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Historic England

HARLOW CONSULTING

Skills Needs Analysis

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

September 2024

TECHNICAL ANNEX

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1. Introduction

This Technical Annex supports the Skills Needs Analysis for the Repair, Maintenance & Retrofit of Traditional (pre-1919) Buildings in England report. It does not in itself present key findings but provides the detailed data in support of the findings and conclusions in the main report.

This should be used as a reference document for additional information including additional results from the stakeholder survey of the study and methodology information to support the demand calculations.

Base numbers of respondents are shown underneath charts, within tables or in brackets where data are broken down by regions.

2. Demand calculations

2.1 Challenges in calculating demand

It should be noted that an estimate of the size of the market for traditional building work remains extremely difficult to reach – very few stockholders record information in terms of the age of buildings concerned. The forecasting data shared is also naturally liable to change in response to changing market conditions influenced by a wide range of local, national, and international social, political, and economic factors.

However, we have used the most robust data available and as much detail as possible to calculate the best estimate of demand within these parameters. Detail has been added to surmount historic challenges, which will have contributed to variations in previous approximations of demand. These challenges considered in calculations are:

1. **Estimating of the scale of pre-1919 buildings**

While the Office for National Statistics (ONS) records numbers of pre-1919 'building stock', a historic feature in an otherwise modern building may be counted the same as a whole row of large terrace houses and the two will have very different repair & maintenance requirements and vary significantly in size.

2. **Estimating the relative intensity of work required on pre-1919 buildings compared with more modern buildings**

For listed buildings, there are requirements for certain traditional building materials and building methods, for example lime plastering instead of more common cement plastering in modern buildings. Such building methods are typically more time consuming and, alongside the need for specialised skills can add significant additional cost to repair and maintenance. Non listed pre-1919 buildings will also require a level of additional work when compared with modern buildings, however this is minimal in comparison.

3. **Estimating the proportion of buildings requiring repair & maintenance (R&M), compared with those constructed after 1919**

We expect more pre-1919 buildings to require R&M than modern houses – both due to the maintenance that comes with the passing of time and the additional repair and maintenance work that comes with modernisation.

2.2 This study's approach to calculating demand

To reach the best possible estimate and meet several of the challenges discussed, we have taken a more granular approach than previous reports, incorporating relevant data available from a range of sources. These sources include:

- Data on heritage skills from building contractors in this current survey
- Data on annual construction outputs between 1990 and 2028, CITB/Experian[1]
- Data from the English Housing Survey, 2020[2]
- CITB labour coefficients[3]
- Stock profile data from the Department for Levelling Up, Housing & Communities[4]

We have utilised this data to meet each of the key challenges described above:

1. Estimating of the scale of domestic and non-domestic pre-1919 buildings

To make the most of available data, we have looked at domestic buildings and hereditaments (any kind of property that can be inherited) separately.

The English Housing Survey, 2021, published floor space averages for domestic buildings based on age and found that of the total 2.31 billion square metres of domestic floorspace in England, 530 million belongs to a building constructed pre-1919.[5] Thus, we have calculated that 23% of domestic floorspace is part of a traditional building and that on average, pre-1919 houses are larger than more modern houses by a factor of 1.19.

Similar floorspace data is not available for hereditaments and, given their broad definition, even if such data was available, square footage is likely to be less of an indicator as to the scale of R&M required. We have therefore decided to use a more straightforward approach in estimating the scale of non-domestic dwellings – based on stock numbers alone. Data projected for the rates of non-domestic buildings[4] in 2022-2023 showed a total of just over two million commercial buildings in England, indicating that the 552,000 pre-1919 hereditaments account for circa. 28% of these, which is the only assumption we use in calculating the proportion of non-housing R&M attributable to pre-1919 buildings.

2. Estimating the relative intensity of work required on pre-1919 buildings compared with more modern buildings

Given that the most notable difference on the intensity required as part of repair and maintenance occurs for listed buildings rather than for all pre-1919 buildings, we have applied two weightings within our pre-1919 housing R&M calculations – one for listed buildings and one for non-listed pre-1919 buildings.

Desk research found that building contractors to advertise ballpark estimate repair and maintenance figures at c. £750psm for general renovation works (non-listed buildings), rising to c. £2000psm for renovation works of listed buildings. We have therefore applied a weighting factor of 2.67 to 500,000 domestic buildings to account for the greater intensity of work required on listed buildings compared with non-listed and non-traditional (non-pre-1919 buildings). Research conducted for Historic Environment Scotland[6] estimated the intensity of repair and maintenance work on pre-1919 buildings to be 10% greater than repair and maintenance work on more modern buildings. We have applied this assumption to the remaining 4.3 million pre-1919 domestic buildings.

Considering the numbers of buildings and the listed / non-listed weighting factors applied, the overall weighting factor for R&M intensity required for pre-1919 buildings vs. more modern buildings is 1.26.

Given the varied nature of hereditaments, we have not applied an intensity assumption to non-domestic buildings.

3. Estimating the relative volume of pre-1919 buildings requiring repair and maintenance, compared with the volume of more modern houses requiring repair and maintenance

Backlogs from the 2020 English Housing survey show that 55% of pre-1919 buildings are classed as being in non-decent condition or their condition is of a minimum standard, compared with 17% of modern buildings.[7] Houses built pre-1919 are more than three times more likely to require repair and maintenance. These proportions have been used to calculate the number of houses requiring repair and maintenance for both traditional and modern houses.

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1 CITB/Experian, CSN: 4th Round Output Forecasts, 2024
2 Department for Levelling Up, Housing & Communities (DLUHC) (HM Government), 'English Housing Survey: Housing Quality and Condition, 2020',
3 Provided by CITB to Harlow Consulting; using CITB's own longitudinal analysis of specific occupations
4 DLUHC (HM Government), National non-domestic rates collected by councils in England: forecast for 2024 to 2025, 2024
5 DLUHC (HM Government), English Housing Survey data on stock profile, 2013
6 Historic Environment Scotland (2024), VAT on Listed Buildings
7 DLUHC (HM Government), 'English Housing Survey: Housing Quality and Condition, 2020'

2.3 England overall and regional calculations

The approach outlined in 2.2 has been taken with regional data to provide the most relevant regional number to support informed localised decision-making. The England overall numbers relating to output and workforce have subsequently been reached through summing regional total.

2.4 Estimations of core workforce

CITB labour coefficients,[8] which are derived from longitudinal analysis of specific occupations by different output types and accounting for differences in labour intensity and productivity levels, among other factors have been provided to Harlow Consulting to support accurate estimation of the core workforce required to work in pre-1919 repair & maintenance.

The occupations considered as part of the core workforce are consistent with those included in the survey and cover:

- Wood trades and interior fit-out
- Bricklayers
- Painters and decorators
- Plasterers and dry liners
- Roofers
- Floorers
- Glaziers
- Specialist building operatives
- Scaffolders

2.5 Estimations of traditional building skills

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.

This assumption also aligns with the proportion of businesses undertaking work on pre-1919 buildings which employed one or more heritage specialist.

3. Contractor survey: charts and tables

The charts and tables included in this section primarily present survey results in two ways – by main activity of organisation and by the region their organisation is based in.

The main activities either included as standard responses in the survey or commonly quoted within the 'other' option were:

- Brickwork
- Glazing
- Joinery / Carpentry
- Leadwork / other Metalwork
- Painting / Decorating
- Plastering
- Plumbing (incl. leadwork)
- Roofing (incl. leadwork)
- Flooring
- Stonemasonry (building repairs including re-pointing)
- General building work
- Thatchwork
- Damp Proofing
- Drystone Walling

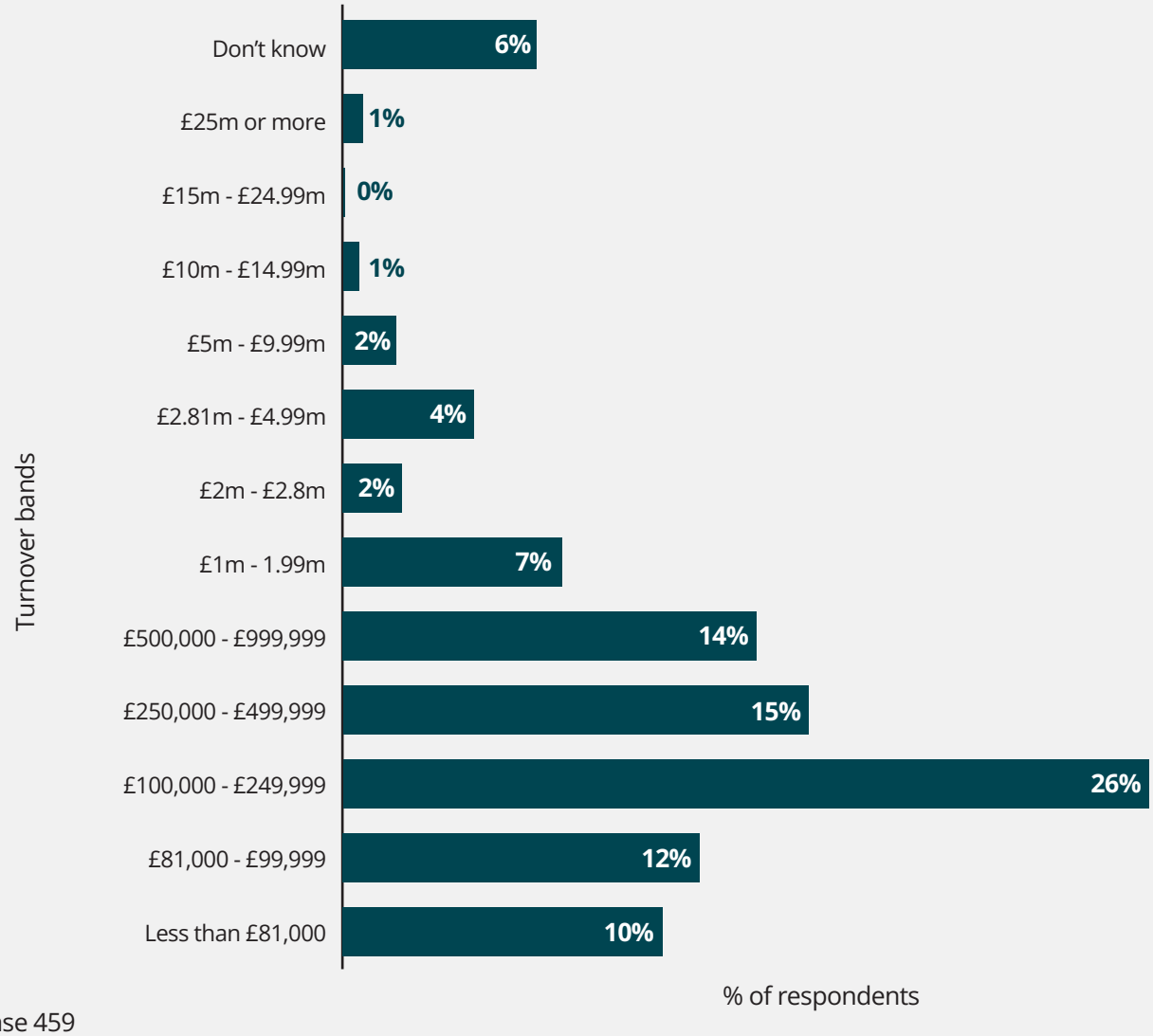
Base numbers of respondents to the survey by region are listed below. Please note, Base number of respondents vary slightly by question, depending on which they answered and survey routing directing them to the most appropriate questions for their organisation.

East Midlands:	79
East of England:	84
London:	84
North-East:	90
North-West:	96
South-East:	99
South-West:	92
West Midlands:	85
Yorkshire & Humber:	84

8 Provided by CITB to Harlow Consulting; using CITB's own longitudinal analysis of specific occupations

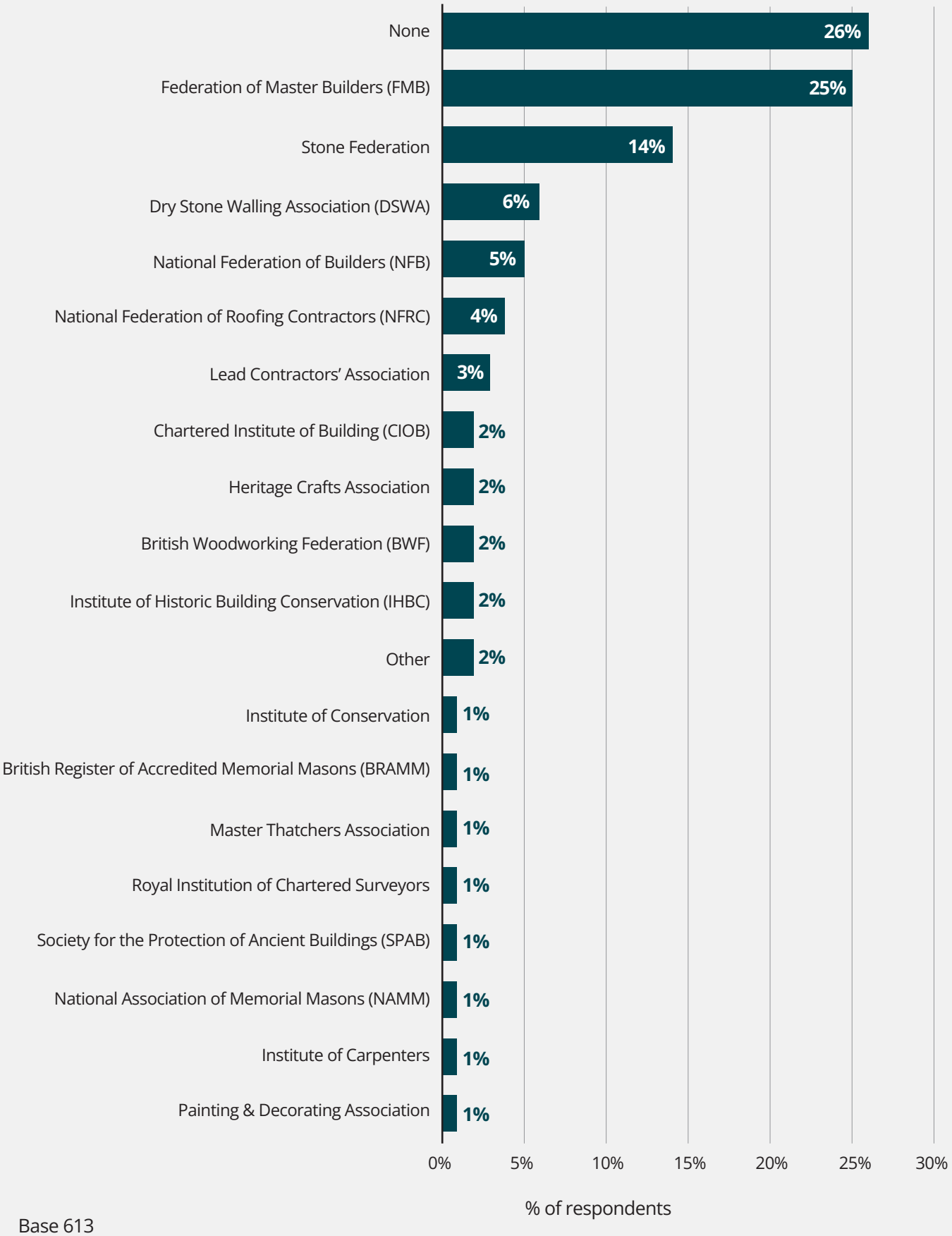
3.1 Organisation data

Figure 1: Annual turnover of surveyed organisations undertaking work on pre-1919 buildings



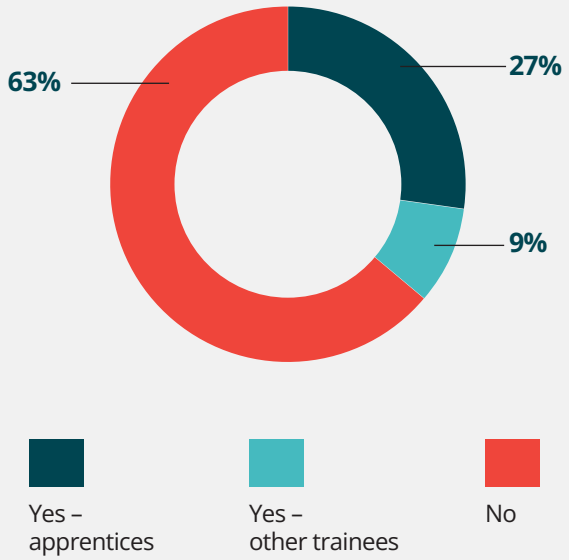
Base 459

Figure 2: Membership of trade federations/professional bodies



Base 613

Figure 3: Do you employ apprentices or trainees?



Base 725

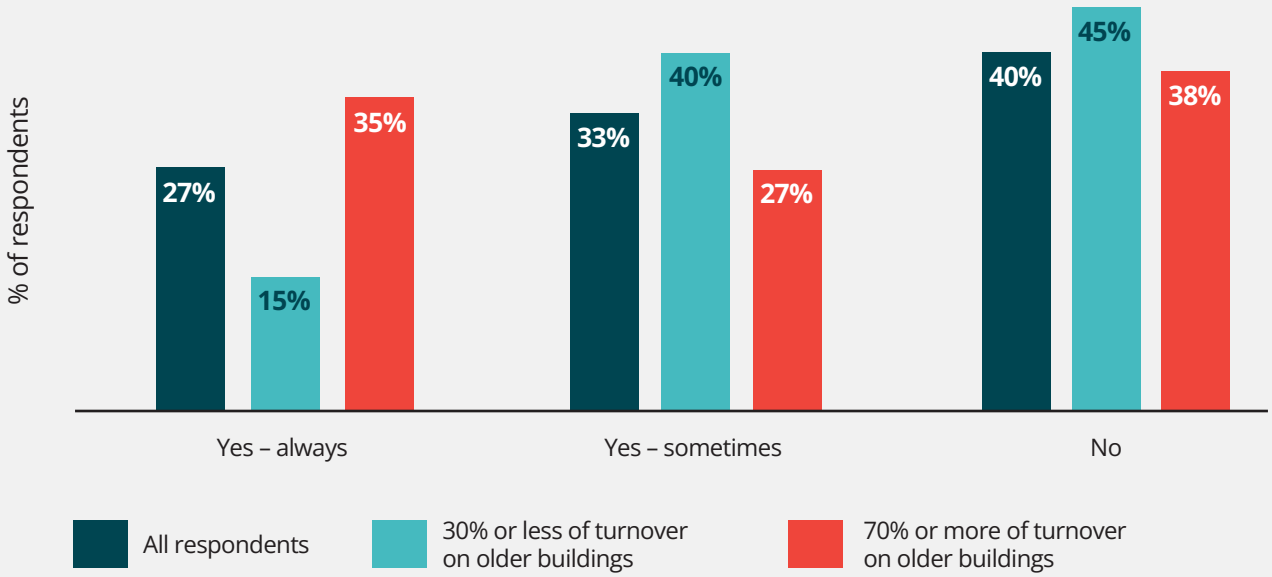
3.2 Work undertaken on pre-1919 buildings

Figure 4: Types and frequency of work undertaken on pre-1919 buildings

Types of work	Base	Regularly	Sometimes	Rarely
Stonemasonry (building repairs including repointing)	165	23%	8%	9%
Joinery / Carpentry	145	21%	8%	10%
Roofing incl. leadwork	134	19%	6%	8%
General building work	120	17%	7%	6%
Brickwork	112	16%	6%	10%
Plastering	94	13%	6%	10%
Painting / decorating	52	7%	4%	4%
Glazing	44	6%	3%	4%
Drystone Walling	39	6%	0%	0%
Plumbing incl. leadwork	37	5%	3%	6%
Leadwork / other metalwork	36	5%	2%	2%
Damp Proofing	35	5%	3%	0%

Base 705

Figure 5: Do you charge a premium for work on pre-1919 buildings?



Base 694

Figure 6: Do you charge a premium for work on pre-1919 buildings? (by region)

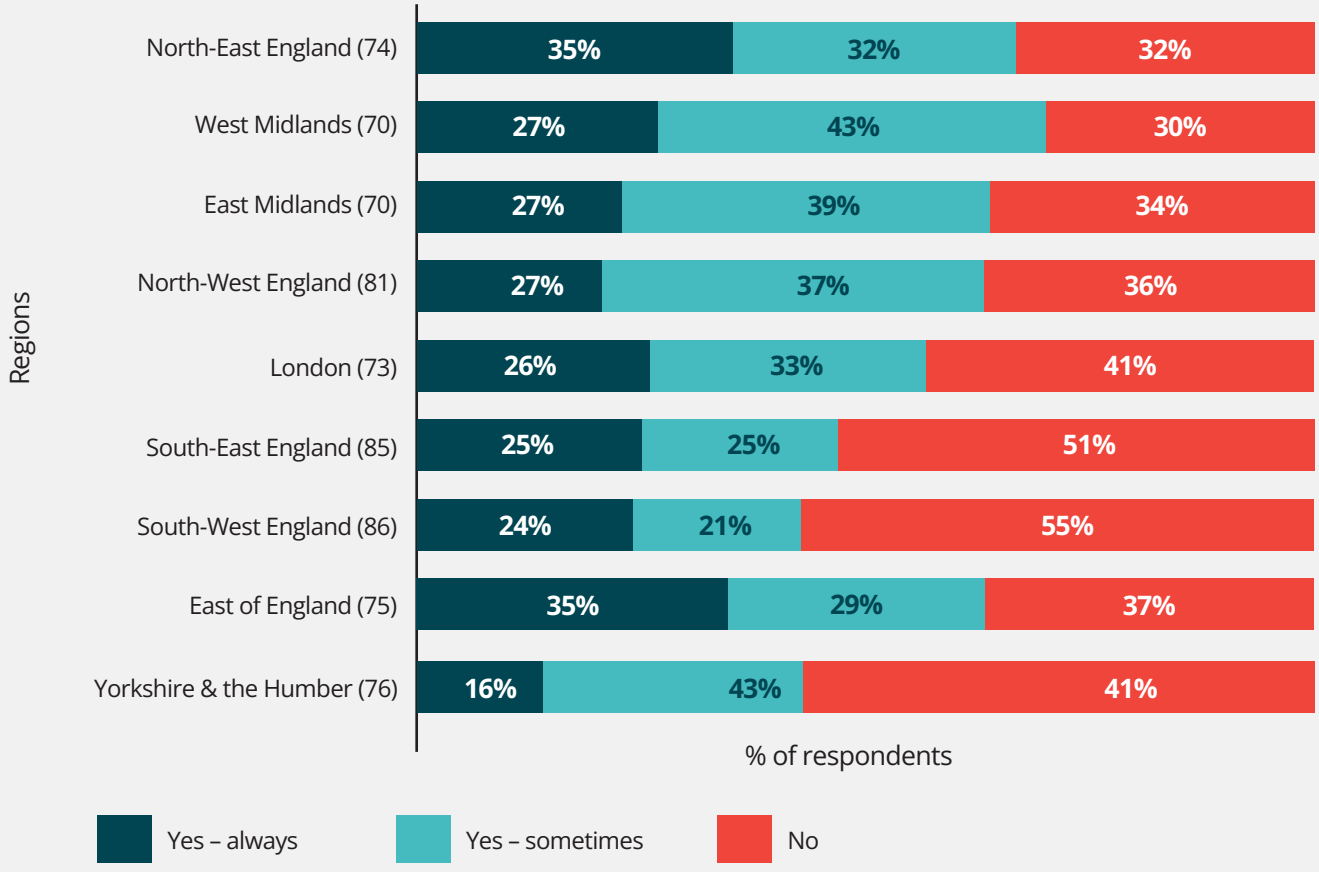
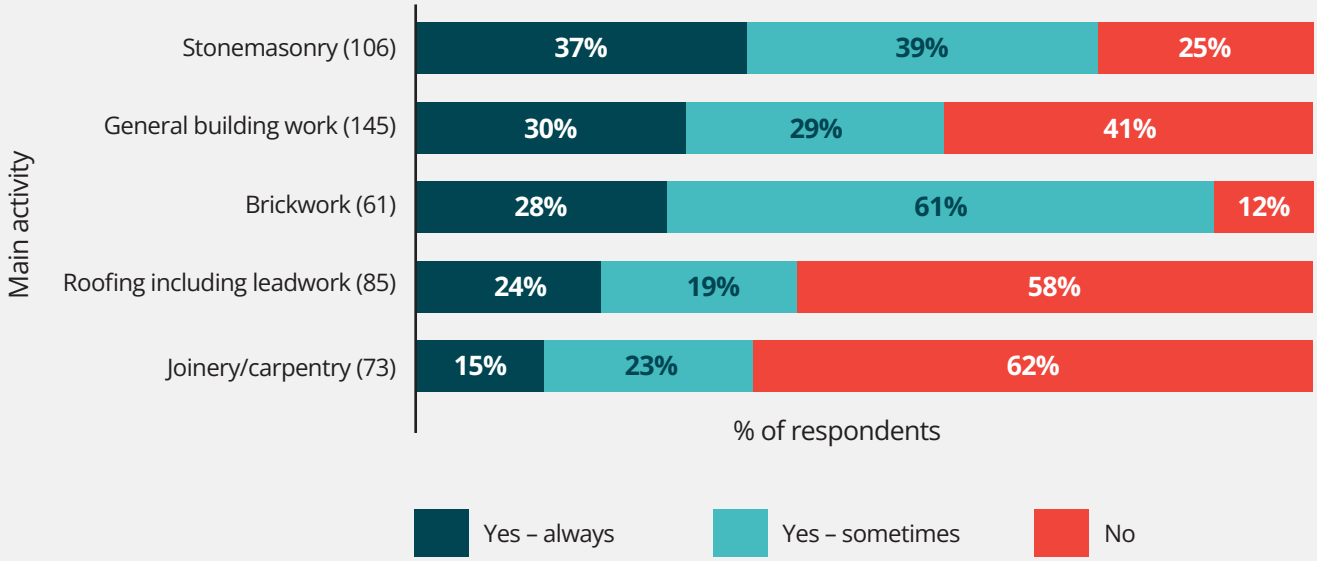
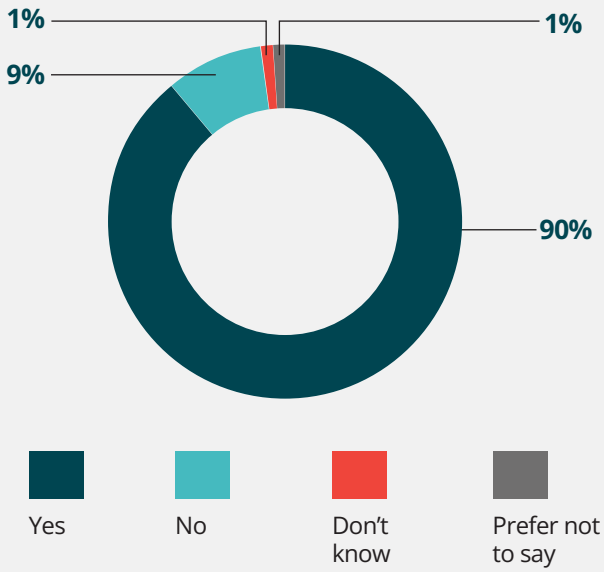


Figure 7: Do you charge a premium for work on pre-1919 buildings? (by main activity)



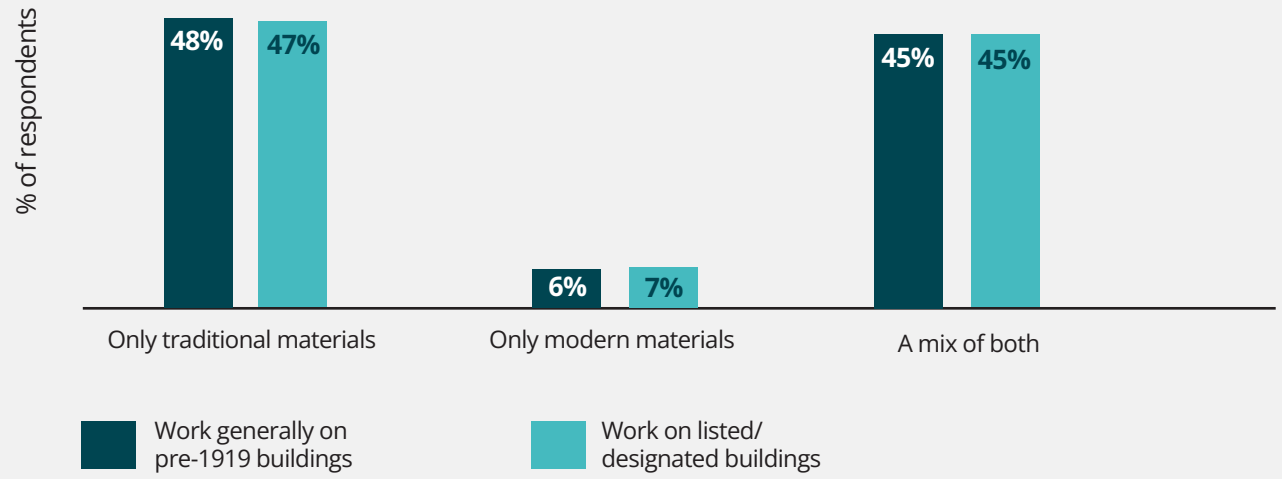
3.3 Use of traditional building materials

Figure 8: Do you use traditional building materials?



Base 687

Figure 9: When undertaking work on pre-1919 buildings and listed/designated buildings, do the materials used tend to be:



Base 700

Figure 10: When undertaking work on pre-1919 buildings and listed/designated buildings, how often do your clients stipulate that the work MUST use only traditional building materials, is this:

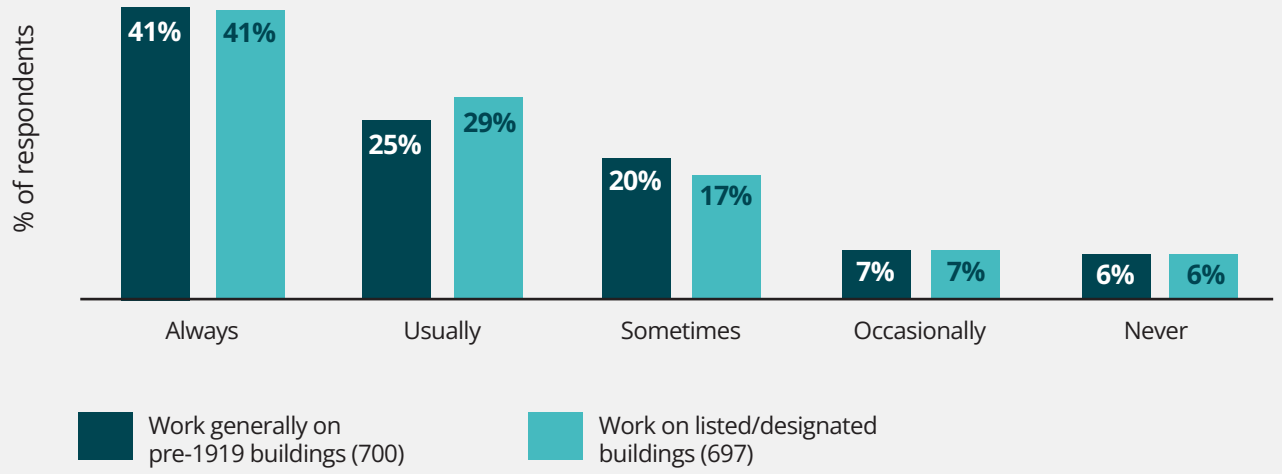
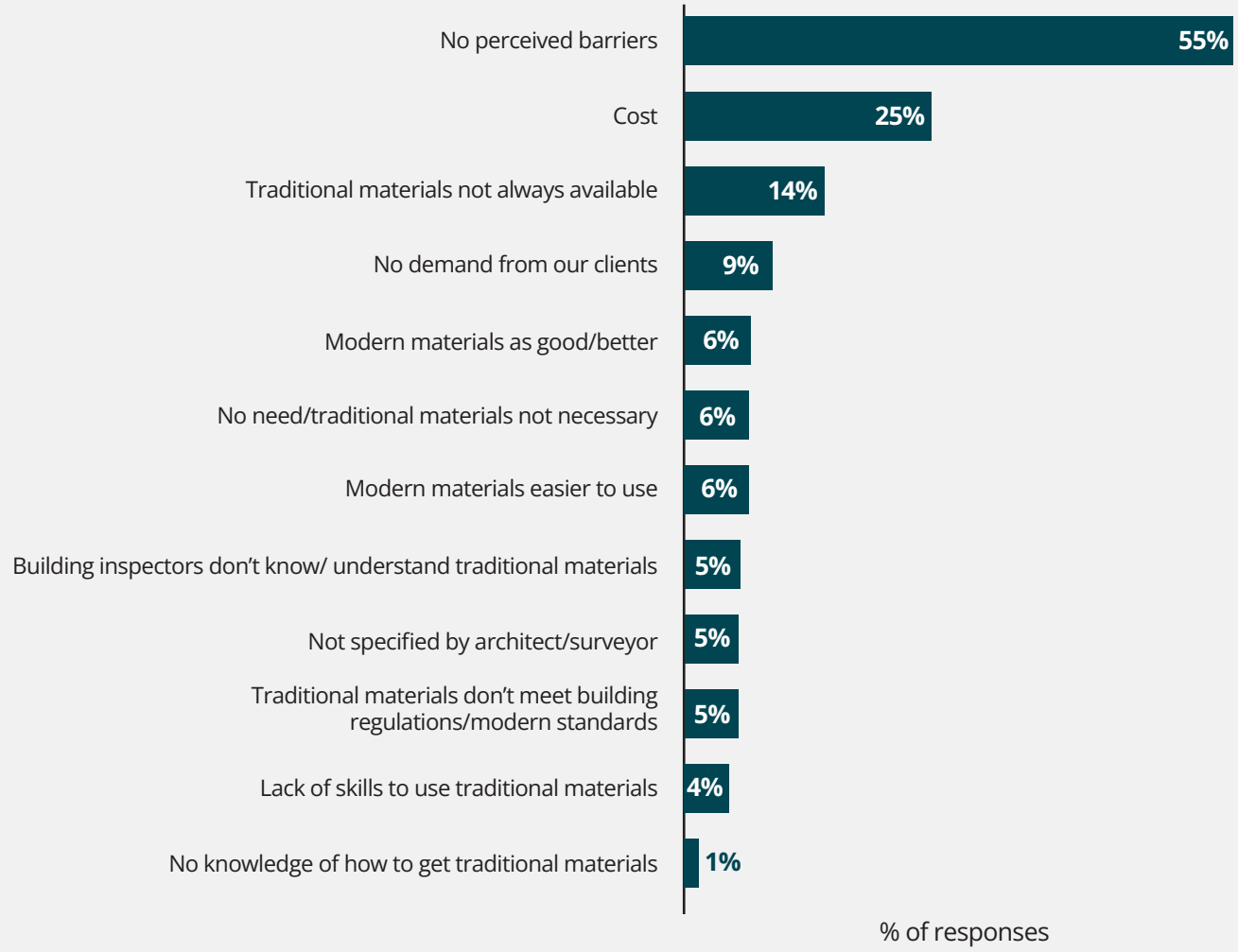


Figure 11: What are the barriers – if any – that prevent the use or specification of traditional building materials on pre-1919 buildings?



Base 692

3.4 Heritage specialists and heritage skills

Figure 12: Of the trades directly employed, which are heritage specialists only working on pre-1919 buildings?

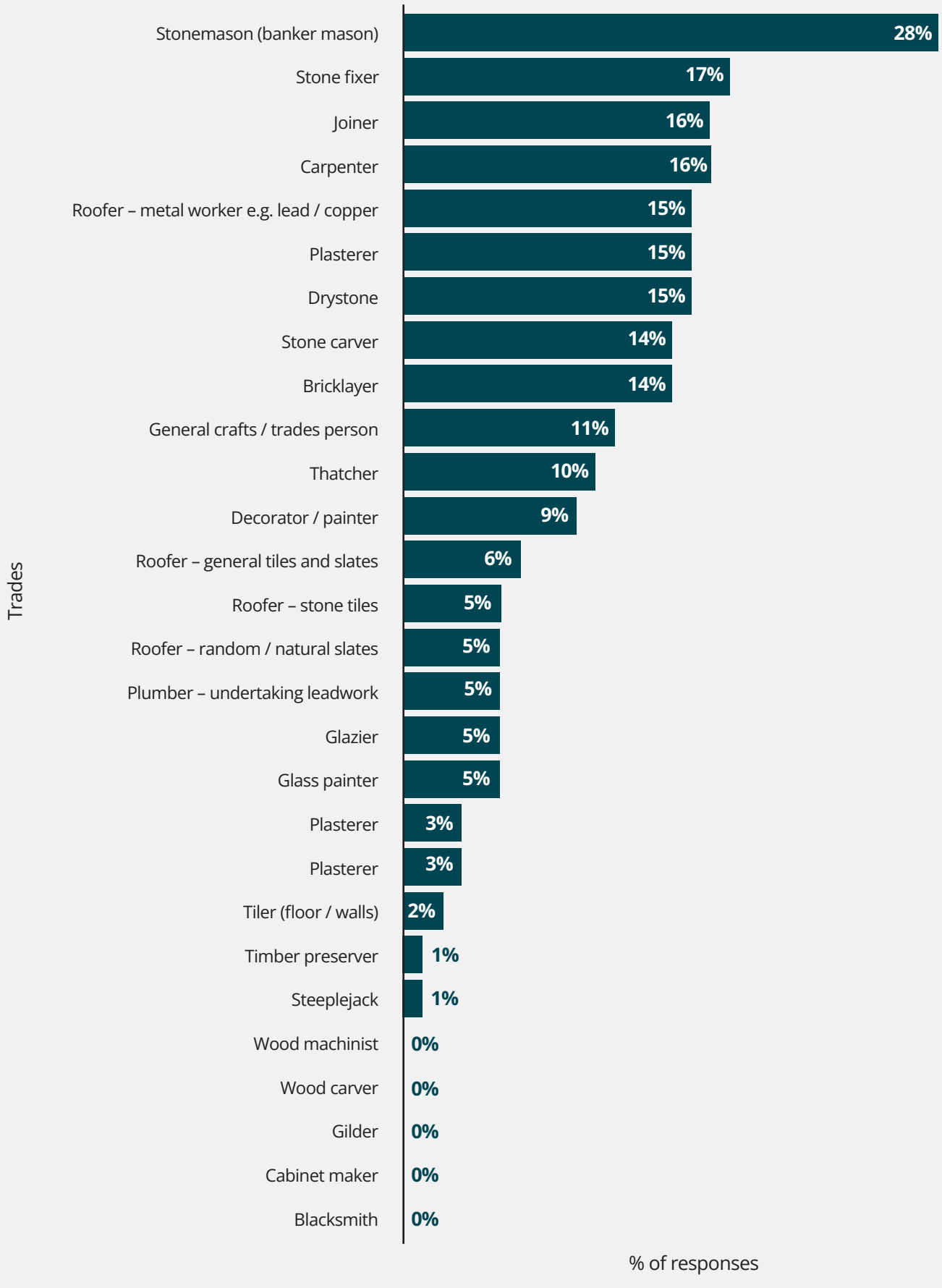
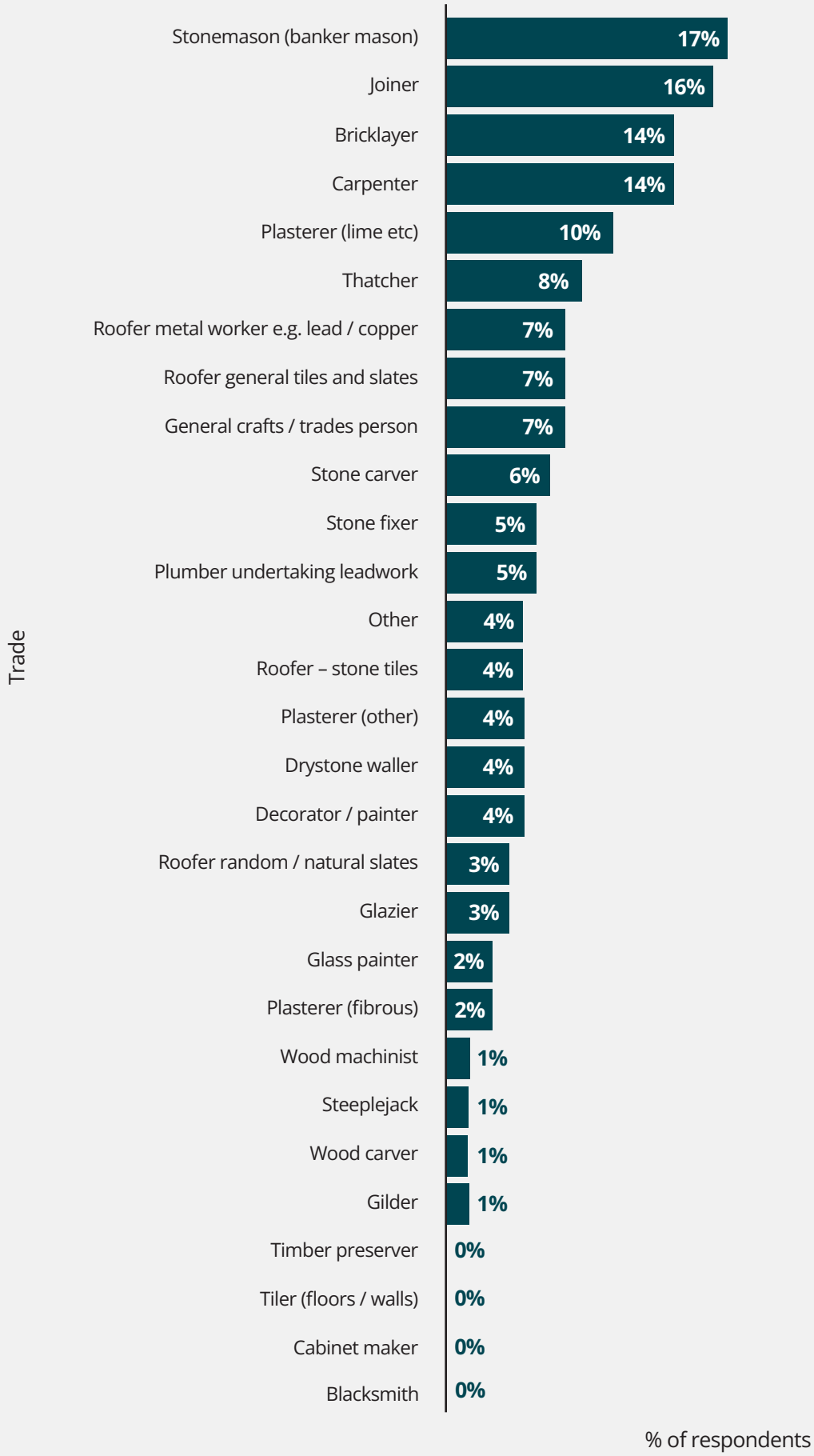


Figure 13: In which trades do you plan to recruit apprentices or trainees specifically to work on pre-1919 buildings in the next 12 months?



Base 177

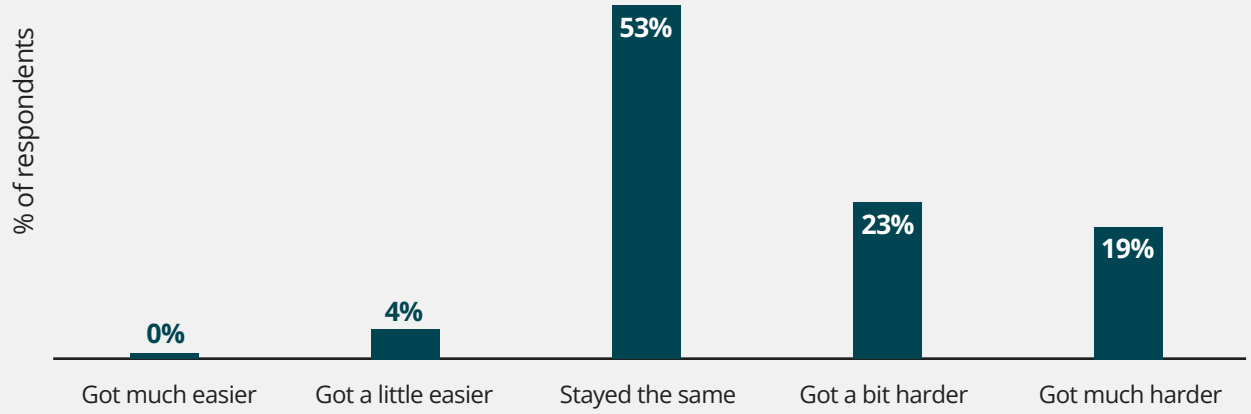
3.5 Skills shortages and skills gaps

Table 1: Availability of tradespeople for work on pre-1919 buildings

Trades	Base	Available immediately/ within a few weeks	1-2 months	2-3 months	3 to 6 months	6 to 9 months	9 to 12 months	More than 12 months	Don't know
Blacksmith	11	36.4%	9.1%	18.2%	-	-	-	-	18.2%
Bricklayer	140	82.9%	12.1%	2.9%	0.7%	-	-	-	1.4%
Carpenter	111	60.4%	21.6%	11.7%	0.9%	0.9%	-	0.9%	3.6%
Decorator / painter	57	63.2%	17.5%	3.5%	3.5%	1.8%	-	-	8.8%
Drystone waller	29	65.5%	17.2%	6.9%	-	-	-	-	10.3%
General crafts / trades person	31	77.4%	12.9%	3.2%	-	-	-	-	6.5%
Glass painter	18	27.8%	16.7%	38.9%	-	-	-	-	16.7%
Glazier	49	53.1%	24.5%	12.2%	-	-	-	-	6.1%
Joiner	122	74.6%	17.2%	4.1%	0.8%	0.8%	-	0.8%	1.6%
Plasterer (fibrous)	30	50.0%	23.3%	10.0%	-	3.3%	-	-	6.7%
Plasterer (lime etc)	137	62.8%	28.5%	2.9%	2.2%	1.5%	-	-	1.5%
Plasterer (other)	40	70.0%	17.5%	7.5%	-	-	-	-	5.0%
Plumber – undertaking leadwork	99	53.5%	25.3%	6.1%	10.1%	2.0%	-	1.0%	2.0%
Roofer – general tiles and slates	75	60.0%	29.3%	6.7%	1.3%	1.3%	-	-	1.3%
Roofer – random / natural slates	71	54.9%	31.0%	8.5%	1.4%	1.4%	-	-	1.4%
Roofer – stone tiles	68	41.2%	42.6%	8.8%	2.9%	1.5%	-	-	2.9%
Roofer – metal worker e.g. lead / copper	97	43.3%	35.1%	14.4%	4.1%	1.0%	-	-	2.1%
Steeplejack	14	14.3%	42.9%	14.3%	14.3%	-	-	-	7.1%
Stone carver	54	55.6%	22.2%	11.1%	3.7%	-	-	-	3.7%
Stone fixer	85	71.8%	17.6%	3.5%	1.2%	-	-	-	3.5%
Stonemason (banker mason)	169	78.1%	14.8%	4.7%	1.2%	-	-	-	0.6%
Thatcher	31	19.4%	38.7%	16.1%	3.2%	6.5%	-	-	6.5%
Tiler (floors / walls)	18	50.0%	16.7%	11.1%	5.6%	-	-	-	11.1%
Timber preserver	18	44.4%	33.3%	5.6%	-	-	-	-	11.1%
Wood carver	15	26.7%	26.7%	20.0%	6.7%	-	-	-	13.3%
Wood machinist	27	63.0%	3.7%	7.4%	7.4%	-	-	-	7.4%

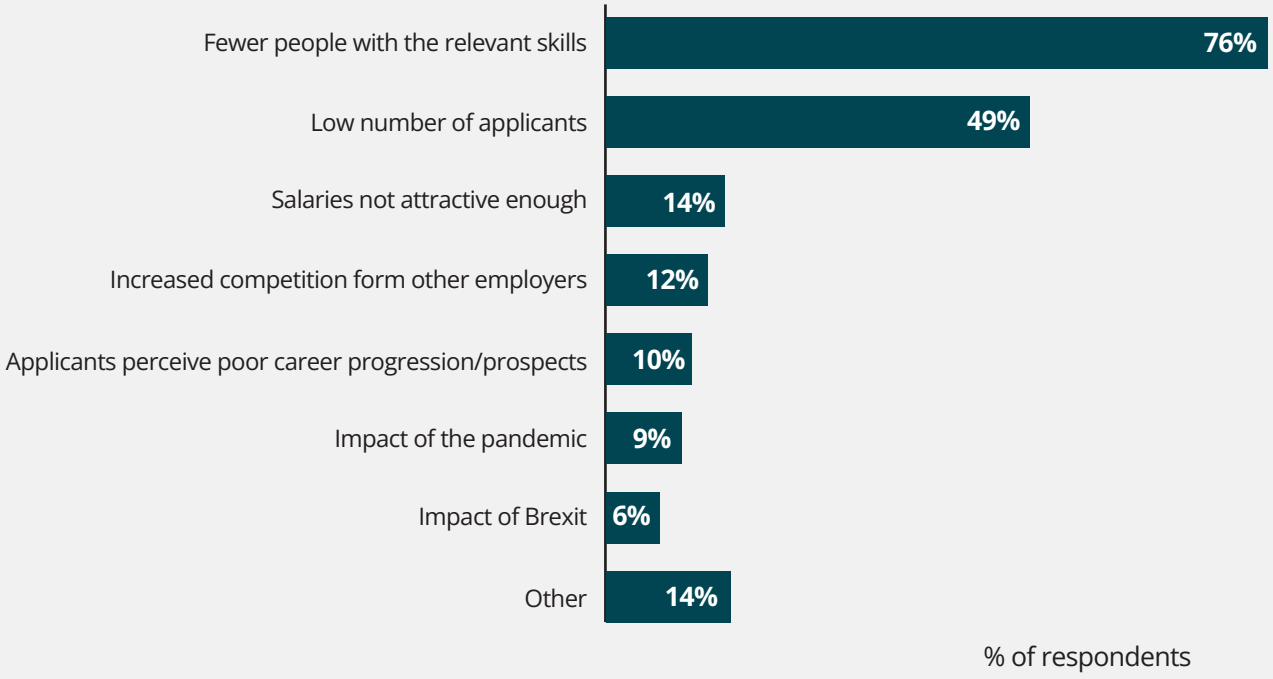
Base numbers fewer than 10 removed

Figure 14: Thinking about the ease of recruitment of people to undertake work on pre-1919 buildings, over the last three years has this:



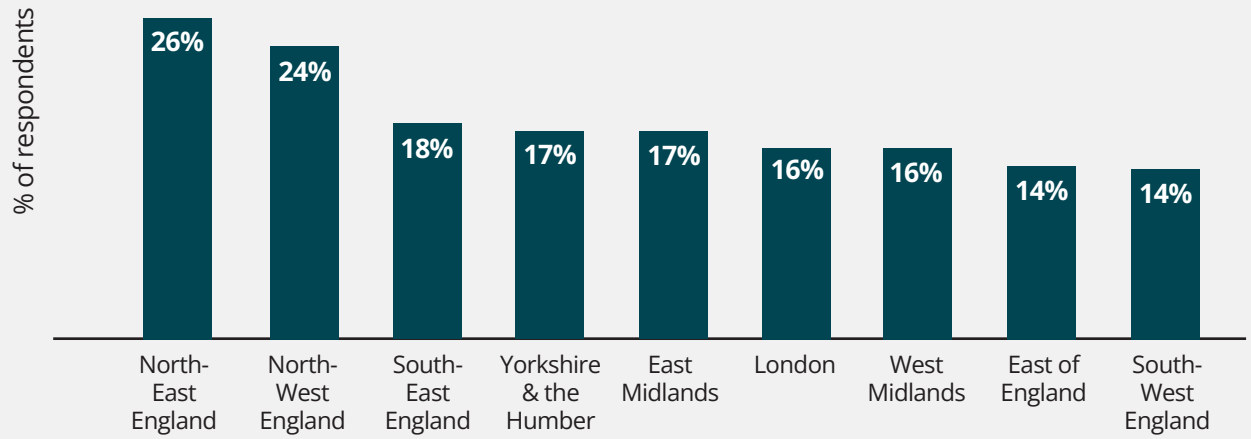
Base 680

Figure 15: Why do you think recruitment has got harder?



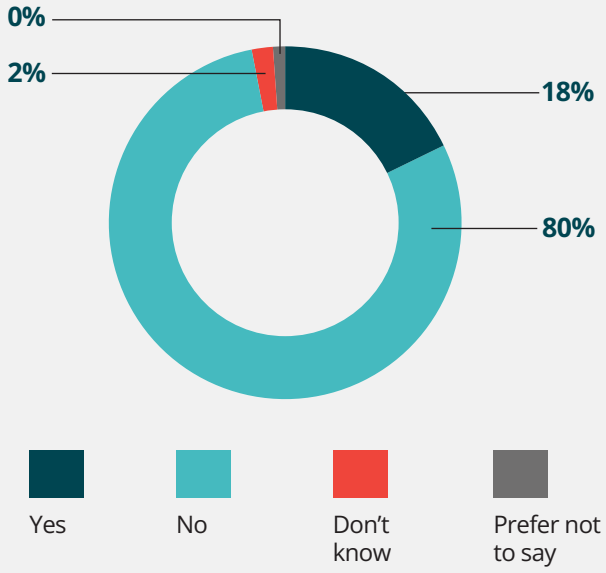
Base 272

Figure 16: % of organisations experiencing any skills gaps, in relation to undertaking work on pre-1919 buildings – by region



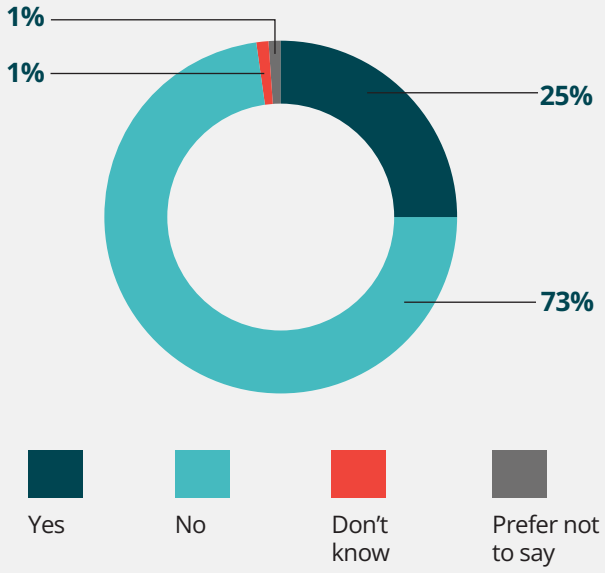
Base 703

Figure 17: Is your organisation experiencing any skills gaps, in relation to undertaking work on pre-1919 buildings?



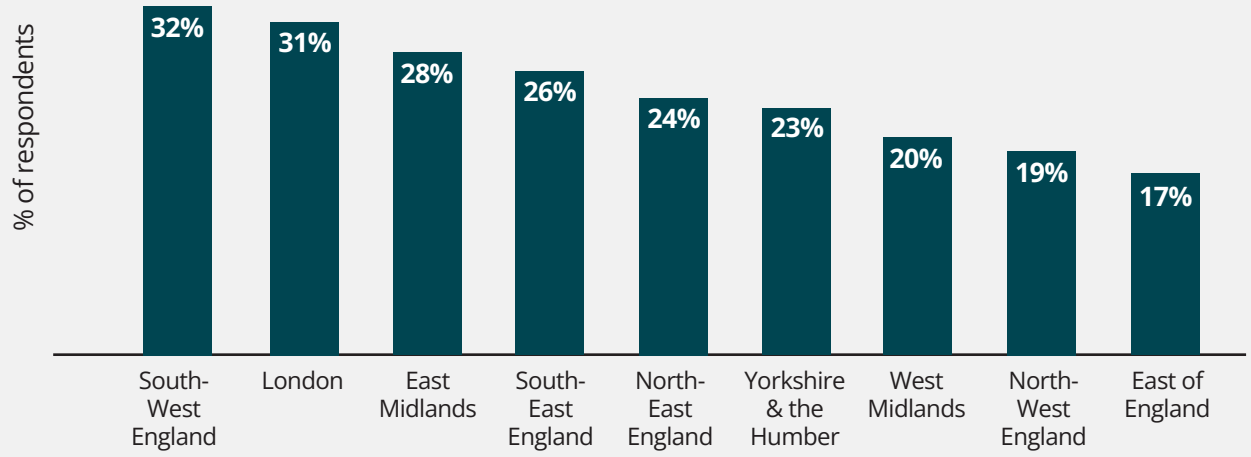
Base 703

Figure 18: Is your organisation experiencing any skills shortages, in relation to undertaking work on pre-1919 buildings?



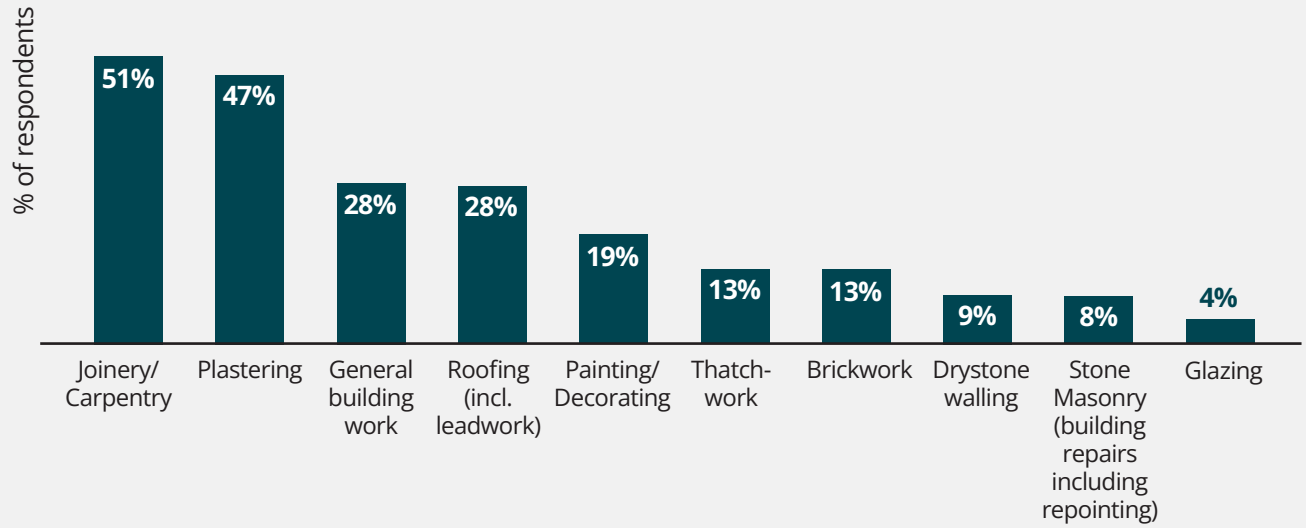
Base 701

Figure 19: % of organisations experiencing any skills shortages, in relation to undertaking work on pre-1919 buildings – by region



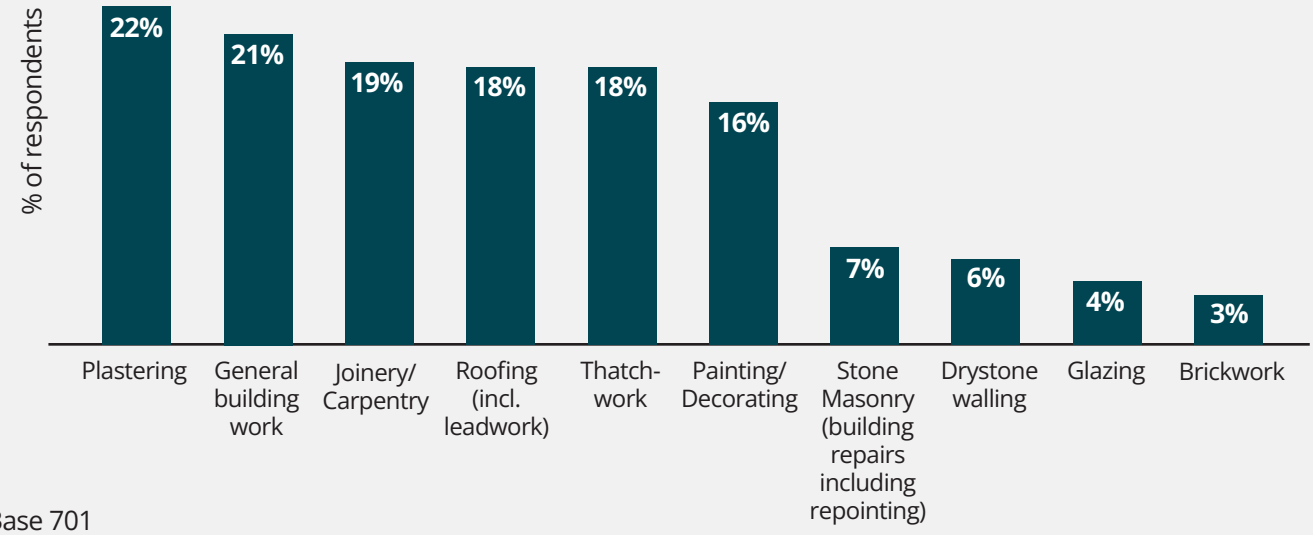
Base 701

Figure 20: % of organisations experiencing any skills shortages, in relation to undertaking work on pre-1919 buildings – by main activity



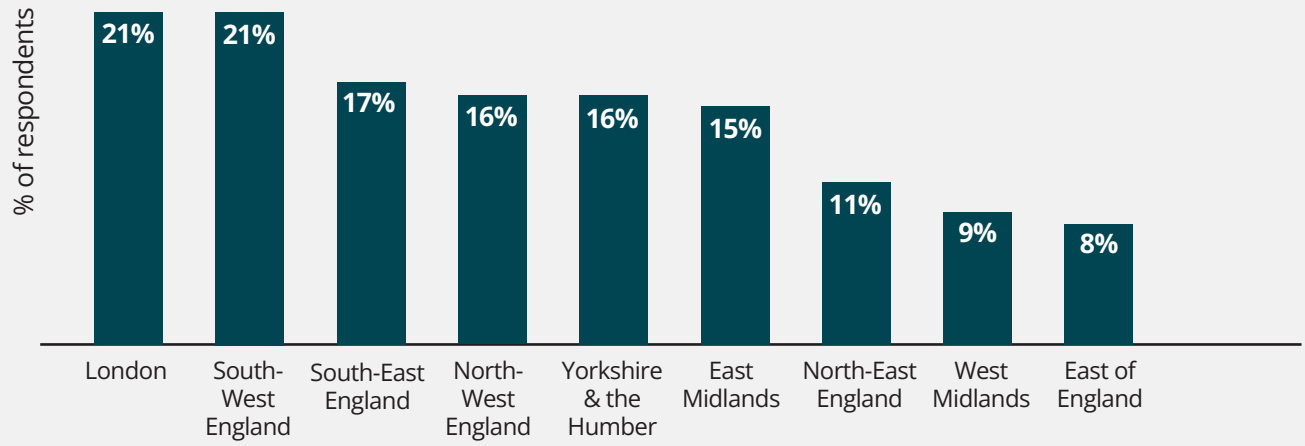
Base 701

Figure 21: % of organisations that have ever had to turn down work in relation to undertaking work on pre-1919 buildings due to lack of skills/knowledge available to them – by main activity



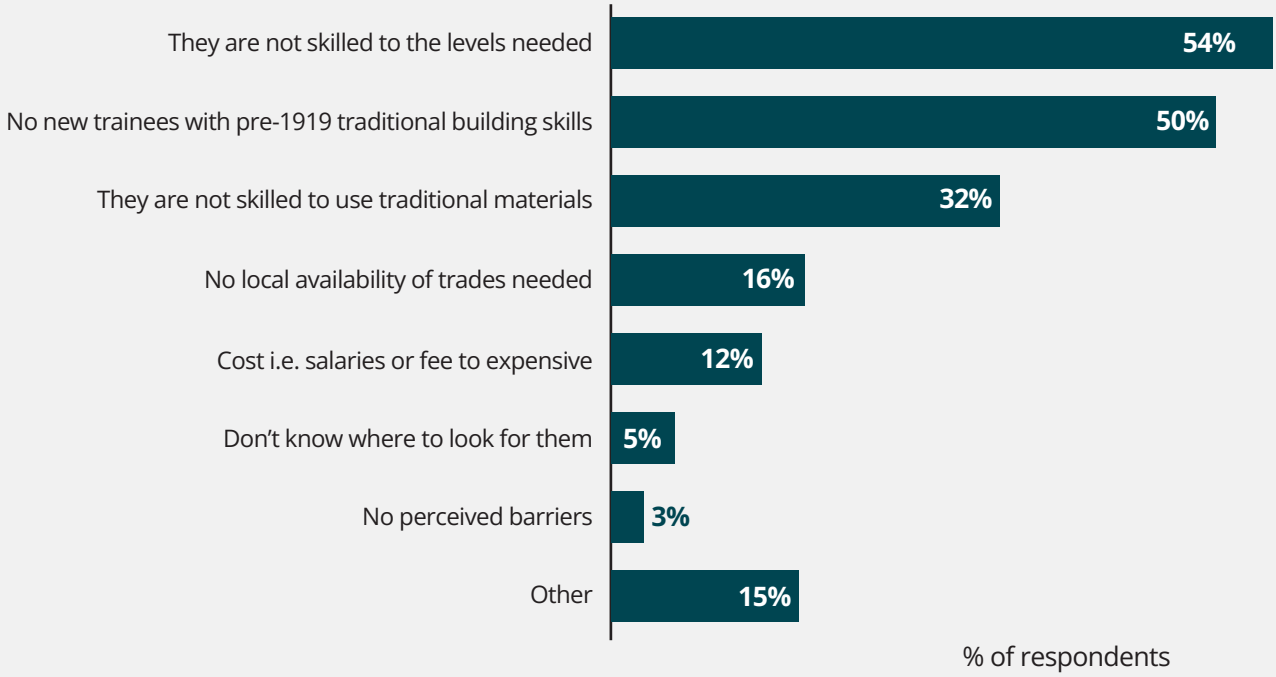
Base 701

Figure 22: % of organisations that have ever had to turn down work in relation to undertaking work on pre-1919 buildings due to lack of skills/knowledge available to them – by region



Base 703

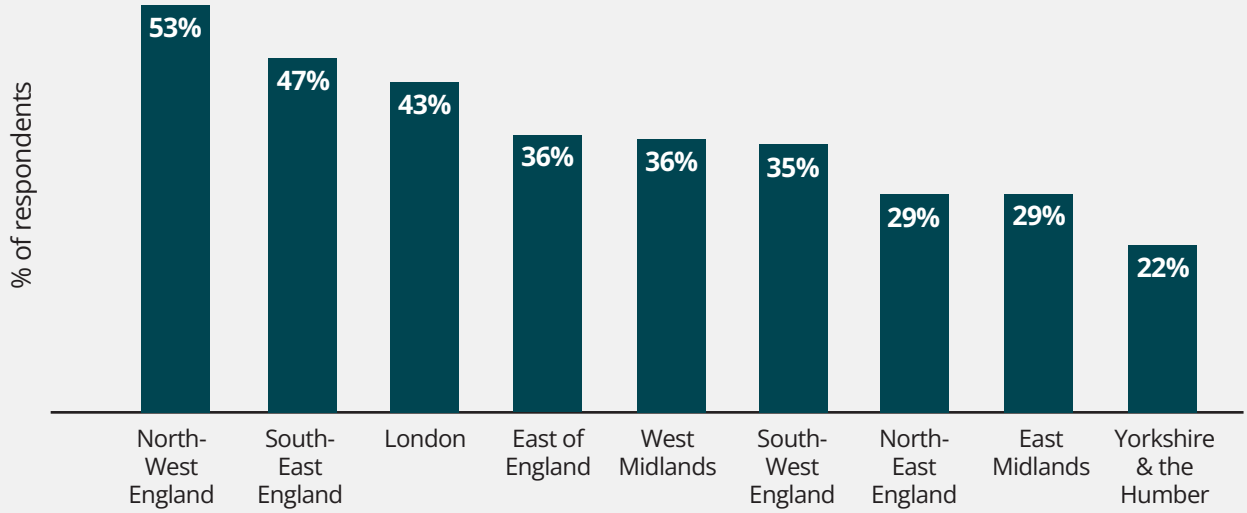
Figure 23: What are the barriers to finding tradespeople to do work on pre-1919 buildings?



Base 262

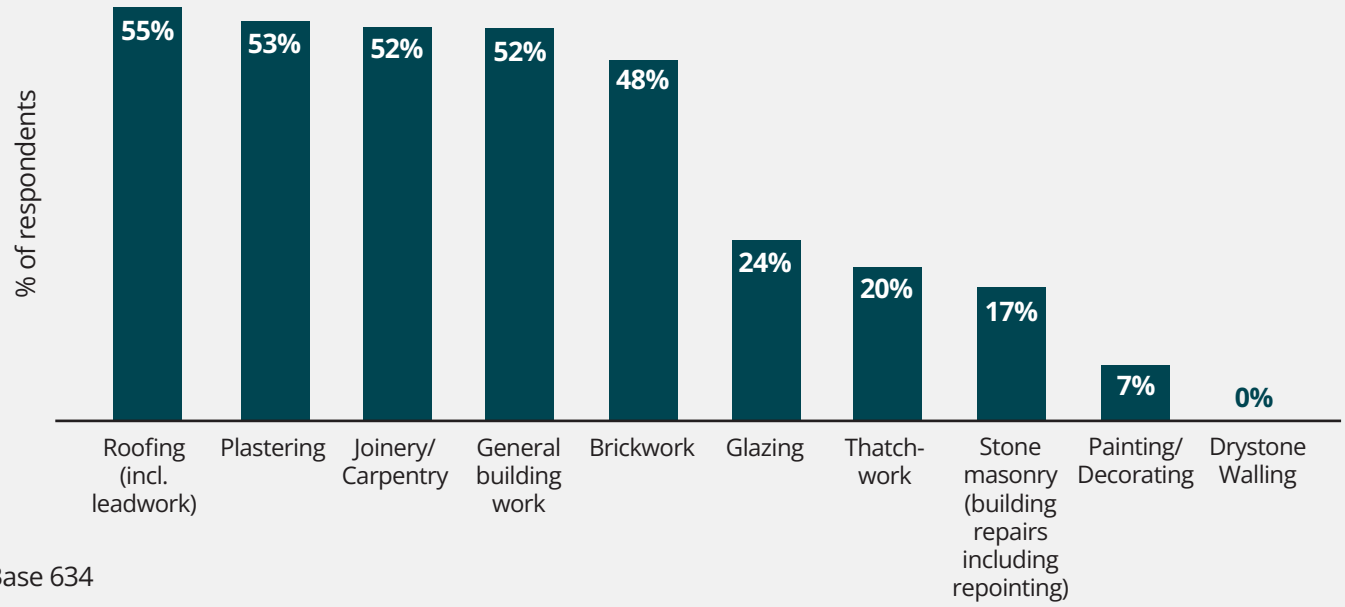
3.6 Skills for retrofitting

Figure 24: % 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 – by region



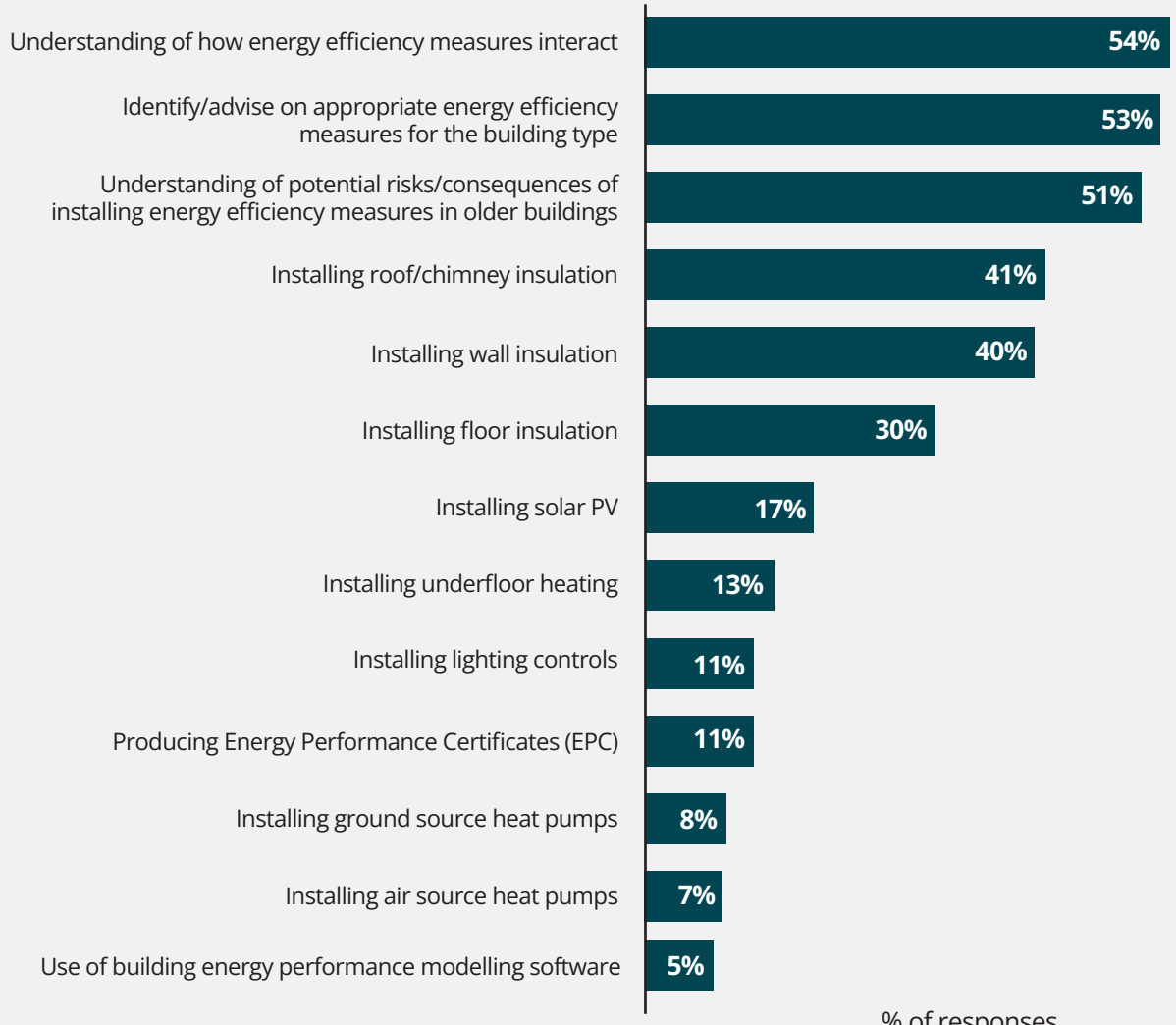
Base 653

Figure 25: % 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 – by main activity



Base 634

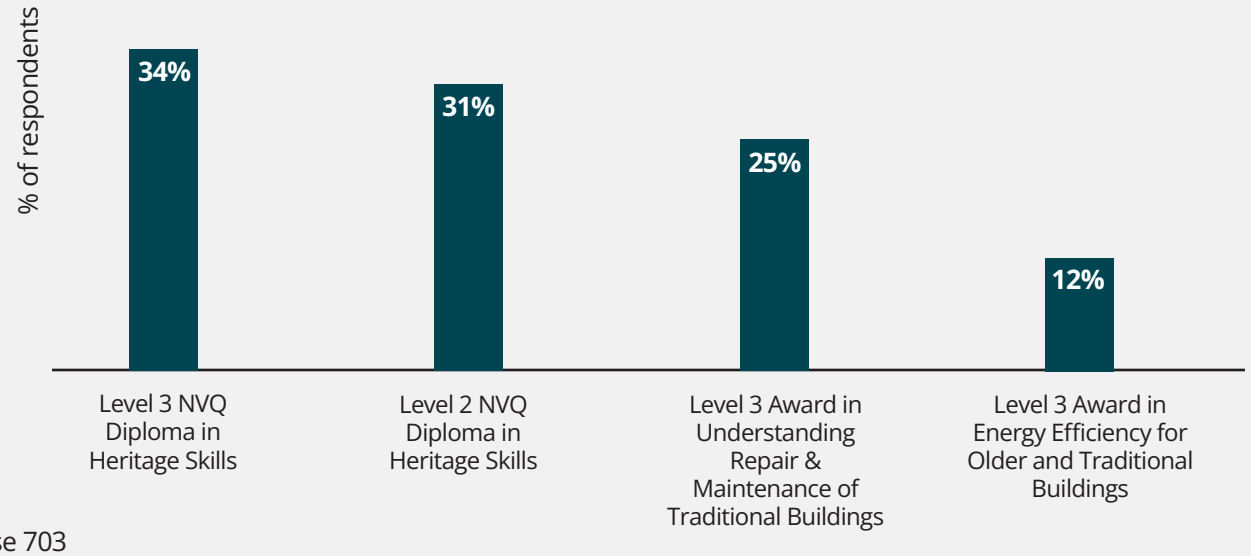
Figure 26: % of respondents confident they have the necessary skills to undertake the following retrofit activities



Base 584

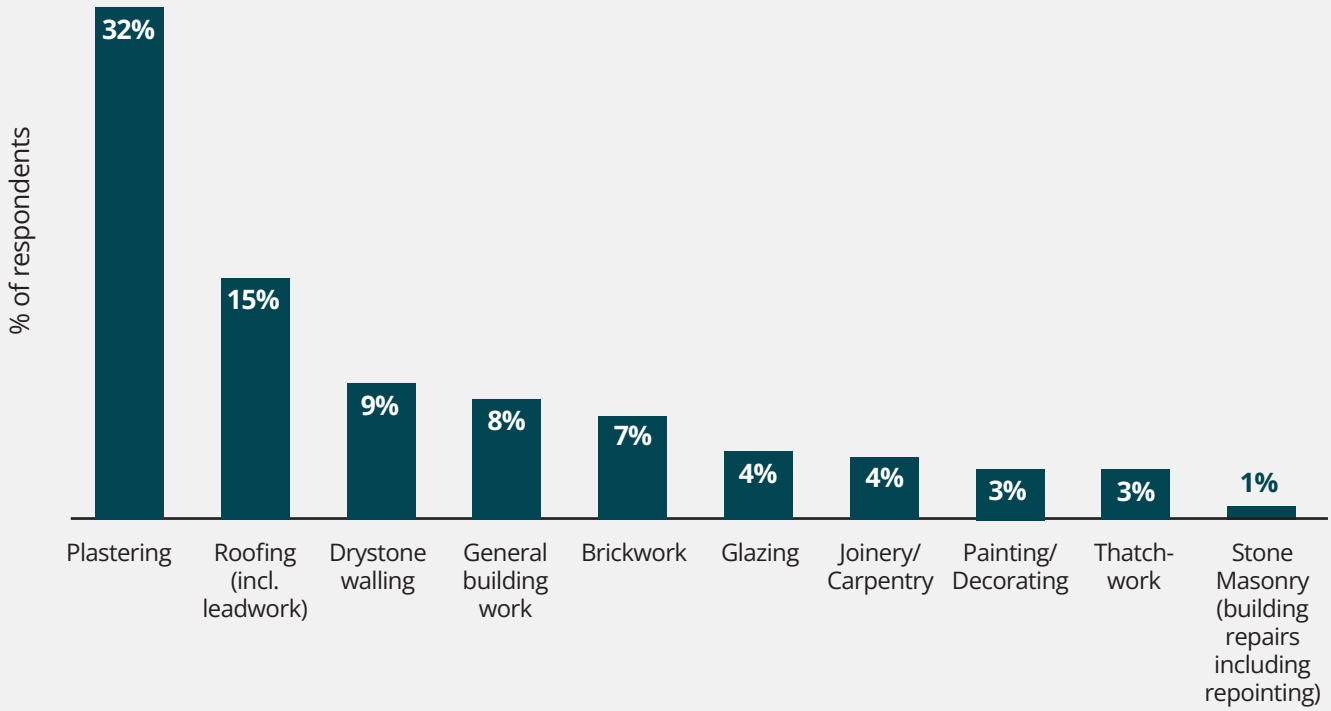
3.7 Training for pre-1919 work and traditional skills

Figure 27: Do you or any of your employees hold these qualifications?



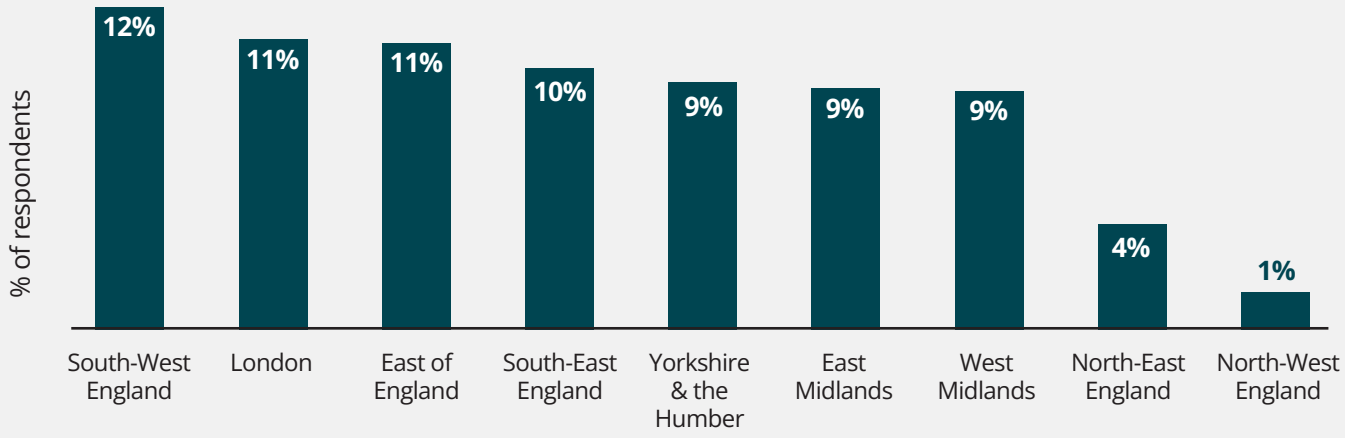
Base 703

Figure 28: % of organisations that have looked for training for work on pre-1919 buildings but have been unable to find what they want – by main activity



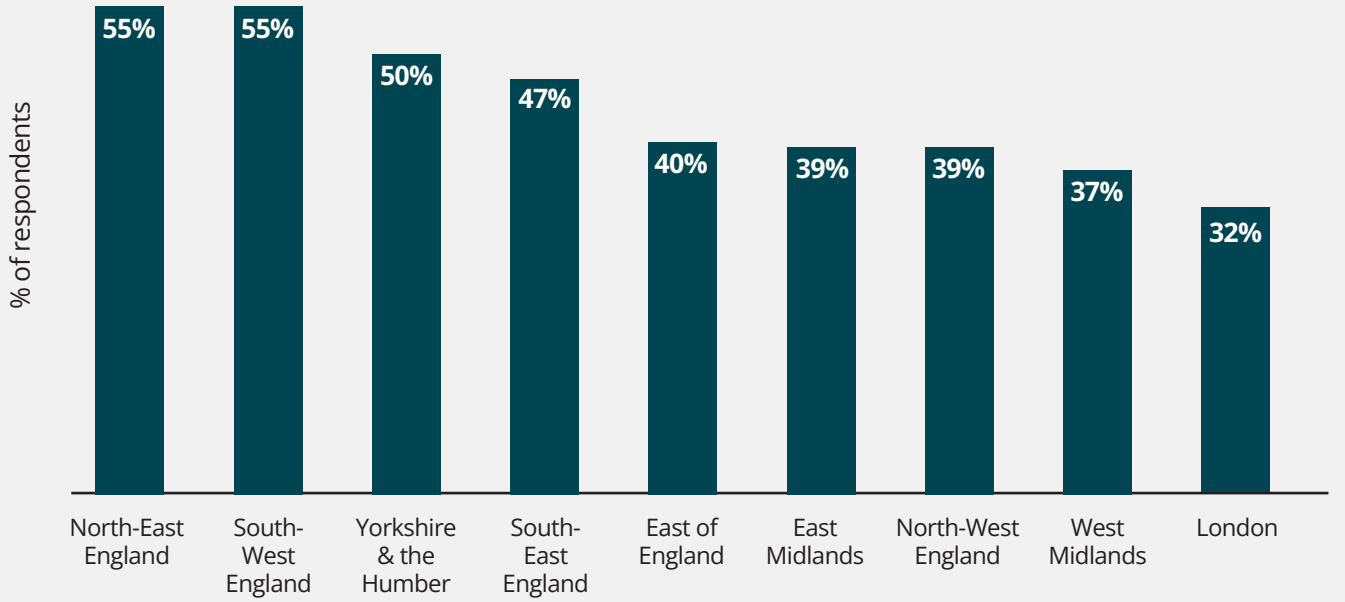
Base 683

Figure 29: % of organisations that have looked for training for work on pre-1919 buildings but have been unable to find what they want – by region



Base 683

Figure 30: % of respondents saying they or their employees had any training specifically in relation to work on pre-1919 buildings in the past five years? – by region



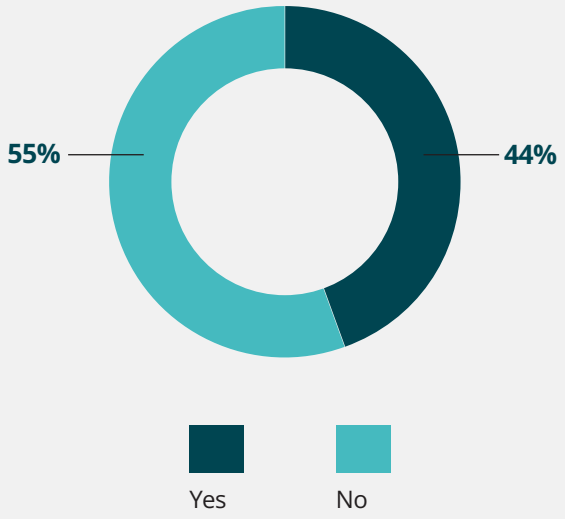
Base 699

Table 2: Training format by region

Region	Delivered by an FE college	Delivered by a private training provider	Provided by a manufacturer or supplier	Informal (i.e. on the job training)	Other
North-East England	78%	34%	22%	61%	0%
London	74%	26%	26%	87%	9%
East of England	48%	13%	19%	58%	10%
North-West England	48%	13%	10%	81%	3%
East Midlands	46%	25%	7%	61%	4%
South-West England	46%	6%	27%	77%	4%
Yorkshire & the Humber	45%	16%	16%	76%	5%
South-East England	35%	23%	13%	70%	5%
West Midlands	35%	23%	12%	81%	8%

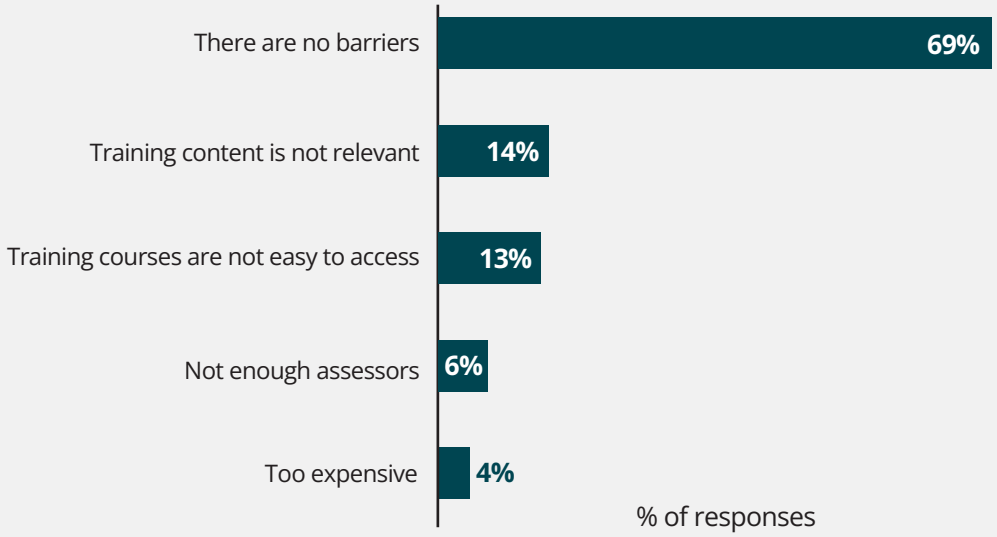
Multiple responses could be selected hence totals should not be 100%

Figure 31: Have you or your employees had any training specifically in relation to work on pre-1919 buildings in the past five years?



Base 699

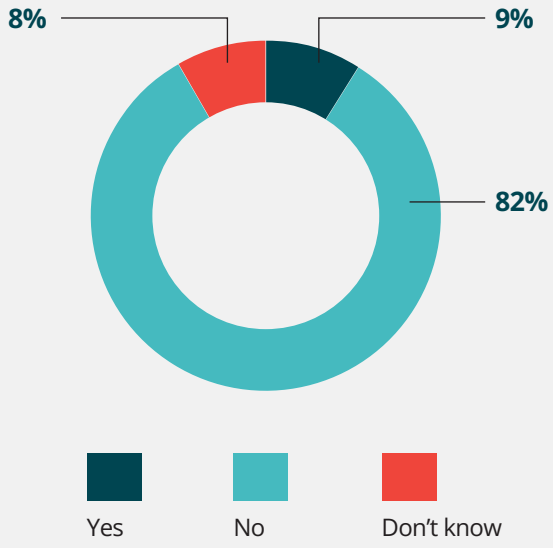
Figure 32: Barriers – if any perceived – to accessing training for work on pre-1919 buildings



Base 776

3.8 Drivers of additional demand: Houses of Parliament restoration and renewal

Figure 33: Do you intend to bid for work on the Houses of Parliament restoration project?



Base 702

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