal training, along with barriers to recruiting suitable trainees and apprentices – pointing to concerning barriers to succession;
- a lack of capacity, and in some cases appetite, among both contractors and training providers, to grow employment and training to meet future demand growth; and
- limited appetite among the existing contractor base to undertake retrofit of traditional buildings, in spite of strong policy and social drivers for work of this nature.

Without intervention, the future supply of skilled workers to both maintain the country's traditional buildings and pass down skills and knowledge to the next generation will continue to diminish, putting the workforce – and our heritage – at risk.

At the same time, it was clear that many participants in the research showed real enthusiasm, commitment and concern for passing on and developing traditional building skills. As such, there is high potential to capitalise on this enthusiasm and move forward with the interventions that the sector so urgently requires.

To do this effectively, there is a need, first, for the heritage and construction bodies, clients and the wider industry to work together to develop a **clear view of the pipeline of demand**. This will enable better understanding of the employment and training need and more confident planning of training provision. Given its importance to the sector, there is also a need for **better support for informal training** within traditional construction organisations, while ensuring that traditional building related content in mainstream construction training continues to be strengthened. This must be complemented by **renewed promotion of traditional construction careers and apprenticeships** to new entrants, both school leavers and career changers. The specific challenges of retrofit require special attention, primarily by ensuring that existing guidance is consistent and then bringing it together in a single **retrofit information 'hub'.** Finally, there is a need for **further research** to understand the client perspective, to complement the contractor focus of this study.

Key headlines by region



£ Estimated construction output on pre-1919 buildings

Estimated core workforce required on pre-1919 buildings to meet construction outputs

Estimated heritage specialists within the core workforce required on pre-1919 buildings to meet construction outputs

(x) Base numbers of survey respondents per region

EM East Midlands (79)

	2023	2024	2025	2026	2027
£	£1.5bn	£1.58bn	£1.6bn	£1.64bn	£1.68bn
	9,547	10,024	10,201	10,428	10,674
	5,346	5,614	5,713	5,840	5,978

% of surveyed organisations experiencing:
Skills gaps: **17%** Skills shortages: **28%**

WM West Midlands (85)

	2023	2024	2025	2026	2027
£	£2.03bn	£2.1bn	£2.16bn	£2.21bn	£2.25bn
	12,858	13,317	13,726	14,011	14,252
	7,201	7,457	7,687	7,846	7,981

% of surveyed organisations experiencing:
Skills gaps: **16%** Skills shortages: **20%**

YH Yorkshire & the Humber (84)

	2023	2024	2025	2026	2027
£	£3.14bn	£3.27bn	£3.33bn	£3.38bn	£3.43bn
	19,846	20,637	21,013	21,349	21,650
	11,114	11,557	11,767	11,955	12,124

% of surveyed organisations experiencing:
Skills gaps: **17%** Skills shortages: **23%**

SE South-East (99)

	2023	2024	2025	2026	2027
£	£5.23bn	£5.42bn	£5.64bn	£5.8bn	£5.96bn
	33,370	34,608	35,962	37,012	38,062
	18,687	19,380	20,139	20,727	21,315

% of surveyed organisations experiencing:
Skills gaps: **18%** Skills shortages: **26%**

SW South-West (92)

	2023	2024	2025	2026	2027
£	£2.65bn	£2.72bn	£2.81bn	£2.87bn	£2.93bn
	17,013	17,475	18,039	18,437	18,829
	9,527	9,786	10,102	10,324	10,544

% of surveyed organisations experiencing:
Skills gaps: **14%** Skills shortages: **32%**

EE East of England (84)

	2023	2024	2025	2026	2027
£	£2.96bn	£3.09bn	£3.18bn	£3.26bn	£3.33bn
	18,873	19,730	20,301	20,786	21,262
	10,569	11,049	11,369	11,640	11,907

% of surveyed organisations experiencing:
Skills gaps: **14%** Skills shortages: **17%**

NE North-East (90)

	2023	2024	2025	2026	2027
£	£0.84bn	£0.87bn	£0.89bn	£0.91bn	£0.92bn
	5,280	5,495	5,636	5,734	5,820
	2,957	3,077	3,156	3,211	3,259

% of surveyed organisations experiencing:
Skills gaps: **26%** Skills shortages: **24%**

NW North-West (96)

	2023	2024	2025	2026	2027
£	£3.5bn	£3.65bn	£3.75bn	£3.83bn	£3.9bn
	22,122	23,036	23,730	24,230	24,646
	12,388	12,900	13,289	13,569	13,802

% of surveyed organisations experiencing:
Skills gaps: **24%** Skills shortages: **19%**

L London (84)

	2023	2024	2025	2026	2027
£	£5.44bn	£5.65bn	£5,88bn	£6.05bn	£6.21bn
	34,704	36,064	37,535	38,641	39,675
	19,434	20,196	21,020	21,639	22,218

% of surveyed organisations experiencing:
Skills gaps: **16%** Skills shortages: **31%**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1 Introduction

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1.1 Background

England's built heritage makes a major contribution to our quality of life, our culture, and the economy. Representing around one in five of the UK's buildings, traditional buildings are responsible for the character of many of the country's best loved places as well as the homes many of us live in. Since the mid-nineteenth century, however, there has been growing divergence between traditional building construction and its modern equivalent, with the years around 1919 regarded as the point where traditional building construction was definitively displaced by modern. Older buildings use local material and handcraft techniques, tend to have permeable, solid-wall construction, and use traditional decorative vocabularies. Modern buildings are engineered structures, made of harder, relatively impermeable, industrially produced products, with less use of handcraft labour and more use of machinery.

Traditional buildings consequently require specific skills for their on-going repair and maintenance. There have been concerns since at least the 1990s that the traditional skills needed to maintain our traditional buildings are in decline. These concerns led the major heritage sector and construction industry bodies to come together to conduct research and develop strategies for addressing this deficit.

It is now more than ten years since this last major research into the supply of and demand for traditional building craft skills.[10]

Much has happened in the meantime:

- the Covid-19 pandemic caused major disruptions to the construction supply chain;
- Brexit and the pandemic have fundamentally changed labour market dynamics, with particular impacts on the construction industry, which drew thousands of new recruits annually from the EU countries;
- the broader background of international conflicts, in Ukraine and Gaza, has further increased the resulting inflationary pressures;
- and broader societal trends and expectations are restructuring the economy.

Historic England has therefore commissioned this report to update understanding of the supply of and demand for the skills needed to repair, maintain, and retrofit pre-1919 buildings.

This research is intended to play a critical role in gathering and analysing accurate data to inform future policy and initiatives in support of the long-term resilience of heritage skills. This evidence base will be used to inform and influence vital sector changes.

1.2 Aims and objectives

The aim of the research is to update the 2013 research by establishing a comprehensive picture of the need for traditional building skills and in particular of:

- the supply of and demand for heritage skills at national and regional level;
- areas of recruitment difficulty;
- the profile of the traditional building workforce;
- the factors that influence the recruitment and retention of the workforce;
- the drivers for current and future change and their likely impacts on the demand for and supply of traditional building skills; and
- existing training provision and its ability to meet current and future demand.

1.3 Method and approach

The research methodology was designed to maintain close continuity with the methodology used in the 2013 iteration of the research using a combination of:

- **Desk-based research:** a comprehensive literature review was undertaken, focusing on 24 key reports initially identified by Historic England and subsequently supplemented by systematic searching of the internet and bibliographic databases.
- **Scoping interviews:** ten scoping interviews were undertaken in late 2023 to inform the detailed research strategy and approach.
- **A telephone survey of heritage contractors:** a telephone survey started in mid-December 2023 and was live until 15 February 2024, receiving full completions from 700 contractors who had completed work on pre-1919 buildings in the previous two years and collecting basic data from a further 95 contractors not engaged in work on pre-1919 buildings. Contact details were sourced using a mix of Marketscan data and desk research/review of professional and trade body registers. The survey was promoted to members by some membership organisations including the Federation of Master Builders (FMB).

10 English Heritage, Historic Scotland and CITB (2013), Skills needs analysis 2013: repair, maintenance and energy efficiency retrofit of traditional (pre-1919) buildings in England and Scotland.

- **Follow-up depth interviews:** 30 depth interviews explored emerging findings in detail. These took place during February and March 2024.
- **Round table discussions with key stakeholders:** two round table events were held with sector stakeholders in March 2024 to validate findings and inform understanding of the broader context and implications of the research. A final round table discussion took place in June 2024 to review research conclusions and suggested recommendations.

Please note, where relevant findings are presented by regions in England. Now known simply as Regions, these are effectively the previous Government Offices Regions (GOR).

Though the survey sample achieved exceeded that set out for the research objectives, some limitations should be borne in mind when considering the findings. The research primarily targeted contractors with a specific interest in work on pre-1919 buildings, and therefore represents the self-reported views of this specialist sector.

It should also be noted that work is carried out on traditional buildings by mainstream general contractors and sub-contractors. In addition, while the sample size is sufficient to give a robust national picture, bases of responses on a regional basis and by individual trade or construction discipline are in some cases relatively low, meaning that findings at this level should be regarded as indicative.

The client perspective is obtained from depth interviews with sector stakeholders, but the scope did not make provision for a comprehensive survey of clients and this is strongly recommended for future research.

More generally, while the responses give a clear picture of the current situation, projections by individual contractors of future developments in the sector appeared in some cases to be 'best estimates' rather than the result of formal business planning, reflecting the greater proportion of smaller contractors with limited capacity or need for this kind of systematic approach to business development.

1.4 About this report

This report presents findings of the mixed-methodology research approach described above. It is set out to provide a structured narrative based on the major themes that emerged from the research. The overall findings are then drawn together into a set of conclusions from which outline recommendations have been derived. Detailed charts and tables supporting these conclusions are available in the Technical Annex which accompanies this report.

2

Supply chain

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2.1 Key messages

The heritage construction supply chain working on pre-1919 buildings is **well-established** with organisations that have been undertaking work on older buildings for many years: predominantly micro businesses with an annual turnover of less than £1m. **Three in five (58%) of respondent organisations have been established for over 21 years.**

The heritage construction workforce is typically older in comparison to the wider construction sector and does not appear to be particularly diverse. **There is a high level of self-reported confidence in skills and ability to undertake work on pre-1919 buildings;** there is also regular use of traditional building materials (90% of respondents report using traditional materials). This is indicative of many years of experience within a mature workforce. Around three-quarters (74%) of respondent organisations hold some form of federation or professional body membership, indicative of commitment to quality and industry standards.

Furthermore, 62% of respondents that predominantly work on pre-1919 buildings (accounting for 70%+ of their turnover), **typically charge a premium for this work.** This suggests respondents are content there is a steady demand for their work, and they have confidence in their ability and relative lack of competition, to be able to charge higher rates than for work on newer buildings (discussed more in Chapter 3).

A high proportion of respondents overall **do not *perceive* skills gaps** in their workforce specifically in relation to undertaking work on pre-1919 buildings. **Four in five (79%) of respondents do not perceive skills gaps, compared with 18% of respondents that do.** This gives the impression of a more positive picture than in the wider construction sector.

However, the proportion of respondents reporting skills gaps (18%) is higher than indicated in research published in 2019, when approximately 11% of contractors working in the heritage sector in England pointed to skills gaps in their own workforce.[11]

It should be taken into account that these are self-reported perceptions on skills from heritage sector specialists and that the scope of the research did not include a survey of the client perspective, therefore this report is only able to present the contractor viewpoint and limited stakeholder perspectives depending on the age of the workforce.

More respondents identify skills gaps in their employees aged between 16 and 34 than in their employees aged over 45; i.e. confidence in employee skills is higher in relation to older workers – doubtless due to their years of experience doing this type of work and different training regime experienced by workers aged over 45 that was typically of longer duration compared with current training provision.

Respondents were also asked about skills shortages due to a low number of applicants, or applicants lacking relevant skills, qualifications, or experience. **A quarter (25%) of respondents are experiencing skills shortages while three-quarters (73%) of respondents do not perceive skills shortages.** This differs markedly from the wider construction sector. Skills shortages are reported by a higher proportion of survey respondents in the south; notably the South-West (32%), London (29%), and the South-East (26%). Respondents do not appear to link this to the aftermath of the pandemic (9% of responses cited as a barrier to recruitment) and/or Brexit (6% of responses cited this as a factor).

One in six (15%) survey respondents overall have turned down work on pre-1919 buildings due to a lack of available skills and knowledge, compared with 83% of respondents saying they have not had to do this. However, in 2023, only 6% of firms in the wider construction sector reported turning down work due to skills shortages[12], despite high numbers of unfilled vacancies. Again, this appears more pronounced in the south: 22% of respondents in South-West England and 21% of respondents in London have turned down work because they do not have the skills/knowledge available to them.

Furthermore, there are more **noticeable delays in procuring sub-contractor support for work on older buildings in the South-West.** Respondents were asked about the typical length of time to wait before sub-contractors become available for work on pre-1919 buildings; on average 65% of responses England-wide indicated availability either immediately, or within a few weeks. However, this drops to 40% of responses in the South-West.

11 CEBR (2019), 'Skills Gap/Needs in the Heritage Sector: A Report for Historic England', 17.
12 CITB Employer Panel – August 2023.

Research published in 2021 found 43% of organisations employing staff in the 50+ age group reported that this group made up over half of their workforce on average. Only 18% of heritage companies employed staff under the age of 25.[13] **This report finds a similar picture, with 43% of respondents employing staff aged 45+, and 14% of respondents employing staff under 25.**

This age profile is further evidenced through the supply of apprentices and trainees (on the assumption that they tend to be younger). **Around two-thirds (63%) of respondents do not employ either apprentices or trainees for work on pre-1919 buildings.** Just over a quarter (27%) of respondents currently employ apprentices, with the highest proportions doing so in mainstream construction trades e.g., brickwork, plastering, carpentry/joinery.

As more skills gaps are noted in relation to younger workers than older workers, there is reliance on experienced workers to provide training and mentoring, particularly as formal training specifically for heritage construction on older buildings is in short supply (discussed more in Chapter 6).

As older workers retire, this pool of experienced workers diminishes, potentially making it harder to facilitate 'on-the-job' training, which is typically the preferred mode of training within the supply chain, and mentoring of entrants through their first months and years in the sector.

Moreover, 76% of the survey respondents that cited skills shortages believe they will get worse over the next three years. **Interview evidence strongly supports a perception of rapidly waning skills available in the sector;** stakeholders believe this is being exacerbated by low numbers of new entrants, in turn underpinned by limited availability of relevant training and qualifications and the need for better careers education, information, advice and guidance (CEIAG) (discussed more in Chapters 5 and 6).

Intent/appetite to increase supply does not appear to be matched with strong evidence of succession planning, enablers to help overcome barriers to recruitment or sufficient supply of training for potential new entrants to the sector (discussed more in Chapter 5). The existing supply chain does not appear to be well placed to respond to any surges in demand; for example, if prompted by retrofit policy/funding to enable more work for energy efficiency measures to be installed in older buildings, or in the event of large-scale restoration programmes such as the Palace of Westminster.

Overall, these findings ***suggest*** that supply is meeting demand that reaches the market – and for certain types of trades and in certain regions, demand exceeds supply – therefore prices are being pushed up, particularly for more specialist skills (discussed in more detail in Chapter 3). However, this is a snapshot in time, showing that **at present** the majority of the supply chain does not perceive significant skills gaps in their own organisations. This links to a high level of confidence working on Grade I listed buildings[14] and regular use of traditional building materials.

This is also reflective of respondents' **current** access to skills and knowledge, largely drawn from a workforce that is comparatively older and has gained skills and experience over many years.

There appears to be sufficient capacity to meet *current* needs, but capacity cannot easily be replaced or expanded to meet future needs. The future supply of heritage construction skills for older buildings is therefore more concerning than the present, with perceived difficulties in recruitment and not enough apprentices and trainees coming into the sector to replace older workers as they retire (explained in more detail in Chapter 5).

Skills gaps:	Existing employees lack the skills, knowledge, experience or qualifications to be fully proficient at their job.
Skills shortages:	Skills shortages due to a low number of applicants, or applicants lacking relevant skills, qualifications, or experience.

13 Restoration & Renewal Authority (2021), 'Skills Assessment Research Digest: P1. Skills for the Heritage Construction Sector', 12.

14 The survey included a question about confidence working on Grade I listed buildings, Grade II* listed buildings and Grade II listed buildings; respondents indicating a high level of confidence to undertake work on Grade I listed buildings were not asked about the other two statuses, on the assumption that high confidence working on Grade I listed buildings would equate to high confidence working on Grade II* and Grade II listed buildings.

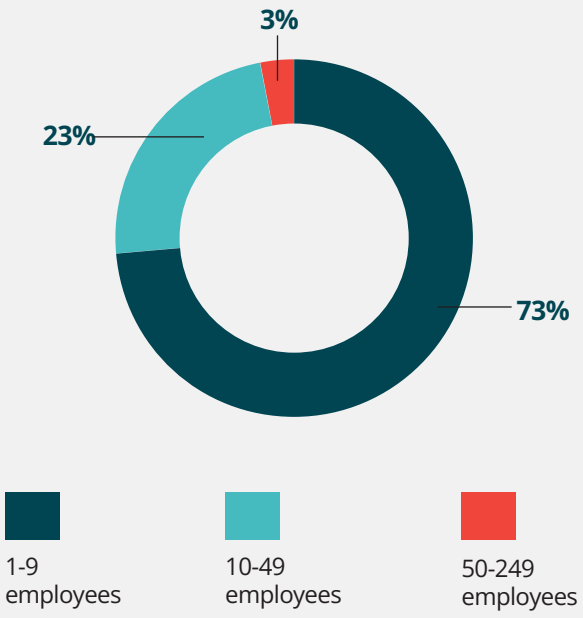
2.2 Workforce profile

The majority of organisations surveyed are micro businesses (i.e. employing 1-9 employees) and this is similar across all types of organisations regardless of their main activity (Figure 1). The majority of respondents described themselves as main contractors (rather than sub-contractors).

The majority of organisations have been established for over twenty years; only 5% are newer businesses with less than five years' experience (Figure 2 – base number of respondents shown in brackets). This is supported by stakeholder views; the general consensus is of a sector of well-established firms and individual contractors, with knowledge and skills attained over many years.

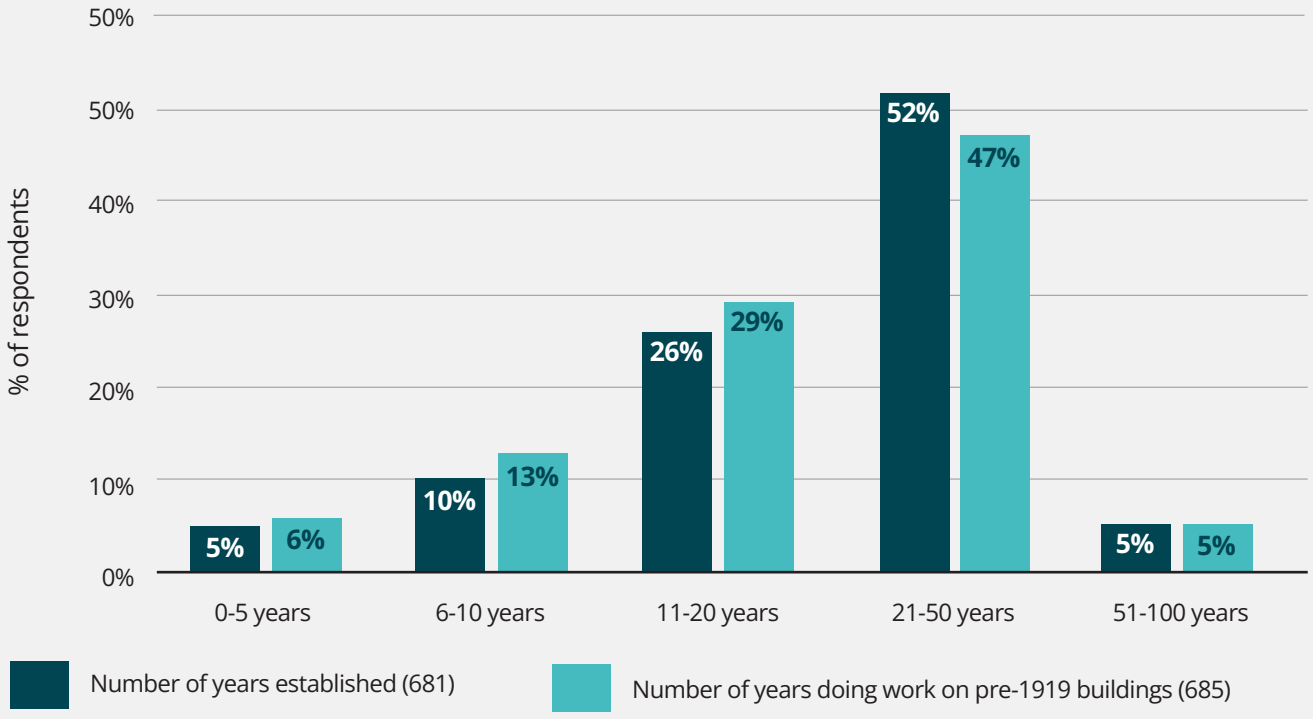
Organisations undertaking work on pre-1919 buildings have been doing so for a similar length of time to that which they have been established: i.e., work on older buildings has been part of their offering from, or close to, the beginning of their business being established; such businesses purposely specialise in heritage construction (Figure 2).

Figure 1: Organisation size



Base: 794

Figure 2: Length of time established and undertaking work on pre-1919 buildings



Base number shown in brackets

Respondents were asked to provide their turnover (by selecting from a series of pre-determined values). This question was not compulsory; not all respondents supplied an answer. **Around three-quarters of respondents (77%) that answered this question have turnovers of less than £1m per annum.** This may be reflective of the high proportion of SMEs in the sector.

Around three-quarters (74%) of respondents belong to a trade federation or employer organisation. The 2013 research found around half the respondents to that research were not members, compared with 26% in this iteration of the research. The 2013 report noted that the majority of respondents were mainstream construction companies, rather than conservation or heritage specialists[15] which is likely to account for the difference.

- Respondents working **predominantly on pre-1919 buildings** with no trade federation/ professional body membership **– 18%**
- Respondents working **predominantly on newer buildings** with no trade federation/ professional body membership **– 35%**

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15 English Heritage, Historic Scotland and CITB (2013), Skills needs analysis 2013: repair, maintenance and energy efficiency retrofit of traditional (pre-1919) buildings in England and Scotland.

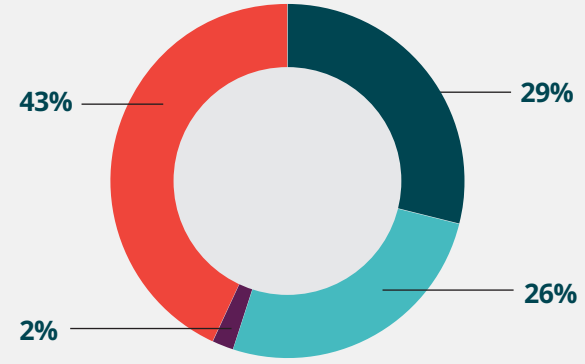
2.3 Types of work undertaken and traditional materials used

2.3.1 Types of work undertaken

Respondents were asked to estimate the proportion of time spent on different types of work on pre-1919 buildings compared with work on buildings constructed after 1919 (Figure 3).

Table 1 shows the differences between respondents working predominantly on pre-1919 buildings compared with respondents undertaking a mix of work and mostly newer[16] buildings.

Figure 3: Percentage of time spent on different types of work



Conservation and restoration of pre-1919 buildings

Repair and maintenance of pre-1919 buildings

Retrofit of pre-1919 buildings

All other work on buildings constructed after 1919

Base: 664

Table 1: Proportion of time spent on different types of work

	Conservation and restoration of pre-1919 buildings [keeping a building feature from destruction]	Repair and maintenance of pre-1919 buildings [works to maintain proper condition of buildings, its services and works]	Retrofit of pre-1919 buildings [any works to improve energy efficiency]	All other work on buildings constructed after 1919
Respondents working **predominantly on newer buildings**	7.1%	12.5%	0.6%	79.7%
Respondents working **predominantly on pre-1919 buildings**	49.5%	34.5%	3.9%	12.1%

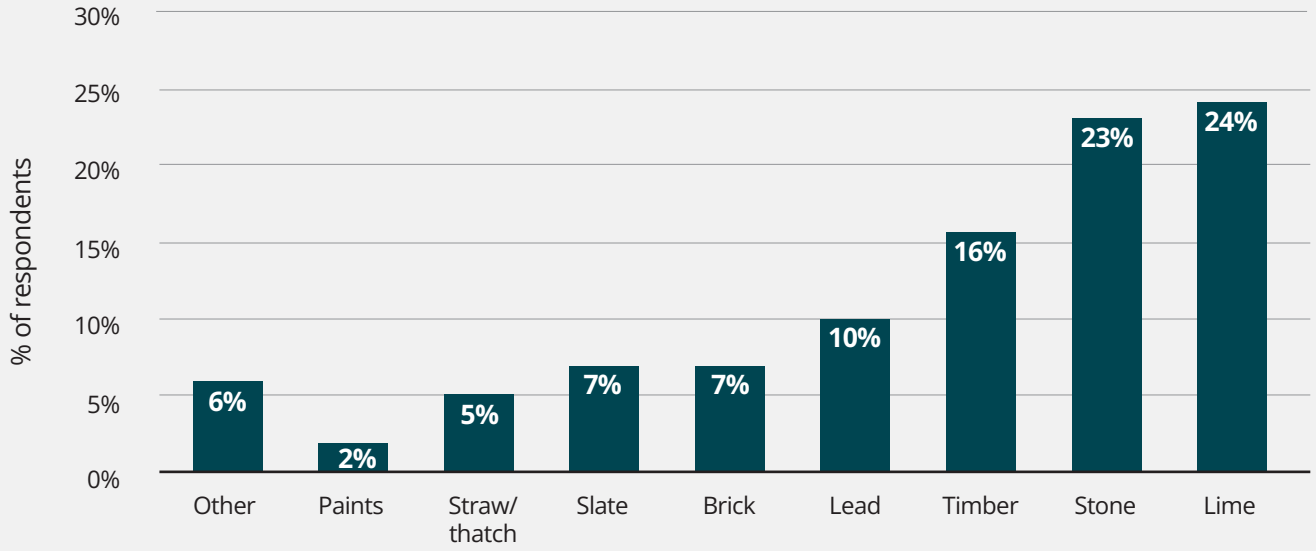
16 'Newer' in this context refers to buildings built after 1920 – not necessarily indicating buildings that were constructed very recently, typically referred to as 'new build'.

2.3.2 Use of traditional building materials

A high proportion (90%) of respondents report using traditional building materials.

Respondents were asked to state which types of traditional building materials they use; this was an open question i.e., no options were provided so this is based on respondent perception of traditional materials. Analysis of responses is shown in Figure 4.

Figure 4: Which traditional building materials do you use?



Base: 610 responses

Lime, stone, and timber are the most common materials used by respondents, followed by lead, slate, brick and slate.

- 'Lime' includes lime mortar and lime plaster.
- 'Stone' includes stones such as granite, limestone, sandstone, and marble, excluding slate and flint. Three respondents also mentioned dry stone walling.
- 'Timber' includes birch, European oak, English oak, accoya wood, Douglas fir, redwood pine, ash, pitch pine, sycamore, mahogany and sapele wood.

A wide range of other materials were cited, indicative of the diverse types and age of buildings that respondents are typically working on:

Thatching	Metals	Clay/ceramic	Insulation	Other
• Straw • Reeds • Hazel • Sedge • Heather • Palm leaves	• Copper • Steel • Zinc • Iron • Bronze • Brass	• Ceramic • Mosaic • Porcelain • Travertine • Terracotta • Clay tiles	• Wood fibre boards • Sheep's wool • Horsehair	• Gold leaf • Oil • Asphalt • Flint • Pebble dash • Felt • Hessian • Hemp • Chestnut leaves • Cow dung

Respondents were asked to describe the typical mix of traditional versus modern materials used on pre-1919 buildings and listed/designated buildings. There are limited differences between the building types. Typically, respondents use either only traditional materials or a mix of both; it is uncommon to only use modern materials.

Respondents were also asked whether clients typically stipulate the use of only traditional building materials. There was little differentiation between building types.

- **41% of respondents say clients always specify the use of traditional building materials**
- **27% of respondents say clients usually specify the use of traditional building materials**

This is indicative of well-informed clients that understand the need to use traditional building materials in older buildings.

Just over half (55%) of respondents do not perceive any barriers to the use of traditional building materials for work on pre-1919 buildings.

Where barriers are perceived, the most commonly cited are cost (25% of responses) and availability (14% of responses).

2.4 Employee profile

2.4.1 Employment, contract types and workforce diversity

The respondent profile suggests a workforce which is not particularly diverse, and this is similar to the wider construction sector. Employees are predominantly employed on a full-time, permanent basis.

- 97% of respondents employ their workers on a full-time basis (base 703)
- 88% of respondents provide permanent contracts (9% fixed-term, 2% zero hours) (base 643)
- 94% of respondents say their workforce is male (base 281)
- 92% of respondents say their workforce is white (base 282)

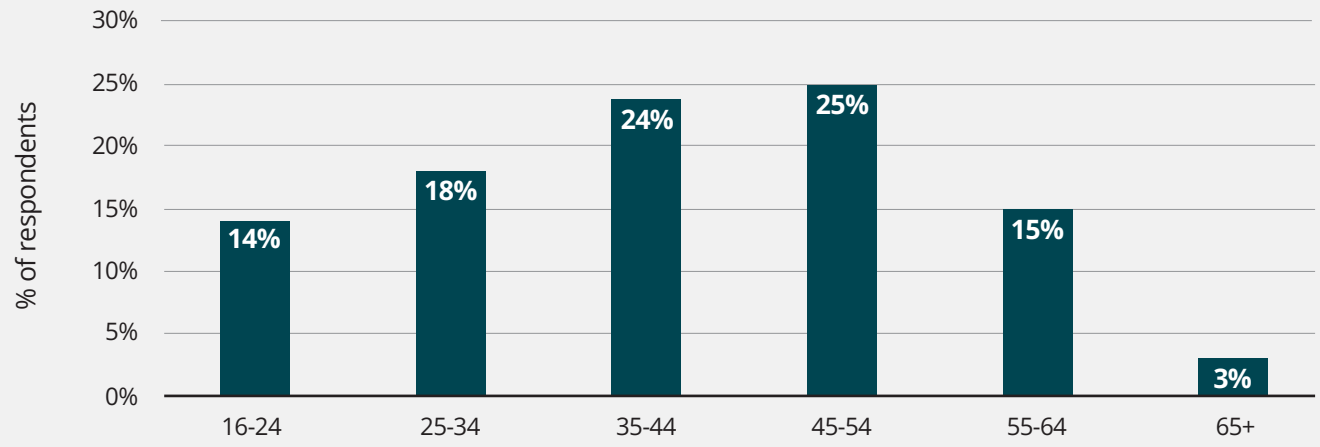
2.4.2 Workforce age

- **43% of respondents employ staff aged 45 +**
- **18% of respondents employ staff aged 55 +**

(Figure 5)

These statistics align with research published in 2021, which pointed to the workforce in heritage construction as being comparatively older. In this 2021 study, 43% of businesses employing members of staff in the over 50 age group reported that this group made up over half of their staff, on average. In this 2021 research, only 18% of heritage companies employed staff under the age of 25.[17] This should be noted in the context of the wider construction sector: around 19% of the industry is aged under 25.[18]

Figure 5: Respondent organisations – age profile of employees



Base: 794

17 Restoration & Renewal Authority (2021), 'Skills Assessment Research Digest: P1. Skills for the Heritage Construction Sector', 12.
18 CITB, (2023), Workforce skills and mobility in the construction sector 2022.

Regional differences are noted: while 25% on average of the workforce across all respondent organisations is aged over 45, this increases to 51% in the East of England, 48% in the East Midlands and 46% in London.

> *What we're increasingly noting are concerns about the ageing workforce, which we're aware of – particularly pertaining to regionality when we work in areas like the East of England or the West of England, it's a long way away from places that provide heritage skills training and what that starts to mean for us is that people aren't perhaps as qualified as they might be.*
>
> Heritage stakeholder interview feedback

2.4.3 Supply chain confidence and qualifications

Respondents were asked to rate their confidence in working on Grade I listed buildings. Those that stated they were 'very confident' or 'quite confident', were not asked any follow up questions on the assumption that confidence in working on a Grade I listed building would equate to confidence in Grade II* listed, Grade II listed and conservation area buildings. There was a high level of confidence expressed, with 84% of respondents saying they are very confident working on Grade I listed buildings, and 14% saying they are quite confident.[19]

2.4.4 Qualifications held

Respondents were asked whether they – or any of their employees – hold specific heritage qualifications – read out from a list by the interviewer. Just over a third of respondents (34%) said that at least one person in their organisation holds the NVQ Diploma in Heritage Skills at Level 3, while 31% of respondents said the same regarding this qualification at Level 2. It should be noted that this qualification is no longer offered at Level 2.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19 Base: 698 respondents.

2.5 Capacity within the supply chain

2.5.1 Trades employed/sub-contracted

Table 2 shows the range of heritage specialist trades that have been directly employed and sub-contracted for work on pre-1919 buildings in the last two years; a higher proportion of trades which are also commonly found in mainstream construction are directly employed, compared to less common trades / crafts. For example, 30% of respondents directly employ bricklayers, 27% of respondents directly employ carpenters and 29% of respondents directly employ joiners/plasterers. This contrasts with 1% of respondents that directly employ a gilder or blacksmith, and 2% of respondents that directly employ a wood carver. There is a higher proportion of respondents reporting they directly employ stonemasons, but this may be reflective of the relatively high response rate from stonemason contractors.

Of the trades/craftspeople they employ directly, respondents were asked whether these people were heritage specialists (i.e. only working on pre-1919 buildings and no other type of work). The highest proportion that does so are stonemasons (28% of responses). There is also evidence of joiners, carpenters, roofers, and plasterers working solely on pre-1919 buildings, but less so among the more specialist trades/crafts such as blacksmiths and gilders.

Very small numbers of specialist trades/crafts are directly employed e.g. gilder, cabinet maker. Respondents predominantly working on pre-1919 buildings are more likely to directly employ heritage specialists, compared with organisations working on newer buildings most of their time.

This means that it may be harder for general construction firms to recruit or sub-contract the trades they need for work on older buildings, as competition is high for their skills, knowledge, and experience.

Survey data analysis finds that, in comparison to organisations working on a mix of different building types (predominantly newer buildings), respondents working predominantly on older buildings employ, as heritage specialists:

- Seven times more bricklayers
- Seven times more lime plasterers
- Three times more joiners

Table 2: Trades directly employed and sub-contracted for work on pre-1919 buildings in last two years, and whether hard to recruit/retain[20]

Trades	% of respondents reporting directly employed	% of respondents reporting sub-contracting	% of respondents reporting hard to recruit	% of respondents reporting hard to retain
Blacksmith	1%	0%	100%	20%
Bricklayer	30%	20%	98%	42%
Cabinet maker	1%	1%	67%	100%
Carpenter	27%	19%	94%	25%
Decorator / painter	14%	8%	77%	62%
Drystone waller	11%	10%	95%	72%
General crafts / trades person	16%	13%	83%	42%
Gilder	1%	0%	100%	40%
Glass painter	5%	3%	100%	17%
Glazier	12%	7%	100%	27%
Joiner	29%	21%	97%	34%
Plasterer (fibrous)	9%	7%	93%	43%
Plasterer (lime etc)	29%	17%	98%	21%
Plasterer (other)	11%	8%	86%	43%
Plumber – undertaking leadwork	18%	5%	97%	12%
Roofer – general tiles and slates	18%	11%	100%	39%
Roofer – random / natural slates	15%	8%	96%	35%
Roofer – stone tiles	14%	7%	96%	96%
Roofer – metal worker e.g. lead/copper	20%	12%	99%	99%
Steeplejack	2%	1%	100%	100%
Stone carver	12%	9%	95%	95%
Stone fixer	19%	13%	94%	94%
Stonemason (banker mason)	35%	22%	97%	97%
Thatcher	9%	8%	97%	97%
Tiler (floors / walls)	5%	3%	100%	100%
Timber preserver	4%	1%	67%	67%
Wood carver	2%	1%	100%	100%
Wood machinist	4%	2%	100%	100%

20 Respondents answered about direct employment and sub-contracting separately for each trade, i.e. responses should not total 100%. It should be noted that base numbers vary and are lower in relation to more niche trades such as blacksmiths.

2.5.2 Ease of recruitment

Two in five (42%) respondents believe recruitment has got harder over the past three years. Nearly a fifth (19%) of respondents say recruitment has got 'much harder' in that time period.

There are no notable differences between respondents working predominantly on pre-1919 buildings and those working on a mix/more on newer builds. Both groups have similar perceptions. Just over half of all respondents have not observed any change; ease of recruitment has stayed the same from their point of view. Respondents that stated recruitment has got harder were asked to state their reasons from a list read out to them (multiple options could be chosen); they could also identify other reasons. **Two reasons were overwhelmingly cited: three-quarters (76%) of responses pointed to a perception of fewer people with the relevant skills in the sector, while just under half (46%) of responses cited low numbers of applicants.** Around 14% of responses suggest that salaries are not sufficiently attractive to appeal to the right candidates. Only 6% of responses cited the impact of Brexit as a barrier, while 9% of responses cited the Covid-19 pandemic, suggesting neither are viewed as major barriers to recruitment.

> *The increasing impacts of the cost-of-living crisis on members and ability to retain people within the workforce, I think is key. We are competing as a sector with organisations like Rolls Royce and BAE, where similar skills are required – but salaries are a lot higher and careers more stable.*
>
> Heritage stakeholder interview feedback

Interview evidence strongly supported a perception of rapidly waning skills available in the sector; stakeholders believe this is being exacerbated by low numbers of new entrants, in turn underpinned by limited availability of relevant training and qualifications. 'Specialist knowledge needed to perform the role' was, at 67%, the most common reason quoted in the Employers Skills Survey 2017 for unfilled vacancies in the heritage sector.[21]

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21 CEBR (2019), 'Skills Gap/Needs in the Heritage Sector: A Report for Historic England', 21.

2.5.3 Apprentices and trainees

Apprenticeships in England are paid jobs, where the apprentice learns via on-the-job training and by spending at least 20% of their working hours completing off-the-job training with a college, university or training provider which is formally assessed at a recognised standard, either Level 2 (GCSE equivalent), 3 (A level equivalent), 4, 5, 6 or 7 (Foundation degree and above; 6/7 Bachelor's or Master's Degree equivalent). Applicants must be aged over 16 to apply for an apprenticeship.

Traineeships in England were introduced in 2013 and are education and training programmes designed to support young people to obtain relevant skills and experience to get a job or an apprenticeship. From 1st August 2023, traineeships were no longer delivered through the national traineeship programme, but could be offered by local providers.

Note: it is common for construction sector employers to use both the terms 'apprentice' and 'trainee' more fluidly, i.e., any 'novice' who may be learning a trade but not formally on an apprenticeship or traineeship.

Around two-thirds (63%) of respondents do not employ either apprentices or trainees for work on pre-1919 buildings.

Just over a quarter (27%) of respondents employ apprentices or trainees. This is slightly higher than the wider construction sector; CITB Employer Panel findings from August 2023 found that while 37% of construction firms offer apprenticeships, only 21% of firms currently had an apprentice. The proportion of construction firms that said they do not offer apprenticeships is similar at 64% of respondents.

The highest proportions of respondents employing apprentices are doing so in more mainstream construction trades e.g., brickwork, plastering, carpentry/joinery. Evidence from the interviews suggests this is largely because of a perception held in the sector that specialist heritage trade apprenticeships do not exist, or that they are not easily accessible. This appears to be creating a situation where new trainees entering the sector are doing so with a foundation in general construction skills and knowledge, with heritage specific training being provided solely by their employer (explained in more detail in Chapter 6) due to heritage skills not being integrated in core trade training standards.

2.5.4 Skills gaps

Respondents were asked if they are experiencing any **skills gaps – i.e. gaps within their existing workforce and workers available to them –** in relation to undertaking work on pre-1919 buildings.

Specialist heritage contractors surveyed for this research do not appear to perceive any major concerns about skills gaps; 18% of respondents say they are experiencing skills gaps, compared with 79% of respondents that are not. It should be noted that this is a perception, and that self-reporting bias can mean respondents may over-estimate their own capabilities.

The proportion reporting skills gaps (18% of respondents) is a slight increase from research published by CEBR in 2019, which reported that approximately 11% of contractors working in the heritage sector in England report skills gaps in their own workforce.[22] Furthermore, it is higher than in the wider construction sector; data from the Employer Skills Survey 2022 found the percentage of organisations experiencing at least one skills gap (i.e. 1+ employee not fully proficient) was 12% in construction (an increase from 10% in 2017).[23] The number of skill gaps in construction increased rapidly over a five-year period, standing at 72,379 in 2022, up from a reported 47,813 in 2017.[24]

22 CEBR (2019), 'Skills Gap/Needs in the Heritage Sector: A Report for Historic England', 17.
23 Department for Education (2022), Employer Skills Survey.
24 Department for Education (2022), Employer Skills Survey.

This is a snapshot in time and is based on respondent perceptions of their current workforce; this workforce is comparatively older with 43% of respondents saying their workforce is aged 45 and over and it can be construed that there are less likely to be skills gaps within a more experienced workforce.

By comparing responses to age group variation within companies with the response regarding their perception of skills gaps within their workforce, we found the following (backed up by stakeholder evidence):

Age group	% of respondents reporting skills gaps
16-24	27%
25-34	22%
35-44	20%
45-54	19%
55+	15%

Looking at regional and trade differences – the highest proportions of respondents reporting skills gaps are (full regional breakdown can be found in the Technical Annex):

- North-East England – 26% of respondents (base 76)
- North-West England – 24% of respondents (base 80)
- Brickwork – 34% of respondents (base 61)
- Carpentry/joinery – 29% of respondents (base 75)

Research into mobility published by CITB found construction workers in the North-East were least likely to report their last site was in the same region (where they are based), and among the least likely reporting living in the same region as where they began their career in construction.[25] This suggests a potential link between higher mobility and region-specific skills gaps (or shortages).

2.5.5 Skills shortages

Respondents were asked if they are experiencing any skills shortages i.e., a low number of applicants or applicants lacking relevant skills, qualifications, or experience. **Skills shortages appear to be more of a concern for respondents than skills gaps.** This reflects the wider construction sector, which faced the highest level of shortages of all surveyed UK sectors in 2022 with 52% of all vacancies allocated to construction.[26]

25% of respondents are experiencing skills shortages in relation to work on pre-1919 buildings

15% of respondents have had to turn work down due to a lack of skills or knowledge available to them

Skills shortages appear to be more prevalent in the heritage sector compared to the construction sector as a whole: CITB research in August 2023 identified that 6% of organisations turned down work due to skills shortages, compared with 15% of respondents in the sample for this research.

Skills shortages appear most prevalent in South-West England and London where 32% and 31% of organisations respectively report skills shortages, and 21% of organisations have had to turn down work. The demand for professions and skills needs to be considered against the backdrop of regional varieties in traditional construction. Overall, pre-1919 homes are specifically concentrated in London, where the Kensington & Chelsea district leads the table with 65% of all homes classified as 'traditional'. The demand for professions and skills needs to be considered against the backdrop of regional varieties in traditional construction, and further research to identify the regional variations will be imperative.

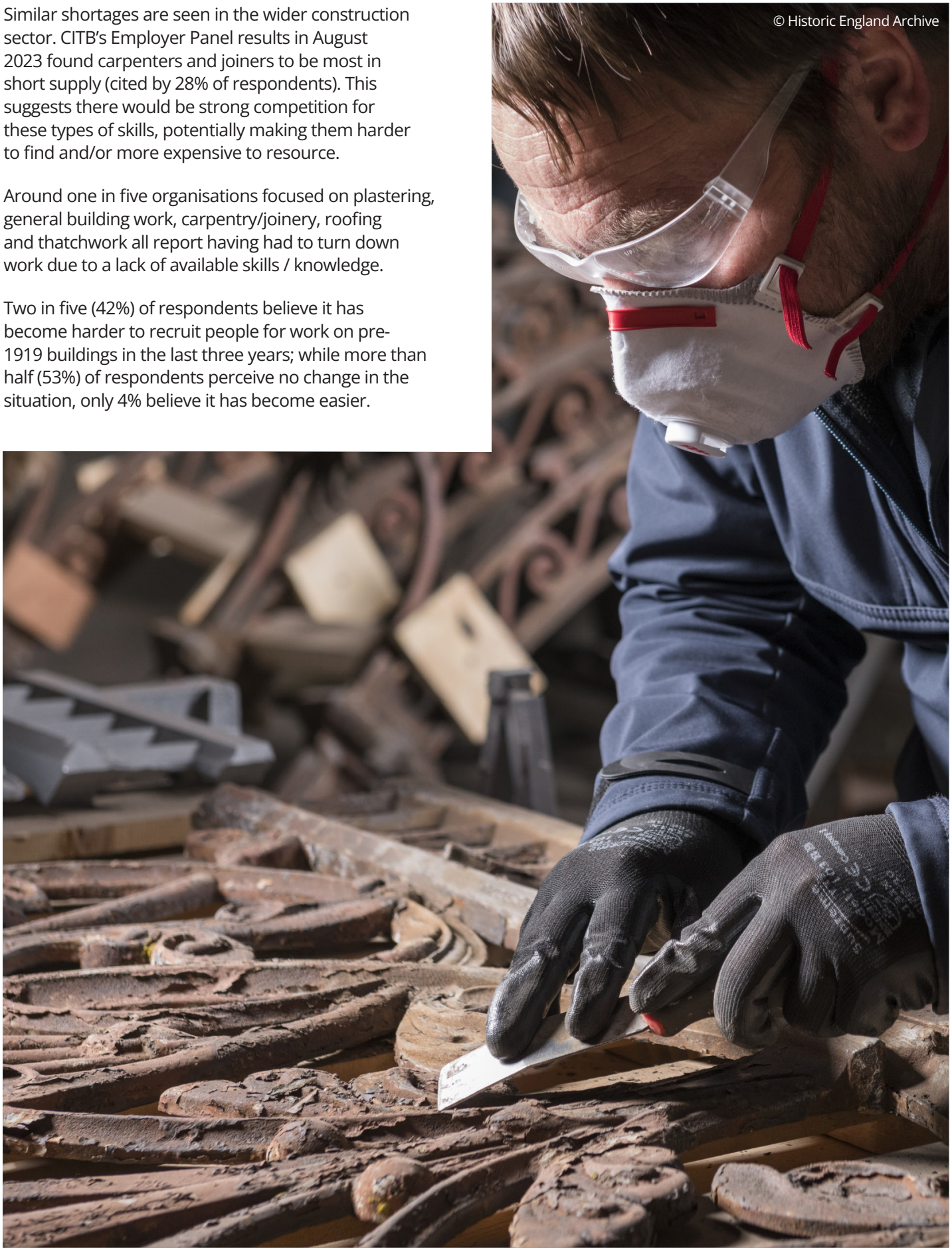
Looking at trades, shortages appear most pronounced among carpentry/joinery organisations with 51% of respondents reporting skills shortages.

25 CITB (2023), Workforce Mobility and Skills in the UK Construction Sector 2022.
26 Department for Education (2022), Employer Skills Survey.

Similar shortages are seen in the wider construction sector. CITB's Employer Panel results in August 2023 found carpenters and joiners to be most in short supply (cited by 28% of respondents). This suggests there would be strong competition for these types of skills, potentially making them harder to find and/or more expensive to resource.

Around one in five organisations focused on plastering, general building work, carpentry/joinery, roofing and thatchwork all report having had to turn down work due to a lack of available skills / knowledge.

Two in five (42%) of respondents believe it has become harder to recruit people for work on pre-1919 buildings in the last three years; while more than half (53%) of respondents perceive no change in the situation, only 4% believe it has become easier.



2.5.6 Endangered trades/skills

Several traditional building skills have come to be in such short supply that they have been added to Heritage Craft's Red List of Endangered Crafts. This list now includes such fundamental heritage building skills as brick-making (needed for appropriate replacement bricks for repair of brick walls), gauged brickwork (widely used for constructing and repairing flat-arched lintels and decorative features in traditional brick construction), graining and marbling (decorative techniques for many historic interiors), vernacular slating (for cutting and working slates to make roofs), and flintknapping (used for shaping flint for masonry and flushwork decoration).[27]

As part of the skills assessment conducted by the R&R Delivery Authority, 18 out of 39 contractors identified the following traditional construction skills as difficult to find, or disappearing:

- Heritage glasswork
- Lime plastering/work
- Wood carving and carpentry
- Stonemasonry and general repair
- Traditional blacksmithing
- Basic traditional skills[28]

These skills are likely to remain in extremely limited supply without intervention, as training provision specific to these crafts is not currently readily available or accessible (discussed more in Chapter 6).

2.5.7 Sub-contractor availability

Respondents were asked to estimate the length of time it typically takes to procure sub-contractors to undertake work on pre-1919 buildings, for a range of different trades – thinking about just those that they usually work with. Detail is included in the Technical Annex. Please note not all trades could be included as this would have made the length of the survey prohibitive. It is typical to have to wait at least 1-2 months for more niche trades.

As workers retire and leave the workforce, it is likely that they will not be able to be replaced quickly due to limited supply of relevant/ accessible training and limited appetite to take on apprentices/ trainees. Without intervention, delays in sourcing tradespeople for work on older buildings are likely to get worse over the medium-term – posing significant issues longer term.

There appears to be greater difficulty in sourcing sub-contractors in the South-West, compared with other English regions. On average, around two-thirds (65%) of responses across all regions say sub-contractors are typically available immediately or within a few weeks. However, this falls to two in five (40%) of responses from South-West organisations.

On average, 8% of responses England-wide indicate waiting 2-3 months for sub-contractor availability, but this increases to 21% of responses in the South-West. Both London and the South-West have relatively high proportions of pre-1919 buildings in their regions, compared with the rest of England; 30% of the building stock in London and 23% in the South-West was constructed before 1919.[29] However, there appears to be better access to sub-contractors in London (79% of responses state availability immediately or within a few weeks). This may be reflective of the type of buildings: for example, ornate thatched roofs are more prevalent in the South-West than elsewhere in England, requiring a more specialist skillset.

Respondents were asked to identify the barriers they perceive to finding people to work on pre-1919 buildings. A list of possible barriers was read out by the interviewer (respondents were able to select multiple options and/ or cite other barriers not on the list). **Over half the responses (54%) cited concerns about insufficient skills levels, while 50% of responses pointed to no new trainees with relevant skills to work on pre-1919 buildings.** This was echoed in the depth interviews, with stakeholders expressing strong concerns about perceived low numbers of new trainees joining the sector.

27 Categories of risk – Heritage Crafts.
28 Restoration & Renewal Authority (2021), 'Skills Assessment Research Digest: P1. Skills for the Heritage Construction Sector, 20. Note 'basic traditional skills' are not defined in further detail.
29 Historic England, Pre-1919 building stock dwellings data.

3

Costs

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3.1 Key messages

Contractors have a high level of confidence in their skillset and experience; underpinned by a steady stream of demand, this allows them to charge a premium for work on older buildings.

Three in five (60%) respondents either sometimes or always charge a premium.

More specialist/niche trades such as stonemasonry are more likely to charge a premium.

Costs for materials have increased; with high prices for labour as well, clients perceive a situation where they are paying more, but ultimately achieving less work for their money.

On this basis, projects may be commissioned but could be postponed before full completion if costs increase.

This is contributing to a stop-start cycle of funding projects – which is not a cost-efficient way of commissioning work, and constrains long-term planning, for example recruitment of apprentices.

There is no recognised visible pipeline of demand currently viable in the sector; there is an opportunity though for high-level demand to be clearly quantified, nationally, and regionally – which would enable planning for trainees, provision of training and a more cost-effective means of commissioning and undertaking work on older buildings.

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3.2 Competition for skills and experience enables heritage contractors to charge a premium for work on pre-1919 buildings

Nearly two-thirds of respondents (60%) either sometimes or always charge a premium for work on pre-1919 buildings.

This increases slightly to 62% among respondents that predominantly work on pre-1919 buildings (accounting for 70%+ of their turnover). Over a third of respondents (35%) predominantly working on older buildings always charge a premium.

This suggests heritage construction contractors have a high level of confidence in their ability and in light of regular demand for their work, feel able to charge higher rates than they would for work on newer buildings.

There are notable regional differences, with over a third (34%) of respondents in North-East England reporting that they always charge a premium, compared with 16% of respondents in Yorkshire & the Humber saying the same. Over half (55%) of respondents in South-West England report they do not charge a premium for work on older buildings, while experiencing more skills shortages and longer delays in procuring sub-contractor support than any other region (as described in Chapter 2).

There are also differences between type of work. Over a third (37%) of respondents in stonemasonry organisations always charge a premium for their work on older buildings compared with 15% of carpentry/joinery organisations saying the same.[30]

Nearly two-thirds (60%) of the overall carpentry/joinery organisation respondents do not charge a premium. However, this changes depending on the extent of work typically undertaken on pre-1919 buildings. Of those carpentry/joinery organisations predominantly working on older buildings (i.e., accounting for 70%+ of their turnover), 58% either always or sometimes charge a premium for this type of work. This contrasts with 24% of carpentry/joinery respondents saying the same, where work on older buildings accounts for 30% or less of their turnover. These figures should be viewed with some caution due to relatively low base numbers.

Evidence from stakeholder interviews suggests that rising materials and labour costs combined with inefficient procurement has made it more expensive to do the same kinds of repair and maintenance work that was typically taking place five years ago.

Stakeholders cite increased materials costs, combined with increasing fees for heritage trades that are arguably in higher demand. They partly attribute this to declining numbers of specialist trades/craftspeople which has pushed costs particularly for highly specialised and endangered crafts. There are major concerns about niche heritage skills and how they can be preserved. Dwindling numbers of specialist skills result in higher costs, making it harder to commission work.

30 Not all trades are shown due to low base numbers after analysis.

> *I think we are at the risk of losing skills, you know, quite dramatically.*
>
> *There are vanishingly small numbers of people [in highly specialist roles], and a very real risk of skills loss if something isn't done about it.*
>
> *We [the sector] don't have this succession and yet more and more work is coming out.*
>
> Heritage clients interview feedback

In reality, clients are paying more but are getting less for their money, in terms of completed work. This is resulting in a 'stop-start' approach to commissioning work, dictated by the availability of funding. If this cycle is not broken, the heritage sector will suffer.

> *It's becoming more expensive to do what we've always done.*
>
> *What we're often finding is we have a pre-tender estimate to deliver a project that will go out to market, and it comes back a lot higher than we thought. So, we're delivering less for the same amount of money.*
>
> *It's hard to do a major project now. You can't, really.*
>
> *The skills I need to sustain the buildings I look after are becoming harder to get. It's costing more. I just see it becoming more and more niche.*
>
> Heritage clients interview feedback

3.3 Opportunities for shared procurement are constrained in the absence of a quantified demand pipeline

In response to these challenges, stakeholders have identified a critical opportunity **to aggregate demand, and operate a shared procurement and training model, which could have a direct impact on capacity for training and upskilling at a regional level**. If this could work – and it would be reliant on collaboration between multiple organisations over the long-term, it would need to be sustained over time to ensure long-term impact and improvement. It would also rely on a strong central coordination role to facilitate on-going collaboration.

> *There's no question demand is increasing, but our capacity to procure is decreasing because we're not smartly procuring.*
>
> Heritage stakeholder interview feedback

Moving forward, there is a strong need for a pipeline of demand that is highly visible, easily accessible, able to be segmented (into thematic types of work) at national and regional levels and is consistently kept updated. Crucially, the value of such a pipeline would help inform workforce planning, including the capacity to support training and apprenticeships. The role of a demand pipeline in influencing training and apprenticeship provision would likely need to be at a regional level to align with greater devolution and regional skills planning/ funding, as well as taking account of regional housing/ building stock needs and supply of local materials.

> *If we had a capacity to actually group our collective procurement opportunities... it's really not viable to get training into smaller projects, but if we collectively procure, there's a lot more opportunity to look at flexible apprenticeship models.*
>
> *If we're delivering projects and we have a pipeline, others have a pipeline – we can see the opportunities for each organisation. But that would require collaborative effort.*
>
> Heritage stakeholder interview feedback

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There are regional disparities in terms of the supply of skills (discussed in Chapter 2); lack of visibility of a demand pipeline at a national or regional level is problematic for SMEs trying to manage procurement opportunities.

Contractors note that work on large-scale projects may be too difficult for SMEs to win, partly because procurement can be time-consuming and challenging from their perspective. The knock-on effect can be that demand for skills appears to be sporadic from the perspective of smaller organisations in some regions. It may not be clear to them where work is available (and accessible) to them in other parts of the country.

> *Local people don't have a chance with them [large heritage contracts], it's going always to national companies. That's a challenge. I hear people that challenge the assertion that there's currently a skills crisis. They've said they've got very skilled workers, people with 35-40 years of experience who they've had to lay off this year – because they can't match them to the procurement needs, so we've got real regional variations.*
>
> *If people [in mainstream construction] don't see a clear pipeline for heritage work they don't see there is enough demand, they don't see there is a reason for upskilling and having that transferrable skillset. Even though we desperately need people [in the heritage sector]. There's an opportunity to upskill that people actually aren't seeing.*
>
> Heritage stakeholder interview feedback

Better, joined-up visibility of demand could offer significant opportunities to help plan and fund training and recruitment interventions to align with delivery of projects, using local skills and materials where possible.

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4 Demand


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4.1 Key messages

The UK has a particularly high proportion of older buildings in its building stock. More than 4.75 million dwellings in England, representing around 20% of all dwellings and around 23% of the total residential floor area, date from before 1919. For non-housing, the proportion is higher still with pre-1919 buildings accounting for 28% of the stock.

Demand (construction output) for work on pre-1919 buildings is estimated at over £28billion in 2024; approximately 39% of the total construction industry output for repair and maintenance. The total core workforce required is estimated at 180,385.[31] Traditional building skills are estimated to account for nearly £16billion of the construction industry output in 2024, with a core workforce of c.101,000 required.

These estimations are markedly higher than previous approximations. The key change from previous studies is the methodology – this study takes a more granular approach than previous estimates and includes a broader range of data sources.

Beyond London, the regions with higher demand are the South-East, North-West and the East of England. The North-East region has the lowest demand, by comparison.

Despite high demand, the need for repair and maintenance work on pre-1919 buildings is higher still with backlogs showing 31% of pre-1919 buildings in non-decent condition, compared with 11% of modern buildings.[32]

In addition to this projected demand, the levelling-up agenda and retrofit requirements of traditional buildings have the potential to significantly increase demand for work on pre-1919 buildings still further – it has been estimated that an additional **105,000 FTE (full-time equivalent) workers will be needed to retrofit traditional buildings each year from 2021 to 2050.[33]**

The Houses of Parliament Restoration and Renewal (R&R) Programme is a single project that also has the potential to significantly increase national demand on traditional building skills. Once the project gets underway, with an estimated construction spend of between £445m and £467m per year (2024 prices), it will require a core workforce of between c. 2,500 and 2,850 FTE (full-time equivalent) workers on average per year and is estimated to take between 19 years and 43 years, depending on the approach. The talent pool for this project will therefore need to extend beyond the resources available within London alone.[34]


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31 Core workforce includes those working in wood trades and interior fit-out, bricklayers, painters and decorators, plasterers and dry Liners, roofers, floorers, glaziers, specialist building operatives and scaffolders.

32 DLUHC (HM Government), 'English Housing Survey: Housing Quality and Condition, 2020'.

33 Grosvenor et al., (2023), 'Heritage and Carbon: Addressing the Skills Gap,' 3.

34 These figures are deduced from Johnson, S (2022), Essential scheme: initial assessment of cost and schedule; and continued presence: summary of impact Study (ctfassets.net). Survey data was then used to calculate the estimated labour force required based on this revenue data.

4.2 Sources of demand – traditional building stock and requirements for repair and maintenance

Across the UK, there are large numbers of traditionally constructed buildings that require regular routine repair and maintenance, and periodically more extensive conservation, refurbishment, and alteration. The distinction between 'traditional' and 'modern' approaches to construction is usually made on the basis of the transition from the use of solid walled structures made from predominantly local materials, using handcraftsmanship, to cavity-walled structures with damp courses, made from mass-produced components assembled with increasing use of power tools. While this transition was in actuality a gradual process, the period immediately after the First World War is generally seen as the point at which more modern, engineered approaches began to predominate over traditional construction. Thus, it is the pre-1919 building stock that represents the most important ultimate source of demand for traditional building craft skills.

There is a high proportion of older buildings in the UK building stock. Moreover, it is estimated that 48% of all retail stock and 33% of offices in England were built before 1919.[35] These range from great cathedrals and parish churches, to public buildings like town halls, museums, libraries and theatres to smaller structures that possess particular cultural heritage significance. Around 90% of traditional buildings, however, are homes, the vast majority being typical Victorian and Edwardian terraced houses.[36]

There are often distinctive regional and local dimensions, meaning familiarity with local materials and techniques is often essential to undertaking sensitive works to traditional buildings.[37] Traditional materials and techniques also have an important role to play in more sustainable construction practice – with such skills and use of such materials becoming increasingly important in this context.

4.3 Current demand and the trajectory of the market

4.3.1 Challenges in estimating the size of the demand for heritage building skills

To date, there have been inconsistent estimates of the size and skills of the heritage construction sector and its workforce. The summary below sets out the variability of many of the key studies from the past decade.

Estimates of sector size have displayed a high level of relative variability (e.g. Ecorys estimated the 2012 contribution to GDP at £12.5bn, in real terms, around the same sum of £14.7bn that CEBR attributed to the entire heritage sector in 2019, of which only £6.5bn was attributable to construction, while the 2005 National Heritage Training Group (NHTG) report suggested £3.5bn, the 2008 report £4.7bn, and £3.8bn in 2013).[38] A 2020 report from CEBR identified 'significant increases in heritage workers in the construction sector, especially from 2015 onwards', peaking at 102,000 in 2017 before stabilising at 95,000.[39] The 2008 research suggested that 109,000 were working on traditional buildings at that point and the 2013 research only 89,000 (while the CEBR research suggested a still lower figure of 78,000 for that same year).

Labour demand for workers undertaking pre-1919 building work in England was predicted to rise for the period of 2017 to 2021, according to an update to the projections published in the 2013 Skills Needs Analysis, increasing from 96,010 in 2017 to 99,070 in 2021. Labour demand for contractors using traditional materials was specifically forecast to increase from 53,470 in 2017 to 55,530 in 2021. The theoretical market value for conservation, repair, and maintenance work on traditional buildings was equally estimated to increase slightly, but constantly, from £16.9bn in 2017 to £17.5bn in 2019, following in the wake of an overall increase in repair and maintenance demand in England (from £42.2bn to £43.9bn) over the same period.

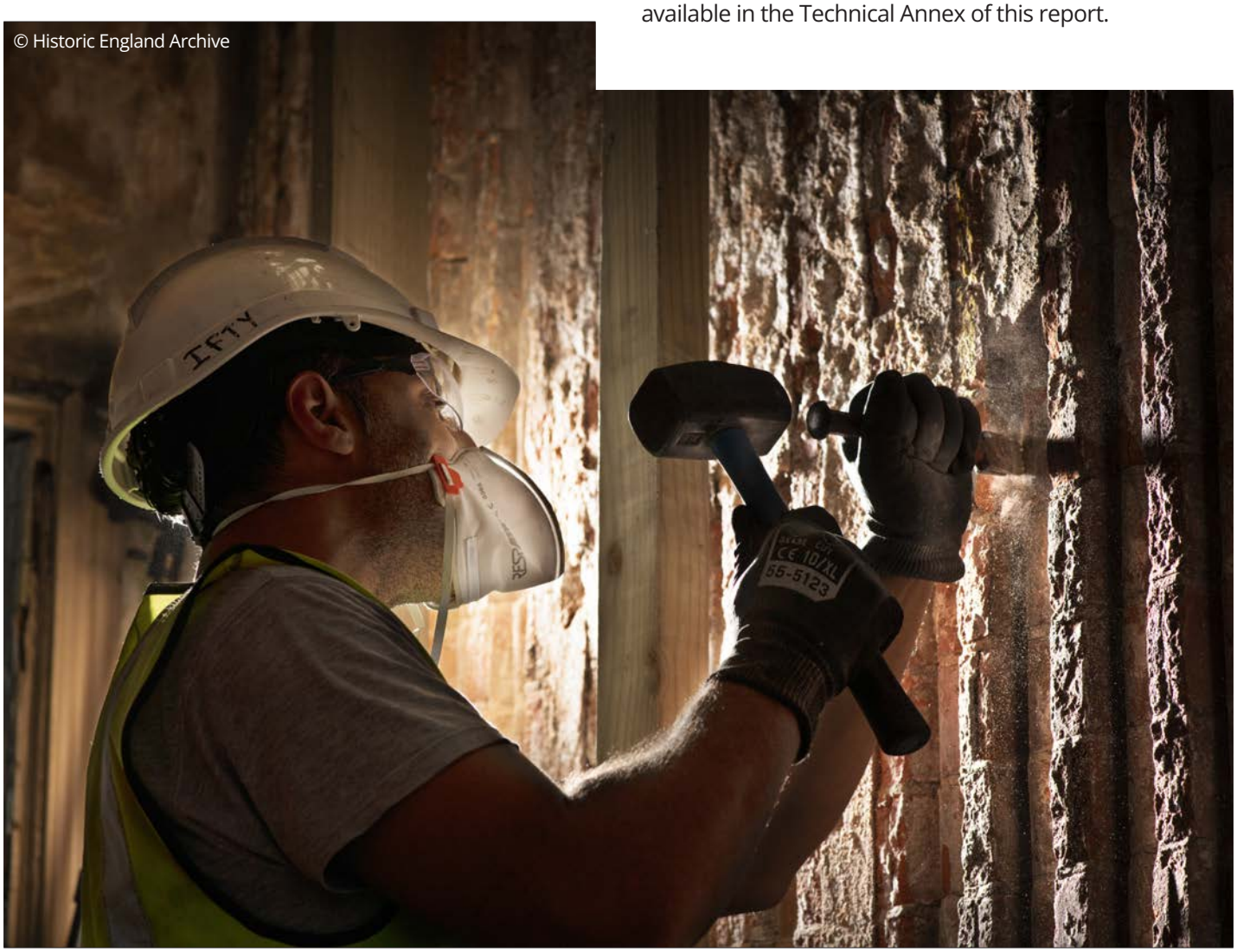
35 English Heritage, 'Heritage and the Economy 2020: Heritage Counts', 32.
36 Whitman, Prizeman & Barnacle (2016), Correlating Maintenance, Energy Efficiency and Fuel Poverty for Traditional Buildings in the UK, 6.
37 Clifton-Taylor, A., (1972), The Pattern of English Building.
38 NHTG (2005), Skills needs analysis of the built heritage sector in England.
NHTG (2008), Skills Needs Analysis of the Built Heritage Sector in England 2008 Review.
Ecorys (2012), The Economic Impact of Maintaining and Repairing Historic Buildings in England.
CEBR (2019), Skills Gap/Needs in the Heritage Sector: A Report for Historic England.
39 CEBR (2020), The heritage sector in England and its impact on the economy: an updated report for Historic England, 22, 44.

The variance in predictions can be explained by several conflating factors that make accurate predictions difficult – these include challenges in estimating the true scale of pre-1919 buildings and challenges in estimating the relative intensity and volume of work required on pre-1919 buildings compared with more modern construction. Small differences in methodology can have a sizeable impact to the high-level figures reached.

We have elected to take a more granular approach than previous studies, incorporating relevant data available from a broader range of sources. These sources include:

- Data on heritage skills from building contractors in this current survey
- Data from CITB/Experian on annual construction outputs between 1990 and 2028[40]
- Data from the English Housing Survey, 2020[41]
- Construction Industry Training Board (CITB) labour coefficients[42]
- Stock profile data from the Department for Levelling Up, Housing & Communities[43]

We have created a methodology and a model that can be updated as better data becomes available over time. Details of the model and a detailed explanation of the challenges associated with calculating demand for heritage construction and our approach in meeting these challenges are available in the Technical Annex of this report.



40 Experian, CSN: 4th Round Output Forecasts, 2024.
41 DLUHC (HM Government), 'English Housing Survey: Housing Quality and Condition, 2020'.
42 Provided by CITB to Harlow Consulting; using CITB's own longitudinal analysis of specific occupations.
43 DLUHC (2024), National non-domestic rates collected by councils in England: forecast for 2024 to 2025.

4.3.2 Demand – market size

CITB/Experian forecasts total construction output in England of nearly £165bn in 2024 (row A, Table 3). Of this, in 2024 repair and maintenance will account for around £72bn (row B, Table 3) and we estimate over £28bn to be spent on pre-1919 buildings (row G, Table 3), rising from c. £27bn in 2023. We expect this figure to rise to over £30bn by 2027 – growth of c. 8%.

- **The estimated construction output on pre-1919 domestic buildings has been calculated as c.£18.5bn in 2024 – 52% of the overall repair and maintenance spend on domestic buildings; this is expected to rise to over £20bn by 2027.**
- **The estimated spend on pre-1919 non housing buildings has been calculated as just under £10bn in 2024, with the expectation of spend rising to nearly £10.5bn in 2027.**

Consistent with the *2013 Skills Need Analysis* study, use of traditional material is being treated as a proxy indicator for use of traditional building craft skills. This earlier study found that of the work on traditional (pre-1919) buildings in England 22% involved only traditional materials, and 68% a combination of modern and traditional materials. The latter figure was halved on the assumption that the split between traditional and modern materials is 50/50 following method employed in EPR in Wales study (2007), giving a multiplication factor of 0.22+0.34=0.56.

The *2013 Skills Need Analysis* study estimated that traditional building skills using traditional materials are estimated to make up 56% of this sector – an assumption which aligned with the proportion of businesses undertaking work on pre-1919 buildings which employed one or more heritage specialist. This assumption suggests that there is a total annual construction output of nearly £16bn that can be attributed to traditional building skills.

Table 3: Estimated current and projected heritage construction output

Figure		2023	2024	2025	2026	2027
A:	Total construction output	£164.24bn	£164.6bn	£171.66bn	£176.28bn	£180.78bn
B:	Total repair and maintenance output	£68.98bn	£72.02bn	£74.08bn	£75.85bn	£77.52bn
C:	Housing repair and maintenance output	£34.55bn	£35.58bn	£36.92bn	£37.83bn	£38.71bn
D:	Estimate pre-1919 housing repair and maintenance output	£18.1bn	£18.63bn	£19.33bn	£19.81bn	£20.27bn
E:	Non-housing repair and maintenance output	£34.43bn	£36.44bn	£37.17bn	£38.01bn	£38.8bn
F:	Estimate pre-1919 non housing repair and maintenance output	£9.18bn	£9.73bn	£9.92bn	£10.15bn	£10.36bn
G:	Total estimate repair and maintenance output on pre-1919 buildings	£27.28bn	£28.35bn	£29.25bn	£29.96bn	£30.62bn
H:	Total estimate repair and maintenance output on traditional building methods (56%)	£15.28bn	£15.88bn	£16.38bn	£16.78bn	£17.15bn

4.3.3 Demand – skills

CITB regularly calculates labour coefficients based on longitudinal analysis of specific occupations by different output types and accounting for differences in labour intensity and productivity levels. Core workforce includes those working in wood trades and interior fit-out, bricklayers, painters and decorators, plasterers and dry liners, roofers, floorers, glaziers, specialist building operatives and scaffolders. Using the relevant coefficients related to the core workforce involved in heritage repair and maintenance, we can deduce for 2024 an estimate of c. 180,000 FTE workers required for work on pre-1919 buildings, c.101,000 of which will be heritage specialists. Estimates for 2024 and through to 2027 are set out in Table 4 (starting with G and H – same rows used in Table 3).

Table 4: Estimated current and projected demand for heritage workers

Figure		2023	2024	2025	2026	2027
G:	Total estimate repair and maintenance output on pre-1919 buildings	£27.28bn	£28.35bn	£29.25bn	£29.96bn	£30.62bn
H:	Total estimate repair and maintenance output on traditional building methods (56%)	£15.28bn	£15.88bn	£16.38bn	£16.78bn	£17.15bn
I:	Estimate core workforce required on pre-1919 buildings	173,614	180,385	186,145	190,627	194,869
J:	Estimate core workforce required on heritage buildings with specific heritage skills	97,224	101,016	104,241	106,751	109,127

4.3.4 A regional picture of demand

Beyond London, which is expected to have a demand of over £6.2bn by 2027, the regions with highest demand are the South-East, North-West and the East of England with spends expected to rise to £5.96bn, £3.90bn and £3.33bn by 2027 (again at 2024 prices). By contrast, annual construction output on pre-1919 buildings is likely to stay below £1bn in the North-East over the next few years at least (Table 5).

Table 5: Estimated construction output on pre-1919 buildings by region (Row D in Table 3)

Region	2023	2024	2025	2026	2027
East	£2.96bn	£3.09bn	£3.18bn	£3.26bn	£3.33bn
East Midlands	£1.5bn	£1.58bn	£1.6bn	£1.64bn	£1.68bn
London	£5.44bn	£5.65bn	£5.88bn	£6.05bn	£6.21bn
North-East	£0.84bn	£0.87bn	£0.89bn	£0.91bn	£0.92bn
North-West	£3.5bn	£3.65bn	£3.75bn	£3.83bn	£3.9bn
South-East	£5.23bn	£5.42bn	£5.64bn	£5.8bn	£5.96bn
South-West	£2.65bn	£2.72bn	£2.81bn	£2.87bn	£2.93bn
West Midlands	£2.03bn	£2.1bn	£2.16bn	£2.21bn	£2.25bn
Yorkshire & the Humber	£3.14bn	£3.27bn	£3.33bn	£3.38bn	£3.43bn

In terms of the resulting core workforce requirements, we estimate the largest needs by 2027 to be in London to (39,675), the South-East (38,062), the North-West (24,646) and the East of England (21,262). Numbers required will continue to be lower comparatively in the East Midlands – 10,674 by 2027 and in the North-East – 5820 by 2027 (Table 6). Estimated numbers of heritage specialists within the core workforce for pre-1919 buildings are set out in Table 7.

Table 6: By region: estimated core workforce required on pre-1919 buildings to meet construction outputs (Row I in Table 4)

Region	2023	2024	2025	2026	2027
East	18,873	19,730	20,301	20,786	21,262
East Midlands	9,547	10,024	10,201	10,428	10,674
London	34,704	36,064	37,535	38,641	39,675
North-East	5,280	5,495	5,636	5,734	5,820
North-West	22,122	23,036	23,730	24,230	24,646
South-East	33,370	34,608	35,962	37,012	38,062
South-West	17,013	17,475	18,039	18,437	18,829
West Midlands	12,858	13,317	13,726	14,011	14,252
Yorkshire & the Humber	19,846	20,637	21,013	21,349	21,650

Table 7: By region: estimated heritage specialists within the core workforce required on pre-1919 buildings to meet construction outputs (Row J in Table 4)

Region	2023	2024	2025	2026	2027
East	10,569	11,049	11,369	11,640	11,907
East Midlands	5,346	5,614	5,713	5,840	5,978
London	19,434	20,196	21,020	21,639	22,218
North-East	2,957	3,077	3,156	3,211	3,259
North-West	12,388	12,900	13,289	13,569	13,802
South-East	18,687	19,380	20,139	20,727	21,315
South-West	9,527	9,786	10,102	10,324	10,544
West Midlands	7,201	7,457	7,687	7,846	7,981
Yorkshire & the Humber	11,114	11,557	11,767	11,955	12,124

4.4 Current demand lagging need

4.4.1 Backlogs

Although the estimates presented in the previous section suggest that pre-1919 buildings generate many billions of pounds worth of construction output every year, the current demand-supply balance may not be fully meeting the underlying need for work on traditional buildings, as there is evidence of substantial backlogs of repair, maintenance and renewal works for pre-1919 buildings let alone the ambition to retrofit buildings to maximise their feasible performance and reduce carbon emissions.

Backlogs can be increasingly difficult to address due to inflationary prices increases.

The most robust data available is for residential properties, which are the subject of a continuous large-scale survey commissioned by the Department for Levelling Up, Housing & Communities (DLUHC – subsequently re-named Ministry of Housing, Communities and Local Government after the July 2024 general election) and managed by the Office for National Statistics (ONS). The findings are reported annually, and detailed information is available for dwellings by a number of variables, including building age.

These show that condition of pre-1919 dwellings is much worse than those of more recent construction. The most recent iteration shows that more than 10% have evidence of damp or mould, compared to 2% for those of later construction. Whereas 5% of post-1919 dwellings were assessed to have a Housing Health and Safety Rating System (HHSRS) Category 1 hazard, this was the case in more than 26% of pre-1919 dwellings. Around 11% of post-1919 dwellings failed the decent homes standard, compared to more than 31% of pre-1919 dwellings. In the East Midlands, 44% of all pre-1919 homes did not meet the necessary standards.[44]

The cost of undertaking basic repairs to dwellings has not been assessed since the 2019 iteration of the survey. However, using the figures from that year it appears that the total value of required works for pre-1919 domestic buildings exceeded £13.7 billion. The corresponding figure for all other dwellings was just over £20 billion.[45]

There are fewer robust datasets on the repair needs of non-domestic structures. For designated heritage assets, Historic England maintains a Heritage at Risk Register (HARR). This focuses on more highly designated assets – Grade I and Grade II* listed buildings (except in London, where Grade II buildings are also included) and Scheduled Ancient Monuments. In 2023, 1,418 secular buildings and structures and 943 places of worship were on the register.[46] At present no information is available on the cost of the repair and restoration needed to take these buildings back to baseline sustainable condition, but collectively they must represent a very large conservation deficit.

Research into the repair needs of museums with listed buildings identified an estimated repair backlog of nearly £340 million.[47] This will have been reduced by subsequent grants of government funding from the Museum Estate and Development (MEND) fund, which is specifically intended to address historic repairs backlogs in museums. This has made grants of more than £62 million to date, and the fourth final round, offering grants of up to £23.8 million has just been announced.[48] It is, however, unlikely that this funding will meet all the outstanding need.

Historic Houses, the representative association for independent owners of historically important country houses, has compiled repair and maintenance backlog information from its members over many years. The latest data from their member survey suggests that their 1,600 member houses and estates have a total current backlog of some £2 billion of repairs, despite a repair and maintenance spend of some £156 million per year.[49]

There are known to be large backlogs of repair work in England's cathedrals and historic churches and in properties in the National Heritage Collection (managed by English Heritage) and the National Trust, but there do not appear to be cumulative backlog figures in the public domain.

44 DLUHC (HM Government), 'English Housing Survey: Housing Quality and Condition, 2020', 5.
45 Analysis carried out by Harlow Consulting using figures from English Housing Survey data tables DA5201 (SST5.4): Disrepair and electrics – dwellings, 2019 and Table DA1101 (SST1.1): Stock profile, 2019.
46 https://historicengland.org.uk/advice/heritage-at-risk/findings/.
47 Simpson & Brown with Harlow Consulting (2020), *Understanding Museum Heritage Estate Management* p.4.
48 Geraldine Adams, 'Mend supports 26 museum infrastructure projects in latest funding round' M*useums Association* (2 April 2024).
49 Historic Houses, *Changing Times, Valuing History: Historic Houses for the 21st Century* (2024), 10.

4.4.2 Inappropriate work

There is anecdotal evidence of work to traditional buildings that is inappropriate and, in some cases, liable to cause serious problems. As discussed in Chapter 7 the use of incompatible modern materials can have serious adverse effects on traditional building fabric. The problem is well recognised but not well quantified, as there has been very little research into the frequency of inappropriate interventions to traditional buildings, either currently or historically.[50] It is therefore not possible at present to assess whether there is a trend towards more or fewer appropriate works being carried out. **Anecdotally, however, there is still evidence of much potentially damaging work being carried out on traditional buildings.**

4.4.3 Driver and impacts of a high inflation economy

While the figures for construction expenditure are substantial and show a rising trend, this must be placed in the context of substantial inflationary pressures that have been particularly strongly felt in construction in recent years. The inflationary pressures reflect the convergence of multiple factors, some specific to the UK and others with wider import.

The most significant was the impact of the Covid-19 pandemic, where furloughing of workers, the need for new safe working practices and the logistical issues associated with lockdowns significantly reduced industry productivity and interrupted the manufacture and distribution of many basic construction products.[51] The pandemic also resulted in large numbers of workers leaving the sector through early retirement, ill-health, and the movement into more secure and stable employment. Following the easing of lockdown measures, there was a dramatic rebound in demand that exceeded the recovery capacity of the supply chain. This led to immediate shortages in both materials and labour resulting in sustained construction price inflation.[52]

The impact of Brexit has led to fundamental changes to migration-led skills supply, upon which the construction industry had become highly dependent. The employment rate of EU workers within the heritage sector was described as "significant" in research for Historic England published in 2019.[53] This research, conducted by CEBR, states that in 2015, on the eve of the 'Brexit' vote, around 105,000 people were employed in the heritage construction industry, with more than 9,000 workers from the EU.[54] By 2020, the EU net immigration trend had turned negative and by December 2022 annualised rates had reached -55,000 and new immigration had fallen by 70% compared to its peak in 2016. Partly because of this there is a general shortage of construction skills, further contributing to labour cost inflation.[55]

An unstable international situation has also impacted on supply chains. The war in Ukraine has led to significant energy price increases, leading to greater production and transport costs. Ukraine and Russia are also major steel producers (Russia also holds approximately 22% of the global softwood timber trade[56]), and there were short-term increases in iron and steel prices in the immediate aftermath of the invasion. Overproduction has since returned prices to historically lower levels. Israel's war on Hamas in Gaza from October 2023 has created further economic instability, with impacts on global prices and supply chains.

The cumulative result has been sustained construction price growth, with annualised rates peaking at a record level of 10.7% in May and June 2022, and some individual construction products seeing price increases of 25% or more.[57] Construction inflation has since eased, and materials prices even turned negative in the second quarter of 2022, but the inevitable result is that where budgets have remained stable the amounts of work supplied have decreased.[58]

50 For a brief outline see John Edwards 'One in four UK buildings at risk', *RICS Features Archive* (9 January 2017).
51 'Productivity losses rise to 35% on UK construction sites', *The Construction Index* (24 June 2020).
52 RICS, 'Construction materials cost increases reach 40-year high' (19 November 2021).
53 CEBR (2019), 'Skills Gap/Needs in the Heritage Sector: A Report for Historic England,' 33.
54 CEBR (2019), 'Skills Gap/Needs in the Heritage Sector: A Report for Historic England,' 33.
55 The Migration Observatory at the University of Oxford, 'EU Migration to and from the UK' (20 November 2023).
56 Fastmarkets analysis 2022.
57 ONS, Construction output in Great Britain: March 2024, new orders and Construction Output Price Indices, January to March 2024.
58 ONS, 'Construction building materials: commentary April 2024' (1 May 2024).

These factors have acted as stressors on the heritage building sector, reducing supplies, and increasing the costs of both labour and materials. This in turn means that demand is likely to diverge further from underlying need, as repair and maintenance budgets will not increase in-line with material costs and in many cases will not increase at all.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4.5 Expectation of further increased demand

4.5.1 Additional impact – retrofit of pre-1919 buildings

Climate change concerns – and the UK's effort to play its own part in countering and containing its effects – continue to remain on the political agenda. As part of this, retrofitting has become ever more pressing with the commitment to net zero by 2050, which became legally binding in the UK in 2019.[59] Heating emissions make up one third of the UK's annual carbon footprint[60] and in 2019, 17% of all heating emissions came from homes, with petrol and diesel cars contributing a similar amount to the UK's carbon footprint. Therefore – as outlined in the UK Government's Heat and Buildings *Strategy*, published in 2021, the net zero goal is only likely to be achieved if the substantial carbon impacts made by the heating of buildings are reduced.

According to modelled evidence for retrofitting the built historic environment, commonly known as retroftting (although there is no uniform definition of this term, as explained in more detail in Chapter 7) retrofitting 25% of the UK's traditional buildings over a period of 25 years could already reduce carbon emissions by 15.5 million tCO_2 and result in £2.5 billion savings in the endeavour to combat climate change.[61] An estimated 240,000 low-carbon jobs are projected to be created by 2035.[62] According to recent research, 105,000 workers alone will be needed to retrofit traditional buildings for the UK to meet its net zero targets.[63] Retrofitting skills will, be disproportionately required for the maintenance of traditional buildings, as age of structures is the most prevailing factor associated with energy efficiency.[64]

This will lead to an additional demand in workers: according to Historic England estimates, Greater Manchester will need around 5,000 workers to retrofit the city region's 311,000 pre-1919 buildings; Liverpool City Region will require around 2,800 workers; West Yorkshire will need around 3,500 workers; Greater London – with the highest concentration of traditional buildings in England – will need 16,300 workers generating £3.1bn of direct economic output every year.[65] Across all English regions, electricians, plumbers, heating, ventilation installers and repairers, as well as carpenters and joiners will be in particular demand.[66]

59 House of Lords Industry and Regulators Committee, 'The Net Zero Transformation: Delivery, Regulation and the Consumer,' 5.
60 BEIS (HM Government) (2021), 'Heat and Buildings Strategy.'
61 English Heritage, 'Heritage and the Economy 2020: Heritage Counts', 23.
62 BEIS (HM Government) (2021), 'Heat and Buildings Strategy.'
63 Grosvenor et al., 'Heritage and Carbon: Addressing the Skills Gap,' 3.
64 ONS, 'Age of the Property Is the Biggest Single Factor in Energy Efficiency of Homes.'
65 Historic England (2023), 'Delivering Net Zero for England's Historic Buildings: Local Data on the Demand for Retrofitting Skills and Economic Growth.'
66 Historic England (2023), 'Heritage and Carbon – Delivering Net Zero for England's Historic Buildings: Local Data on the Demand for Retrofitting Skills and Economic Growth.'

4.5.2 Additional impact – levelling-up

The increasing emphasis on 'levelling up' – a concern shared across the major political parties – means that there is greater consciousness of regional disparities in economic, social, and cultural performance, of which construction is a major driver.[67] A duty to publish 'levelling up missions' and report on progress on achieving them was laid on government through the Levelling Up and Regeneration Act 2023. The published missions seek to decrease the differences in productivity, pay, educational attainment, and health across the UK's regions and nations, with a particular focus on urban areas and coastal towns which suffer from high levels of deprivation and crime.

Increasing human capital, including skills in the workforce, and physical capital; both areas of development lead to better housing and are relevant to the traditional construction industry.

Thus, the last government's white paper specifically mentioned "heritage buildings" and "historic sites" as possible opportunities for boosting local economies and enhancing employment as well as participation for disenfranchised parts of the UK.[68] 'Creating Better Places is defined in Historic England's Corporate Plan for the 2023-26 period. Here, the goal is to make sure that *"[e]conomically and socially disadvantaged places become safer and more prosperous due to investment in their heritage, and in the skills required to sustain it."* [69] With 251,500 extra workers required to meet the UK's construction output over the next five years – which would necessitate an increase in recruitment by 25% – and repair and maintenance growth linked in particular to necessary energy upgrades through the government's Social Housing Decarbonisation Scheme and Home Upgrade Grant Scheme, the gap between the skills available on the labour market and those necessary to 'level up' regions across the UK appears to be growing.[70]

4.5.3 Houses of Parliament restoration and renewal

The Houses of Parliament Restoration and Renewal (R&R) Programme, a major project in the field of heritage construction is expected to lead to a major boost in demand for traditional building crafts and thus to put strain on an already difficult situation.[71] Although the restoration project aims to create a plethora of new jobs and apprenticeships, the endeavour is also phrased as a "truly national effort" with possible repercussions for skills provisions across the country.[72]

Costs were estimated between £7bn and £18.5bn in February 2022, which, allowing for inflation amounts to between £7.7bn and £20.3bn at 2024 prices. Depending on whether the activities of the House of Parliament make a 'full decant' for the duration of the work, or they simply have a 'continued presence', the work is estimated to take between 19 years and 43 years. This equates to an average annual cost of between £445m and £467m. Analysis carried out by the R&R Delivery Authority in charge of the restoration project in Summer 2020 highlighted that the programme could bind a "significant proportion" of the workforce currently available in the UK for the restoration of heritage windows, plastering, and heritage joinery and carpentry[73] – it estimated that almost a third of the workforce currently working in heritage plastering and 34% of all heritage window specialists will be required for the renovation of the Palace of Westminster.[74]

Our own estimates show that, based on CITB's labour coefficients, a core workforce[75] of between c. 2,500 and 2,850 FTE will be required on average per year throughout the renovations. However, only 9% of respondents surveyed for this research intend to bid for restoration work at the Palace of Westminster, with 8% unsure – showing there will be work to do in communicating the opportunities and making them truly available ahead of issuing invitations to tender. Unsurprisingly, there are regional differences; 15% of London-based organisations are planning to bid on the Houses of Parliament restoration project, while only 5% of organisations in North-West England are planning to bid, despite efforts being made to engage with all regions of the UK.

67 HM Government (2022), Levelling Up the United Kingdom.
68 HM Government (2022), Levelling Up the United Kingdom.
69 Historic England, 'Corporate Plan: 2023-26', 5.
70 CITB and Experian, 'The Skills Construction Needs: United Kingdom Five Year Outlook 2023–2027', 14, 44; Parry, 'The Levelling Up Opportunity in 2023'; CITB CSN Industry Outlook 2024-2028.
71 Restoration & Renewal Authority (2023), 'Wide-Ranging Benefits across the UK.'
72 Restoration & Renewal Authority (2021), 'Skills, Employment & Education Strategy,' 1.
73 Restoration & Renewal Authority (2021), 'Skills Assessment Research Digest: P1. Skills for the Heritage Construction Sector.'
74 UK's largest ever restoration will increase demand for specialists in heritage industries. | Restoration and Renewal
75 Core workforce includes those working in wood trades and interior fit-out, bricklayers, painters and decorators, plasterers and dry liners, roofers, floorers, glaziers, specialist building operatives and scaffolders.

Stakeholders interviewed also pointed to the typical organisation size in this sector – it is characterised by SMEs, which they cite as a barrier to bidding for large scale projects such as the Palace of Westminster renovation. Stakeholder survey data also reflects this instinct – the average size of the organisations we spoke to was 11 employees and the average size of organisations planning to bid for the Houses of Parliament work is 20. This also underlines the importance of heritage construction sector careers education, information, advice, and guidance (CEIAG), cited in Chapter 2, and discussed in more detail in Chapter 5.

5

Supply chain challenges

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5.1 Key messages

There is evidence that **the supply chain is already under pressure due to a diminishing availability of skills:** interviewees reported that there was increased 'busyness' but attribute this more to contractors leaving the sector and to reduced numbers of new entrants than the actual amount of work increasing.

This trend of 'busyness' was said to be set to continue, with three-quarters (76%) of surveyed firms that report experiencing skills shortages saying that they expected them to worsen over the next three years.

Sector demographics suggest that 14% of the workforce who carry out work on pre-1919 buildings are aged above 55 – many of whom will retire within the next ten years. By contrast, only 28% are aged below 35 and only 10% of employees are aged between 16 and 24. **These smaller proportions within lower age bands raise the concern that the number of new entrants joining the industry will not be sufficient to replace the numbers leaving. This further raises questions about awareness of career opportunities in the sector and the effectiveness of promotional activity (discussed more in Chapter 6).**

Nearly two-thirds (60%) of respondents do not expect to increase the number of directly employed staff working on pre-1919 buildings, while just over a third (36%) do expect to. Those with the highest degree of focus on traditional buildings are most likely to want to further increase their volume of work of this kind: of survey respondents with 70% or more of their work coming from pre-1919 buildings, 57% reported wanting to increase their work of this kind, compared to 38% of those doing 30% or less of their work on pre-1919 buildings.

However, while there is appetite to increase the directly employed workforce for work on older buildings, survey data also highlights strong concerns about limited availability of skills – deemed a key barrier to recruitment.

Heritage construction contractors have a similar (though slightly greater) expectation that they will recruit apprentices or trainees compared with the construction sector as a whole, with 26% of those surveyed saying they expect to recruit an apprentice to work on pre-1919 buildings, compared to 22% in mainstream construction expecting to recruit over the next year.[76]

Those most strongly focused on heritage work were also those most likely to report expecting to take on an apprentice or trainee, and those least focused – least likely. **This suggests that there is a greater appetite to take on apprentices or trainees in the more specialised businesses, underpinned by difficulties in sourcing the skills they need within the existing labour market.**

Among those expecting to recruit, most are seeking apprentices or trainees in core construction trades: carpentry and joinery, stonemasonry, and bricklaying. However, there was also relatively large demand reported for apprentices in lime plastering and both general and specialist roofing trades (including thatch, lead and copper, and tiles and slates).

There were, however, considerable challenges reported with recruiting and training apprentices and trainees. Depth interviews with stakeholders and contractors suggests that there are only small cohorts of apprentices coming into the sector, with very limited focus on succession planning, particularly in micro businesses. **Contractors predominantly reported that they do not believe specialist heritage trade apprenticeships exist or, if they do exist, they are not easily accessible.** These statistics suggest broad alignment with the wider construction sector, with research in August 2023 finding that while 37% of construction firms offered apprenticeships, only 21% had an apprentice at that time, with 64% of firms not offering apprenticeships.[77] **These factors making it challenging for specialist heritage construction organisations to recruit apprentices as they would like to do.**

This is backed up by analysis of the training landscape: formal training (either through vocational training courses or apprenticeships), specifically for heritage construction on older buildings, is in short supply (as discussed in Chapter 6). **What heritage sector training there is can be difficult to find out about or access, meaning that relevant courses that are available are often undersubscribed.**

There are also more general issues associated with communicating the value of heritage construction, and construction careers in general, to potential entrants. There is a lack of diversity in the sector, suggesting that careers advocacy is not reaching all potential entrants. This is a particular issue given the demographics suggesting that there will be an increase in 18-30-year-old potential apprenticeship applicants, representing a significant opportunity for renewing and rejuvenating the workforce.

76 CITB Employer Panel data – August 2023.
77 CITB Employer Panel data – August 2023.

5.2 The industry is already under strain due to shortages of skills

The qualitative evidence from contractors and sector stakeholders suggests that demand for heritage construction specialists is already outstripping the capacity of the sector to supply them. Interviewees report increased 'demand', with solid pipelines of work and greater intensity of work within individual firms. On probing, however, this was said not simply to reflect increased demand from clients but rather an experience of increased 'busyness' within individual businesses. In particular, when asked why they were experiencing increased pressure of work, the explanation given tended to be contractors leaving the sector, coupled with reduced numbers of new entrants. The implication is that the feeling of increased demand reflects contraction in supply, as the fewer businesses able to deliver the work find themselves being asked to take on increasing amounts of work that would previously have been carried out by competitors.

> *With contractors leaving the market, there's an increased demand of work for people, it's not the work that is increasing on the whole, but there's just more work available from that kind of steady state of work because there are fewer people operating in that area.*
>
> *All our members are incredibly busy. But they are all incredibly busy because there aren't the numbers that there once were. There are not the people coming through and joining trades.*
>
> Heritage stakeholder interview feedback

This trend was said to be set to continue, with three-quarters (76%) of surveyed firms already experiencing skills shortages saying that they expected them to worsen over the next three years. Interview evidence further testifies to a perception of rapidly waning skills within the sector. This implies that the current skills situation, if it persists, is liable to lead to increased prices as contractors may seek to manage and take commercial advantage of a situation where supply lags demand. This could in turn diminish the amount of work undertaken with specialist traditional building craft skills. The result would almost certainly be further increases in the amount of backlogged repair, maintenance, and improvement work, as the availability of specialist skills lags behind underlying need and beyond the financial means of available budgets.

The age profile of the workforce may also exacerbate skills shortages. A substantial minority of the current heritage construction workforce, some 14%, are aged above 55 – many of whom will retire within the next ten years. By 2034, 42% of employees currently working on pre-1919 buildings will be aged over 55. By contrast, only 28% of the current workforce could be considered to be in the earlier stages of their career – aged below 35 – and only 10% are aged between 16 and 24. These smaller proportions within lower age bands raise the concern that the numbers entering the industry are not sufficient to replace those leaving the industry.

The age make-up varies by trade, with survey data finding that those aged above 45 made up 71% of glaziers and 67% of dry stone wallers working on pre-1919 buildings.

Without attention, supply of experienced individuals within these trades to work on pre-1919 buildings will hit a crisis point in the next 10-20 years, even if demand is assumed to remain constant.

5.3 Despite anticipated increasing demand, there is limited planning to increase staffing or recruit apprentices or trainees for work on pre-1919 buildings

The research found that the majority of respondents have few plans to meet anticipated increased demand by increasing the provision of specialist skills. Nearly two-thirds (60%) of respondents do not expect to increase the number of directly employed staff working on pre-1919 buildings, while just over a third (36%) do expect to (Figure 6). This appears to reflect, in part, a relatively high proportion of small, specialised businesses for whom expansion is neither a priority nor, in some cases, an easy prospect – given difficulties cited in recruitment and retention. However, the overall impression received from the interviews was that this also reflects the basically comfortable position that a contracting base of suppliers working in the context of stable demand will experience. Where there are relatively low levels of competition, there is little need to reinforce or develop market positioning through actively pursuing additional work or expanding staff and developing new skills. Risk can be associated with expansion during a period of economic uncertainty.

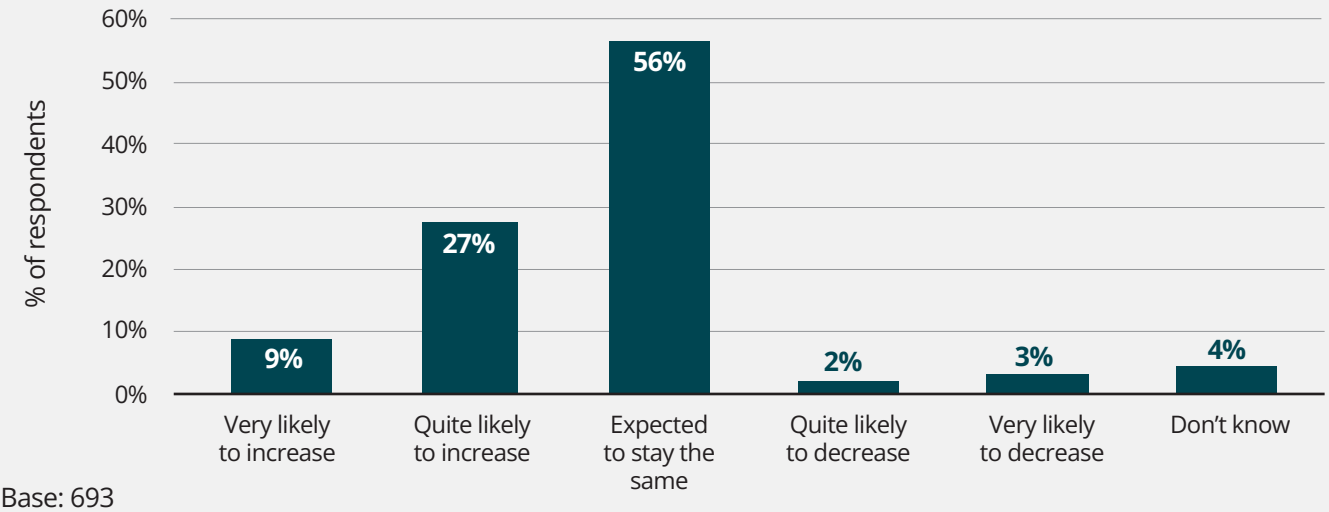
There is, however, an asymmetry among the interviewed contractors between those who have higher and lower levels of specialisation in work on traditional buildings.

Those with the highest degree of focus, defined by carrying out 70% or more of their work on pre-1919 buildings, were most likely to want to further increase their volume of work of this kind. Of these contractors, 57% reported wanting to increase their work of this kind, compared to 38% of those doing 30% or less of their work on pre-1919 buildings.

Heritage construction contractors have a slightly greater expectation that they will recruit apprentices or trainees than the construction sector as a whole – on the assumption that they will be available (and that there are relevant apprenticeship standards to facilitate this). Just over a quarter of respondents (26%) believe it is likely they will recruit an apprentice or a trainee to work on pre-1919 buildings, but over half (56%) think it is not likely (Figure 7). This is slightly higher than the wider industry, with 22% of respondents to the August 2023 CITB Employer Panel saying they are either 'likely to' or 'will definitely' recruit apprentices in the next year.

As with the intention to expand, however, it was those most strongly focused on heritage work who were most likely to report expecting to take on an apprentice or trainee, and those least focused, least likely, with 31% reporting an intention to recruit an apprentice or trainee.

Figure 6: How likely is it that your organisation will increase or decrease the number of direct employees to work on pre-1919 buildings in the next 12 months?



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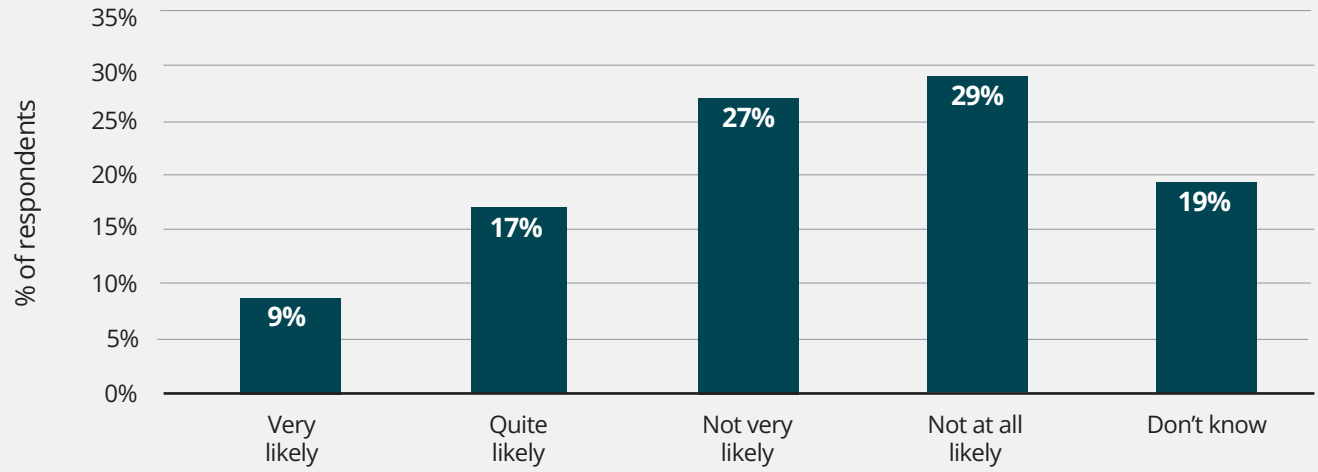
This suggests that there is a greater appetite to take on apprentices or trainees in the more specialised traditional building craft businesses. However, as discussed in Chapter 6, there is limited provision of dedicated occupational and apprenticeship standards for roles in these types of business, thus likely to strongly undermine ability to recruit apprentices or trainees in spite of a desire to do so.

Successful recruitment of apprentices depends on there being candidates of sufficient quality and quantity, availability of training to prepare candidates for assessment, supply of end-point assessment and crucially – sufficient places for them provided by employers.

Figure 7: How likely is it that you will recruit apprentices or trainees specifically to work on pre-1919 buildings in the next 12 months?



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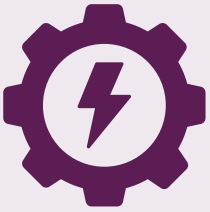
5.4 Even where there is an appetite for new apprentices or trainees, there are on-going challenges with recruitment and retention

There were reported to be considerable challenges with recruiting and training apprentices. The depth interviews with both stakeholders and with contractors suggested that there are only small cohorts of apprentices coming into the sector. Some 27% of interviewed contractors reported having apprentices or trainees, but these were concentrated in the mainstream construction trades of brickwork, plastering, and carpentry/joinery. Similarly, survey participants who planned to recruit tended to be seeking apprentices in core construction trades: carpentry and joinery, stonemasonry, and bricklaying. There was also demand for apprentices in lime plastering and both general and specialist roofing trades (including thatch, lead and copper, and tiles and slates), as well as a variety of more specialised occupations, but in the latter cases numbers were relatively small.

Micro businesses, where many of the most specialised skills are likely to be found, were said to have a very limited focus on succession planning.



This implies a need for interventions to ensure that these skills are sustained and developed.

However, stakeholders believe that, as with other traditional crafts, new entrants with no real experience of the sector would not be able to find specialist training or apprenticeship standards in more niche areas.[78] Where specialist heritage trade apprenticeship standards do exist, interviewees suggested, they are not always easily accessible. Nor do stakeholders believe that it is clear to new entrants what the routes would be from mainstream construction into more specialist heritage construction sector careers.

This perception appears to be backed up by analysis of the training landscape: formal training specifically for heritage construction on older buildings is in short supply (as discussed in more detail in Chapter 6). Interviewees repeatedly cited a number of core issues that together had given rise to this situation. A basic problem is that the absolute demand for more specialist types of training is always likely to be low (relative to mainstream construction) as long as client demand remains low. It is therefore challenging to run this kind of training on the local or at best regional basis that is the geographical focus for most Further Education (FE) colleges.

This problem is also embedded in the typical model of day release (weekly attendance at college for one to two days, with employment and training in the workplace on the remaining days) that is used in most apprenticeships: the resulting requirement for regular weekly travel from the workplace to the educational provider (which can be harder for younger learners) is only really practical where local provision is available. Thus, while there was perceived to be some high-quality, bespoke training provision available, this was not able to tap into the geographical broad market that it could potentially cater to – partly also because of a culture within the existing supply chain that favours informal, on-the-job training – with the result that it was reported to have very low take up.

Finally, there was frequently reported to be a more general difficulty with communicating the value of heritage construction, and construction careers in general, to potential entrants. There are strongly held perceptions that there is not enough promotion of technical education. Without this, learners lack sufficient awareness of what vocational training is available and what kind of career pathways can result. Critically some inspirational careers advocacy around the sector, linked to the showcasing of live projects, could make a valuable impact in this area.

78 Traditional crafts are defined as practices which employ manual dexterity and skill and an understanding of traditional materials, designs and techniques in order to make, repair, restore or conserve buildings, other structures, modes of transport, or more general, portable objects. For example, heritage crafts include wood turning and decorative wood carving - in contrast to heritage trades such as carpenters and joiners. Creative and Cultural Skills (2012), Mapping Cultural Skills.

> *There are definite gaps in training. We can map different parts in the country that have inequitable access to training. What we do know is that training does exist. There are training providers who are running heritage courses, but often they're undersubscribed.*
>
> *The consensus is people do not know heritage exists. It needs to be more integrated with education formally. We don't shout enough about what we do.*
>
> *It's that wider heritage ecosystem generally, that needs to be promoted. Let's be honest, there's enough passion. People are out there talking about it, but it's not a sustained impact. It's a ripple... We're just not being seen because we're not magnifying our collective impact.*
>
> Heritage stakeholder interview feedback

The result is a vicious cycle in which lack of provision and promotion leads to a decline in awareness of the potential for heritage-related construction careers, which in turn reduces direct demand for such courses. Without evidence of demand, in the form of take-up of heritage related courses, Further Education (FE) colleges will tend not to risk incurring the costs of setting up new courses.

There is a potential role for Local Skills Improvement Plans (LSIPs) and Regional Heritage Skills Networks (RHSNs) to support on-going assessment of demand for and availability of relevant training provision at a local level. As stated in Chapter 3, the absence of a viable demand pipeline makes it harder for the development of skills and training delivery plans – and in consequence makes it more difficult to achieve representation in LSIPs.[79]

79 Historic England – Historic Environment Skills and Careers Action Plan for England (HESCAPE) – shared in draft format for the purpose of this report and due for publication in 2024.

5.5 The sector is not particularly diverse, with limited evidence to suggest this will change in the immediate future and a need for careers promotion

There is direct evidence of the relatively poor promotion and accessibility of heritage-related construction training in the sector's notable lack of diversity. This is also reflected in the wider construction sector. Factors relating to gender, age, and training provision also exacerbate bottlenecks in the workforce's composition. Although women are more likely to work in the heritage construction sector – only 1% of the workforce in the mainstream construction industry are women – the number of women working on traditional buildings is still relatively low: however overall it is believed that around 13% of the workforce working exclusively on traditional buildings is female – this is likely to be higher than in the wider construction sector.[80] The vast majority of respondents (95%) surveyed for this research also report that their employees are male. The same respondents also reported low levels of ethnic diversity, with 92% of respondents saying their employees are white.

The age profile is biased towards older workers, with most workers being aged between their late 30s and early 50s.

Thus, there are substantial potential recruitment issues focused especially on ethnic minority, female and younger workers, which all constitute underdeveloped recruitment resources. This is a particular issue given that current cohort demographics suggest that there will be an increase in 18-30-year-old potential applicants to national apprenticeships in coming years, representing a significant opportunity for renewing and rejuvenating the workforce.[81]

There also appear to be barriers for potential career changers, who may also represent an insufficiently tapped opportunity to diversify the sector:

> *I don't think as a sector at the moment, people really know what the opportunities are, particularly with people who want to come across as career changers. There's a real opportunity that's untapped.*
>
> Heritage stakeholder interview feedback

These findings also underpin the importance of introducing a structured model for skills and careers development in the sector, designed to facilitate equitable opportunities to train. To maximise effectiveness, such a model would encompass early career new entrants, those currently in the construction sector wanting to upskill in heritage crafts and also those career changers joining the specialist sector in later life. This is similar to the model developed by Historic England to deliver their Heritage Building Skills programme.[82]

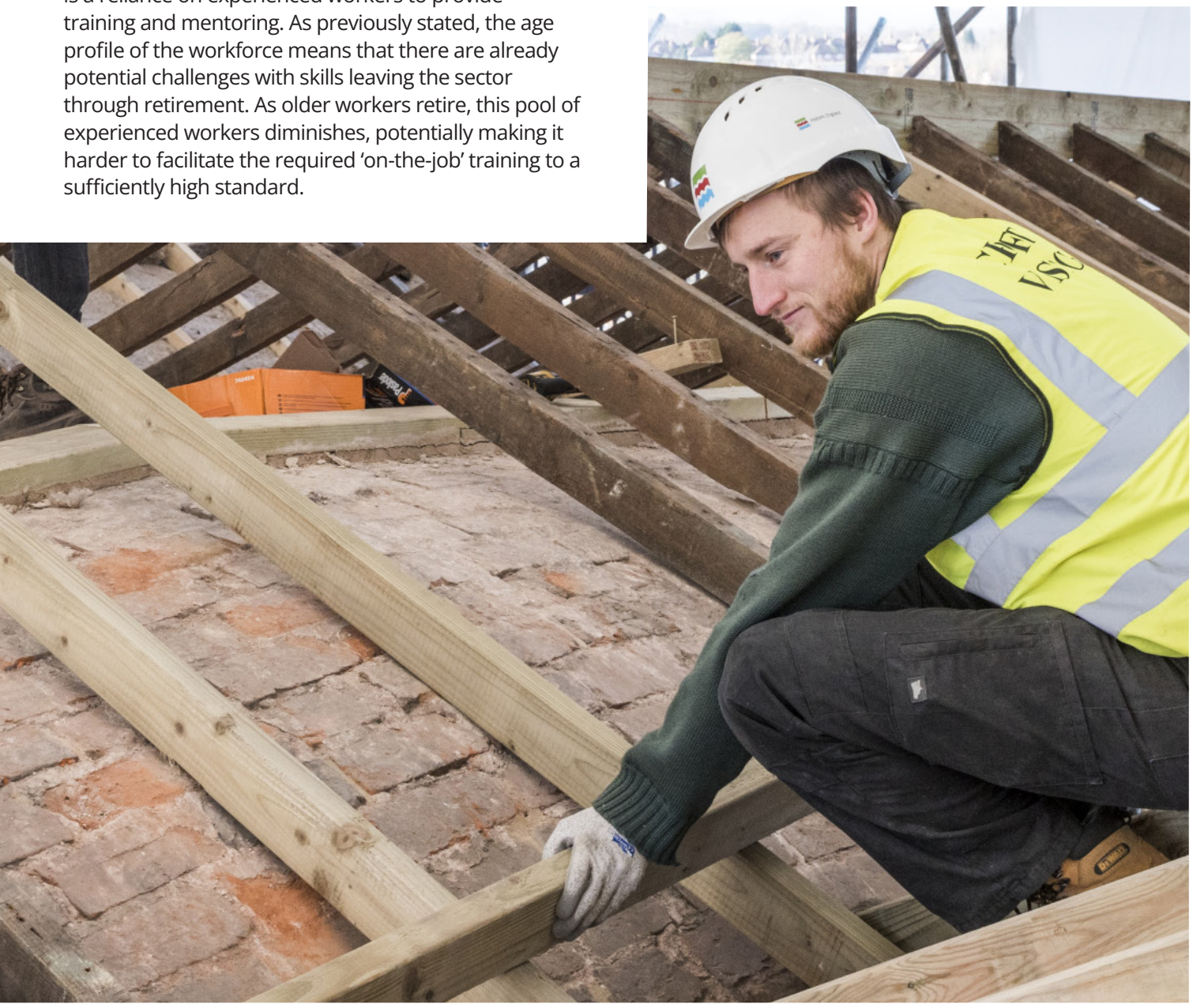
80 Cadw et al., 'Strategic Skills Partnership Progress Report 2018', 5.
81 Universities and Colleges Admissions Service (UCAS) forecasts, 2023.
82 The Heritage Building Skills Programme | Historic England.

5.6 Knowledge is being lost as experienced people leave the sector

There are more skills gaps noted in relation to younger workers than older workers. This is likely to reflect the lack of specialist training as well as normal progressive skills acquisition (skills improving with experience). Heritage skills are particularly likely to need additional 'on-the-job' development, the variety and often challenging condition of traditional building stock presents greater complexities than are usually found in the relatively routinised contexts of contemporary construction.

> *There is an increasingly looming skills crisis.*
>
> *The problems are coming.*
>
> Heritage stakeholder interview feedback

On-the-job training is the preferred model for the sector for addressing skills gaps, meaning that there is a reliance on experienced workers to provide training and mentoring. As previously stated, the age profile of the workforce means that there are already potential challenges with skills leaving the sector through retirement. As older workers retire, this pool of experienced workers diminishes, potentially making it harder to facilitate the required 'on-the-job' training to a sufficiently high standard.



6

Training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6.1 Key messages

Training is not consistently taken up/provided to employees. Less than half of all respondents (44%) provided some form of training in the last five years, compared with 55% of respondents that did not.

Respondents show a preference for informal, on-the-job training (72% of responses). This culture is reliant on having sufficient numbers of experienced people in the workforce to be able to provide training and mentoring to less experienced workers, as well as sufficient numbers of new entrants to actually be trained. As previously stated, the issue is that when older workers retire, this pool of expertise (within a high proportion of micro businesses) wanes. Furthermore, there is no evidence of a strong commitment to take on new apprentices and trainees with 56% of respondents saying it is not likely they will do so (as discussed in Chapter 5).

This culture also makes it challenging to assess the effectiveness of training provided to new entrants in terms of demonstrating competency because it lacks a uniform approach, nor is it clear how workplace trainers keep their knowledge up to date.

Accredited qualifications are seen as less important than word of mouth (and previous relevant experience) when respondents are looking for staff and sub-contractors. **Less than one in ten (9%) respondents view heritage specialist qualifications as an essential requirement when looking for staff and sub-contractors, compared with half (49%) citing word of mouth, and 69% of respondents, previous similar experience.** This may make it more challenging for the 16-25 age group that may be perceived to lack sufficient relevant skills due to lack of experience.

As there is limited evidence of demand for formal training, training providers do not perceive high demand for accredited courses and, accordingly, are unlikely to boost their supply. Furthermore, there appears to be insufficient ways to draw down funding for heritage training. For example, only construction firms registered with CITB are able to access CITB grants for training while other funding mechanisms appear to be disparate, inconsistent and lacking coordination.

The largest unmet need for training is reported by plastering organisations, with around one in three of these not being able to find the training that they want. This may align with the prevalence of dry lining in new build, which has impacted demand for wet plastering and therefore demand for training in wet plastering.

Respondents were asked which barriers, if any were perceived, prevented them from accessing relevant training (multiple options could be chosen from a list read out by the interviewer). **Nearly seven in ten (69%) of respondents said they do not perceive any barriers, however this should be considered in the context of a culture that prefers informal training, where, typically, organisations are simply not proactively looking for heritage specific training provision.**

Of the respondents that identified barriers to training, a third (34%) say training content is not relevant, while a similar proportion (31%) say training is not easy to access – underpinning their preference to train in-house. Extensive work has been undertaken by Historic England and other industry stakeholders to incorporate heritage-specific content in mainstream construction training provision. However, evidence from depth interviews points to concerns perceived in the quality of Further Education (FE) college training, predominantly attributed to shortages of experienced tutors and funding constraints.

Analysis of the Ofqual Register of Regulated Qualifications undertaken in April 2024 for this research, found 79 qualifications with direct relevance to heritage construction trades. **However, 48 of these are no longer awarded or are no longer available to learners.**

There are 98 apprenticeship standards approved for delivery in the construction and built environment sector. Of these, five explicitly reference heritage trades in the titles. Heritage related content is included in other standards but, from the perspective of new entrants, this may be less obvious. Opinion is divided among stakeholders – some believe heritage training should be standalone and separate from general construction training, while others believe there is a risk in attempting to separate heritage, arguing it should be inherent within all construction sector training.

Work is underway to develop further relevant apprenticeship standards, with three in development, while three were approved in the last two years.

Desk research for this study mapped heritage-specific construction training provision and found very limited availability of both accredited and non-accredited qualifications and training courses. The training content is very diverse; stakeholders and contractors have both pointed to the presence of very high-quality training provision, for example Historic England's pioneering Heritage Building Skills Programme. However, they also note that availability can be piecemeal across different regions, may be short-lived and that, furthermore, such training is not always visible to its target audience. Many membership organisations, such as trade bodies, maintain a training course bulletin/newsletter to share with their members but this is typically trade specific; there does not appear to be a 'one-stop-shop' to share/promote all relevant training.

Training provision mapping identified 68 providers that were offering heritage specific training relevant for the heritage construction sector (note this is a snapshot in time based on what was available at the time of the search – as such this may not fully reflect everything that can be offered by these and/or other providers). Of these training providers, 39% are FE colleges, 31% are private training providers and 26% are charity/not-for-profit organisations. The small remainder comprise membership organisations and universities.

Most providers offered between one and three relevant courses, **with only a small number of providers that could be deemed to be 'specialist' providers given the number and range of relevant training on offer.** The largest concentration of relevant training courses offered was found in the South-East, South-West, and London.

Regional inequality in availability of training provision is also reflected in the uptake of training. Respondents report higher uptake in the North-East and South-West (55% of respondents in both regions) compared with 32% of London respondents saying they provided training – despite the fact that training provision was more abundant in London compared with other regions.

The current training infrastructure, therefore, does not appear to have the capacity to handle any surge in demand from new entrants to the heritage construction sector. Stakeholders believe it is difficult to find relevant training and that, while there are pockets of high-quality and highly valued provision, this is not readily accessible due to low numbers of courses. If demand for work on pre-1919 building increases (including demand for retrofit), this may constrain the amount of time available for training in-house.

A regionally led approach to training and apprenticeships could align with a demand pipeline, with training needs and apprenticeship numbers more readily quantified in response to quantified demand. A regionally focused approach could also develop skills in using local materials more likely to be used in that region. Clearly there can be no guarantees that locally trained workers will stay local to that region. Local Skills Improvement Plans (LSIPs) – already previously mentioned as an opportunity earlier in this report – present opportunities for coverage and support of heritage skills – particularly in light of anticipated policy in support of further devolution tailored to local growth plans. At the time of writing, few LSIPs make explicit reference to heritage construction skills.

6.2 Take up and perceptions of training provision

6.2.1 Take up of training

Respondents were asked whether they had provided or undertaken training for work on pre-1919 buildings in the last five years. Less than half (44%) have provided training of this nature, which could include informal on-the-job training, as well as external accredited courses. There are variations by region and by main activity type. Organisations in London are least likely to have had this type of training (experienced in 32% of respondents) and those in the North-East are most likely to have had specific training (experienced in 55% of respondents).

The most important factor for respondents in selecting people to carry out work on pre-1919 buildings is individuals having relevant experience of carrying out similar work: nine in ten (92%) of organisations rate this as 'essential' or 'desirable'. Accredited qualifications are seen as 'essential' or 'desirable' by around half (54%) of organisations (Table 8).

Table 8: Please rate the importance of the following factors when selecting people to carry out work on pre-1919 buildings:

	Essential	Desirable	Not important	Don't know
Accredited heritage specialist qualification e.g. Level 3 NVQ in Heritage Skills	9%	45%	43%	2%
Heritage specific CSCS Card*	11%	37%	49%	4%
Having sufficient relevant experience carrying out similar work	69%	23%	7%	1%
Personal recommendation/word of mouth	49%	35%	14%	1%
On heritage contractors' register	9%	36%	51%	4%

**Gold Skilled Worker card obtained by having a heritage specific qualification (note the card is also available to other construction trades, not solely heritage).*

Contractors interviewed emphasise that experience and attitude are typically more important to them than formal qualifications.

> *Any staff we do employ just have to pass an internal competence test we have developed.*
>
> *[I have] no qualifications, just experience and my own mentoring from my late dad.*
>
> Contractor respondent feedback

An underlying concern in the literature is that, where heritage building work is undertaken by mainstream contractors using non-heritage trained operatives, there can be perceptions of *"a lack of broad awareness and understanding relating to heritage considerations, and only a minority of the heritage workforce hold formal qualifications"*.[83]

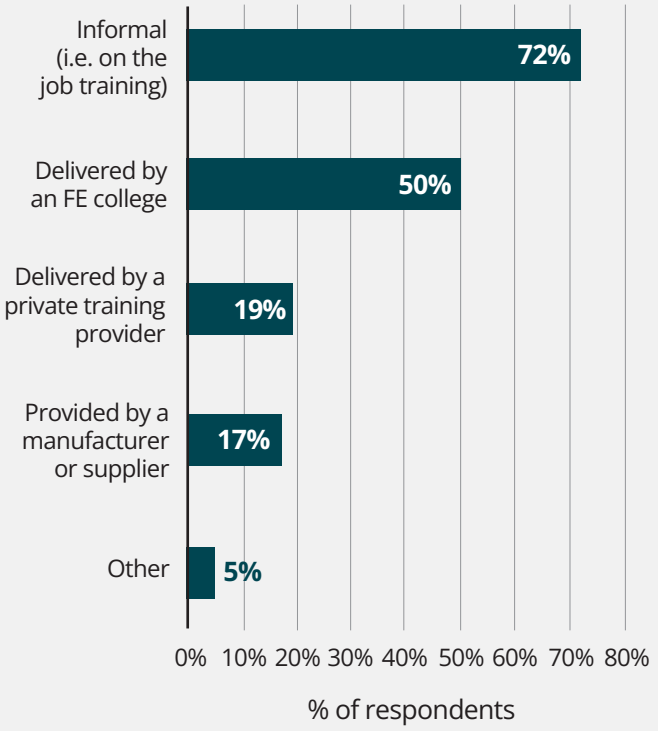
83 Restoration & Renewal Authority (2021), 'Skills Assessment Research Digest: P1. Skills for the Heritage Construction Sector', 24.

6.2.2 How training is typically provided

Respondents that have provided training in the last five years, were asked how this had been delivered, with the option to select multiple options from a list read out by the interviewer.

The majority of training provided has been informal, with about three-quarters (72%) of responses indicating involvement in informal training. Half (50%) of the responses indicate training has been delivered by an FE college (Figure 8). This varies by region, with nearly eight in ten (78%) of responses in the North-East having participated in FE college provided training, compared to a little over a third (35%) of responses in South-East England and, in the West Midlands, although it does not necessarily follow that people that were trained in a region, stay there.

Figure 8: How was training provided?



Base: 503

6.3 Sufficiency of training provision

6.3.1 Supply of training

As organisations appear to place less value on formal qualifications than on informal training and development, this situation creates a conundrum for providing accessible training provision in FE colleges across the country. Recently, funding pressures in the FE sector have made it more difficult for training operators to cross-fund courses with a lower number of students through more popular courses taken up by a larger number of young people. This situation is worsened by the geographic disparity of regional skill needs; "*If all heritage gilding trainees were concentrated in the north-east for example, it would be possible for a single college to mount economically-viable courses*"[84] – however this is not always the case.

Private training providers will create a supply in response to demand but, with a preference in the sector for informal, on-the-job training, there is no strong evidence of demand, meaning little availability of heritage-specific training provision. This model may work effectively in a supply chain holding a high proportion of experienced workers but may become less effective as older workers retire, if knowledge is not passed down to the next generation.

84 Restoration & Renewal Authority (2021), 'Skills Assessment Research Digest: P3. Training and Provision in Construction and Heritage', 40.

It appears that the numbers of relevant accredited qualifications available to learners may be waning. Through desk-based research, 79 heritage-construction specific courses have been identified in the Ofqual Register of Accredited Qualifications, ranging from Level 1 to Level 7. Of these, 48 are no longer awarded or are no longer available to new learners – further constraining availability of heritage construction training provision. Note this analysis is UK-wide, on the basis that workers may travel to access training provision. Furthermore, on-going restructuring of FE may also affect the availability of heritage construction courses.

Desk-based mapping of heritage-specific training found nearly 150 vocational courses/national apprenticeships currently on offer, not including mainstream construction provision which includes heritage-related content. There appear to be more courses available in the South than the North. FE colleges account for 39% of these, but typically only offer one or two courses as a maximum, with a very small number of colleges that could be deemed to be specialist providers of heritage construction training.

The providers offering the highest number of courses, based solely on this snapshot, are:

Provider	Course location	Delivery type
Building Crafts College	London	In person
Carrington Lime	South-West	In person
Environment Study Centre	Nationwide	Online
Society for the Protection of Ancient Buildings (SPAB)	South-West and South-East	In person
Tywi Centre	Wales[85]	In person
West Dean College	South-East	In person

At the time of writing, 98 apprenticeship standards are approved for delivery in construction and the built environment. The Institute for Apprenticeships and Technical Education (IfATE) does not explicitly separate heritage as a standalone category when searching for apprenticeships, but within the list of 98 standards, five appear to explicitly reference heritage trades:

Apprenticeship standard	Level	Date approved for delivery	Maximum funding available	Typical duration
Thatcher	2	27/02/2024	£21,000	24 months
Heritage construction specialist	5	26/10/2023	£8,000	24 months
Craft bricklayer*	3	08/06/2023	£10,000	18 months
Stonemason	2	28/06/2021	£11,000	24 months
Craft carpentry & joinery**	3	27/02/2018	£13,000	15 months

*This is not specific to heritage, with the statement saying 'this occupation is found in the built environment, including in the new build, refurbishment, and heritage sectors'.

**This is also not specific to heritage, with the statement saying, 'there is growing demand for carpenters and joiners to help meet the need for the transition to modern methods of construction, heritage projects and sustainability.'

85 Note that while the scope of this research is England, the search spanned UK because contractors report they are likely to need to travel to access relevant training.

A number of heritage-specific and other relevant apprenticeships have been withdrawn in recent years (all Level 2 – dates in brackets indicate date when the apprenticeship was withdrawn):

- Heritage carpenter and joiner (April 2019)
- Steeplejack 2017 (April 2019) (new iteration currently in development)
- Glazier (November 2019)

However, there are other apprenticeship standards recently and currently in development – while they are not specific to heritage they have relevance for work on older buildings:

- Craft painter and decorator (Level 3 – standard approved)
- Steeplejack (Level 2)
- Retrofit coordinator (Level 5)
- Craft plasterer (Level 3 – standard approved)

Stakeholders interviewed for this research raise concerns about the sufficiency of relevant apprenticeship standards. There is not currently in place an apprenticeship standard for a general maintenance operative working on heritage buildings.

6.3.2 Barriers perceived to training

Given that many organisations favour aspects such as experience, personal recommendations, and work ethic/attitude as more important than formal qualifications, and that most training appears to be provided on an informal basis by work shadowing, on-the-job training, and mentoring, it is perhaps unsurprising that a majority (69%) of responses say there are no perceived barriers to accessing training for work on pre-1919 buildings. However, this should be considered in the context of attitudes towards formal training: 90% of respondents have not looked for training.

Results on finding relevant training for work on pre-1919 buildings are relatively consistent by region, apart from in the North-East and North-West England where very small proportions of organisations report challenges in finding what they want (4% and 1% of respondents respectively).

6.3.3 Access to apprenticeships

Evidence gathered from stakeholders and contractors indicates other key barriers to accessing relevant training and qualifications. There are difficulties perceived in finding relevant, skill/role specific apprenticeships. Challenges in finding enough trainers and assessors are also cited in relation to delivery of apprenticeships. Stakeholders note that standards may have been developed, but this does not always mean that the apprenticeship is available. It may be hard for aspiring apprentices to find the training they want or need, highlighting the importance of establishing positive career mentorship opportunities in the sector.

Training may not be easily visible or accessible to new entrants, in light of a culture that typically shares information via word-of-mouth.

Apprenticeships.gov.uk shows only live opportunities which can be searched by sector and postcode; 'construction and the built environment' can be searched but cannot be broken into sub-categories i.e., there is no 'heritage' sub-category. Opinion is mixed as to what is the optimum approach – some stakeholders believe there should be a separate category, with heritage able to "stand out from the rest", while others believe this creates unhelpful separation between 'heritage' and 'construction and the built environment', arguing that mainstream construction training should encompass skills and knowledge development for all types of buildings. Stakeholders favouring the separation of 'heritage' say that this would make it easier for potential new entrants to access and understand career pathways and training provision.

> *It's so difficult to find apprenticeships. On the one hand, you've got employers saying we've got a skills shortage, and we need people, and we want apprentices. On the other hand, you've got would-be apprentices saying I can't find any.*
>
> *I know there are dozens of standards with no training providers because the numbers just don't stack up. This is going to continue to get worse, with fewer and fewer training opportunities.*
>
> *There are a lot of these qualifications that are already written, but just not really widely taught.*
>
> *Young people ask, "how can I become a heritage brick layer?" – and the response is, well, you have to go to college and do bricklaying mainstream because there isn't another option.*
>
> Heritage stakeholder interview feedback

Stakeholder evidence also flagged concerns about limited training availability in relation to retrofit, energy efficiency and net zero, specifically for heritage buildings. Work is underway to incorporate 'green skills' content to many existing apprenticeship standards, but this may not be well known among heritage sector contractors and does not guarantee inclusion of heritage focused content.

The Building Skills for Net Zero report published by CITB in 2021 catches the prevailing mood in the literature: *"Greater emphasis should be placed on the training requirements for traditional buildings, both in mainstream construction education and upskilling"*[86] – not only to meet the demand for specialist skills that will allow the UK to meet its net zero targets, but also to meet the more general demand for traditional heritage construction skills.

> *How can we develop net zero modules that hang off the core training provision? The other thing we'd be really interested in is opportunities around green apprenticeships.*
>
> *I'd love to see some net zero apprenticeships schemes being developed around the country.*
>
> Heritage stakeholder interview feedback

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86 CITB (2021), 'Building Skills for Net Zero', 73.

6.3.4 Quality of accredited training

Respondents expressed some misgivings about the quality of training courses in colleges, focusing mainly on such issues as course content, methods, and shortages of experienced tutors. A common concern cited is that teaching in college does not go far enough, both in content and in practical application. This means that contractors need to train college leavers themselves to make up for training that is perceived to be too short in length and too inefficient in teaching practical knowledge, to bring the skills of these new entrants up to an appropriate level. Concerns were also cited in interviews that the number of tutors available to teach heritage skills at college level is steadily decreasing due to retirement of experienced staff or their decision to return to industry roles with higher earning potential, adding another layer of complexity to the problem of skill shortage.

6.3.5 Visibility of training and career pathways

There are strongly held perceptions among stakeholders that there is not enough promotion of the technical education landscape, to make it clear to learners what is available and what kind of career pathways can result. In particular, respondents say there is inequitable access to training, with some providers deemed to offer high quality and bespoke training provision but with very low take up overall. Low take up is partly attributed to inaccessibility of training; for example, if held in a region a long way from the learner. Low uptake is also partly attributed to lack of visibility: do learners know what it is there and how to find it? Stakeholders point out that even highly relevant courses can be under-subscribed. Stakeholders believe that new entrants with no real experience of the sector would not be able to find specialist training, particularly as there are often a lot of crossovers with training in traditional crafts. There is an appetite to make greater and better use of online and social media channels to promote career pathways. As previously stated, without take up, there is no evidence for providers that there is sufficient demand to run the course, so it has become a vicious cycle.

6.4 Mainstream construction training provision

Stakeholders query whether mainstream construction training provision and colleges could be a potential solution, by incorporating more heritage specific content into existing training courses that are more widely available country wide. It should be noted that a great deal of time has already been invested by Historic England, along with Historic Environment Scotland, Cadw and other industry stakeholders in doing so but, if there is limited take up of accredited training, this is unlikely to be visible to heritage contractors. There is the risk that they have 'written off' the concept of formal training.

> *It would be more impactful if you could provide them [FE colleges] with a module, a way of making this meet the needs of heritage employers rather than making something so niche and specific that only a building crafts college can deliver it – I think that's an easier thing to do.*
>
> *Leeds College of Building and similar might not put on lots of specific heritage courses, but they could certainly deliver modules alongside existing courses.*
>
> *What we really feel, at the moment, is that there's untapped potential in all of the colleges.*
>
> Heritage stakeholder interview feedback

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6.5 A need to 'join the dots'

A common theme expressed by stakeholders is the need to join the dots. Stakeholders acknowledge that a lot of activity does happen on a regular basis to design and deliver relevant, bespoke training provision. However, this is typically fragmented and piecemeal. One-off courses may be offered by trade federations to their members; there may be small cohorts of apprentices funded by specific grants; there may be pots of funding to run short courses in specific regions. Stakeholders point out that while such activity is very positive, it is not joined up, and it tends not to be sustainable, failing to underpin the national training legacy needed.

> *There seem to be lots and lots of people in the market doing lots of lots of different things and there's not a lot of joining up... somebody has to connect all the dots.*
>
> *In terms of education, there are some fantastic courses and accreditation schemes and so on. We're all trying to do bits, but it isn't necessarily coordinated at the moment. And I think the impact could be so much greater if we work together.*
>
> *We've got our own apprenticeship programme. I know other organisations have got their apprenticeship programmes. I've been talking to various local authorities who are interested in setting up training centres and specialist centres, training hubs and so forth. And obviously that's been done before. But they've lasted for a few years and then they've gone... and I just think we need to be a lot more joined up and working together collaboratively.*
>
> *What often happens is there's a bit of budget [typically in the context of delivering larger projects], somebody goes into a local college, and they do a bit of enrichment [specific to traditional heritage skills], and it has an impact, and it brings a couple of people in. It might even find one person, but that's not creating a legacy.*
>
> Heritage stakeholder interview feedback

6.6 A regionally-led training offer

Stakeholders emphasise the importance of taking a regional approach to funding for training and for the design and delivery of relevant training for the heritage construction sector. This is strongly anticipated to follow the direction of travel for skills and funding policy, expected to be underpinned by further devolution. This could align well with a demand pipeline to quantify demand nationally and regionally, as well as to enable training on the use of building materials that feature prominently in the local region.

> *Providers used to deliver to their local area, they were funded by region. When it became a national funding pot it meant all the colleges could deliver nationally now. So, they've all become competitive.*
>
> *There's a lot of regional variation. Teaching someone about a building in rural Cambridgeshire, which is made of all the local materials that we have here, is not going to help someone that works in the middle of Sheffield.*
>
> Heritage stakeholder interview feedback

7

Retrofit

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7.1 Key messages

"Retrofit" is a term that is frequently used in the media, by building professionals, by local authorities, by homeowners etc. **– yet there is no one clear definition of the term that is used universally.**

Stakeholders and contractors interviewed for this research have emphasised difficulties in understanding the term "retrofit" – which they typically associate with the installation of energy efficiency measures but note there is no uniform definition – partly because it is not the case that 'one size fits all'. This can further constrain identification and commissioning of the people with the appropriate skills and knowledge to undertake retrofit of pre-1919 buildings.

Historic England uses the term retrofit to refer to the improvement of an existing building to ensure it is efficient, resilient and well-adapted to our changing climate. Successful retrofit projects take into account the construction, condition, significance, occupants, use, exposure and vulnerability of the building, via a whole building approach.[87] The resultant holistic and balanced solutions save energy and carbon, maintain a comfortable and healthy indoor environment, and sustain heritage significance. Certain retrofit measures are not feasible or practicable for historic and traditional buildings.

This is not necessarily a definition of retrofit that is widely accepted; multiple interpretations of the term exist across the construction and heritage construction sectors alone, as well as in other industries.

The need for retrofit is clear; as stated in Chapter 4, the UK has a high proportion of older buildings with around 20% of all dwellings in England built before 1919.[88] The UK is committed to reaching net zero by 2050. The UK Green Building Council (UKGBC) estimates 29 million homes will need retrofitting by 2050 to help achieve this target.[89]

There are also opportunities associated with retrofitting buildings; research published in 2023 estimated that improving energy efficiency in pre-1919 buildings will not only cut carbon emissions but could also generate £35bn per annum.[90] 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.[91]

However, in spite of clear need, there is extremely limited appetite for retrofit activities within the existing supply chain: respondents report retrofit of pre-1919 buildings accounts for just 2% of their overall turnover on average.

Only 28% of respondents are confident that existing training provision for work on pre-1919 buildings will give tradespeople the skills they need to install low carbon and energy efficiency measures.

Almost 46% of respondents were unable to assess confidence in their existing skills and knowledge to install retrofitting measures in pre-1919 buildings.

Respondents also perceive barriers to retrofit; the need for listed building consent can create delays to energy efficiency improvements – 1 in 4 applications take longer than the expected 8-week timescale.

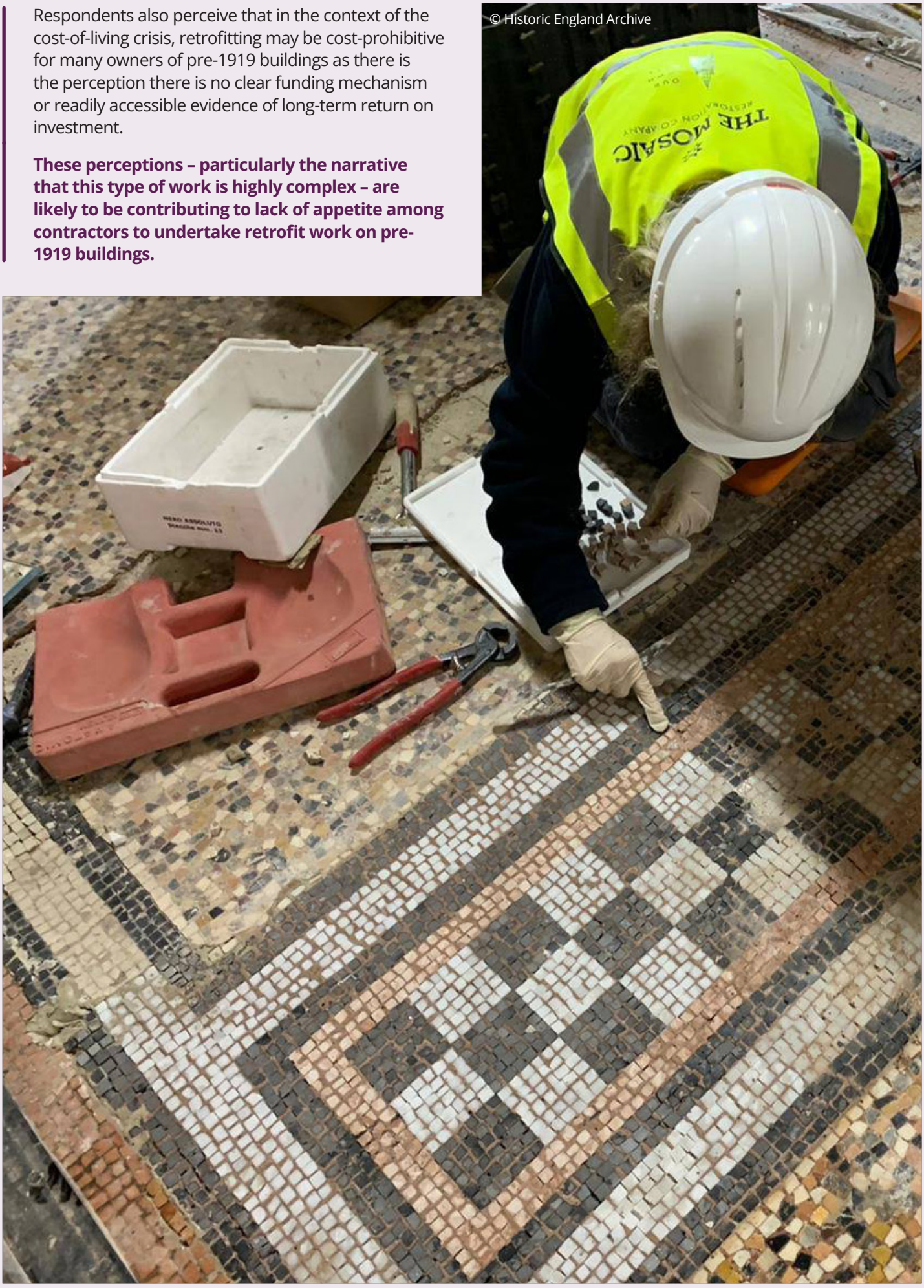
The number of conservation experts employed in local authorities declined by 43% between 2006 and 2022 – contributing to further delays due to lack of knowledge held amongst the decision-makers. Despite increased demand for climate change specialist skills within local authorities, it does not necessarily follow that conservation staff have sufficient skills and knowledge to help them make decisions relating to retrofit.[92]

Contractors and stakeholders interviewed for this research report **strongly held perceptions** that retrofit of pre-1919 buildings can be viewed as highly complex, and may incur high costs due to scarcity of skills and materials (with a knock-on effect of increasing costs), the need to obtain additional permissions (in some cases) and the identification of unforeseen and additional work.

87 https://historicengland.org.uk/advice/technical-advice/retrofit-and-energy-efficiency-in-historic-buildings/whole-building-approach-for-historic-buildings/.
88 DLUHC, English Housing Survey, Table DA1101 (SST1.1): Stock Profile, 2021.
89 Home Retrofit | UKGBC.
90 Grosvenor et al., (2023), Heritage and Carbon: Addressing the Skills Gap.
91 Renovate Europe (2020), Building Renovation: A kick-starter for the EU recovery.
92 Research into Local Authority historic environment staff resources published by Historic England in 2023 found over half (56%) of respondents agreed that staff have access to the right guidance and technical advice when making decisions or advising on plans or projects that include retrofit. However, this research also found uncertainty, with 28% of respondents adopting a neutral stance (selecting 'neither agree nor disagree'), whilst 11% disagreed and 5% did not know.

Respondents also perceive that in the context of the cost-of-living crisis, retrofitting may be cost-prohibitive for many owners of pre-1919 buildings as there is the perception there is no clear funding mechanism or readily accessible evidence of long-term return on investment.

These perceptions – particularly the narrative that this type of work is highly complex – are likely to be contributing to lack of appetite among contractors to undertake retrofit work on pre-1919 buildings.

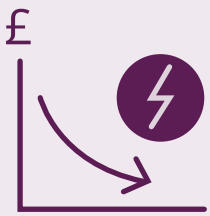


7.2 Retrofit of pre-1919 buildings: the need and the opportunity

It is well documented that the UK housing stock is one of the oldest in Europe, with more than 4.75 million dwellings in England built before 1919.[93]

Demand for retrofit is expected to increase: the Covid-19 pandemic made people more aware of time spent in their homes and heating inefficiencies; this was compounded by better understanding of climate change, rising energy bills and a cost-of-living crisis.

Following the passing of the Climate Change Act in 2008, the UK government made a commitment to bring all greenhouse gas emissions to net zero by 2050 (the net zero target). Buildings account for 17% of the UK's total carbon emissions – the second highest-emitting sector.[94]



In addition to energy efficiency benefits which can reduce energy bills and contribute to healthier homes, there are significant economic benefits associated with retrofit.

Research published in 2023 estimated that improving energy efficiency in older buildings will not only cut carbon emissions but could also generate £35bn per annum.[95] The same report concluded that energy efficiency improvements to listed buildings and unlisted historic dwellings in Conservation Areas could achieve an operational carbon saving equivalent to 4.6 to 7.7 $MtCO_2$ per annum.[96] 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.[97]

> *We've got 28 million buildings in the UK to retrofit and that's just the homes.*
>
> *That's not even thinking about the non-domestic buildings.*
>
> *The most sustainable building is one that already exists.*
>
> Heritage stakeholder interview feedback

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93 English Housing Survey 2022-2023: headline report.
94 Climate Change Committee: 2023 progress report to Parliament.
95 Grosvenor et al., (2023), Heritage and Carbon: Addressing the Skills Gap.
96 Grosvenor et al., (2023), Heritage and Carbon: Addressing the Skills Gap.
97 Renovate Europe (2020), Building Renovation: A kick-starter for the EU recovery.

7.3 Retrofit of pre-1919 buildings: perceptions of approaches and barriers

7.3.1 Retrofit of pre-1919 buildings requires a nuanced and carefully considered approach to avoid unintended negative consequences

Older buildings are diverse and vary greatly in their age, size, construction type and materials/detailing. Given their age and societal changes, they have been prone to alteration over time, resulting in buildings with a range of phases of construction, undertaken at different times. Pre-1919 buildings therefore require careful consideration before any retrofitting is undertaken. Without a robust knowledge and understanding of the fabric of the building, inappropriate measures may be implemented, or the wrong materials could be used – which could damage the building fabric, alter the character of the building or cause problems such as condensation or mould. The latter could also result in health problems for the building occupants.[98]

> *The biggest thing that is missed is not really understanding the basic core maintenance, sustaining the property. The external envelope is absolutely critical before you start retrofitting.*
>
> *Maintenance first, retrofit second.*
>
> Heritage stakeholder interview feedback

Respondents to this research hold strong perceptions that retrofit of pre-1919 buildings is a highly complex undertaking, that may present multiple risks. This narrative appears to be a factor in low take up of retrofit works of pre-1919 buildings.

Stakeholders emphasise that ensuring that the building envelope is first in good condition with no defects before any retrofit works are undertaken is essential. Thus, ensuring there is a sufficient supply of skills and knowledge to undertake repair and maintenance of pre-1919 buildings is a vital prerequisite.

Stakeholders point to issues currently being encountered in traditional buildings with energy efficiency measures installed some 10-15 years ago – that were poorly designed and incorrectly installed with materials inappropriate for the building – resulting in problems such as damp. Detailed understanding of building performance and building pathology is deemed to be an essential prerequisite for retrofit of pre-1919 buildings.

Stakeholders are concerned that people with limited knowledge of building fabric would be able to complete a relatively short course on installing energy efficiency measures and then be able to operate in the sector – risking unknowingly causing more problems to older buildings.

Stakeholders point to the potential for oversimplification of retrofit as a critical risk for retrofit of pre-1919 buildings; heritage professionals emphasise the dangers of a 'one size fits all' approach taken by those undertaking the work – i.e., using the same approaches/materials regardless of the needs of the building. **Stakeholders highlight the need to take a whole building approach, i.e., drawing upon the understanding of the building in its context to find balanced solutions to save energy while maintaining the character of the building and ensuring a comfortable and healthy living environment.**

Stakeholders note there are many, often overlapping elements to take into account and even very experienced heritage professionals (contractors, surveyors and architects) acknowledge that the right solution to retrofitting is not often immediately obvious.

98 Marincioni, V., Gori, V., de Place Hansen, E.J., Herrera-Avellanosa, D., Mauri, S.; Giancola, E., Egusquiza, A., Buda, A., Leonardi, E., Rieser, A. (2021), How Can Scientific Literature Support Decision-Making in the Renovation of Historic Buildings? An Evidence-Based Approach for Improving the Performance of Walls. Sustainability 2021, 13, 2266.

I'm extremely nervous about retrofit on historic buildings. I'm really, really nervous, even though I've had huge amounts of training on it and done huge amounts of courses. I don't think it is simple. It's really complicated.

Unfortunately, I think people have tried to oversimplify retrofit.

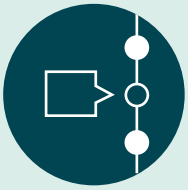
I have been working in this space for a while now and I still couldn't necessarily tell you what good retrofit of a traditional building looks like because it's different for every building. And that in itself makes it quite hard.

The government is pumping money into training retrofit assessors and tradespeople are learning retrofit skills. But there seems to be a lack of key knowledge to understand historic buildings in particular, it's like 'yes, you've been trained in retrofit', but if you don't have that core background knowledge of historic buildings...it's worrying. I think if we keep going as we're going, we're going to end up with more problems than we're solving. Retrofitting inappropriately leads to defects.

Heritage stakeholder interview feedback

7.3.2 Despite strong policy drivers, barriers hinder retrofit of pre-1919 buildings

There are a range of barriers perceived to the retrofit of pre-1919 buildings, which hinder the take-up of retrofit works. These are summarised below.

Tax system	Affordability	Planning delays and complexity	Insufficient experienced conservation officers
			
Typically, VAT is charged on refurbishment and retrofit, while there is zero VAT charged on new build. Stakeholders are concerned that this discourages retrofit. Energy saving products are subject to a temporary zero-rating (from 1 April 2022 until 31 March 2027)[99] but there is no guarantee that this will continue.	Respondents believe the cost-of-living crisis together with increasing costs for heritage specialist skills and materials is obstructing the ability of property owners/ managers to afford retrofit works, particularly if unforeseen costs arise and if homeowners do not have a clear sense of their return on investment.	Stakeholders report experiences and perceptions of variations in requirements for planning permissions for retrofit; some works require permissions, some need listed building consent and some do not require any – this risks creating confusion and complexity. Delays in securing listed building consent are common – 1 in 4 applications take longer than the expected 8-week timescale.[100]	Not all local authorities have a dedicated conservation officer and there has been significant decline in the numbers of experienced conservation officers. Between 2006 and the number of conservation specialists in local authorities declined by 43%.[101]

> *You see heritage over here and you see retrofit over here. But actually, what I would like is a heritage retrofit advisor and I don't know where that person is. That person doesn't seem to exist.*
>
> Heritage stakeholder interview feedback

> *Understanding how to define it [retrofit] is so difficult, that getting the skills to do the work becomes exceptionally more difficult.*
>
> Heritage stakeholder interview feedback

99 HM Treasury (2022), Spring statement 2022.
100 HM Government (2024), Adapting historic homes for energy efficiency: a review of the barriers.
101 Historic England (2022), Series 2 Issue 2: Report on Local Authority historic environment staff resources 2020-2022.

7.4 Insufficient appetite in the heritage building construction supply chain to undertake retrofit of pre-1919 buildings

There appears to be extremely limited appetite among heritage specialist contractors to undertake retrofit works on pre-1919 buildings. As stated in earlier chapters, contractors typically experience high demand for their repair and maintenance work meaning there is no strong impetus to start undertaking retrofit. Survey data indicates that the specialist heritage supply chain is not routinely undertaking retrofit – this accounts for just 2% on average of respondent turnover for work on pre-1919 buildings.

As stated in Chapter 4, it has been estimated that an additional 105,000 FTE (full-time equivalent) workers will be needed to retrofit England's traditional buildings each year from 2021 to 2050 to meet net zero targets[102] – over and above the need for workers to meet demand for all other construction work. CITB research published in 2023 pointed to skills gaps and shortages in the heritage sector workforce.[103]

There is consensus among stakeholders that the multi-disciplinary skillset required for retrofit is hard to find, as many heritage contractors focus on their own particular skillset and do not typically offer other types of work.

102 Grosvenor et al., (2023), 'Heritage and Carbon: Addressing the Skills Gap,' 3.
103 CITB (2024), England, Scotland, and Wales Construction Skills Network industry outlook 2023-27.

7.5 Skills and training for retrofit of pre-1919 buildings

7.5.1 Contractors unable to easily assess suitability of existing training in providing retrofit skills and knowledge

Contractors were asked to rate their confidence in existing training provision (for work on pre-1919 buildings) to give tradespeople the skills they need to install low carbon and energy efficiency measures.

A little over a quarter (28%) of respondents say they are very or quite confident existing training provision can equip them with the skills needed for retrofit – but half (52%) of respondents were neutral, and a further 14% of respondents said they don't know.

Two-thirds (66%) of respondents, therefore, are unable to comment on the suitability of training provision for retrofit; furthermore, this should be considered in the context of reported approaches to training more generally – there is a preference for informal, on-the-job training – accounting for seven in ten (72%) of survey responses, as described in Chapter 6.

Stakeholder evidence also points to low take up of training courses generally within the heritage construction supply chain.

Compared with 2013 findings, **the level of confidence has declined**. Around two in five (38%) of respondents from the 2013 survey (England only) said they were very, or quite confident existing training provision would be able to furnish them with skills required for retrofit – however it should be noted that the 2013 survey sample comprised a higher proportion of general construction firms.

7.5.2 Respondents are not routinely undertaking retrofit of older buildings

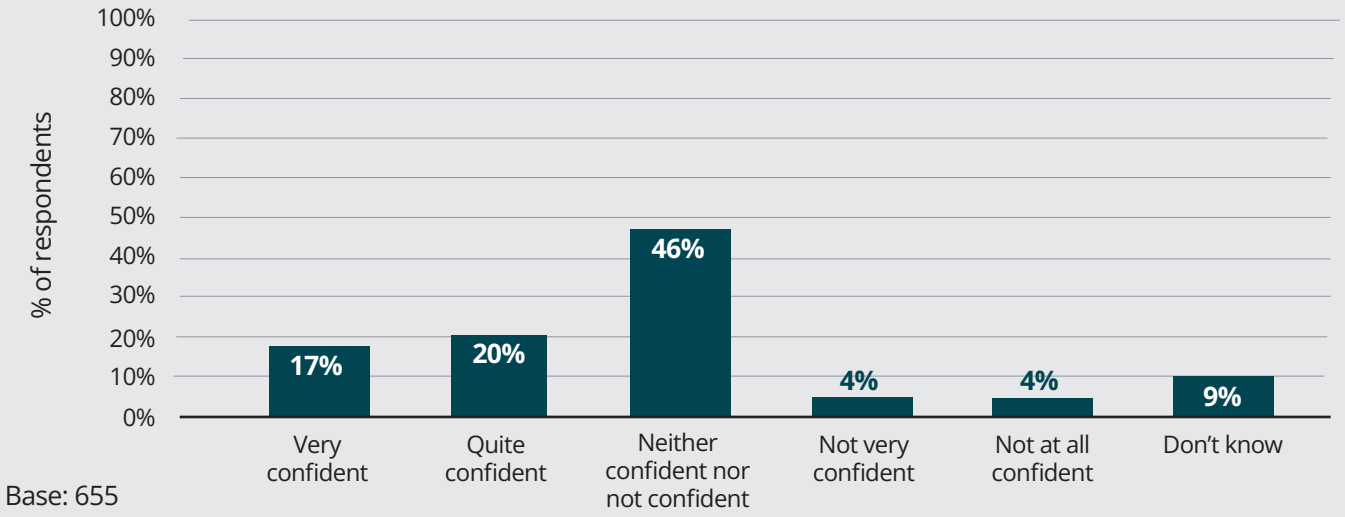
Nearly half of all respondents (46%) were unable to assess confidence in their existing skills and knowledge to install retrofitting measures in pre-1919 buildings (Figure 9).

About two in five (37%) respondents are very or quite confident they have the skills and knowledge to undertake retrofit of older buildings – but retrofit accounts for just 2% of turnover on average – it is unclear whether this confidence is unfounded.

Findings vary by region, with around half (53%) of responses of organisations based in North-West England either quite or very confident, compared to just 22% of responses from Yorkshire organisations saying the same. Higher levels of confidence are reported in South-East England (47% of responses) and London (43% of responses). Confidence is lower in North-East England and East Midlands (29% of responses in both regions).

Confidence among organisations that they have the requisite skills and knowledge for retrofit of older buildings is lower among organisations that focus on glazing (24%), thatchwork (20%), stonemasonry (17%) and painting/ decorating (7%). By contrast, around half of the surveyed organisations that focus on roofing, plastering, carpentry/joinery, general building work and brickwork report being very or quite confident. This may be because the former list of trades appears less likely to be involved in undertaking retrofit, given their specialisms.

Figure 9: % of respondents who are confident existing skills and knowledge for work on pre-1919 buildings can be used to install low carbon and energy efficiency measures in buildings of this age



Base: 655

Respondents were asked about their confidence in installing and understanding a range of energy efficiency measures; just over half of responses indicate confidence in understanding how energy efficiency measures interact (54%), being able to advise on appropriate energy efficiency measures (53%) and understanding of risks/consequences of installing energy efficiency measures in pre-1919 buildings (51%).

7.5.3 Training needs for retrofit of pre-1919 buildings

Effective retrofit is heavily reliant on a holistic approach, drawing together relevant skills and experience – notably as described earlier, a robust understanding of building performance and pathology to ensure the building envelope has been satisfactorily maintained before any retrofit works commence. Stakeholders are concerned that retrofit training provision appears to typically concentrate on the energy efficiency measures in isolation, rather than a comprehensive assessment of their suitability for different building types and ages. Stakeholders also raise concerns about training which is often organised in "technical silos – whereas retrofit requires problem solving".

Thus, there is a risk of unintended negative consequences for the building if this is not well understood among workers that do not have sufficient experience working on pre-1919 buildings.

> *It's not just about increasing the numbers [in the workforce]. It's about quality, not quantity. Training [for retrofit] doesn't take into account the range of differences between these [older] buildings.*
>
> *Mainstream construction training is too siloed, and it's structured around new build. Therefore, you have people that have knowledge of particular trades, but they don't necessarily have that whole house understanding.*
>
> Heritage stakeholder interview feedback

As retrofit of pre-1919 buildings is not 'one size fits all', stakeholders believe that training for retrofit should not be either. There is a perception among respondents that it may be very difficult to create retrofit training applicable to the wide range of pre-1919 buildings and their complex needs, but equally that there is a clear need for minimum standards and guidance as part of the overall suite of building regulations, enabling contractors to apply these core principles to their own skills and knowledge.

There is activity at a national level in support of training for retrofit generally, but not explicitly in relation to retrofit of pre-1919 buildings. Funding has been committed by the Department for Energy Security and Net Zero for skills training to support homes decarbonisation and grow the retrofit supply chain.

There is also an occupational standard in development for the role of Retrofit Coordinator (Level 5) and commitment from the Institute for Apprenticeships & Technical Education (IfATE) to 'green' apprenticeship standards.

Historic England is currently working with Historic Environment Scotland (HES) and Cadw on a handbook for the Level 3 Award in Energy Efficiency Measures for Older and Traditional Buildings (required for three different roles: assessor, coordinator and designer as set out in PAS 2035:2023).

Revision of PAS 2035[104] has included clarification of what happens in the process if historic significance is identified[105] and there is on-going development of BS 40104: retrofit assessment for domestic dwelling with further consultation expected – this is expected to support standardisation and strengthen guidance although it should be noted that many stakeholders are wary of too much standardisation when it comes to older buildings. Historic England is working on further guidance and advice on whole building approaches and processes, climate change risk assessment, and practical approaches to climate change mitigation, adaptation and resilience in historic buildings.[106]

As with training for heritage construction generally, stakeholders are looking for a regionally led approach to funding and delivering training for retrofit. Historic England is already supporting Local Skills Improvement Plans (LSIPs) being developed by Employer Representative Bodies (ERBs) in order to understand and engage with retrofit skills needs at a local level.

> *We would call for much of more of a devolved approach where you give a local authority five years of funding and give them ownership for delivery of the retrofit, the training of the people, the working with the colleges – this means there is a holistic end-to-end approach.*
>
> Heritage stakeholder interview feedback

However, stakeholders acknowledge that it is not just about training for the contractors; they point to a need to address skills gaps among conservation officers that may lack the relevant knowledge and understanding to assess and approve specifications for retrofit projects. Multiple actors must work collaboratively for retrofit of pre-1919 buildings to be effective.

104 A PAS (Publicly Available Specification) establishes best practices for products, services, and processes tailored to industry needs.
105 pas_2035_2023.pdf (bsigroup.com)
106 https://historicengland.org.uk/advice/technical-advice/retrofit-and-energy-efficiency-in-historic-buildings/whole-building-approach-for-historic-buildings/.

7.6 Clear and easily accessible guidance is needed – but this cannot be 'one size fits all'

Stakeholders acknowledge that a standardised approach enabling large-scale retrofit is one aspect of a range of interventions necessary to support meeting net zero targets, that this would stimulate demand, prompting the supply chain to upskill and undertake retrofit – but say that this does not necessarily work for pre-1919 buildings, which requires a comprehensive understanding of the context of individual buildings, on a case-by-case basis.[107] However, there is still appetite among respondents for more guidance to be available. Much of the published literature relating to retrofit of pre-1919 buildings focuses on one type of energy efficiency measure or one type of case study – because it is not possible to generalise.[108]

Generalisation and standardisation when thinking about retrofit do not align with the diverse needs of pre-1919 buildings.

Stakeholders point out that information and resources relating to retrofit tend to be scattered rather than readily accessible in a 'one-stop shop'. Clear guidance should be underpinned by strong knowledge of building performance and building pathology and robust understanding of the potential risks.

Respondents to this research are calling for:

- **Partnership working and knowledge sharing to find out – "in a safe shared space – what works, what does not work and how best practices can evolve in retrofit of older buildings"**
- **Case studies exemplifying what works and what doesn't work for different types and ages of building**
- **"One version of the truth": a joined-up approach whereby guidance, training, case studies, resources and information are accessed from the same place and are not contradictory**

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107 McCaig, I.; Pender, R.; Pickles, D. (2018), Energy efficiency and historic buildings: how to improve energy efficiency.

108 Nair, G., Verde, L. and Olofsoon, T. (2022), A review on technical challenges and possibilities on energy efficient retrofit measures in heritage buildings. Energies 2022, 15 (20), 7472.

8

Conclusions

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8.1 Conclusions

1. The heritage construction supply chain working on pre-1919 buildings is well-established and characterised by predominantly SME organisations, that have specialised in traditional buildings for many years. High levels of self-reported confidence are typically expressed about the skills and knowledge base, linked to many years of experience undertaking this type of work: 43% of survey respondents say their workers are aged 45+.
2. The need for heritage construction work to repair and maintain pre-1919 buildings is well documented – the UK has a high proportion of older buildings in its building stock. More than 4.75 million dwellings in England date from before 1919.
3. While need does not always equate to demand per se, it is clear the supply chain feels secure that there is a steady flow of demand for their services. There is evidence of an expectation of increased demand for their work on older buildings, fuelled by on-going need for repair and maintenance work, restoration and conservation and the need for retrofit, driven by net zero targets.
4. Demand (construction output) for work on pre-1919 buildings is estimated at over £28billion in 2024; approximately 39% of the total construction industry output for repair and maintenance. The total core workforce required is estimated at 180,385.[109] Traditional building skills are estimated to account for nearly £16billion of the construction industry output in 2024, with a core workforce of c.101,000 required.
5. Beyond London, the regions with highest demand are the South-East, North-West and the East of England.
6. High demand aside, the need for repair and maintenance work on pre-1919 buildings is higher still with backlogs showing more than half (55%) of pre-1919 buildings in non-decent condition[110] or condition of a minimum standard, compared with 17% of modern buildings.[111] The levelling-up agenda and strong drivers for energy efficiency measures to be implemented in older buildings have the potential to further increase demand for work on pre-1919 buildings.
7. In the face of this clear evidence of need and increasing demand – the supply chain is largely confident of sufficient skills and knowledge in the existing workforce. Nearly four in five (79%) of respondents do not **perceive** any skills gaps in their **current** workforce – but it must be emphasised that this is a self-reported snapshot in time and is strongly linked to the many years of experience held by a high proportion of workers.
8. The client perspective on skills gaps and shortages differs from that held by the majority of contractors; the former point to waning numbers of specialist skills across individuals and organisations, which has contributed towards pushing up prices (with contractors willing and able to charge a premium for work on pre-1919 buildings), making it harder for clients to find the people they need with the right skills and experience.
9. Rising materials and labour costs combined with inefficient procurement has made it more expensive to do the same kinds of repair and maintenance work that was typically taking place five years ago; clients are paying more but are getting less. This is resulting in a 'stop-start' approach to commissioning work, dictated by the availability of funding.
10. While there is an expectation among a third (36%) of respondents that they expect to increase their directly employed workforce for work on pre-1919 buildings, there are also concerns about limited availability of skills held by prospective new entrants, and a perception that recruitment has become harder in the last few years. A quarter (25%) of respondents say they experience skills shortages, and three-quarters (76%) of this sub-group expect these skills shortages to get worse.

109 Core workforce includes those working in wood trades and interior fit-out, bricklayers, painters and decorators, plasterers and dry Liners, roofers, floorers, glaziers, specialist building operatives and scaffolders.

110 Defined by DLUHC as having a hazard or immediate threat to a person's health, not in a reasonable state of repair, lacking modern facilities or not effectively insulated or heated.

111 DLUHC (HM Government), 'English Housing Survey: Housing Quality and Condition, 2020', 5.

11. Where there is intent/appetite to increase supply, it does not appear to be matched with compelling evidence of succession planning, enablers to help overcome barriers to recruitment or sufficient supply of training for potential new entrants to the sector. Heritage construction contractors have a similar (though slightly greater) expectation that they will recruit apprentices or trainees as the construction sector as a whole, with 26% of those surveyed saying they expect to recruit an apprentice or trainee to work on pre-1919 buildings, compared to 22% in mainstream construction expecting to recruit over the next year.

10. However, challenges were reported with recruitment and training of apprentices and trainees – notably a perception that specialist heritage trade apprenticeships do not exist or are not easily accessible. There is heavy reliance on word-of-mouth recruitment and use of experienced workers to provide training and mentoring. As older workers retire, this pool of experienced workers diminishes, potentially making it harder to facilitate 'on-the-job' training, which is typically the preferred mode of training within the supply chain.

11. **These findings give the impression that there is sufficient capacity to meet current needs that reach the market, but there is clear evidence of market failure – capacity cannot easily be replaced or expanded to meet future needs and the supply chain is not well equipped to cope with any surges in demand.**

12. **The future supply of heritage construction skills for older buildings is therefore more concerning than the present, with perceived difficulties in recruitment and not enough apprentices and trainees coming into the sector to replace older workers as they retire.**

13. Additionally, the current training infrastructure does not appear to have the capacity to handle any surge in demand from new entrants to the heritage construction sector. As the culture favours informal, on-the-job training – meaning training providers do not see evidence of demand. While there are pockets of high-quality and highly valued provision, they are not deemed to be readily accessible due to low numbers of courses on offer paired with geographic inequalities of provision.

14. There is a need, therefore, to support succession planning to ensure crucial specialist heritage skills and knowledge are passed down to future generations.

15. There are also opportunities to promote the value of heritage construction, and construction careers in general, to potential entrants – to support recruitment. There is a notable lack of diversity in the sector, suggesting that it is not reaching all potential entrants.

16. There may be untapped potential within Further Education (FE) colleges (and potentially Higher Education (HE) institutions) to incorporate more heritage construction specific content to mainstream construction training courses, (or as enrichment provision supplementing those courses), creating a foundation from which learners could progress to on-the-job and/or more specialist training. This may be a 'quicker win' than trying to expand specialist provision, for which there is very low take up.

17. To help the country meet its net zero targets it has been estimated that there is a need to retrofit 29 million homes in England. While typically associated with energy efficiency measures of some description, there is no one clear definition of "retrofit" – leading to uncertainty and unwillingness amongst heritage professionals to engage in the process. "Retrofit" in its narrowest definition (exclusively focused on singular energy efficiency measures) is not generally appropriate for pre-1919 buildings, with the risk that this type of intervention leads to unintended negative consequences for the building. Disseminating a shared definition is critical to the understanding and application of "retrofit" in the heritage sector.

18. Retrofit solutions should not be viewed as 'one size fits all'; a 'whole building approach' to retrofit of pre-1919 buildings is required to take into account nuanced, carefully considered approaches according to different building age, size, materials etc.

19. While respondents acknowledge there is a lot of guidance and information available about retrofit – they believe it is not easily accessible in one place, forming 'one version of the truth' – rather there is risk of overlap and potentially contradictory information. A central 'hub' of information should allow space for sharing what works and what does not work, with case studies to illustrate experiences across a wide range of different buildings by type, age, and region. More advice, guidance and training are also required in relation to the whole building approach to retrofit of pre-1919 buildings.

20. There is a need to bridge the gap between the knowledge and skills held in both heritage and energy efficiency / retrofit sectors, via development of a competent pool of heritage retrofit advisors.

21. As there is no visible pipeline of demand; there is an opportunity for demand for work on traditional buildings (not just retrofit but on-going repair and maintenance as well) to be clearly quantified, nationally, and regionally – which would enable better workforce planning, including planning for training and a more cost-effective means of commissioning and undertaking work on older buildings.
22. Moving forward there is a strong need for such a pipeline of demand to be highly visible, able to be segmented (into thematic work types) at national and regional levels – and for this to be maintained. Crucially, such a pipeline would need to be used to inform the need for training and apprenticeships – likely at a regional level (to align with greater anticipated devolution and regional skills planning/funding as well as taking account of regional housing/building stock needs and supply of local materials).
23. There is a huge amount of passion, commitment, and goodwill in the heritage construction sector, and this translates into much excellent work that is done to create bespoke training, guidance documents, Continuing Professional Development (CPD) webinars, sharing of best practice and so on. However, it is not typically done in a joined-up manner; it can be piecemeal with the risk of overlap or duplication of effort, which can undermine its potential to create lasting impacts.
24. **The future appears worrying: stakeholders anticipate a 'looming skills crisis'. The research findings point to a need for rapid and effective intervention to ensure that existing skills are not lost and that there is sufficient capacity within the sector to better meet the extent of need and anticipated future increased demand.**
25. **Moving forward, 'joining the dots' is vital – collaboration is essential to maximise impact.** An action plan for heritage construction skills needs to be informed and developed by a wide range of stakeholders – but the impact of such work would be diminished without a central conduit to coordinate activities and crucially – ensure momentum and sustainability.

8.2 Recommendations

Below we set out recommendations for Historic England and stakeholders/partners to consider; it is further recommended that these are developed and incorporated into an on-going action plan for the heritage constriction sector, building on and drawing together other existing or planned activities by other stakeholders and relevant organisations. It is imperative that the sector speaks with one voice.

Policy makers should seek to support Historic England to deliver these recommendations, underpinned by appropriate allocation of funding and input at national and local levels – as it is essential to deliver rapid interventions to safeguard and increase heritage construction sector skills, knowledge, training, and careers.

1. **Collaborate with industry to create and maintain a visible pipeline of demand.**

   To be effective, this would require committed resource and funding to maintain such a pipeline over the long-term, and would be further reliant on having comprehensive information shared on an on-going basis – in granular detail to include forecast spend on projects by location and type of work. This will also be dependent on a central conduit/coordinator organisation to take overall ownership. This should form part of a wider objective to 'join the dots' between heritage sector bodies, mutually reinforcing the effectiveness of existing and planned interventions to support skills and training. Once in place, this pipeline should be used to inform planning for training provision and apprenticeships at national and regional levels.

2. **Provide support with succession planning for heritage construction organisations.**

   The sector culture tends to favour informal training delivered on the job by experienced workers. The feasibility of providing funding or other forms of support to help enable more training and/or mentoring to be delivered in this way should be assessed. Concurrently on-going work should continue to strengthen heritage specific content within mainstream construction sector training.

3. **Promote heritage sector careers to new entrants/career changers to help boost supply.**

   Concurrently – and linked to 'joining the dots' between heritage organisations – there should be a greater focus on promotion of heritage sector career pathways and relevant apprenticeships. This should include the development of a new career pathway for heritage retrofit advisers.

4. **Develop a retrofit information 'hub', or similar, to house case studies, guidance, resources, webinars etc. in a 'one-stop-shop', providing 'one version of the truth'.**

   This could build on existing content rather than 'reinvent the wheel' and should focus on not just evolving advice and guidance, but also disseminating it widely. This should be built on a strong foundation in the form of a clear definition for retrofit in the context of pre-1919 buildings.

5. **Conduct further research beyond the scope for this project.**

   Further research should be conducted with clients to obtain their perspective about skills gaps and shortages, to synthesise with the findings of this study.