Department
for Communities
& Local Government

English Housing Survey
HOMES 2011

ENGLISH
HOUSING
SURVEY

The United Kingdom Statistics Authority has designated these statistics as National Statistics, in accordance with the Statistics and Registration Service Act 2007 and Signifying compliance with the Code of Practice for Official Statistics.

Designation can be broadly interpreted to mean that the statistics:

- meet identified user needs;
- are well explained and readily accessible;
- are produced according to sound methods, and
- are managed impartially and objectively in the public interest.

Once statistics have been designated as National Statistics it is a statutory requirement that the Code of Practice shall continue to be observed.

Department
for Communities
& Local Government

English Housing Survey: HOMES

Annual report on England's housing stock, 2011

July 2013
Department for Communities and Local Government

This document/publication is also available on our website at www.gov.uk/dclg

Any enquiries regarding this document/publication should be sent to us at:

Department for Communities and Local Government
Eland House
Bressenden Place
London
SW1E 5DU
Telephone: 030 3444 0000

July, 2013

ISBN: 978-1-4098-3922-4

Contents

Acknowledgements

Each year the English Housing Survey (EHS) relies on the contributions of a large number of people and organisations. The Department for Communities and Local Government (DCLG) would particularly like to thank the following people and organisations, without whom the 2011-12 survey and this report, would not have been possible:

- All the households who gave up their time to take part in the survey.
- The Office for National Statistics (ONS) who managed the interview survey and led the production of the 2011-12 Households Report.
- The Building Research Establishment (BRE) who managed the physical survey and led the production of the 2011-12 Homes Report.
- The ONS interviewers who conducted the household interviews and the MMBL-CADS surveyors and who carried out the visual inspections of properties.
- And finally, the team at DCLG who managed and worked on the survey.

Introduction

1. In April 2008, the English House Condition Survey was integrated with the Survey of English Housing to form the English Housing Survey (EHS). This report provides the findings from the fourth wave of the EHS, and follows from the 2011-12 Headline Report which was published on the DCLG website in February 2013.

2. This annual report focuses on HOMES and is one of two which are published at the same time. The sister publication is called HOUSEHOLDS.

3. This report is organised in a similar way to previous reports on the housing stock. It begins by providing a general overview of English housing stock, and then covers familiar themes such as amenities, dwelling condition (including disrepair, damp and safety issues), energy performance and improvement potential.

4. Results which relate to the physical dwelling are presented for ‘2011’ and are based on fieldwork carried out between April 2010 and March 2012 (a mid-point of April 2011). The sample comprises 14,951 occupied or vacant dwellings where a physical inspection was carried out and includes 14,386 cases where an interview with the household was also secured. Throughout the report, these are referred to as the ‘dwelling sample’ and the ‘household sub-sample’ respectively.

5. Results for households are presented for ‘2011-12’ and are based on fieldwork carried out between April 2011 and March 2012 on a sample of 13,829 households. Throughout the report, this is referred to as the ‘full household sample’. The smaller sample size (compared with previous waves of the survey) is the consequence of a cost review of the survey undertaken to identify where efficiency savings could be made.

6. Most of the analyses in this report are based on the dwelling sample. Where this is not the case it has been noted in the text, and made clear in the footnotes to the tables and figures.

7. Where the numbers of cases looked at in the sample are too small for any inference to be drawn about the national picture, the cell contents are replaced with an asterisk. This happens where the number of samples is fewer than 30. Where the cell contents are in italics this

indicates a sample size between 30 and 50, and the results should be treated with caution.

8. Where comparative statements have been made in the text, these have been significance tested to a 95% confidence level. This means we are 95% confident that the statements we are making are true.

9. Additional annex tables, including the data underlying the figures and charts, are published on the website: https://www.gov.uk/government/organisations/department-for-communities-and-local-government/series/english-housing-survey alongside many supplementary tables, which are updated each year but are too numerous to include in our reports. Further information on the technical details of the survey, and information and past reports on the Survey of English Housing and the English House Condition Survey can also be accessed via this link.

10. If you have any queries about this report, would like any further information or have suggestions for analyses you would like to see included in future EHS reports, please contact ehs@communities.gsi.gov.uk

11. The Responsible analyst for this report is: Reannan Rottier, English Housing Survey Team, Strategic Statistics Division, DCLG. Contact via ehs@communities.gsi.gov.uk

Chapter 1
Stock profile

This chapter examines the overall profile of housing stock in England by age, dwelling type, tenure, location and occupancy. It also examines how the profiles of the four main housing tenures have changed since 1996. Finally, it explores how the size of dwellings and construction materials vary by the tenure, age and type of dwelling and how far dwellings have been altered since they were originally built.

Additional findings relating to the stock profile can be found in web table DA1101

Key findings

- In 2011, there were 22.8 million dwellings in England. The majority (65%, 14.8 million) of these were owner occupied and the rest were either rented from private landlords (18%, just over 4.0 million) or from social landlords (17%, just under 4.0 million). In the social sector 2.1 million dwellings were owned by housing associations and 1.9 million by local authorities.

- Over half (54%) of all homes in England were terraced or semi-detached houses, 17% were detached houses and 9% were bungalows. The remaining 20% were flats, mainly purpose built low rise flats.

- The profile varied considerably by tenure: some 24% of owner occupied homes were detached houses, while the private rented sector contained by far the highest proportion of converted flats (13% compared with 4% for all homes). The local authority sector contained the highest proportion of purpose built flats (46% compared with 16% overall).

- There have been some significant changes in the number and profile of dwellings in the different tenures since 1996. The number of private rented homes has doubled from 2.0 to 4.0 million whilst the number of owner occupied homes has remained almost constant. In 1996 local authorities owned 3.5 million homes (17% of the stock) but this had reduced to 1.9 million (8% of the stock) by 2011.

- In the private rented sector there has been a large shift in the age profile of homes between 1996 and 2011. The proportion of newer homes, built after 1990, increased from 8% to 24% between 1996 and 2011, whilst the proportion built before 1919 decreased from 52% to 37%.

- The expansion of the housing association sector over the past 15 years has resulted in large changes in the age and type profile of homes in this sector. The proportion of housing association homes built before 1919 has halved (from 19% to 9%) and the proportion built between 1945 and 1964 has doubled (from 12% to 24%) since 1996.

- The average dwelling had a total usable floor area of 91m². However, this varied by tenure, from an average of 103m² in the owner occupied sector to 74m² for private rented dwellings and 63m² for both local authority and housing association homes. On average, those built before 1919 were the largest dwellings, with a mean useable floor area of 102m².

- In 2011, 95% of the total housing stock was traditionally built using masonry or timber as the main structural component. Some 64% of all homes were built with traditional cavity walls and 27% were built with solid masonry walls with no cavity using brick, block, stone or flint.

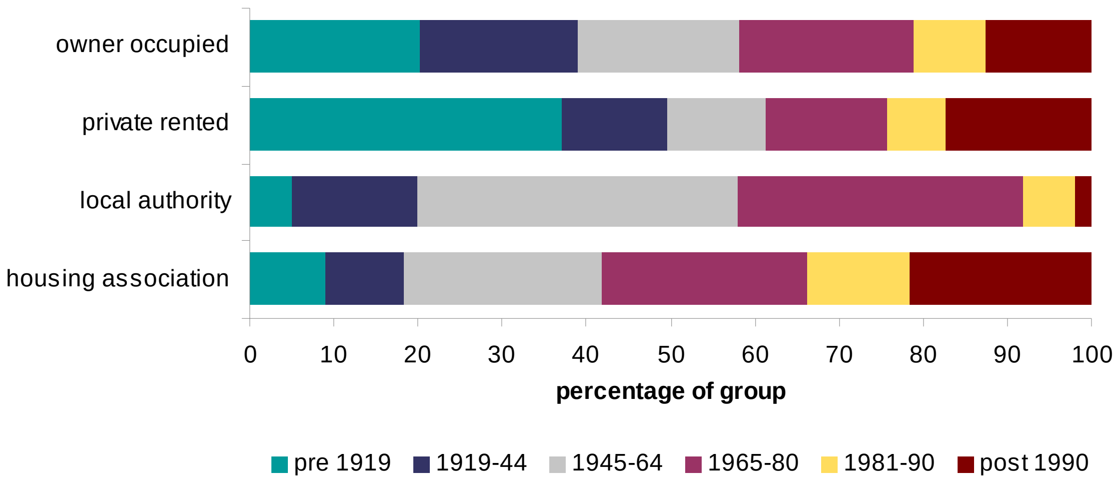
- Some 43% of dwellings had had at least one major alteration carried out since they were originally built and this rose to 73% for dwellings built before 1919. In 29% of dwellings, the alterations had involved work that would increase the size of the dwellings (building extensions or loft conversions).

Dwelling type, age and location

1.1 In 2011, there were 22.8 million dwellings in England. Some 65% (14.8 million) of all homes were owner occupied and 18% (4.0 million) were rented by private landlords. The remaining 4.0 million homes were rented by social landlords: 2.1 million by housing associations and 1.9 million by local authorities[1], Annex Table 1.1.

1.2 Overall, 21% of homes were built before 1919 and 13% were built after 1990. The age of dwellings varied considerably by tenure with the private rented sector containing a significantly higher proportion of homes built before 1919 (37%) and the second highest proportion built after 1990 (17%). The housing association stock contained the highest proportion of homes built after 1990 (22%) while local authority stock contained the highest proportions of homes built between 1945 and 1964 (38%) and 1965 and 1980 (34%), Figure 1.1

Figure 1.1: Percentage of dwellings in each tenure by dwelling age, 2011

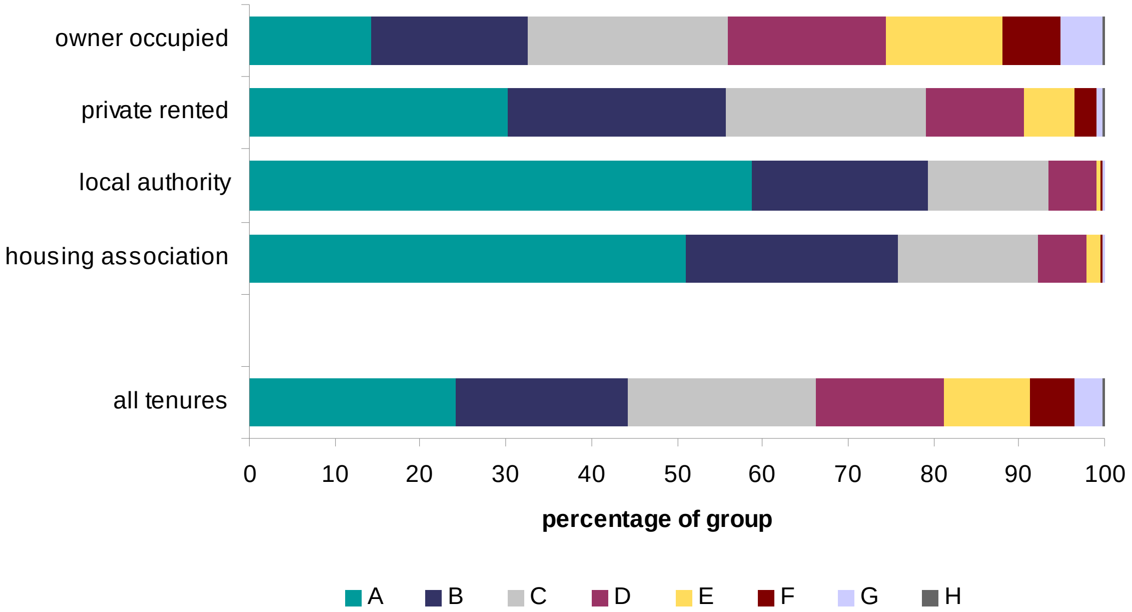


Base: all dwellings
Note: underlying data are presented in Annex Table 1.1
Source: English Housing Survey, dwelling sample

1.3 Some 44% of all homes were in council tax bands A and B, 22% were in Band C and just 9% of homes were in the three highest bands (F, G and H). However, these proportions varied considerably by tenure. Over 75% of social rented dwellings were in bands A and B, compared with 56% of private rented homes and 33% of owner occupied dwellings. Private rented dwellings were much more likely to be in bands C, D and E than either local authority or housing association dwellings (41% compared with 20% and 24% respectively), Figure 1.2.

[1]local authority dwellings include those managed by Arms Length Management Organisations (ALMOs) as these dwellings are still **owned** by the local authority

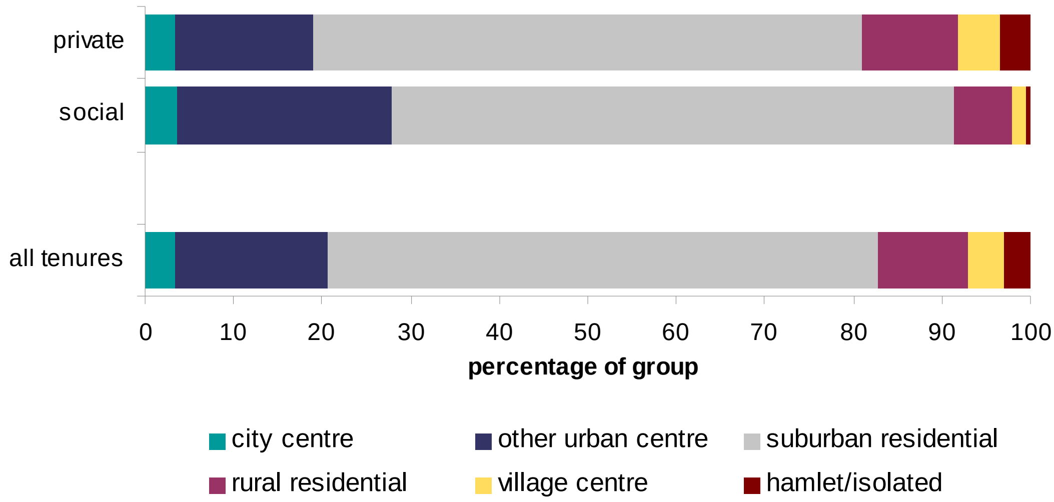
Figure 1.2: Percentage of dwellings in each tenure by council tax band, 2011



Base: all dwellings
Note: underlying data are presented in Annex Table 1.2
Source: English Housing Survey, dwelling sample

1.4 The majority of homes were located in suburban areas (62%) and other urban centres (17%). Only a small proportion of homes were located in city centres (3.4%) and hamlets or isolated rural areas (2.9%), Figure 1.3. Private sector homes were more likely to be located in rural areas and almost all (98%) of homes in hamlets or isolated rural areas were in the private sector, Annex Table 1.3.

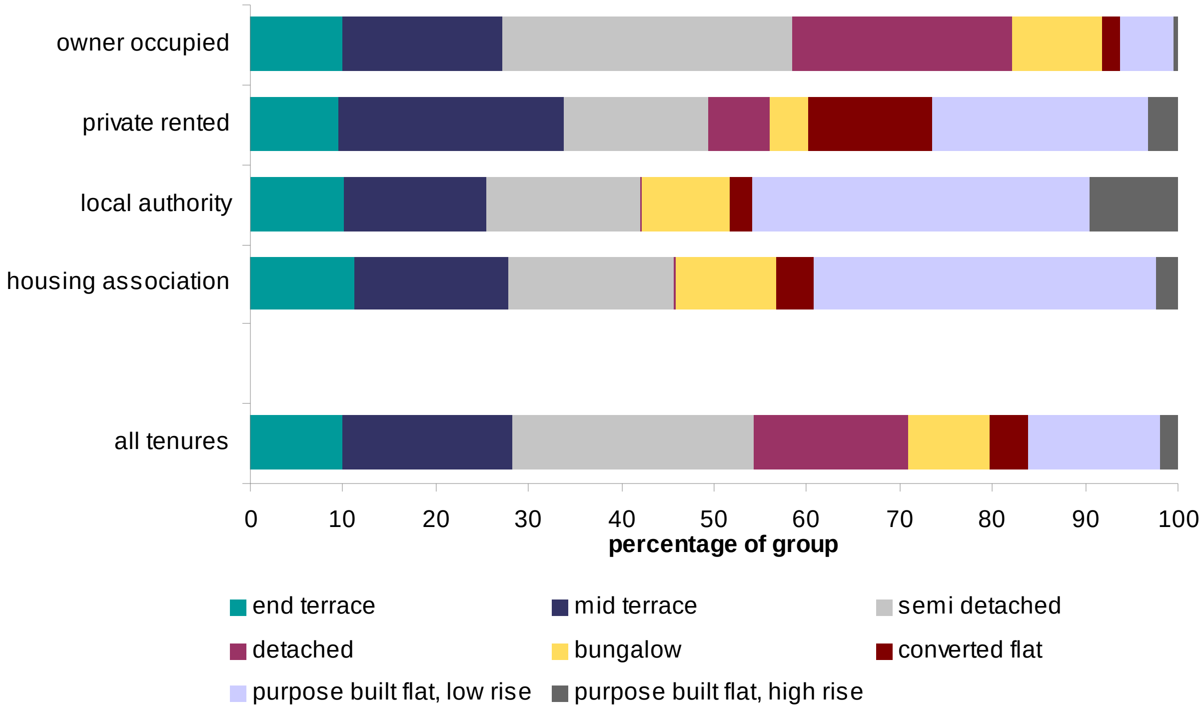
Figure 1.3: Percentage of dwellings in each tenure by type of area, 2011



Base: all dwellings
Note: underlying data are presented in Annex Table 1.3
Source: English Housing Survey, dwelling sample

1.5 Over half (54%) of all homes in England were terraced or semi-detached houses, 17% were detached houses and 9% were bungalows. The remaining 20% were flats, mainly purpose built low rise flats. The profile varied considerably by tenure: some 24% of owner occupied homes were detached houses compared with less than 0.5% in the social sector. The private rented sector contained by far the highest proportion of converted flats (13% compared with 4% for all homes) and the local authority sector contained the highest proportion of purpose built flats (46% compared with 16% overall), Figure 1.4

Figure 1.4: Percentage of dwellings in each tenure by dwelling type, 2011



Base: all dwellings
Note: underlying data are presented in Annex Table 1.4
Source: English Housing Survey, dwelling sample

1.6 The majority of flats (70%) were in low rise purpose built blocks. A further 9% were in high rise purpose built blocks and the rest (21%) were converted flats, Annex Table 1.4. Overall, some 37% of flats were located at ground floor level. Just 2% of flats were located at basement level and 3% were located above the sixth floor, Annex Table 1.5.

Changes since 1996

1.7 There have been some significant changes in the number and profile of dwellings in the different tenures since 1996. The number of private rented homes has doubled from 2.0 to 4.0 million over this period, the increase being a combination of new build homes and owner occupied homes (including ex

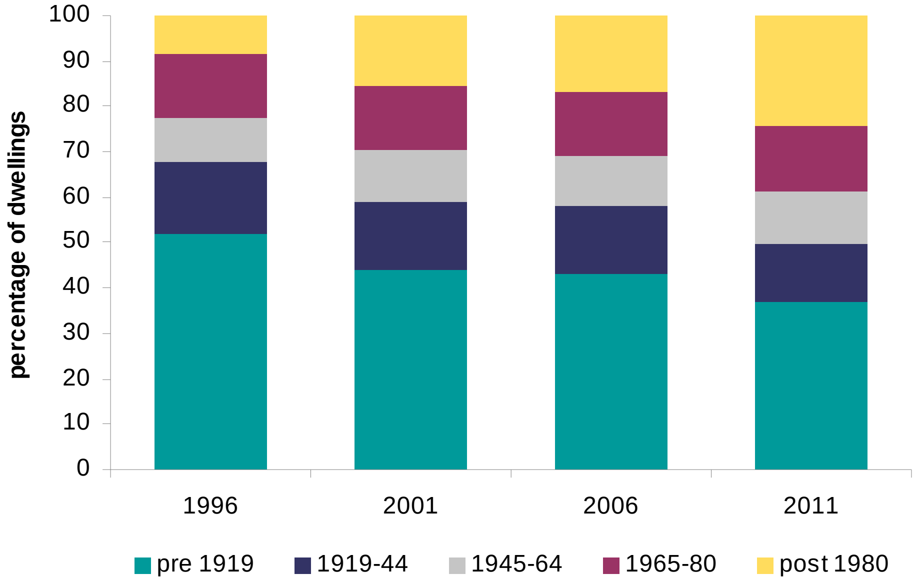
Right to Buy) moving into this tenure. This increase largely reflects the reduction in the number of social rented homes and the increasing costs of owner occupation, and has led to a large increase in the number and proportion of families with dependent children in the private rented sector over this period (see EHS Household Report). Over the same period, the number of owner occupied homes has remained relatively constant. The social sector saw significant changes over this period, partly because many local authority dwellings were transferred to housing associations through Large Scale Voluntary Transfers, and partly because of new building by housing associations. In 1996 local authorities owned 3.5 million homes (17% of the stock) but this had reduced to 1.9 million (8% of the stock) by 2011. Over the same period, the number of housing association homes more than doubled from 941,000 to 2.1 million, Annex Table 1.6, Figure 1.5.

Figure 1.5: Numbers of dwellings by tenure, 1996-2011

Base: all dwellings
Note: underlying data are presented in Annex Table 1.6
Sources:
1996-2006: English House Condition Survey;
2011: English Housing Survey, dwelling sample

1.8 There have also been some marked changes in the dwelling age and dwelling type profiles of the three rented tenures over this time. In the private rented sector, there has been a significant increase in both the number (170,000 in 1996 to 976,000 in 2011) and proportion of newer homes built after 1980 (from 8% in 1996 to 24% in 2011), resulting in a significant reduction in the proportion built before 1919 (52% to 37%), Figure 1.6. This influx of newer homes into the sector has also resulted in a reduction in the proportion that were converted flats (from 19% to 13%) and an increase in the proportion of purpose built flats (18% to 27%), Annex Table 1.7.

Figure 1.6: Proportion of private rented homes by age band, 1996-2011

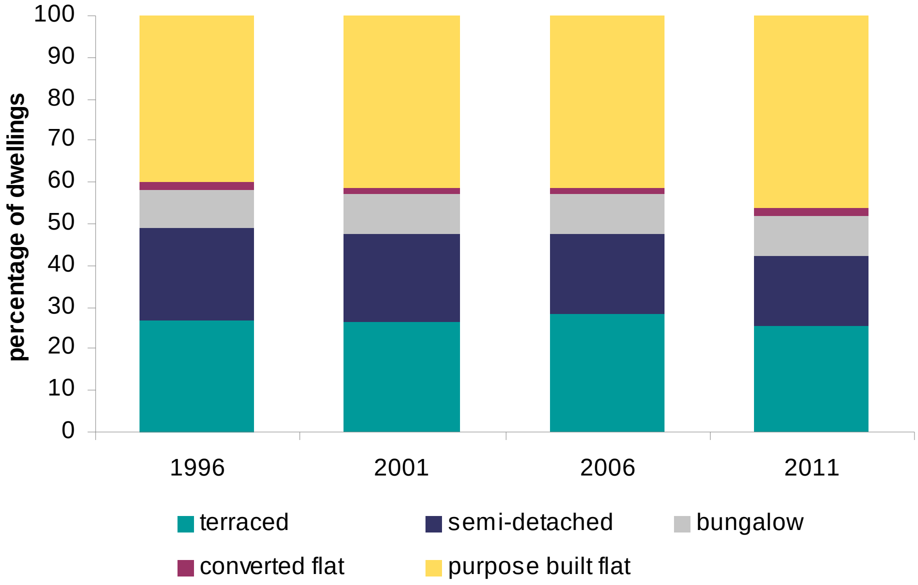


Base: all private rented dwellings
Note: underlying data are presented in Annex Table 1.7
Sources:
1996-2006: English House Condition Survey;
2011: English Housing Survey, dwelling sample

1.9 The changes in the social sector since 1996 have been even more marked, largely due to the transfer of homes from local authorities to housing associations. In addition, an estimated 529,000[2] local authority homes were purchased by their sitting tenants through Right to Buy between 1996 and 2011. Over half of all the dwellings lost to the local authority sector were houses and bungalows. This has resulted in a shift in the dwelling type profile over this period with a significant increase in the proportion of purpose built flats (from 40% to 46%) and a significant reduction in the proportion of semi-detached houses (from 22% to 17%) in this tenure, Figure 1.7.

[2]DCLG, Statistical data set, Live Tables on social housing sales, Table 678

Figure 1.7: Proportion of local authority homes by dwelling type, 1996-2011

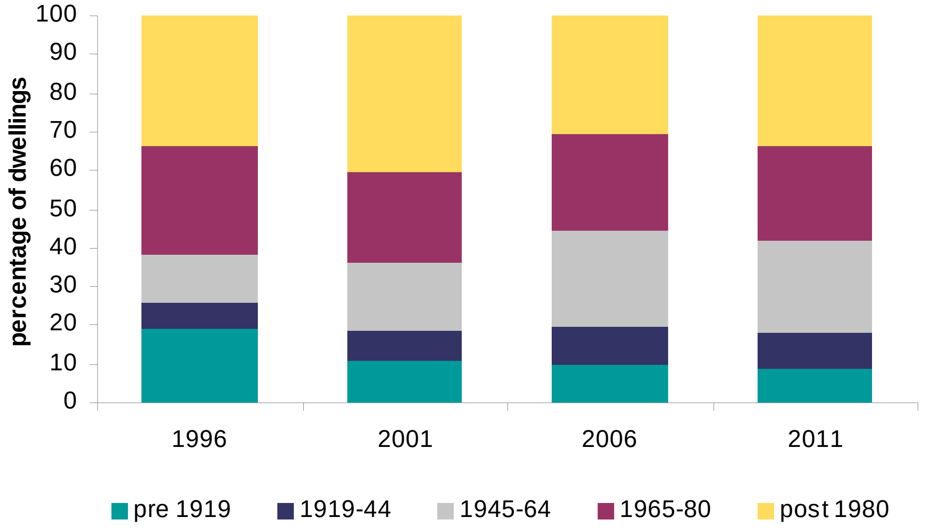


Base: all local authority dwellings
Note: underlying data are presented in Annex Table 1.8
Sources:
1996-2006: English House Condition Survey;
2011: English Housing Survey, dwelling sample

1.10 The expansion of the housing association sector over the past 15 years has similarly resulted in large changes in the age and type profile of homes in this sector. Those built before 1919 now form only 9% of the stock, compared with 19% in 1996, and the proportion that were built between 1945 and 1964 has doubled (from 12% to 24%), the latter almost solely due to transfer of stock from local authorities, Figure 1.8.

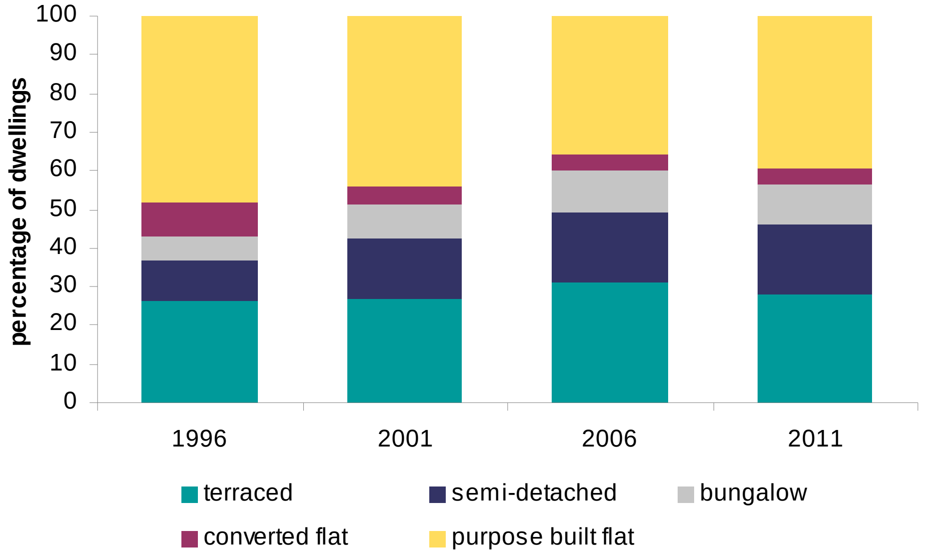
1.11 Since 1996, the proportion of housing association semi-detached houses increased (from 10% to 18%) and the proportion of flats reduced (from 57% to 43%), Figure 1.9. Again, these changes are largely due to the transfer of stock from local authorities.

Figure 1.8: Proportion of housing association homes by age band, 1996-2011



Base: all housing association dwellings
Note: underlying data are presented in Annex Table 1.9
Sources:
1996-2006: English House Condition Survey;
2011: English Housing Survey, dwelling sample

Figure 1.9: Proportion of housing association homes by dwelling type, 1996-2011

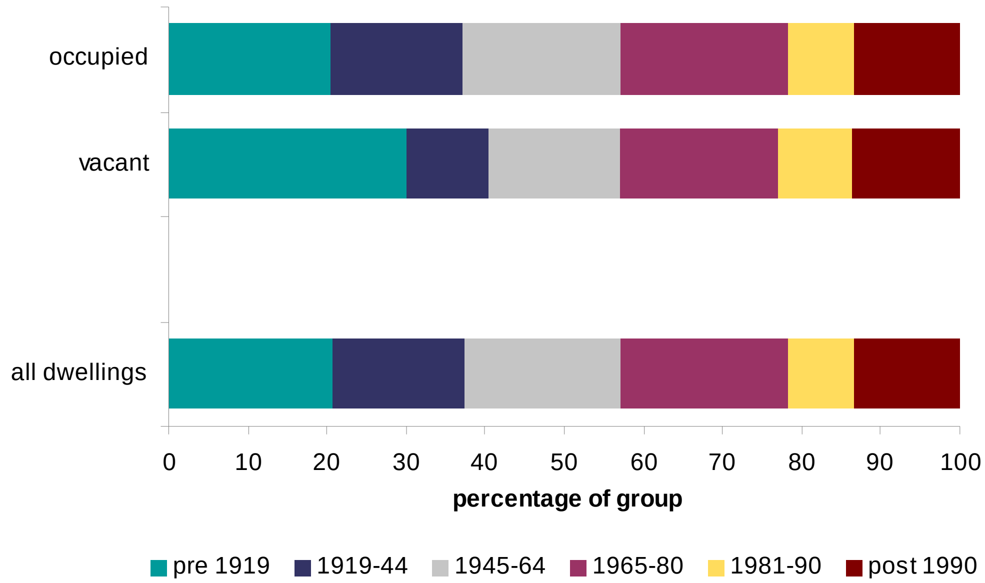


Base: all housing association dwellings
Note: underlying data are presented in Annex Table 1.10
Sources:
1996-2006: English House Condition Survey;
2011: English Housing Survey, dwelling sample

Occupancy

1.12 Some 967,000 dwellings were vacant at the time of the survey. Of these, 810,000 (83%) were in the private sector and 365,000 (38%) were flats. Vacant dwellings were more likely to have been built before 1919 than occupied homes (30% compared with 20%), and their vacancy may be partly due to their condition (see Chapter 3), Figure 1.10. Some 10% of private rented homes were vacant compared to 4% of local authority and housing association homes, Annex Table 1.11.

Figure 1.10: Percentage of dwellings occupied and vacant by dwelling age, 2011



Base: all dwellings
Note: underlying data are presented in Annex Table 1.11
Source: English Housing Survey, dwelling sample

1.13 The vast majority (98%) of the 21.8 million occupied dwellings were occupied as single family dwellings, i.e. by a single household or person. Most of the remainder were occupied as shared houses/flats, and only a very small number consisted of bedsits occupied by individual households or contained lodgers who were not part of the main household[3], Annex Table 1.12.

Dwelling size

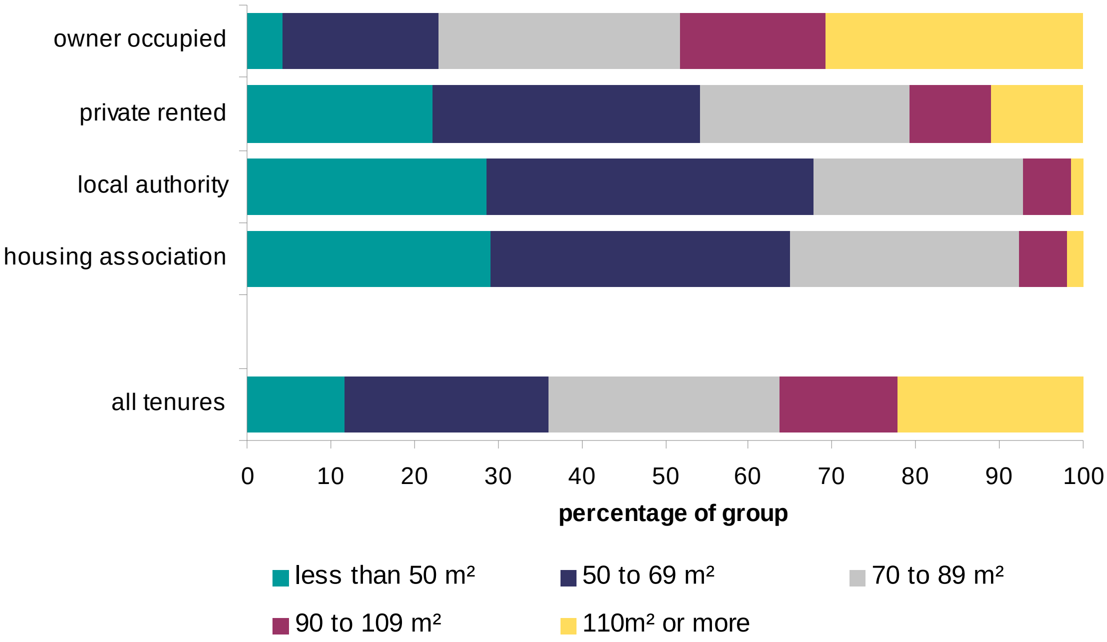
1.14 In 2011, the average dwelling had a total usable floor area of 91m². However, this varied considerably by tenure, from an average of 103m² for owner

[3]sample numbers are too small to provide reliable estimates of the numbers of bedsits or of households with lodgers who are not part of the main household.

occupied homes to 63m² for both local authority and housing association homes. Private rented dwellings were more similar in average size to social rented homes with an average floor area of 74m^2, Annex Table 1.13.

1.15 However, these averages conceal a good deal of variation within the different tenures. Whilst owner occupied homes tend to be larger, 23% of them had a total floor area of less than 70m$^{2.}$ Although social sector homes tend to be relatively small on average, 7% were 90m^2 or more in area. The variation is most pronounced in the private rented sector where 54% were smaller than 70m^2 but 11% had a floor area of at least 110m^2, Figure 1.11.

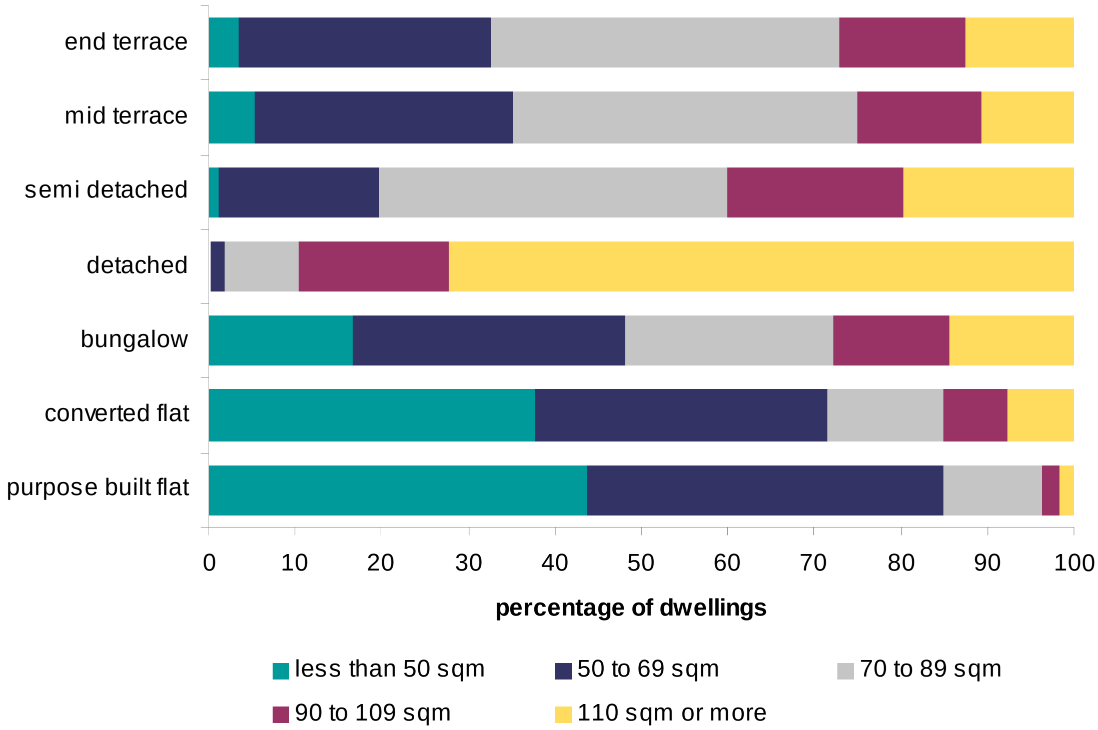
Figure 1.11: Percentage of dwellings by tenure and floor area, 2011



Base: all dwellings
Note: underlying data are presented in Annex Table 1.13
Source: English Housing Survey, dwelling sample

1.16 The main reason why social sector dwellings were generally smaller than privately owned dwellings was that they were much more likely to be purpose-built flats, which were smaller on average than houses or converted flats (see Figure 1.4). Only 6% of owner occupied dwellings were purpose built flats, compared with 46% of local authority and 39% of housing association properties, Annex Table 1.4. Some 44% of purpose built flats were smaller than 50m², compared with just 1% of semi-detached and around 5% of terraced houses, Figure 1.12.

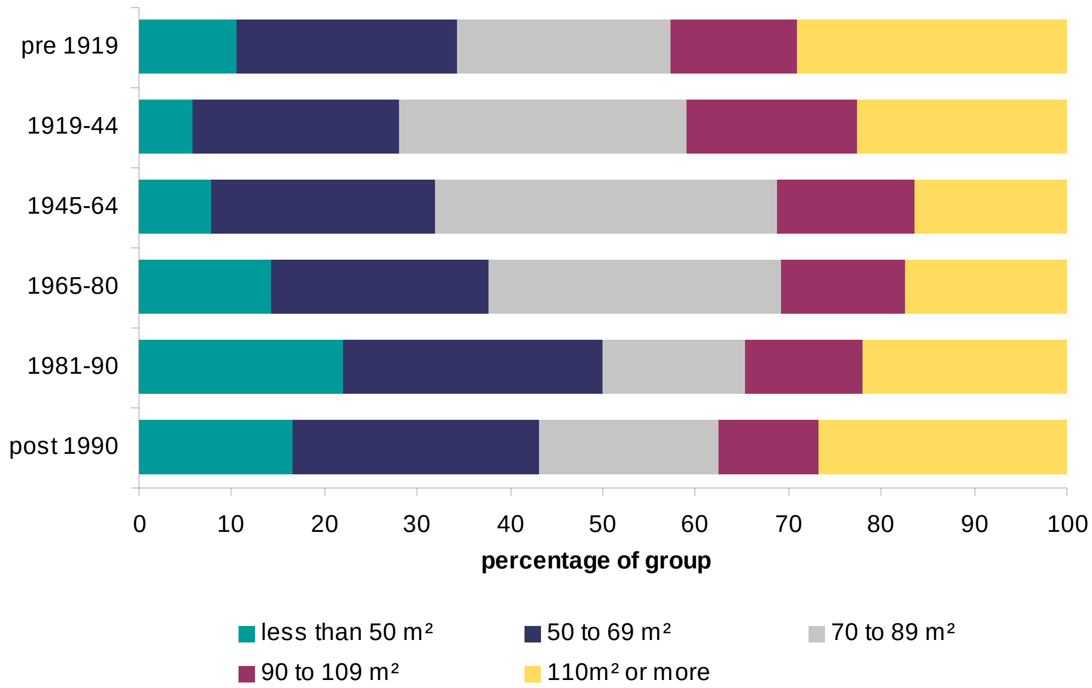
Figure 1.12: Percentage of dwellings by dwelling type and floor area, 2011



Base: all dwellings
Note: underlying data are presented in Annex Table 1.13
Source: English Housing Survey, dwelling sample

1.17 Dwellings built before 1919 had a higher mean useable floor area (102m²) than dwellings in other age bands (less than 95m²), Annex Table 1.13. This is partly because many of these older homes have had extra space added over the years through loft conversions and extensions, Annex Table 1.22. On average, dwellings built between 1945 and 1990 were significantly smaller than those built during other periods, with average useable floor areas of 84-87m². This is largely because a much higher proportion of homes dating from this period were built by social landlords and these tend to be much smaller than privately built homes. However, the highest proportion (22%) of homes smaller than 50m² in area date from the 1980s, mainly because a high proportion of dwellings built during this period were purpose built flats. Dwellings built after 1990 were significantly larger than those built between 1945 and 1990, with a mean floor area of 91m², Figure 1.13. This is partly because a much higher proportion was built for the private sector. Current house building is somewhat polarised, with two dwelling types tending to dominate: small one and two bedroom flats; and larger houses or bungalows with 4 or more bedrooms.

Figure 1.13: Percentage of dwellings by floor area and dwelling age, 2011

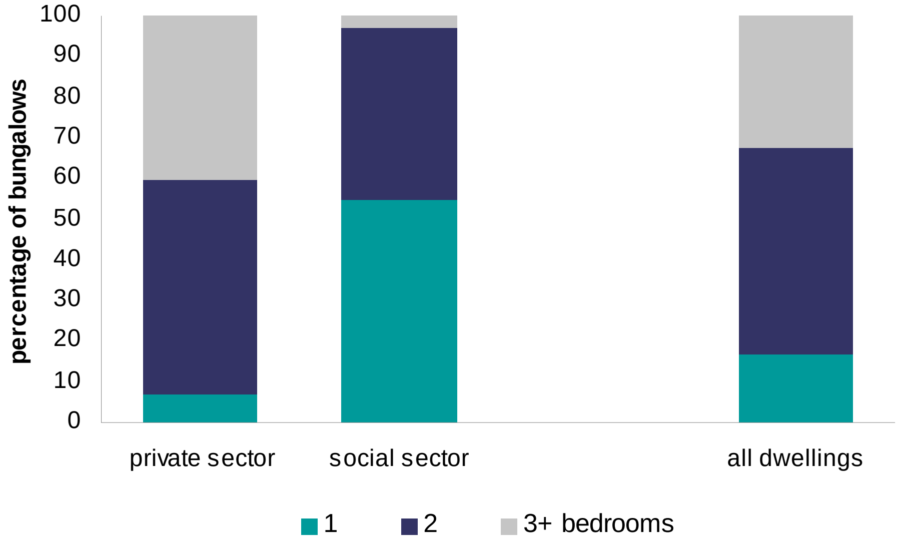


Base: all dwellings
Note: underlying data are presented in Annex Table 1.13
Source: English Housing Survey, dwelling sample

1.18 The size of 'similar' houses sometimes varied considerably by tenure and was most pronounced for three bedroom semi-detached houses. Owner occupied houses of this type were the largest with a mean floor area of 88m² followed by private rented (84m²) and then social sector (80m²). Two bedroom terraced houses and one bedroom flats exhibited less variation in size, although two bedroom terraced houses that were privately rented were on average smaller than those that were owner occupied (64m² compared with 68m²), Annex Table 1.14.

1.19 The size of bungalows also varied considerably by tenure, with those in the private sector being significantly larger on average than those in the social sector (85m² compared with 51m²), Annex Table 1.14. This was mainly because social rented bungalows were much more likely to have just one bedroom than private sector bungalows (55% compared with 7%), Annex Table1.15. Some 40% of private sector bungalows had 3 or more bedrooms.

Figure 1.14: Proportion of bungalows by number of bedrooms and sector, 2011



Base: all dwellings
Note: underlying data are presented in Annex Table 1.15
Source: English Housing Survey, dwelling sample

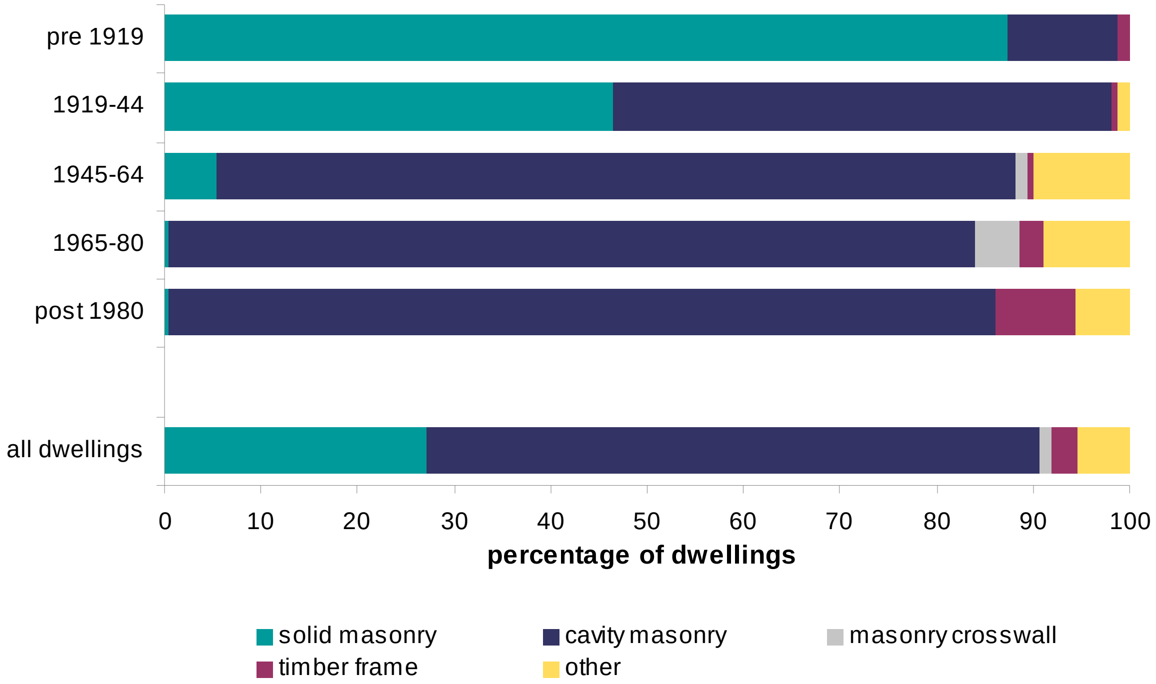
Construction type and materials

1.20 The construction methods and materials used to build houses and flats have changed significantly over time but they have always been dominated by masonry (brick, block, stone and flint). Cavity masonry has replaced solid masonry as the main construction type for load-bearing walls and is used in 86% of all homes built after 1980. Around 1% of existing dwellings built before 1919 were built with a traditional timber frame; it is likely that considerably more were built in this way because those remaining today are not a representative sample of all dwellings ever built before this date. The use of timber frame building declined rapidly until modern factory-built systems were developed in the 1970s and this method now accounts for 8% of all homes built after 1980, Figure 1.15.

1.21 Immediately after the Second World War, the use of concrete and steel increased and a number of prefabricated systems were also developed in response to the need to build large numbers of homes very quickly. These are generally referred to as 'non-traditional' construction[4]. However, the popularity of prefabricated systems declined as serious structural defects and other problems started to appear in some of these dwellings, leading to some types being designated as 'defective dwellings'[5]. By 2011, most of those designated as defective dwellings had either been demolished or had had major structural repairs and replacements carried out.

[4] there are many different definitions of 'non-traditional' – here we have included any buildings where the loadbearing structure is concrete or steel.
[5] see the Housing Defects Act, 1984

Figure 1.15: Construction type by dwelling age, 2011



Base: all dwellings
Note: underlying data are presented in Annex Table 1.16
Source: English Housing Survey, dwelling sample

1.22 Looking in detail at the stock in 2011, 95% of it was traditionally built using masonry or timber as the main structural component (Table 1.1). Some 64% of all homes were built with traditional cavity walls, where all of the external walls are loadbearing. These external walls consist of two leaves of brickwork or blockwork with a cavity in between that is typically around 70mm wide; the width varies by dwelling age and location. The two leaves are held together by wall ties and the cavity may contain insulation – either built in or added later.

1.23 The next most common type was solid masonry (27%) where the external loadbearing walls are made of brick, block, stone or flint with no cavity. Although timber framed systems have grown in popularity over the last 30 years or so, only about 3% of all dwellings were of this type in 2011.

Table 1.1: Number and percentage of dwellings built using different methods, 2011

all dwellings

	traditional construction				non-traditional construction		
	numbers (000s)	percentage	*sample size*		numbers (000s)	percentage	*sample size*
masonry - cavity	14,475	63.6	*9,627*	in situ concrete frame	632	2.8	*585*
masonry - solid	6,168	27.1	*3,647*	in situ concrete boxwall and crosswall	325	1.4	*303*
masonry - crosswall	271	1.2	*188*	metal frame	196	0.9	*146*
timber frame	632	2.8	*400*	other	55	0.2	*55*
all traditional	**21,546**	**94.7**	***13,862***	**all non-traditional**	**1,208**	**5.3**	***1,089***

Source: English Housing Survey, dwelling sample

1.24 ‘Non-traditional’ construction methods had been used for the remaining 5% of the stock, the most common types being in-situ concrete frames and in-situ concrete boxwall[6]. Many of these homes were originally built by social landlords and 46% were still in the social rented sector in 2011, Annex Table 1.16. Today, non-traditional forms of construction are used mainly for flats, although 35% of existing dwellings built using these methods were actually houses and bungalows.

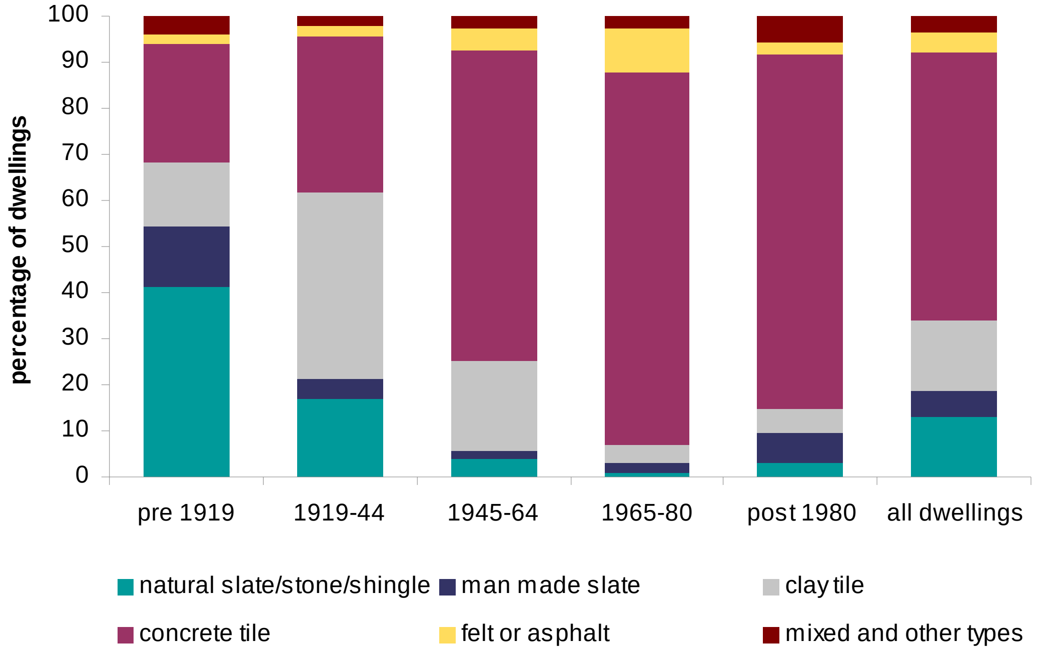
1.25 Because the vast majority of dwellings were of traditional masonry construction, the most common type of wall finish was pointed brickwork (75% of dwellings). Some 19% of homes were mainly rendered. Dwellings built between 1919 and 1945 were the most likely to be wholly or mainly rendered (42%), Annex Table 1.17.

1.26 The vast majority of dwellings (92%) had roofs that were mainly pitched. Only high rise flats were more likely to have predominantly flat roofs (81%), Annex Table 1.18.

1.27 The most common type of roof covering was concrete tiles, accounting for 58% of homes. Some 15% had clay tile roofs and 13% had natural slate or stone roofs. The type of roof covering varied considerably by dwelling age. Some 41% of homes built before 1919 had natural slate or stone roofs whilst clay tiles were most common for those built 1919-45 (40%).

[6]the formwork is constructed on site and concrete is poured in. Concrete boxwall houses have all of their external walls made in this way and the most common proprietary type is ‘Wimpey No-Fines’.

Figure 1.16: Percentage of dwellings with different types of roof covering material[7] by dwelling age, 2011

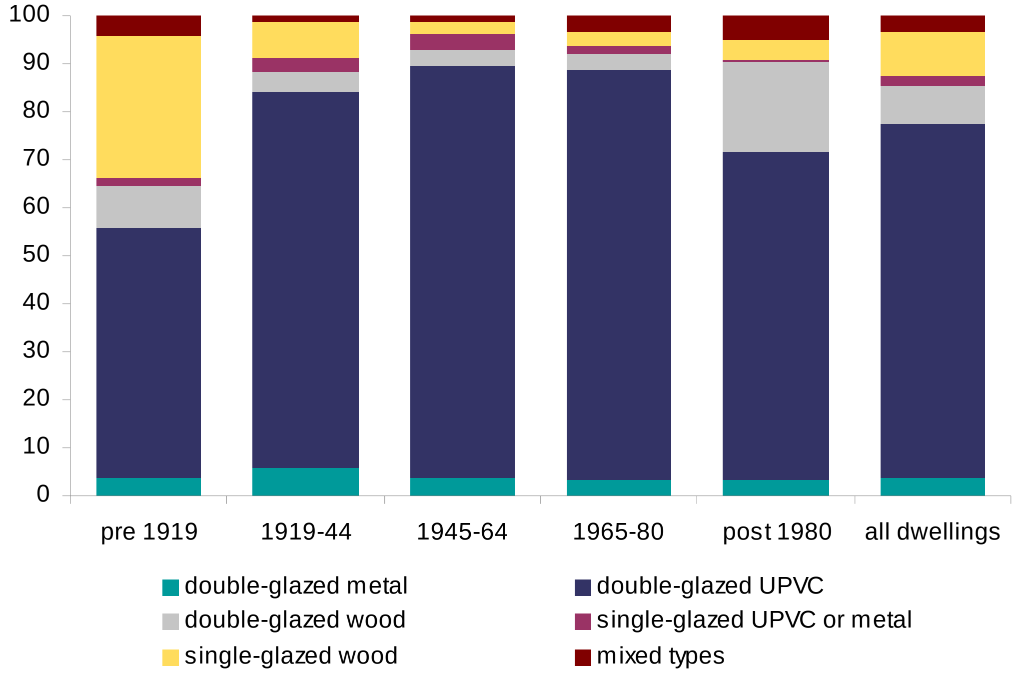


Base: all dwellings
Note: underlying data are presented in Annex Table 1.19
Source: English Housing Survey, dwelling sample

1.28 In the majority of dwellings, windows consisted of PVC-U double glazed units with 74% of dwellings having these as the main or only type of window. Only 9% of dwellings had mainly single glazed wood windows; these were most common in dwellings built before 1919 (29%). In 2011, only 52% of dwellings of this age had PVC-U double glazed windows. Newer dwellings were more likely to have wood double glazed windows than older ones: some 19% of dwellings built after 1980 had this type of window compared with 8% for the stock as a whole, Figure 1.17.

[7]this is the predominant type of material used for each dwelling. Those with no predominant type (e.g. 50% concrete tile and 50% felt) are classed as 'mixed'.

Figure 1.17: Percentage of dwellings with different types of windows[8] by dwelling age, 2011



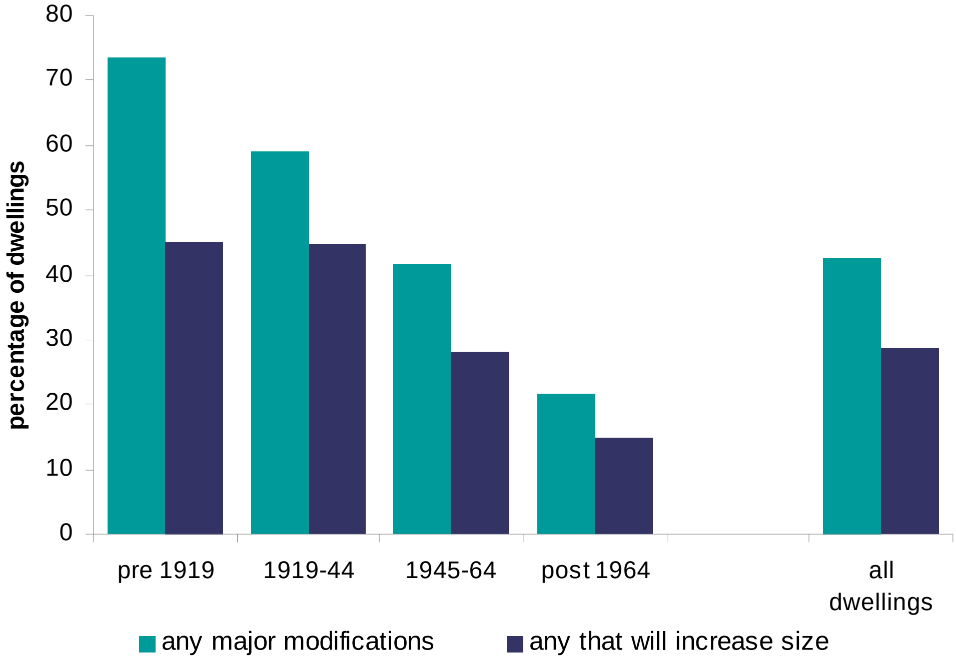
Base: all dwellings
Note: underlying data are presented in Annex Table 1.20
Source: English Housing Survey, dwelling sample

Major alterations to dwellings since they were built

1.29 Some 43% of dwellings had had at least one major alteration carried out since they were originally built and this rose to 73% for dwellings built before 1919. In 29% of all dwellings, the alterations had involved work that would increase the size of the dwellings (building extensions or loft conversions) and this rose to 45% for homes built before 1945, Figure 1.18 and Annex Table 1.21.

[8]this is the predominant type of windows present in each dwelling. Those with no predominant type (e.g. 50% single glazed wood and 50% PVC-U) are classed as 'mixed'.

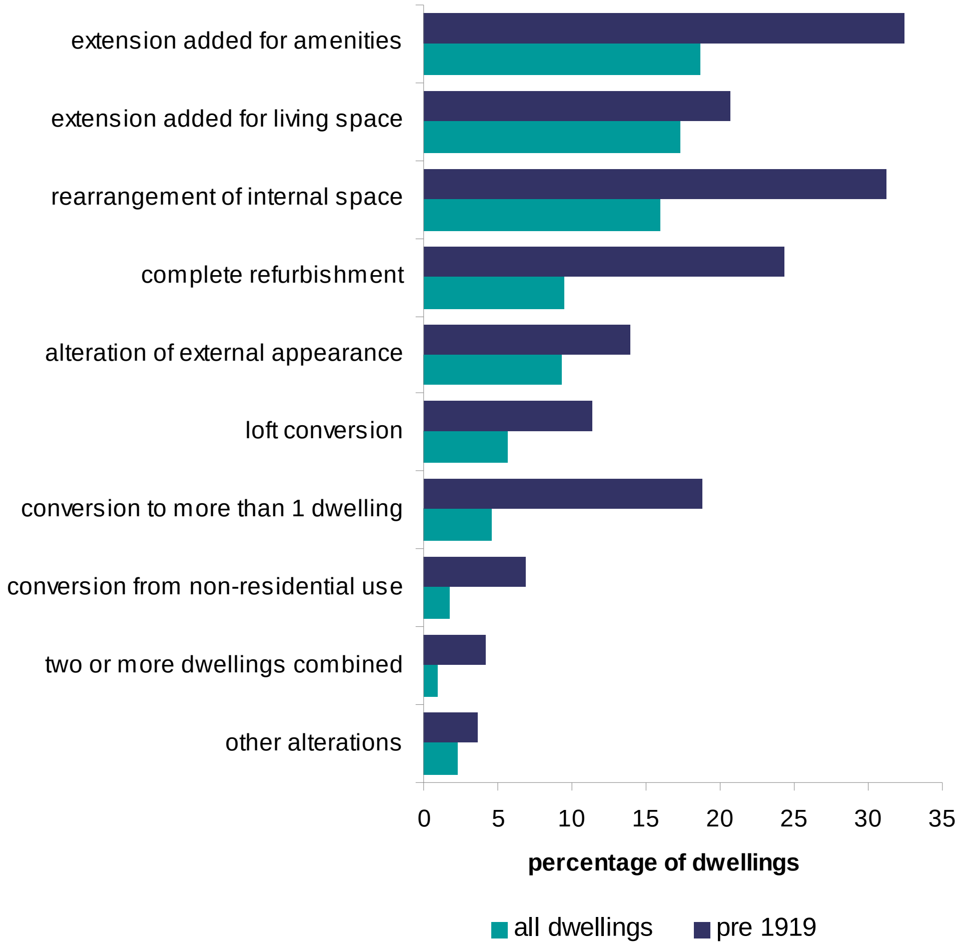
Figure 1.18: Percentage of dwellings with any major modifications since built by dwelling age, 2011



Base: all dwellings
Note: underlying data are presented in Annex Table 1.21
Source: English Housing Survey, dwelling sample

1.30 The most commonly carried out alterations were extensions added for amenities and rearrangement of internal space. Each type of alteration was more commonly found in dwellings built before 1919, and often this was particularly marked for complete refurbishment, loft conversions and more major remodelling work. These major remodelling works typically involved converting a large house or non-residential building into two or more dwellings (normally flats) and knocking together two houses or two flats to create a larger dwelling, Figure 1.19.

Figure 1.19: Percentage of dwellings with different types of major modifications since built by dwelling age, 2011



Base: all dwellings
Note: underlying data are presented in Annex Table 1.22
Source: English Housing Survey, dwelling sample

Chapter 2
Amenities, services and local environments

The EHS collects quite detailed information on the presence and condition of key services and amenities in homes, including mains services, the age of kitchens, bathrooms and WCs and secondary amenities. This chapter reports key findings on these topics for 2011 and examines how the provision of these amenities has changed since 2001.

The accessibility of dwellings is also explored, looking at four key features that make homes 'visitable' and examining how easy it would be to adapt dwellings in order to provide these features. Security, parking provision, dwelling plots and problems in the local environment, and how these have changed since 2001, are also reported.

Additional findings relating to amenities and services can be found in web tables DA2101 to DA2303.

Key findings

- In 2011, the vast majority of homes had mains electricity (99%) and mains drainage (97%); 86% had a mains gas supply. These percentages are virtually the same as in 2001.

- In 2011, 34% of dwellings had a water meter, although this varied by dwelling characteristics. Water meters were most common in homes built after 1990 (72%). Some 40% of owner occupied homes had meters compared with 13% of local authority homes.

- Whilst the proportion of homes with very old kitchens and bathrooms remained similar over the 2001 to 2011 period, the proportion with very new kitchens and bathrooms (up to 5 years of age) increased from 29% to 35% and from 22% to 33% respectively. These improvements were most marked for social sector dwellings.

- Some 41% of homes had a second WC in 2011, an increase from 35% in 2001. Similarly, some 22% had a second bath or shower in 2011, an increase from 15% in 2001. However, these improvements were only evident for private sector dwellings.

- In 2011, some 28% of flats with common areas had a lift. Social sector flats with common areas were more likely to have a lift (34%) than those in the private sector (24%).
- Around 1.1 million dwellings (5%) possessed all four features (level access, a flush threshold, a WC at entrance level and wider doors and circulation space) that make them accessible to those with mobility problems. Accessibility of homes has improved since 2007 when around 740,000 (3%) homes had all four of these features.
- Some 88% of households had at least one working smoke alarm in 2011, 78% of homes had secure windows and doors, 57% had a door viewer and 30% had a burglar alarm. The overall provision of these safety and security features has improved since 2001.
- Some aspects of parking provision have improved from 2001 to 2011. Although the proportion of homes with a garage decreased from 42% to 39% during this period, 40% of homes had either off street parking or adequate street parking in 2001, rising to 46% in 2011. The proportion of homes with inadequate street parking or no parking provision fell from 18% to 15%.
- In 2011, 84% of dwellings had a private plot and owner occupied dwellings were more likely to have a private plot than rented dwellings, similar to 2001. More flats had shared plots in 2011 (72%) than in 2001 (62%). There has been an increase in the proportion of plots (both front and back) that are mainly or wholly covered by hard landscaping, especially for owner occupied and private rented dwellings.
- In 2011, 14% of homes were in a locality with at least some significant problems, such as noise from traffic and transport or litter, graffiti and vandalism. Private rented (19%) and local authority (17%) homes were more likely to be in areas with these problems than homes in other tenures. Flats (19%) were more likely to be in areas with problems than houses (13%). The proportion of homes with significant problems in the local environment had reduced from 20% in 2001 to 14% in 2011 and this improvement was evident for all tenures.

Mains services

Electricity

2.1. The proportion of homes with a mains electricity supply has remained constant since 2001 with virtually all dwellings (99%) in England connected, Annex Table 2.1. In 2011, 16% of dwellings had an off peak electricity supply[1] compared with some 21% of dwellings in 2001, Annex Table 2.2. The reasons for this reduction are not clear, however, it is not linked to the proportion of homes with storage heating because this has remained virtually constant (around 7%) over this period (see Chapter 4 for more details).

2.2. The likelihood of dwellings having an off peak electricity supply varied by dwelling characteristics and location. Whilst dwellings in rural areas were more likely to have an off peak supply, the proportion of such homes with this type of supply has fallen since 2001 (from 31% to 22%). In contrast, the proportion of homes with an off peak supply remained more constant in city and urban areas (16% to 17%), Annex Table 2.2, mainly because dwellings in these areas were more likely to be flats.

Mains gas

2.3. The proportion of homes with a mains gas supply has remained virtually constant since 2001 at 86%. However this provision varied considerably by dwelling characteristics, tenure and type of area. There was some increase between 2001 and 2011 in the provision of mains gas in both the housing association and private rented sectors, although incidence in the latter continued to be lower than in any other sector, at just 78% of the stock by 2011. Homes located in rural areas were much less likely to have mains gas (63% in 2011), Annex Table 2.3.

Mains drainage

2.4. In both 2001 and 2011, the vast majority (around 97%) of homes were connected to a mains drainage system. The most common alternative system was a septic tank, used by around 492,000 homes (2%) in 2011. Throughout this period, virtually all homes (98% to 99%) with a septic tank were in the private sector, located in rural areas, and some 60% were the oldest, pre 1919, dwellings, Annex Table 2.1.

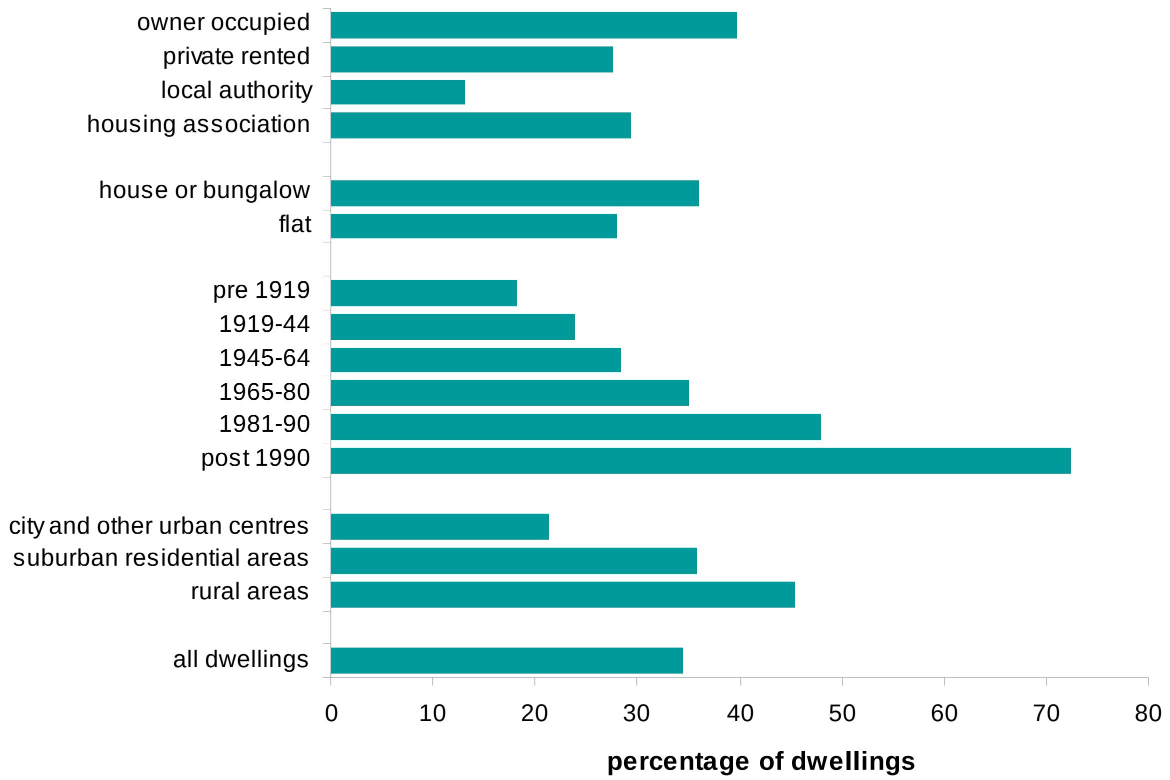
[1] a supply offered at a lower price than on peak supply. This can be utilised by storage heaters to reduce the cost of heating.

Water meters[2]

2.5. Since 2009, the EHS has collected data on water meters from the short household questionnaire that forms part of the physical survey. Prior to this, data was collected in the interview survey but the figures are not directly comparable due to differences in the question wording and sample coverage.

2.6. In 2011, 34% of dwellings had a water meter, but this provision varied by dwelling characteristics. Some 40% of owner occupied homes had meters, compared with 13% of local authority homes. Meters were less likely to be present in flats (28%) or homes in city and other urban areas (21%). Not surprisingly, water meters were most common in the newest homes, built after 1990 (72%), Annex Table 2.4 and Figure 2.1

Figure 2.1: Percentage of dwellings with water meters by dwelling characteristics, 2011



Base: all dwellings
Note: underlying data are presented in Annex Table 2.4
Source: English Housing Survey, dwelling sample

[2]the Water Industry Act 1999 introduced the right to remain on an unmetered charge. Domestic customers paying on an unmetered basis have a legally protected right to choose whether or not they are charged for water. according to a meter in their current home. The Act also introduced the right for customers to have a meter installed free of charge where it is practical for the water company to do so and does not entail excessive costs. Companies have had discretionary powers to install meters in all new homes since 1990, although if operating in an 'area of water scarcity' the company can be given the right to compulsorily meter all its customers over the next ten years in order to reduce overall demand for water.

Kitchens and bathrooms

2.7. This section examines the proportions of dwellings with the newest and oldest kitchens and bathrooms in 2001 and 2011 and how this varied by tenure.

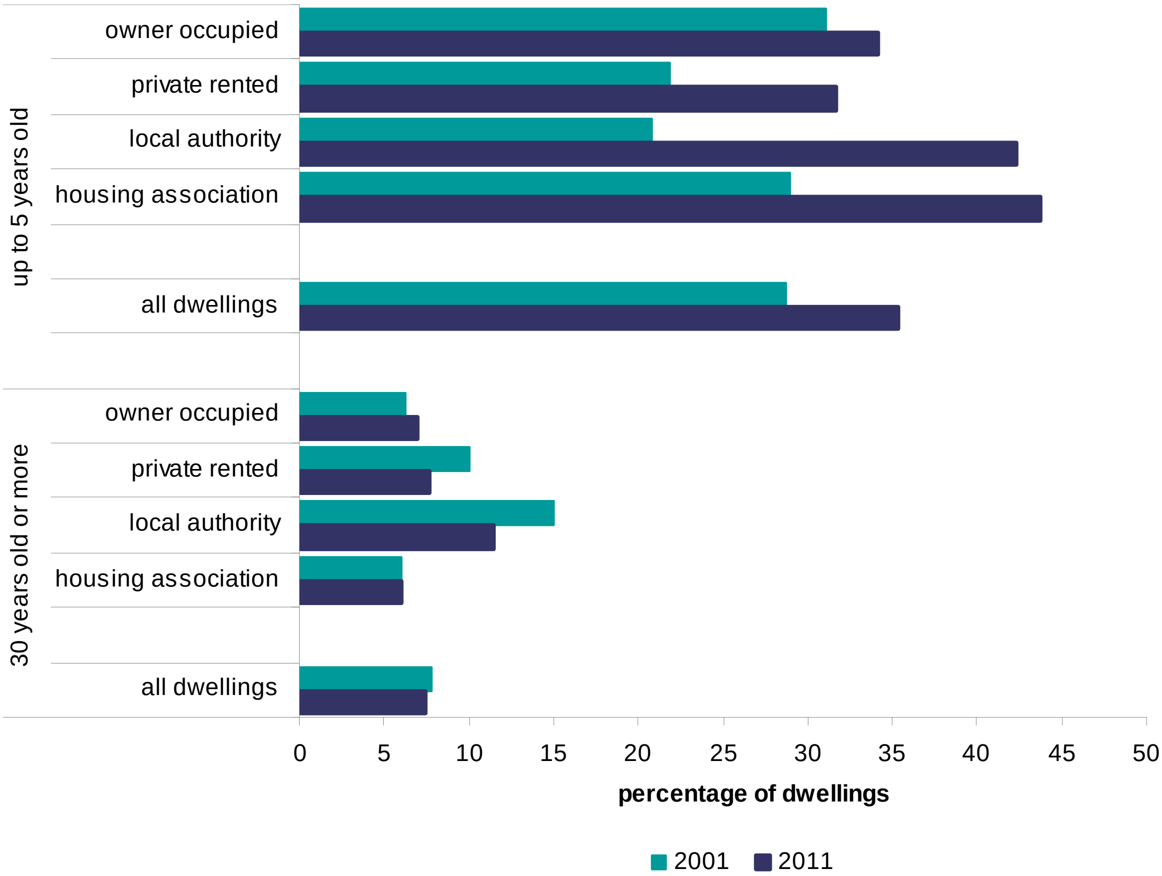
Age of kitchens

2.8. Although the proportion of homes with kitchens at least 30 years old[3] remained relatively constant between 2001 and 2011, (8% to 7%), there has been a rise in the proportion of homes with relatively new kitchens (up to 5 years old), from 29% to 35%, Annex Table 2.5.

2.9. The proportion with newer kitchens increased in all tenures between 2001 and 2011, but was most marked for rented dwellings, especially those in the social sector. This is largely because social landlords have been replacing older kitchens to ensure that their dwellings meet the Decent Homes standard. The proportion of local authority homes with kitchens up to 5 years old increased from 21% in 2001 to 42% in 2011, while the proportion that had kitchens over 30 years old reduced from 15% to 12% over the same period. However, local authority homes were still more likely to have kitchens that were at least 30 years old in 2011 compared with those in all other tenures, Figure 2.2.

[3]following consultation with social landlords, the Decent Homes standard considered a reasonable life expectancy for kitchens to be 30 years, after which they would most likely need replacing on grounds of disrepair (while acknowledging that tenants may prefer those amenities to be replaced more frequently).
See A Decent Home: Definition and Guidance for implementation (2006).

Figure 2.2: Percentage of homes with newest and oldest kitchens by tenure, 2001 and 2011



Base: all dwellings
Note: underlying data are presented in Annex Table 2.5
Sources:
2001: English House Condition Survey;
2011: English Housing Survey, dwelling sample

Age of bathrooms

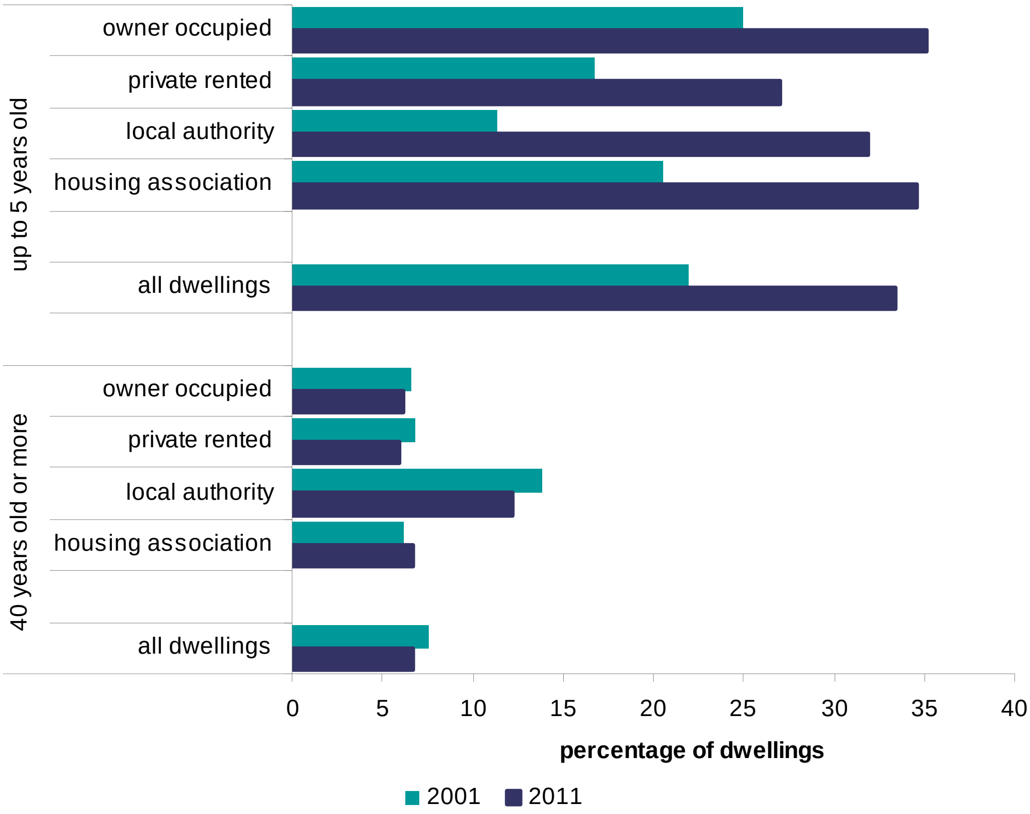
2.10. Whilst the proportion of homes with bathrooms at least 40 years old[4] remained much the same between 2001 and 2011 period (8% to 7%), there was an increase in the proportion of homes with the newest bathrooms (up to 5 years old) from 22% to 33%, Annex Table 2.6

2.11. This increase was evident in all tenures and, as for kitchens, was most marked in the local authority sector where the proportion of homes with a bathroom up to 5 years old increased from 11% in 2001 to 32% in 2011. Again, this is because social landlords have been replacing older bathrooms to ensure that their dwellings meet the Decent Homes standard. Despite this improvement, in 2011 local authority dwellings were still around twice as likely

[4] following consultation with social landlords, the Decent Homes standard considered a reasonable life expectancy for bathrooms to be 40 years, after which they would most likely need replacing on grounds of disrepair (while acknowledging that tenants may prefer those amenities to be replaced more frequently). See *A Decent Home: Definition and Guidance for implementation* (2006).

to have bathrooms that were at least 40 years old than homes in all other tenures, Figure 2.3.

Figure 2.3: Percentage of homes with newest and oldest bathrooms by tenure, 2001 and 2011



Base: all dwellings
Note: underlying data are presented in Annex Table 2.6
Sources:
2001: English House Condition Survey;
2011: English Housing Survey, dwelling sample

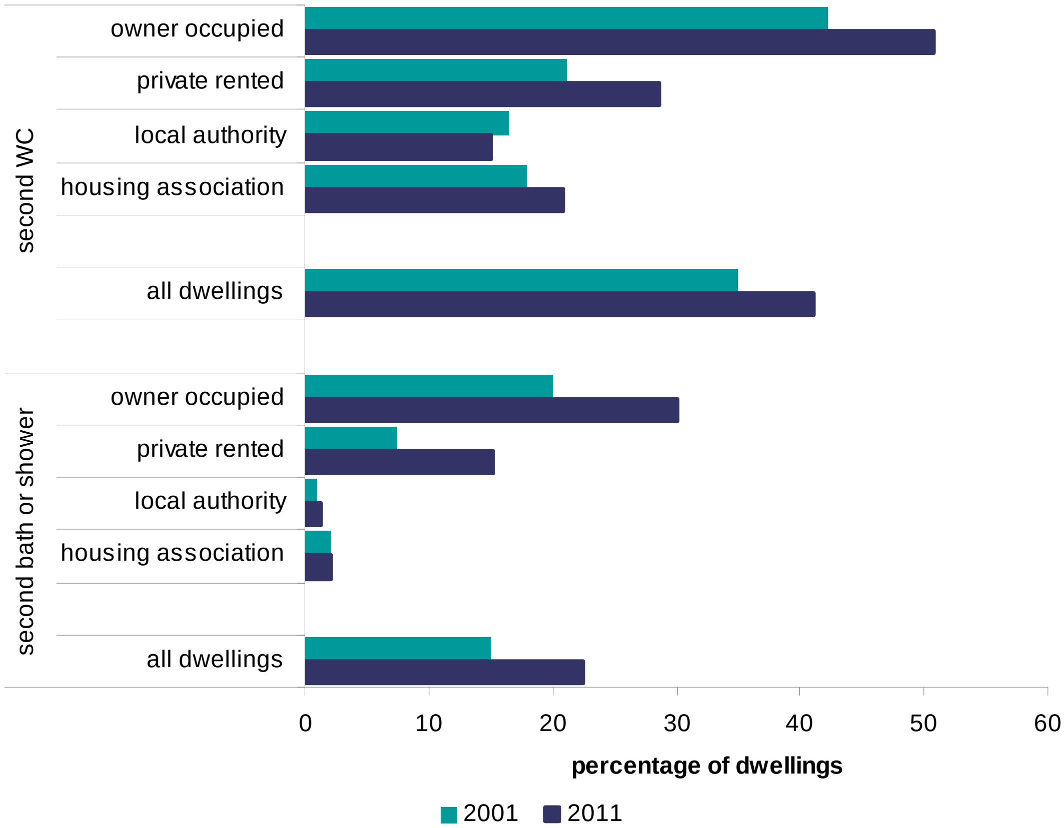
Secondary amenities

2.12. The proportion of dwellings with a second WC increased from 35% in 2001 to 41% by 2011. Meanwhile, the proportion with a second bath or shower increased from 15% in 2001 to 22% in 2011, Annex Table 2.7

2.13. This marked improvement was, however, only evident among private sector dwellings. Although the proportion of private rented homes with second WCs and second baths/showers has increased significantly since 2001 (from 21% to 29% for WCs and from 7% to 15% for baths/showers) homes in this tenure were still far less likely to have such secondary amenities than owner occupied homes (51% with a second WC and 30% with a second bath/shower). Within the social sector, the proportion of homes with secondary amenities remained largely unchanged, although the proportion of housing association dwellings with a second WC did increase from 18% in

2001 to 21% in 2011, Figure 2.4. This increase reflects the larger proportion of newer dwellings, built to higher standards of provision, in the housing association stock.

Figure 2.4: Percentage of dwellings in each tenure with secondary amenities, 2001 and 2011



Base: all dwellings
Note: underlying data are presented in Annex Table 2.7
Sources:
2001: English House Condition Survey;
2011: English Housing Survey, dwelling sample

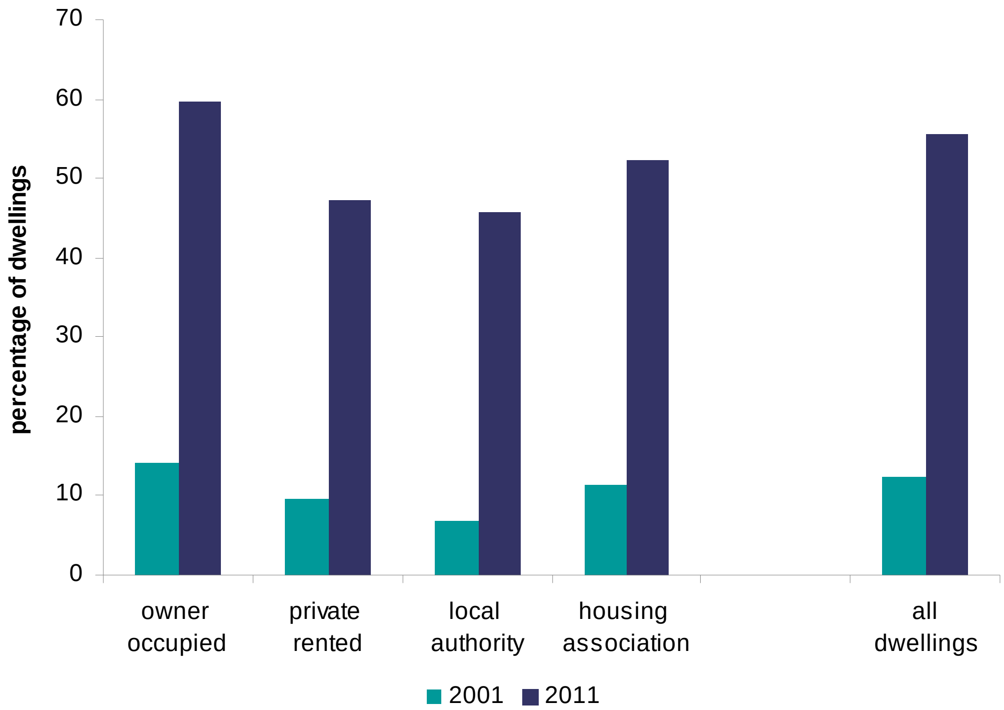
Age of WC

2.14. The survey also assesses the age of the main WC, which can act as a proxy for the size of the WC cistern. Given that approximately 30% of the domestic water used in England is for flushing WCs, the size of WC cisterns is an important determinant of water consumption. As an approximation for water consumption, cisterns have been placed into four bands based on the age of the main WC: 13 litre (pre 1960), 9 litre (1960 to 1987), 7.5 litre (1988 to 1998) and 6 litre (1999).

2.15. In 2011, some 56% of all dwellings had the more modern smaller sized (6 litre maximum) cisterns, compared with 13% of the total stock in 2001. Similarly, there has been a significant reduction since 2001 in the proportion of dwellings with the largest volume cisterns (from 6% to 2%), Annex Table 2.8

2.16. This improvement was evident in all tenures. The fall in the proportion of local authority dwellings with the largest volume cisterns was particularly marked, from 11% in 2001 to 3% in 2011, Figure 2.5. This reflects the ongoing improvements referred to above. The changes in the private rented sector over this period were partly due to the increased proportion of newer homes in that sector by 2011 (see Chapter 1).

Figure 2.5: Percentage of dwellings with WC cisterns of 6 litres or less by tenure, 2001 and 2011



Base: all dwellings
Note: underlying data are presented in Annex Table 2.8
Sources:
2001: English House Condition Survey;
2011: English Housing Survey, dwelling sample

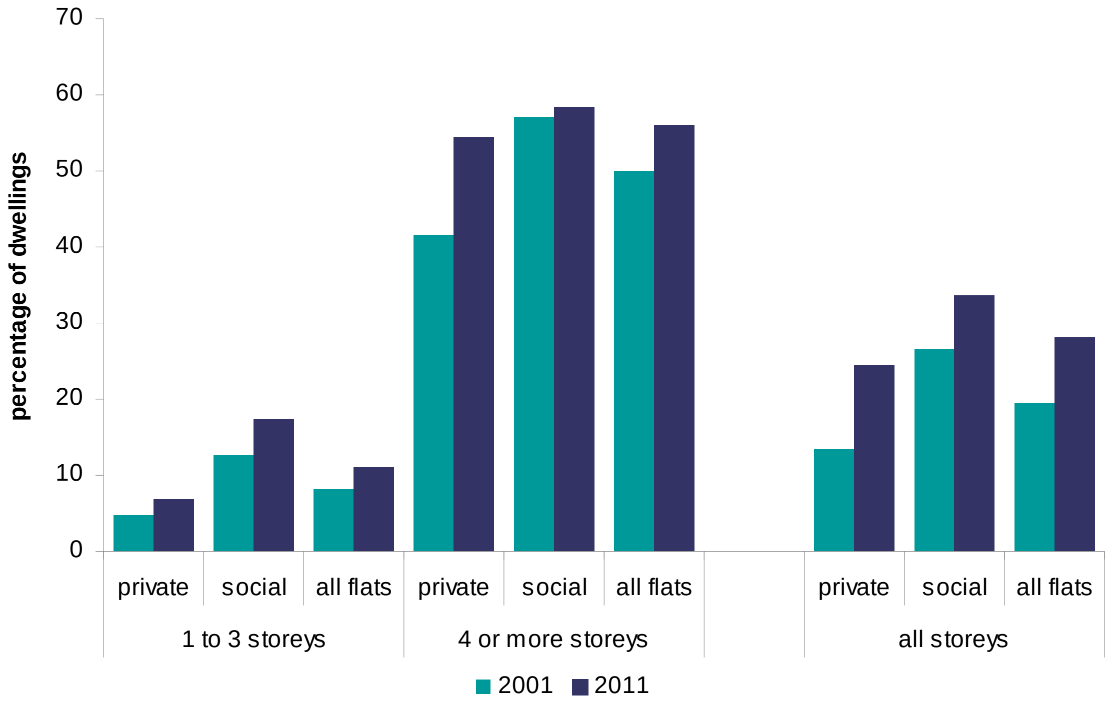
Lifts[5]

2.17. In 2011, some 28% of flats with common areas had a lift. Not surprisingly, provision was highest for flats that were in blocks of 4 or more storeys above ground level (56%), Annex Table 2.9.

2.18. Social sector flats with common areas were more likely to have a lift (34%) compared with those in the private sector (24%). However, this difference between sectors was only evident for flats in blocks of 1-3 storeys. Some 17% of social sector flats in these types of blocks had lifts compared with just 7% of such flats in the private sector. For flats in taller blocks, the proportions were not significantly different.

2.19. The proportion of flats with common areas which had access to a lift had risen from 19% in 2001 to 28% in 2011. This improvement is evident in both sectors with the most marked improvement for private sector flats of 4 storeys or more (up from 42% in 2001 to 54% in 2011), Figure 2.6.

Figure 2.6: Provision of lifts for flats with common areas by tenure and storey height, 2001 and 2011



Base: all flats with common areas
Note: underlying data are presented in Annex Table 2.9
Sources:
2001: English House Condition Survey;
2011: English Housing Survey, dwelling sample

[5]although there are no regulations specifying when lifts are required in blocks of flats, the London Housing Design Guide (2010) recommends that all dwellings entered at the fourth floor (fifth storey) and above should be served by at least one wheelchair accessible lift, and it is desirable that dwellings entered at the third floor (fourth storey) are served by at least one such lift.

Accessibility of dwellings and disability adaptations

2.20. The EHS physical survey assesses the presence of a number of features that enable dwellings to be more accessible for people with disabilities. The four features which are considered to be the most important for enabling people with mobility problems to either access their home or visit someone else's home[6] are: level access; flush threshold; sufficiently wide door and circulation space to move around; and use of a WC on the ground or entry floor. This section firstly looks at the 'visitability' of homes in 2011 and how far provision may have improved since 2007. It then examines how easy it would be to provide all these four visitability features where they do not already exist.

2.21. In 2011, around 1.1 million dwellings (5%) possessed all four of these features and could therefore be considered fully accessible or visitable. Around 9% of dwellings had three features, 20% had two and 39% had one. Almost 6 million dwellings (26%) had none of these four features, Annex Table 2.10.

2.22. The homes most likely to have full visitability were the newest homes, built after 1990 (25%); housing association homes (14%); and flats (14%). Terraced houses (44%), homes built before 1945 (34%) and those in the private sector (27%) were most likely to have none of the four accessibility features.

2.23. The provision of all four features has improved since 2007 when around 740,000 (3%) homes were fully visitable. The most marked improvements were for homes built after 1990 where 14% of homes were fully visitable in 2007, rising to 25% in 2011. Improvements were also evident for all flats (9% to 14%) and privately rented homes (3% to 6%). The proportion of homes with none of the four accessibility features has remained constant since 2007, Table 2.1.

[6]these four features form the basis for the requirements in part M of the Building Regulations, although the EHS cannot exactly mirror the detailed requirements contained there. For example, the Building Regulations specify that the WC at entrance level should be wheelchair accessible but the EHS data presented here do not take account of whether the WC is wheelchair accessible.

Table 2.1: Proportions of dwellings with no, 1 to 3, or all four visitability features by dwelling tenure, type and age 2007 and 2011

all dwellings

	number of visitability features							
	2007	2011	2007	2011	2007	2011	*sample size*	*sample size*
	none		1 to 3		all 4		*2007*	*2011*
owner occupied	27.4	27.3	70.6	69.5	2.1	3.2	*7,893*	*7,147*
private rented	29.4	27.2	68.0	66.6	2.7	6.2	*2,369*	*3,058*
local authority	25.8	23.1	69.1	71.5	5.2	5.3	*3,635*	*2,286*
housing association	20.1	19.4	67.2	66.2	12.7	14.4	*2,320*	*2,460*
terraced house	43.2	43.5	55.6	54.4	1.2	2.1	*4,775*	*4,298*
larger houses and bungalows	22.3	23.2	75.1	73.8	2.6	3.0	*7,844*	*7,013*
flats	14.4	9.8	76.2	76.3	9.4	13.9	*3,598*	*3,640*
pre 1945	33.1	33.8	66.1	65.6	0.7	0.7	*5,769*	*5,121*
1945-64	31.0	31.0	67.6	67.5	1.4	1.5	*3,868*	*3,282*
1965-80	22.5	21.9	74.6	75.3	2.8	2.8	*3,855*	*3,352*
1981-90	20.6	21.8	72.6	73.1	6.7	5.0	*1,324*	*1,258*
post 1990	10.9	7.6	75.0	67.1	14.1	25.4	*1,401*	*1,938*
all dwellings	**26.8**	**26.2**	**69.8**	**68.8**	**3.4**	**4.9**	***16,217***	***14,951***

Base: all dwellings
Note: underlying data are presented in Annex Table 2.10
Sources:
2001: English House Condition Survey;
2011: English Housing Survey, dwelling sample

2.24. The next section examines the degree of difficulty in adapting dwellings to provide all of the four visitability features. The nature of the work required has been classified into a simplistic four-point scale detailed in Box 2.1 below. Each dwelling is classified according to the highest degree of difficulty of the works identified, for example, if work to provide a flush threshold is minor but providing a WC at ground floor involves building an extension, the dwelling is classed as requiring major works in order to make it fully visitable. The findings are very similar in both 2007 and 2011 so this analysis examines the most recent position. The English House Condition Survey 2007 report, Chapter 4, contains a detailed analysis of the 2007 position.

Box 2.1: Scale of difficulty in adapting homes to make them visitable

1. **Minor -** no structural alterations required. Costs likely to be under £1,000.

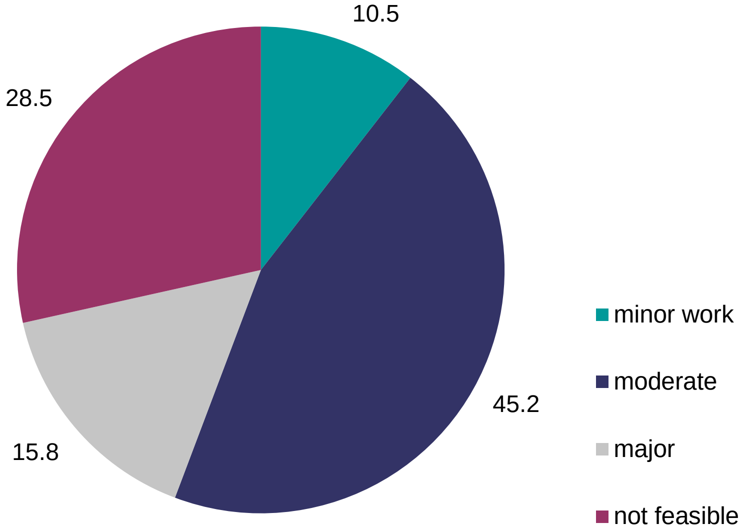
2. **Moderate -** rearrangements of internal space required that will involve removing internal partitions and/or increasing size of doorways. Where new WCs or showers are being provided, this will involve partitioning off existing rooms together with associated works to water supplies, wastes and heating. Costs are likely to be in the region of £1,000-£15,000 depending on the size of dwelling and the precise nature of the work.

3. **Major -** building extensions required. Works will be in excess of about £15,000 and the precise amount will depend on the size of the extension to be built, the scale of work to water and drainage services and ground conditions.

4. **Not feasible -** it is not physically possible to carry out the necessary work.

2.25. Of those homes which were not already fully visitable, around 2.3 million (11%) could be made fully visitable by carrying out minor work only, and a further 9.8 million (45%) could comply if moderate work involving internal structural alterations was carried out. There were 3.4 million (16%) homes that could only be made 'visitable' by major works involving extending the dwelling, and a further 6.2 million (28%) that were simply not feasible to make 'visitable', Figure 2.7.

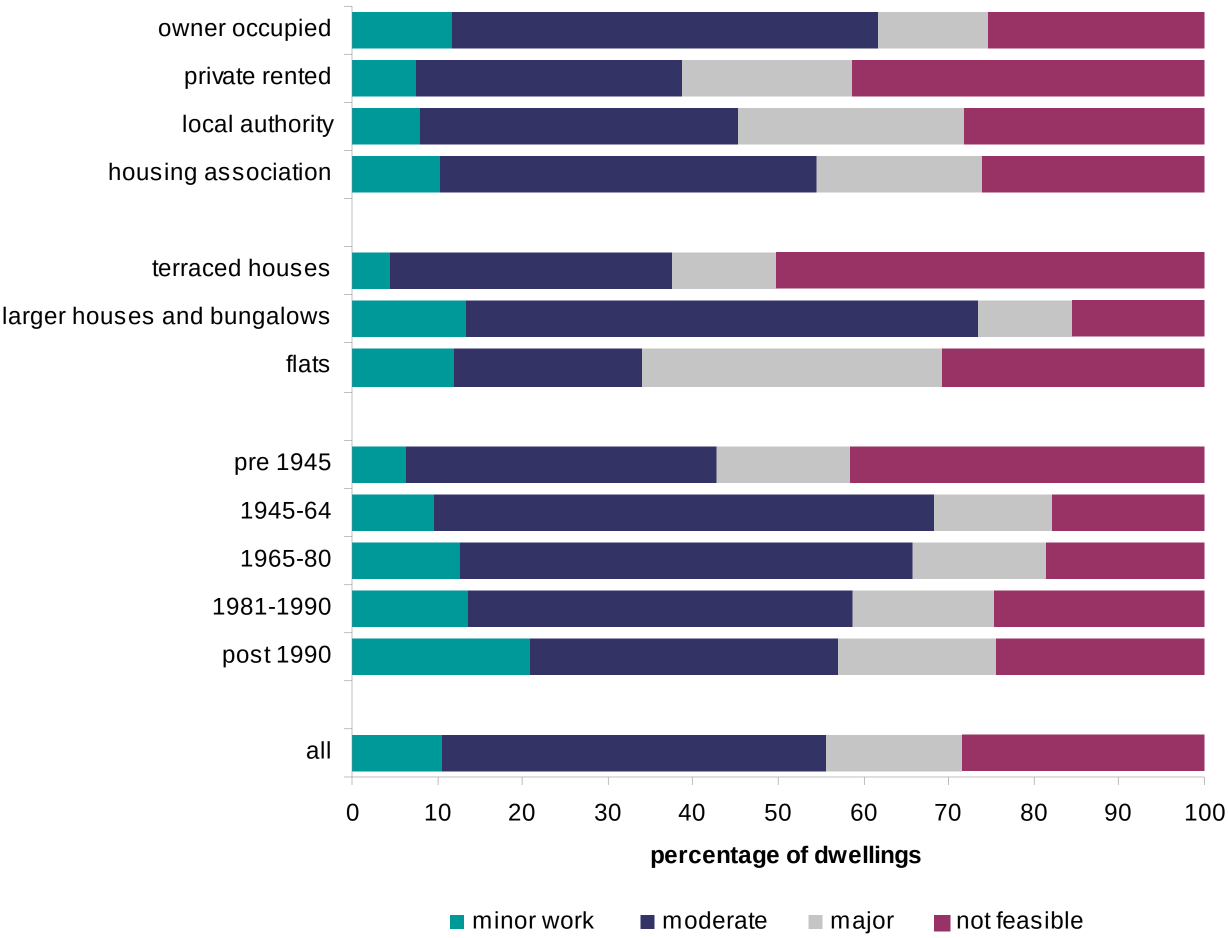
Figure 2.7: Level of work required to provide all four visitability features, 2011



Base: all dwellings that are not currently fully visitable
Note: underlying data are presented in Annex Table 2.11
Source: English Housing Survey, dwelling sample

2.26. The ease of adaptability varied considerably for different groups of dwellings. Homes built after 1990 were more likely to require only minor works, such as installing a ramp for level access, to make them fully 'visitable' (21%) than older homes, especially those built before 1945 (6%). Terraced houses (50%), privately rented homes (41%) and those built before 1945 (42%) were the most likely to be classed as not feasible to make visitable, for example, due to the physical impossibility of building an extension or installing a ramp up to the front door, Figure 2.8.

Figure 2.8: Level of work to provide all four visitability features by dwelling tenure, type and age 2011



Base: all dwellings that are not currently fully 'visitable'
Note: underlying data are presented in Annex Table 2.11
Source: English Housing Survey, dwelling sample

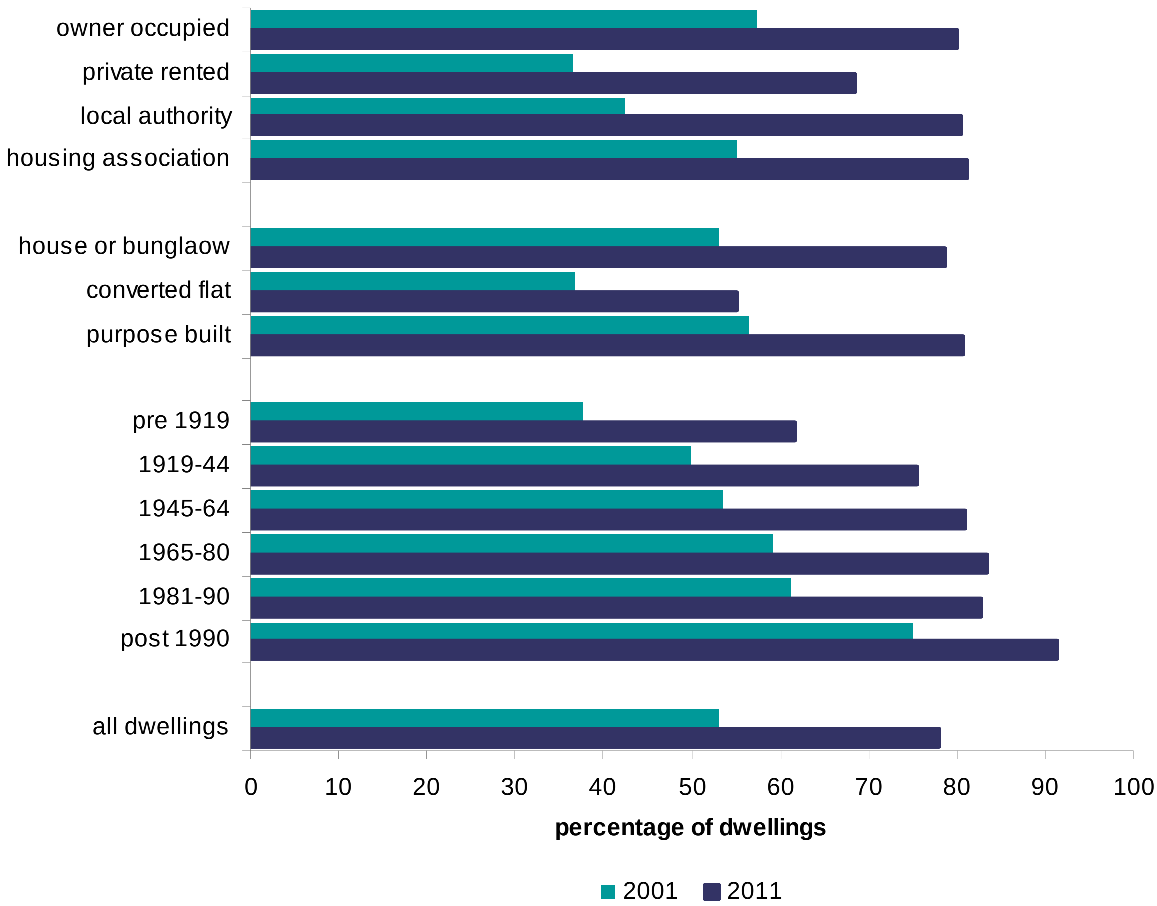
Security

2.27. This section examines key security features present in homes in 2011 and 2001 and how these varied for different groups of homes. These features are: security provided by windows and external doors (in terms of ease of physically breaking into the dwelling); burglar alarms and door viewers; smoke alarms; and controlled door entry systems for flats with common areas.

Secure windows and doors

2.28. The provision of secure windows and doors improved markedly from 53% in 2001 to 78% in 2011. The improvement was evident in all tenures, ages and types of dwellings, but there was a particularly marked improvement over this period for local authority homes (up from 43% to 80%), arising mainly because a high proportion have had new windows or entrance doors fitted as part of works to ensure they meet the Decent Homes standard. Private rented homes (up from 37% to 68%) and homes built before 1919 (up from 38% to 62%) also showed marked improvements over this period. However, homes built before 1919 and private rented homes were still less likely than average to have secure windows and doors in 2011. Converted flats continued to be the dwelling type least likely to have these features, Figure 2.9

Figure 2.9: Provision of secure windows and doors by dwelling tenure, type and age, 2001 and 2011



Base: all dwellings
Note: underlying data are presented in Annex Table 2.12
Sources:
2001: English House Condition Survey;
2011: English Housing Survey, dwelling sample

Door viewers and burglar alarms

2.29. In 2011, 57% of homes had a door viewer. These were more common in the social sector, especially for housing association homes (77%), purpose built flats (75%) and homes built after 1990 (73%), Annex Table 2.13.

2.30. The provision of door viewers improved from 2001 when only 46% of homes had this feature. Whilst improvement was evident within all tenures, this was more marked within the social sector, especially for housing association homes (up from 56% in 2001 to 77% in 2011).

2.31. Some 30% of homes had a burglar alarm in 2011.These were more common in houses (35%), especially detached houses (55%). As with other security measures, the provision of burglar alarms has also improved since 2001 when 25% of homes had this feature. Although there were improvements for purpose built flats (from 5% to 10%) and converted flats (9% to 13%), these types of dwellings were still much less likely to have alarms than houses and bungalows, Annex Table 2.14.

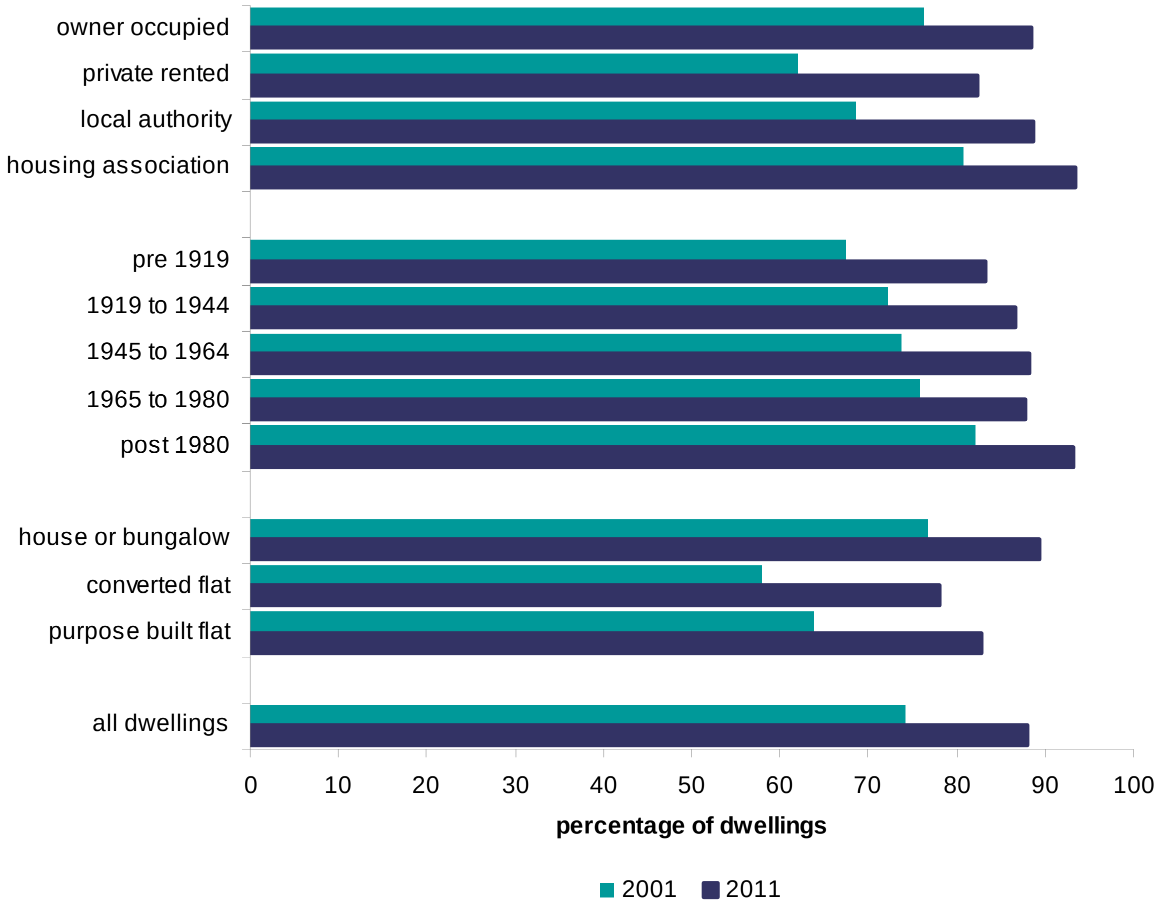
Smoke alarms

2.32. In 2011, 88% of households[7] had at least one working smoke alarm. Housing association tenants (93%), those living in homes built after 1980 (93%), and houses (89%) were more likely to have these. Groups of households least likely to have smoke alarms were those living in homes built before 1919 (83%) and flats (82%), especially converted flats (78%), Annex Table 2.15.

2.33. The provision of smoke alarms had improved since 2001 when only 74% of households had one. This improvement was evident in all tenures and dwelling types, although it was most pronounced for those households where provision was lowest in 2001. This includes those living in converted flats (up from 58% to 78%), private rented homes (62% to 82%), purpose built flats (64% to 83%) and pre 1919 homes (67% to 83%). Even with these improvements, most of these groups were still less likely to have a working smoke alarm in 2011 than those living in other types of dwelling or tenure.

[7]data on the presence of working smoke alarms comes from the interview survey and is therefore based on households

Figure 2.10: Provision of smoke alarms by tenure, age and dwelling type, 2001 and 2011



Base: all households
Note: underlying data are presented in Annex Table 2.15
Sources:
2001: English House Condition Survey;
2011: English Housing Survey, dwelling sample

Controlled entry systems in flats with common areas

2.34. Around 3.4 million flats (74% of all flats) had common areas in 2011, and some 2.6 million (76%) of these had a controlled door entry system. At the time of the survey 94% of these entry systems were in working order. The provision of this feature varied by tenure from 70% of private rented flats to 83% of housing association flats, Annex Table 2.16.

2.35. In 2003[8], there were around 2.8 million flats (72% of all flats) with common areas, of which 1.8 million (66%) had entry systems. There have been improvements in provision in all tenures, especially for owner occupied flats where the proportion with controlled entry systems rose from 60% in 2003 to 78% in 2011.

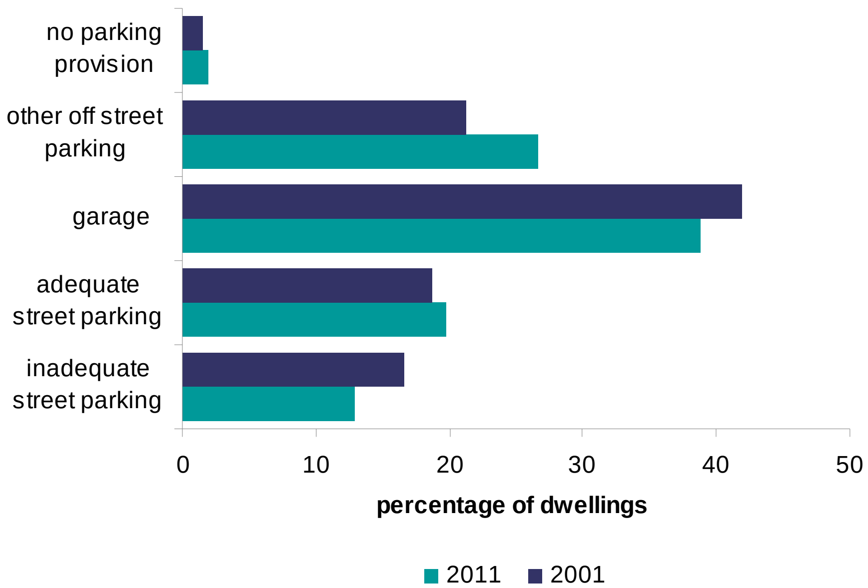
[8]2001 EHCS data not available

Parking

2.36. Some 39% of homes had the use of a garage in 2011 and a further 46% had either off street parking or adequate street parking. Around 13% of homes had inadequate street parking and 2% had no parking provision, Annex Table 2.17. Chapter 2 of the 2010 EHS Homes Report examines how parking provision varies by tenure, dwelling type and location. These findings have not changed significantly since then.

2.37. Some aspects of parking provision improved between 2001 and 2011. The proportion of homes that had either off street parking or adequate street parking rose from 40% in 2001 to 46% in 2011 and the percentage with inadequate street parking or no parking provision fell from 18% to 15% over the same period, Figure 2.11. However, the proportion of homes with a garage decreased slightly from 42% to 39% during this period, Annex Table 2.17. The reduction is most pronounced in the local authority sector and may be due to the demolition of blocks of garages on estates.

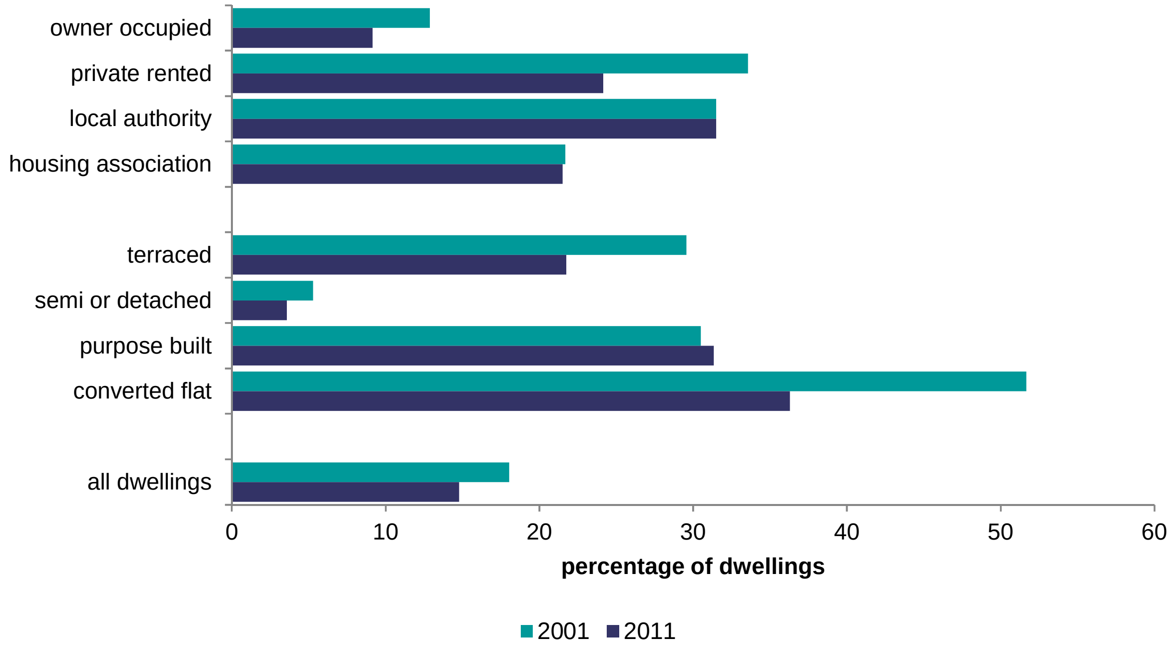
Figure 2.11: Parking provision, 2001 and 2011



Base: all dwellings
Note: underlying data are presented in Annex Table 2.17
Sources:
2001: English House Condition Survey;
2011: English Housing Survey, dwelling sample

2.38. Whilst there appear to be only minor changes in parking provision overall between 2001 and 2011, some groups have seen more change, especially private rented homes, terraced houses and converted flats. In 2001, for example, 52% of converted flats had either inadequate street parking or no parking provision, but by 2011 this proportion had fallen to 36%, Figure 2.12.

Figure 2.12: Dwellings with inadequate street parking or no parking provision by tenure and dwelling type, 2001 and 2011



Base: all dwellings
Note: underlying data are presented in Annex Table 2.17
Sources:
2001: English House Condition Survey;
2011: English Housing Survey, dwelling sample

Plots and gardens

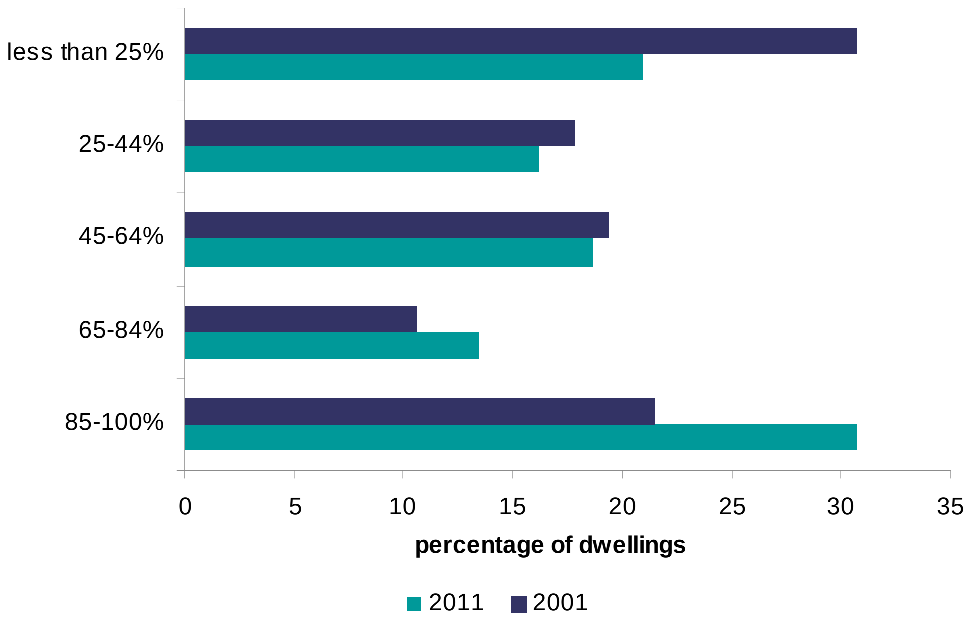
2.39. In 2011, the majority of dwellings (84%) had a private plot (a private outside space), most commonly consisting of both a front and back garden. Some 15% of dwellings had a shared plot and the remaining 1% had no defined plot. Owner occupied dwellings were much more likely to have a private front or rear plot than rented dwellings (94% compared with 65%), Annex Table 2.18. This is mainly because rented dwellings were more likely to be flats (see Chapter 1).

2.40. Most houses (93%) had a private plot at both the front and rear of their dwelling. Nearly all bungalows (94%), and detached or semi-detached (98%) dwellings had both a front and back plot, but small terraced (77%) and medium/large terraced (88%) houses were less likely to have both, having either a front garden or a back garden. Only 23% of flats had a private plot. A higher proportion of flats had shared plots in 2011 (72%) than in 2001 (62%), Annex Table 2.19. Also, fewer flats had no defined plot in 2011 (5%) than in 2001 (13%).

2.41. Where dwellings had a private front plot in 2011, these were on average 7.1m deep. Owner occupied homes were more likely to have front plots that were over 9m deep and private rented homes were the most likely to have very shallow front plots (less than 3m deep). Semi-detached, detached houses, and bungalows were less likely to have front plots less than 3m deep and more likely to have plots over 9m deep than other types of homes, Annex Table 2.20.

2.42. Not all of these private front plots were 'gardens' in the traditional sense of consisting mainly of grass and planting. Almost a third of dwellings (31%) had a front plot that was almost totally covered with hard landscaping materials (concrete, paving, gravel, tarmac, etc.), an increase since 2001 when only 21% of front plots were largely hard landscaped, Figure 2.13 and Annex Table 2.21. This increase in hard landscaping is linked with the increase in provision of off street parking seen over the same period (see Figure 2.11).

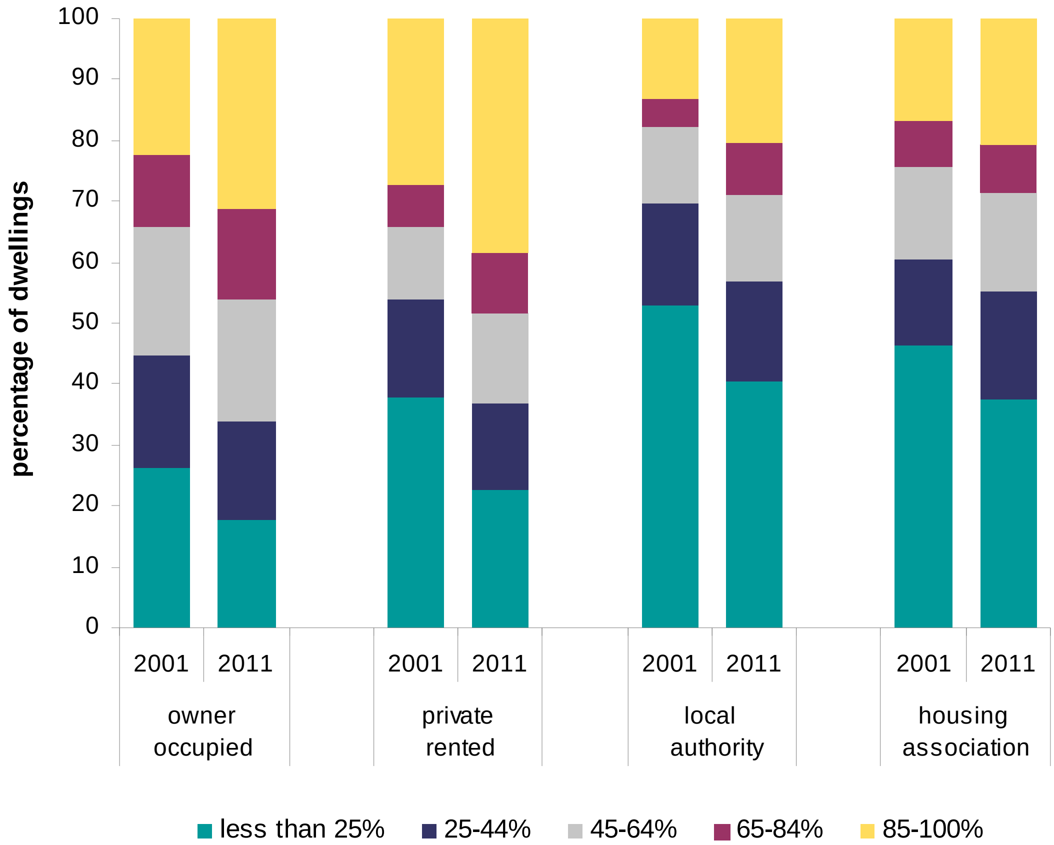
Figure 2.13: Percentage of hard landscaping on the front of dwellings with private plots, 2001 and 2011



Base: all dwellings with a private front plot
Note: underlying data are presented in Annex Table 2.21
Sources:
2001: English House Condition Survey;
2011: English Housing Survey, dwelling sample

2.43. There was an increase in the hard landscaping of the front plot of dwellings in all tenures between 2001 and 2011. However, private rented dwellings were more likely to have most of the front plot hard landscaped (39% compared with 20% to 31% in other tenures in 2011), Figure 2.14.

Figure 2.14: Percentage of hard landscaping on the front of all dwellings with private plots by tenure, 2001 and 2011



Base: all dwellings with a private front plot
Note: underlying data are presented in Annex Table 2.21
Sources:
2001: English House Condition Survey;
2011: English Housing Survey, dwelling sample

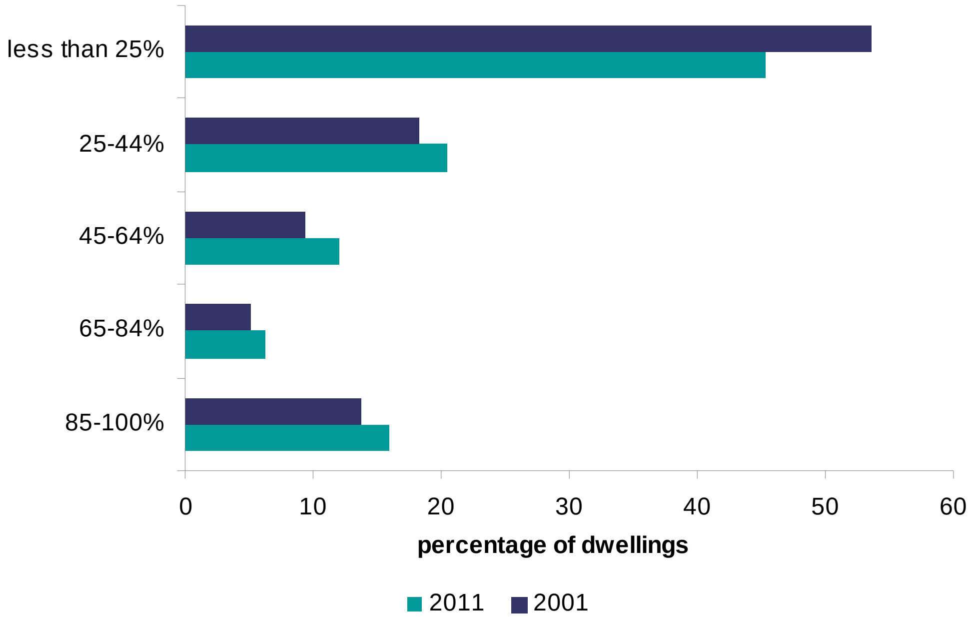
2.44. This increased proportion of homes having the front plot largely covered in hard landscaping materials was also evident for nearly all types of dwelling. For flats the percentage with private front plots covered with 85-100% hard landscaping increased from 24% in 2001 to 45% in 2011 and for houses it increased from 21% to 30% over the same period. However, there was no significant change over this period in the proportion of bungalows that had most of the front plot as hard landscaping, Annex Table 2.21.

2.45. Rear plots tended to be larger, averaging 15.2m in depth, and to have not changed significantly in depth since 2001 (15.8m). In 2011, 22% of back gardens in owner occupied dwellings were greater than 20 metres compared to 13% of privately rented dwellings, 11% of local authority dwellings and 8% of housing association dwellings. Similarly, rented dwellings were more likely to have the smallest back gardens of under 5 metres, Annex Table 2.22.

2.46. The depth of the back garden also varied by dwelling type. Most flats (70%) had back gardens less than 10m in depth and most terraced dwellings and bungalows had back gardens less than 15m in depth. Most semi-detached and detached dwellings (70%) had back gardens over 10m. The findings are similar to 2001 for houses, but in 2001 fewer flats had a back garden less than 10m in depth (62%).

2.47. In the last 10 years the proportion of dwellings with less than 25% of their rear plot covered with hard landscaping has reduced, from 54% in 2001 to 45% in 2011, and there has been a general overall increase in hard landscaping Figure 2.15.

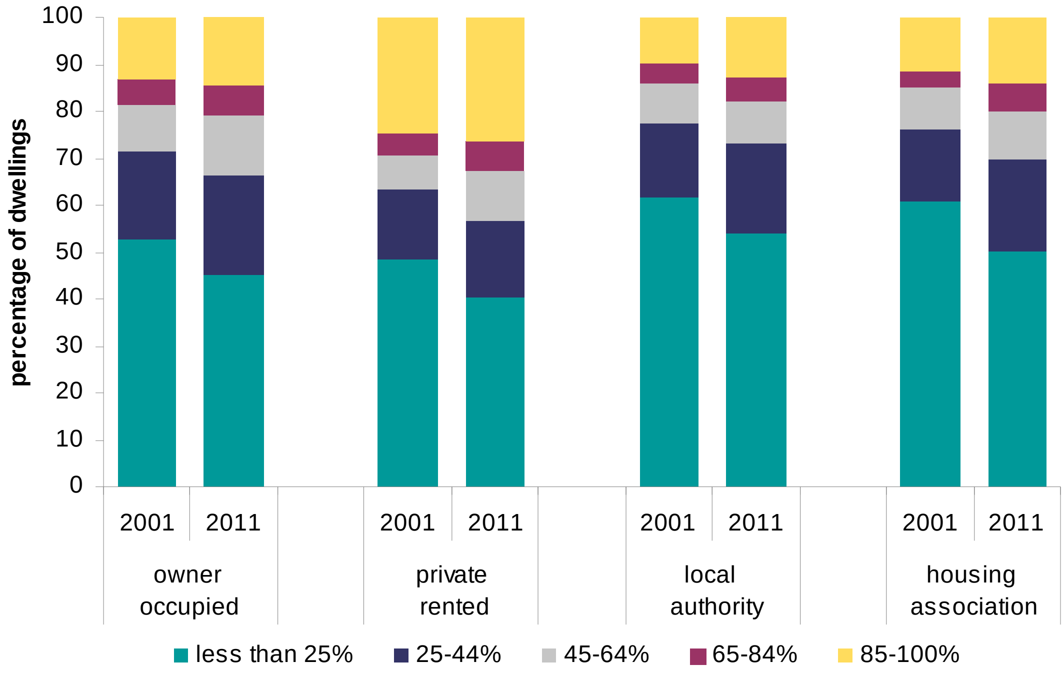
Figure 2.15: Percentage of hard landscaping on the rear plot of dwellings with private plots, 2001 and 2011



Base: all dwellings with a private rear plot
Note: underlying data are presented in Annex Table 2.23
Sources:
2001: English House Condition Survey;
2011: English Housing Survey, dwelling sample

2.48. Again, this trend in the proportion of dwellings with less than 25% hard landscaping to the back plot between 2001 and 2011 is seen in all tenures, Figure 2.16.

Figure 2.16: Percentage of hard landscaping on the back of all dwellings with private plots by tenure, 2001 and 2011



Base: all dwellings with a private back plot
Note: underlying data are presented in Annex Table 2.23
Sources:
2001: English House Condition Survey;
2011: English Housing Survey, dwelling sample

2.49. Looking at houses only, the proportion with rear plots that were mainly soft landscaped (less than 25% hard landscaped) has reduced since 2001. In 2011, semi-detached and detached houses and bungalows were more likely to have a back plot that was mainly soft landscaped than terraced houses, Annex Table 2.23.

Problems in the local environment

2.50. Problems in the local environment, such as the upkeep of buildings and streets or intrusive transport can have a significant impact on quality of life of the local residents. This can sometimes affect their physical and mental health, e.g. air pollution can affect respiratory conditions. Often these problems are indicative of wider social and economic problems, such as anti-social behaviour and low demand for housing.

2.51. This analysis examines problems in the local environment identified through surveyors' assessments. Although surveyors were only able to identify and evaluate problems at the time of the dwelling survey, this still provides a more impartial and consistent benchmark than the views of the occupants. The problems that were assessed by surveyors were grouped into three main types for ease of analysis, see Box 2.2 below. This section examines the incidence of these types of problems in 2011 and how it compares with 2001[9].

Box 2.2: Types of problems in the local environment

Utilisation - vacant sites; vacant or boarded-up buildings; non-conforming uses; and intrusive industry.

Traffic and transport - heavy traffic; intrusion from motorways or arterial roads; railway/aircraft noise; and ambient air quality

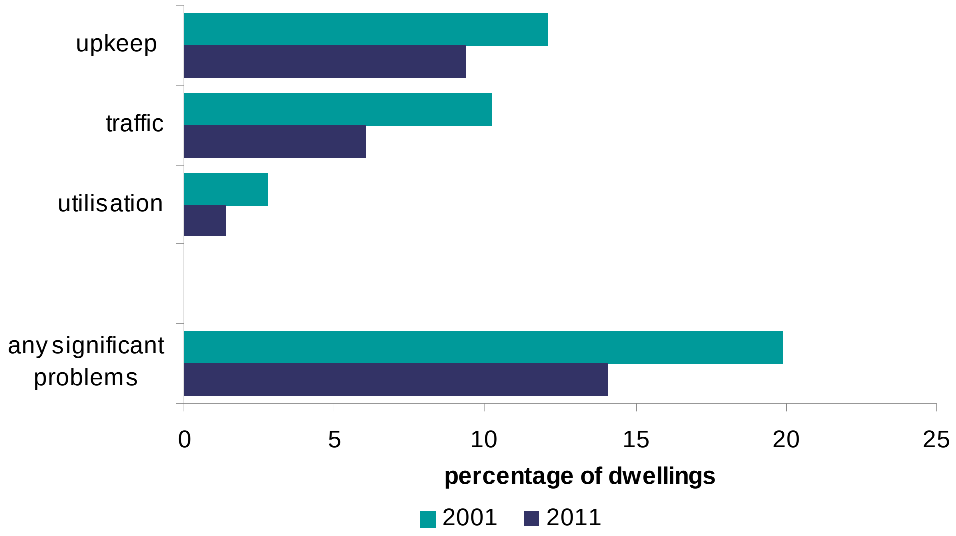
Upkeep and misuse - litter or rubbish; graffiti; dog/other excrement; dwelling condition; vandalism; scruffy gardens/landscaping; scruffy/ neglected buildings; condition of roads/pavements and street furniture; and nuisance from street parking

2.52. In 2011, 9% of dwellings were located in areas with significant problems of upkeep and misuse, 6% were affected by significant problems relating to traffic, and 1% by significant problems around utilisation. Altogether 14% of dwellings were affected by at least one of these environmental problems. Whilst most of the affected dwellings experienced only one of the main types of problem, around 2% of all dwellings had two and less than 0.5% had all three types of problems, Annex Table 2.24 and Figure 2.17.

2.53. The proportion of homes with each of these types of problems decreased between 2001 and 2011 and the proportion with any of these problems decreased from 20% to 14% over this period, Figure 2.17.

[9]in 2001 the types of problems in the local environment were grouped in exactly the same way, but the category 'Upkeep and misuse' did not include two additional items that were added to the survey later: 'condition of dwellings', and 'condition of roads, pavements and street furniture'. This means that the 2001 figures may slightly underestimate the incidence of problems of 'upkeep and misuse' and 'any problems' relative to 2011.

Figure 2.17: Proportion of dwellings with significant problems in the local environment, 2001 and 2011

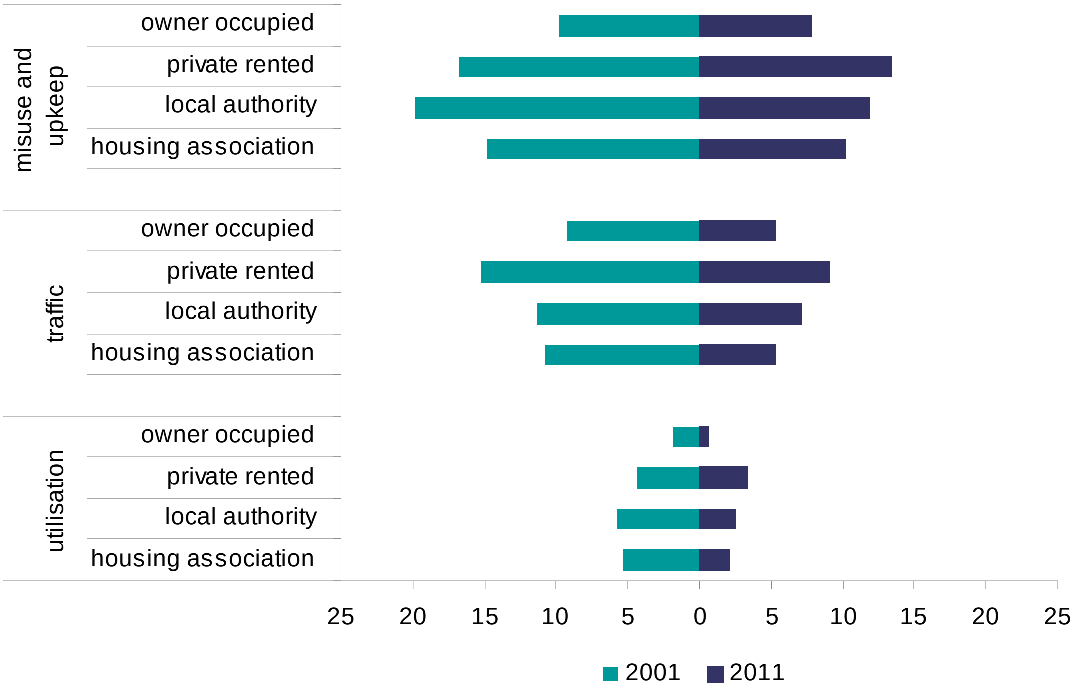


Base: all dwellings
Note: underlying data are presented in Annex Table 2.24
Sources:
2001: English House Condition Survey;
2011: English Housing Survey, dwelling sample

2.54. In 2011, the incidence and type of significant problems varied substantially by tenure. The incidence of upkeep and misuse problems was significantly lower for owner occupied dwellings (8%) than those that were rented (10-13%). All tenures have seen a notable reduction in the percentage of dwellings with this problem, particularly local authority dwellings, which had the highest incidence of upkeep and misuse problems in 2001 (20%, down to 12% in 2011), Annex Table 2.25.

2.55. The incidence of traffic problems was higher for private rented dwellings (9%) and local authority dwellings (7%) than those owned by housing associations or owner occupied (both 5%) in 2011. There had been reductions in all tenures since 2001, with the largest reduction for private rented dwellings (from 15% to 9%).

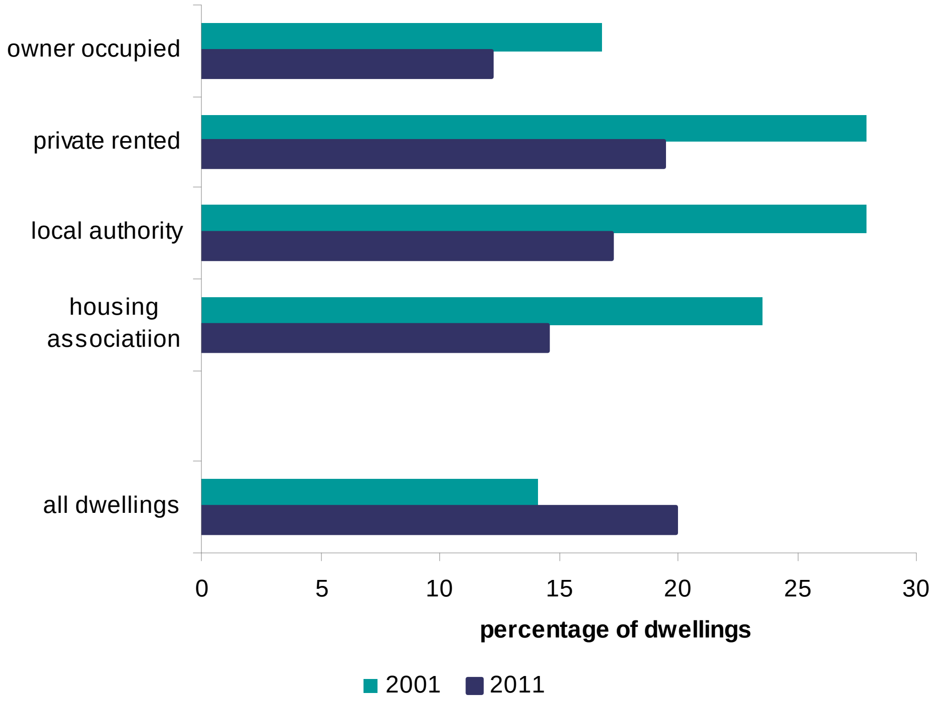
Figure 2.18: Types of problems in the local environment by tenure, 2001 and 2011



Base: all dwellings
Note: underlying data are presented in Annex Table 2.25
Sources:
2001: English House Condition Survey;
2011: English Housing Survey, dwelling sample

2.56. Overall, the likelihood of dwellings having any significant problems in the local environment reduced across all tenures in 2011 compared with 2001. In 2011, private rented dwellings (19%) and local authority (17%) dwellings still had the highest incidence of problems, Figure 2.19.

Figure 2.19: Significant problems in the local environment by tenure, 2001 and 2011

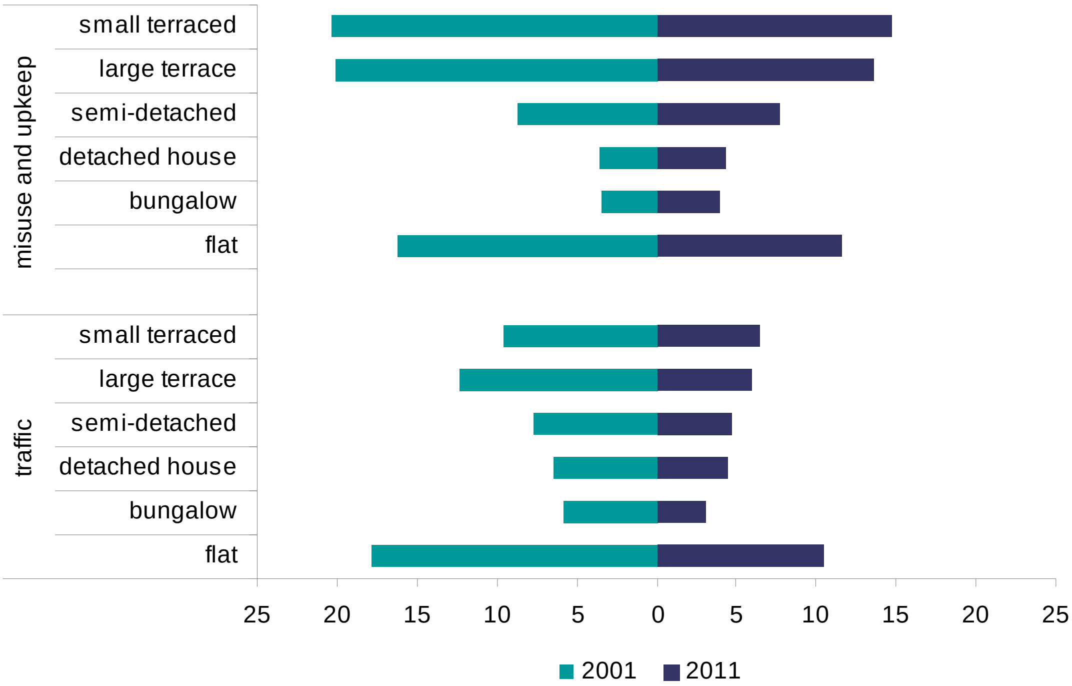


Base: all dwellings
Note: underlying data are presented in Annex Table 2.25
Sources:
2001: English House Condition Survey;
2011: English Housing Survey, dwelling sample

2.57. The incidence of upkeep problems was highest for small (15%) and medium/large terraced houses (14%) and flats (12%) and it was lowest for detached houses and bungalows (both 4%) in 2011. From 2001 to 2011, there was a notable reduction in the percentage of flats and terraced houses experiencing these types of problem, Annex Table 2.26.

2.58. In 2011, flats were still more likely to have significant problems related to traffic than houses (10% compared with 5%) despite a significant decrease from 2001 (18% and 8% respectively).

Figure 2.20: Types of problems in the local environment by dwelling type, 2001 and 2011



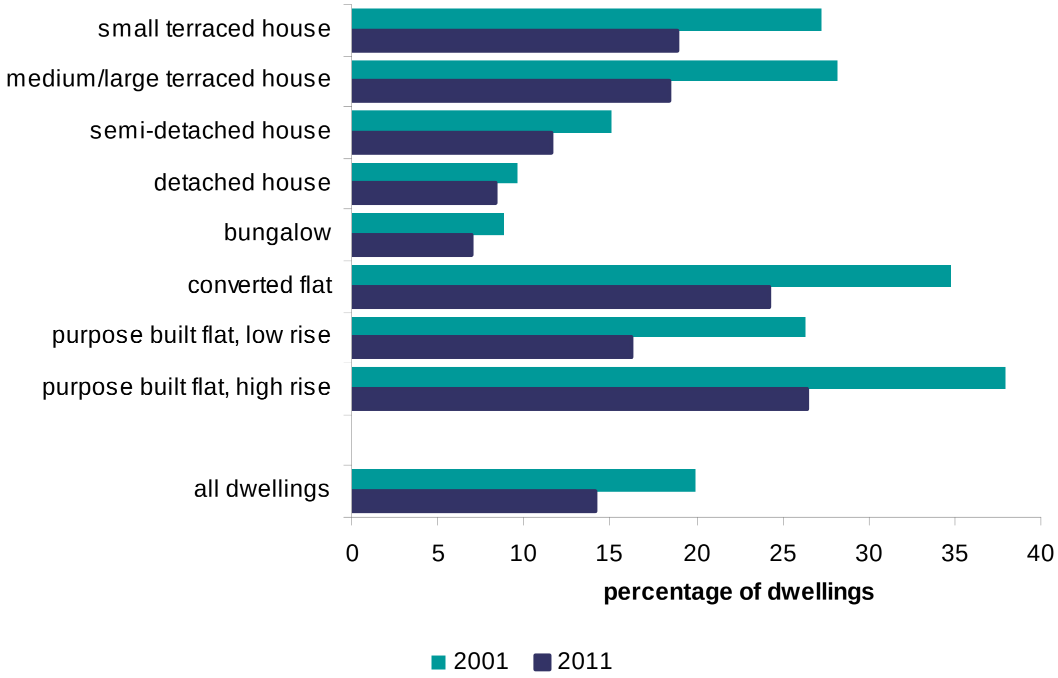
Base: all dwellings
Note: underlying data are presented in Annex Table 2.26
Sources:
2001: English House Condition Survey;
2011: English Housing Survey, dwelling sample

2.59. Problems relating to utilisation were also higher for flats than for houses (3% compared to 1%) in 2011, this pattern is unchanged from 2001. It is not possible to analyse this issue in more detail due to small sample sizes.

2.60. Overall, flats were much more likely to experience any problem in the local environment than houses (19% compared with 13%) in 2011. There has been an overall and relative improvement among flats since 2001 when 29% of these homes experienced one or more problems in their local environment compared with 18% of houses.

2.61. Among houses, semi-detached or detached houses and bungalows were least likely to be affected by one of these problems both in 2011 and 2001. Many types of houses were notably less likely to have any significant problems in 2011 compared with 2001, especially terraced houses. Around 28% of larger terraced houses experienced a significant problem in their local environment in 2001 compared with 18% in 2011. Similarly, some 27% of small terraced houses experienced a significant problem in 2001, falling to 19% in 2011, Figure 2.21.

Figure 2.21: Problems in the local environment by dwelling type, 2001 and 2011



Base: all dwellings
Note: underlying data are presented in Annex Table 2.26
Sources:
2001: English House Condition Survey;
2011: English Housing Survey, dwelling sample

Chapter 3
Dwelling condition and safety

This chapter examines four topics in detail: disrepair; damp and mould; electrical wiring; and the Housing Health and Safety Rating System (HHSRS). It summarises how different types of dwellings perform with respect to these indicators and how this has changed since 2001. It then examines the extent to which homes have a combination of these and other problems, and introduces a 'worst dwellings' scale as an overall indicator of condition, safety and performance of English homes.

Additional findings relating to dwelling condition and safety can be found in web tables DA4101 to DA5203 and DT3101 to DT3203.

Key findings

- Average basic standardised repair costs fell from £19/m² in 2001 to £14/m² in 2011. This reduction is evident in all tenures, especially in the private rented sector where costs fell by 47% from £40/m² in 2001 to £21/m² in 2011.

- In 2011, repairs to external fabric accounted for almost two thirds (65%) of all required expenditure on the whole stock, unchanged from 2001. Although this proportion was similar in the private sector, in the social sector, expenditure on external fabric accounted for less than half (48%) of the total required.

- The largest component of external repair cost was roof repairs (29%), followed by walls (20%) and windows and doors (20%). Work needed to plots made up a larger proportion of total external cost than in 2001 (8% compared with 1%).

- The proportion of dwellings with any damp problems has fallen since 2001 (10% to 5%), the largest fall being for penetrating damp. Serious condensation and mould growth was the most common type of damp problem in 2011 (3%). The biggest improvements have been in the private rented sector and in pre 1919 dwellings.

- Social sector homes, especially the housing association sector, were more likely to have features to increase electrical safety than those in the private sector. Within the private sector, private rented homes outperformed the owner occupied sector in this respect.

- Almost 3.5 million dwellings (15%) had one or more Category 1 hazards, the most common types relating to falls (9%) and excess cold (6%). Those dwellings most likely to have such hazards included pre 1919 dwellings, converted flats, those in rural areas, private rented homes, and vacant homes.

- Dwellings in the private rented sector, small terraced houses, and homes built before 1919 were more likely to be in substantial disrepair, have serious damp or have Category 1 hazards.

- Around 5 million dwellings were in substantial disrepair, had serious damp or were non-decent. Whilst the majority just had one of these three problems, 1.5 million had two of these problems and a further 323,000 had all three.

- Using an approximate scale of dwelling condition, 15% of homes were classed in the ‘worst’ category, 15% as ‘poor’, 27% as worse than average and the remaining 43% as ‘generally satisfactory’. Private rented homes and converted flats were more likely to be classed as ‘worst’ than other groups.

Disrepair to dwellings

3.1 The 2010 EHS Homes Report examined the expenditure required to deal with overall disrepair within the stock and by dwelling characteristics, and as none of these findings are likely to have changed significantly, they are not covered again in this report. This section examines the cost of dealing with disrepair more generally.

Cost of dealing with disrepair

3.2 The cost of dealing with disrepair can be examined in two ways: actual or required expenditure, and standardised costs. Required expenditure costs are intended to reflect the actual cost for each individual property; these costs incorporate regional and tenure factors and are not adjusted for dwelling floor area, so will be higher for larger dwellings. A standardised measure of disrepair, referred to as a standardised repair cost, is used to compare repair costs for different dwellings, regardless of size, tenure and area, Box 3.1.

3.3 The survey also distinguishes between three different levels and types of repairs needed, Box 3.2. The analysis in this chapter focuses mainly on basic repair costs (i.e. day to day maintenance).

3.4 This section examines overall changes in the amount of disrepair in the stock since 2001, and which tenures have seen the greatest and least improvement. The section uses the basic standardised repair costs (£/m²) converted to 2001 prices using the Building Cost Information Service (BCIS) National Index[1]. As some of the year on year change in the level of disrepair arises from random fluctuations related to sampling and measurement effects, the section focuses on overall trends from 2001 onwards rather than annual differences.

3.5 Since 2001, the average cost of basic repairs needed to the dwelling stock had fallen from £19/m² to £14/m², indicating an overall improvement in the way dwellings had been maintained by owners and landlords on a day to day basis. The largest reductions were evident in the private rented sector where costs fell by 47% from £40/m² to £21/m², although costs in this sector have always been significantly higher than those in other tenures and they remained higher in 2011, Annex Table 3.1.

3.6 Average costs had fallen the least dramatically in the housing association sector, reducing by 17% from £12m² to £10m². Repair costs here have, however, always been the lowest compared to other tenures mainly because

[1]the BCIS is the Royal Institution of Chartered Surveyors' Building Cost Information Service. The data provides an inflation factor for building costs enabling the cost of disrepair in the housing stock in any given year to be measured against a baseline cost.

this sector has always had a relatively higher proportion of new dwellings which normally require fewer repairs than older properties, Figure 3.1

Box 3.1: Repair cost measures

Required expenditure - total cost per dwelling in pounds that represents the best estimate of what the specified work would actually cost. These costs are influenced by regional variations in prices and assume different project sizes for work to houses in different tenures. In the owner occupied and private rented sector the contract size for work to houses is taken to be one. In the social rented sector, the contract size is taken as the number of dwellings on the estate. If the house is not on an estate, it is assumed to be a street property with a contract size of one. For flats, the contract size for exterior works is the size of the block regardless of tenure. This measure assumes that all work is carried out by contractors who operate to health and safety regulations. The costs do not include any VAT or mark up for profit. These costs should not be used for assessing differences in condition between different tenures or dwelling types as they vary according to dwelling size, tenure and location.

Standardised repair costs - a measure of disrepair which expresses costs in pounds per square metre (£/m²) based on prices for the East Midland region (where prices can be regarded as a mid point in the range of regional prices).

Under the standardised repair cost measure it is assumed that all work is undertaken by contractors on a block contract basis. For flats, the size of the contract is assumed to be the whole block. For houses, regardless of tenure, it is taken as a group of five dwellings, representing costs that are more typical of those which may be incurred by a landlord organising the work on a planned programme basis. By reducing costs to a £/m² basis the effect of building size on the amount of disrepair recorded is removed. Standardised repair costs should *not* be used as an indication of the actual expenditure required to remedy problems.

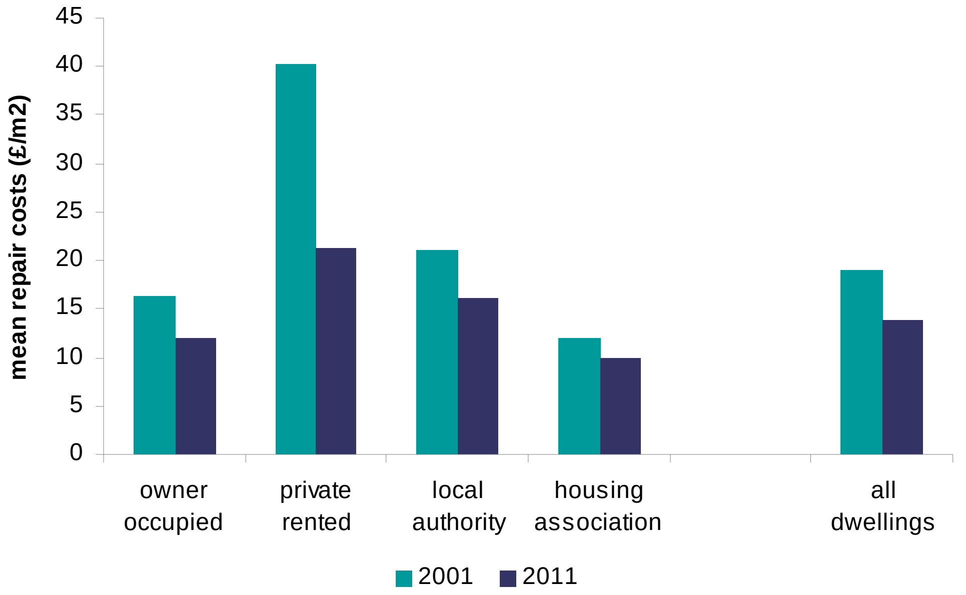
Box 3.2: Categories of repair measured in the survey

Urgent repairs - work which needs to be undertaken to tackle problems presenting a risk of health, safety, security or further significant deterioration in the short term; examples include leaking roofs, broken locks to external doors, and cracked socket covers.

Basic repairs - any urgent repairs plus additional visible work to be carried out in the medium term (within five years). These do not include replacement of building elements nearing the end of their life where the surveyor has recorded that this action could be delayed by more than five years.

Comprehensive repairs - the above two categories, plus any replacements the surveyor has assessed as being needed in the next 10 years. This measure provides a better basis for identifying work which would form part of a planned programme of repair by landlords.

Figure 3.1: Mean basic standardised repair costs by tenure, 2001 and 2011



Base: all dwellings
Note: underlying data are presented in Annex Table 3.1
Sources:
2001: English House Condition Survey;
2011: English Housing Survey, dwelling sample

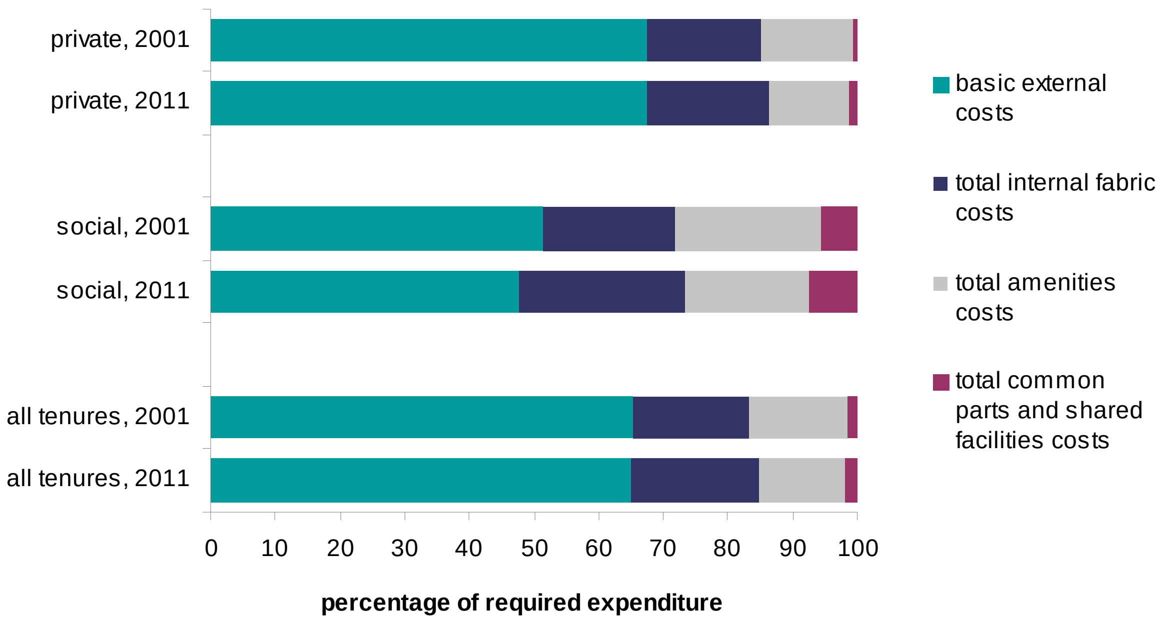
Disrepair to key elements

3.7 This section examines what proportion of total basic expenditure needed on repairs is accounted for by different types of work and building elements, and how this has changed since 2001.

3.8 For the stock as a whole, repairs to the external fabric of homes accounted for almost two thirds (65%) of required expenditure. A further 20% of required expenditure was accounted for by internal fabric, 13% for amenities and services, with the remaining 2% of costs relating to common areas and shared facilities. The proportions were very similar in 2001, Annex Table 3.2.

3.9 The breakdown of costs in the private sector (overall and for the owner occupied and private rented sectors individually) very much mirrored that in the stock as a whole, Annex Table 3.3. However, in the social sector, repairs to the external fabric accounted for less than half (48%) of the total required, with more work required on internal fabric (26%); amenities (19%); and common areas/shared facilities (7%). These patterns were very similar in 2001, Figure 3.2.

Figure 3.2: Percentage of required expenditure on basic repairs by tenure, 2001 and 2011



Base: all dwellings
Note: underlying data are presented in Annex Table 3.2
Sources:
2001: English House Condition Survey;
2011: English Housing Survey, dwelling sample

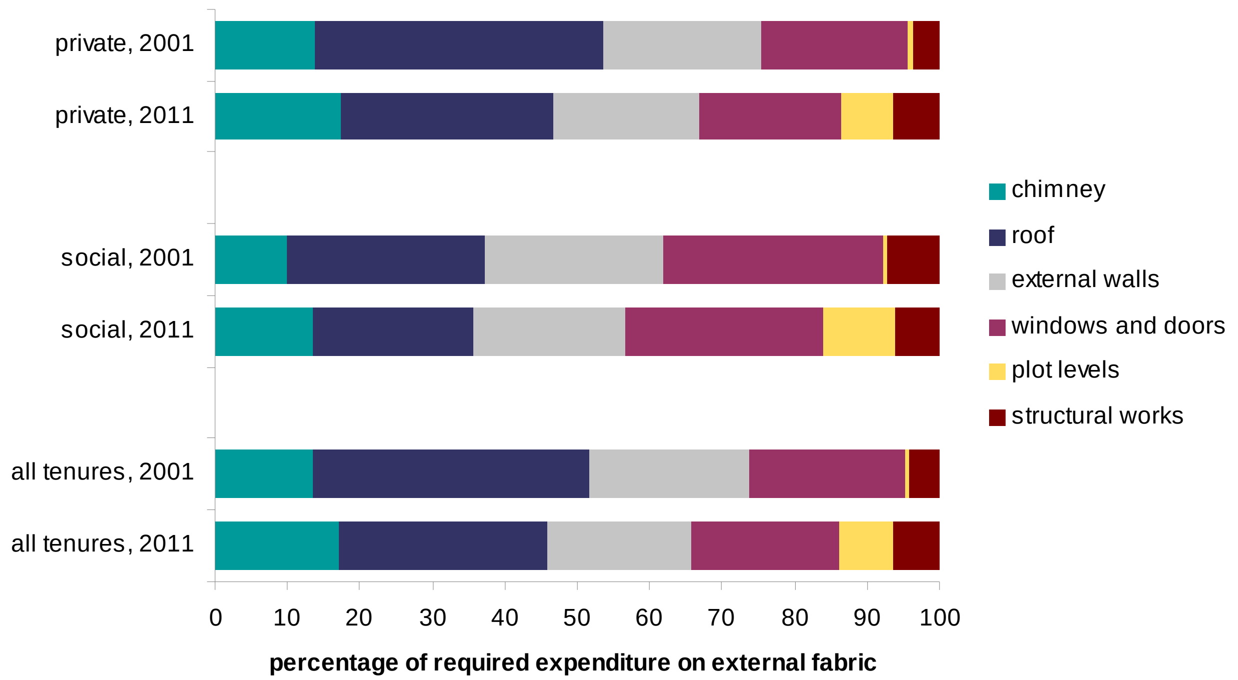
3.10 For the stock as a whole, the elements contributing the most towards external repair costs in 2011 were the roof[2] (29%), followed by external walls and windows and doors (20%). The distribution of costs was generally very similar to 2001, although in 2011 work needed to plots was a larger proportion of total cost (8% compared to 1%), and in 2001 work to roofs was a more dominating factor (38%), Annex Table 3.4.

[2]this includes repairs to the roof structure, roof covering and roof features (fascias, valley gutters, guttering and downpipes, stacks and wastes and party parapets)

3.11 For roofs, the difference arises from a combination of factors: a lower proportion required any work to roofs in 2011 and, where work was required, average costs were lower than in 2001. In 2011, a much higher proportion of homes required some repairs to the plot, probably reflecting the higher proportion of homes with hard landscaping to the plot (see Chapter 2). This is likely to be the main reason for the increased proportion of costs attributable to such works compared with 2001, rather than that more expensive works were needed, as where work was required to plots, average costs were very similar in both years, Annex Table 3.5.

3.12 The distribution of costs in the private sector echoed those for the stock as a whole (in both 2011 and 2001). In the social sector, there was a higher proportion of cost attributed to windows and doors than in the private sector (in both 2011 and 2001), Figure 3.3.

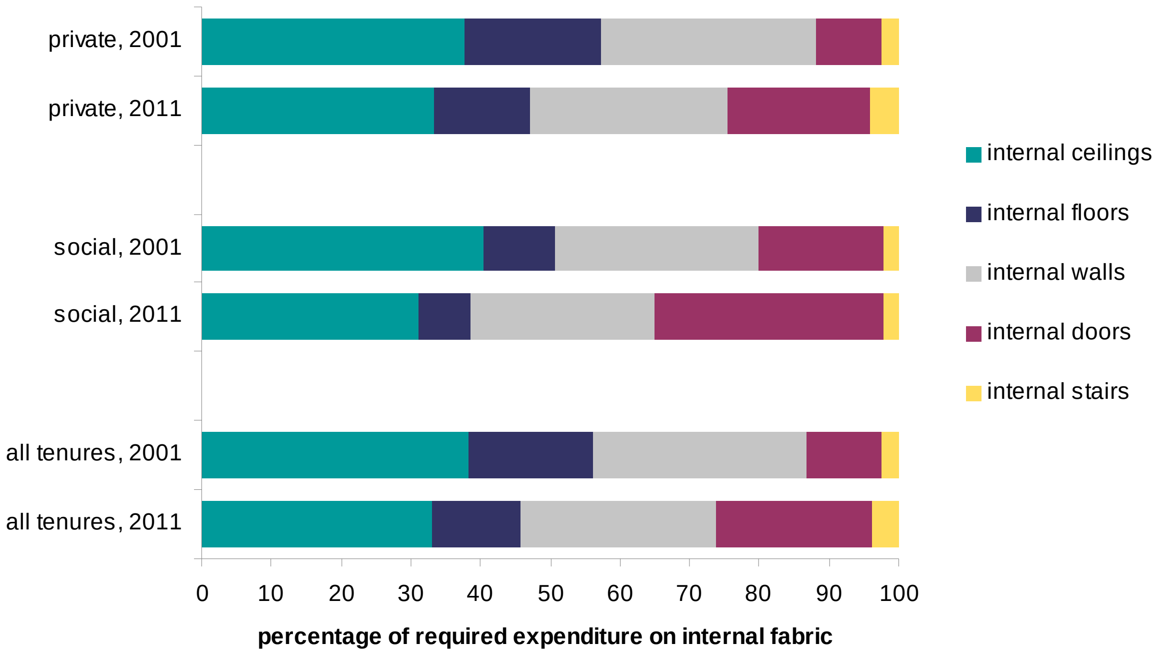
Figure 3.3: Distribution of basic external repair costs by element and tenure, 2001 and 2011



Base: all dwellings
Note: underlying data are presented in Annex Table 3.4
Sources:
2001: English House Condition Survey;
2011: English Housing Survey, dwelling sample

3.13 The largest component of internal repair cost in 2011 was ceilings (33%), followed by internal walls (28%) and internal doors (22%). This had changed from 2001, when there was a greater proportion required for ceiling repairs (38%) and a lower proportion for door repairs (11%).The reduction for ceiling repairs since 2001 was most evident in the social sector (from 40% to 31% in 2011), whereas the increase in the proportion for internal doors was marked in both sectors, Figure 3.4. Ceiling repairs can range from filling isolated cracks to taking down and renewing the entire ceiling in one or more rooms. Similarly repairs to internal doors can involve small jobs like renewing handles or hinges to replacing the whole door and frame.

Figure 3.4: Distribution of internal repair costs by element and tenure, 2001 and 2011

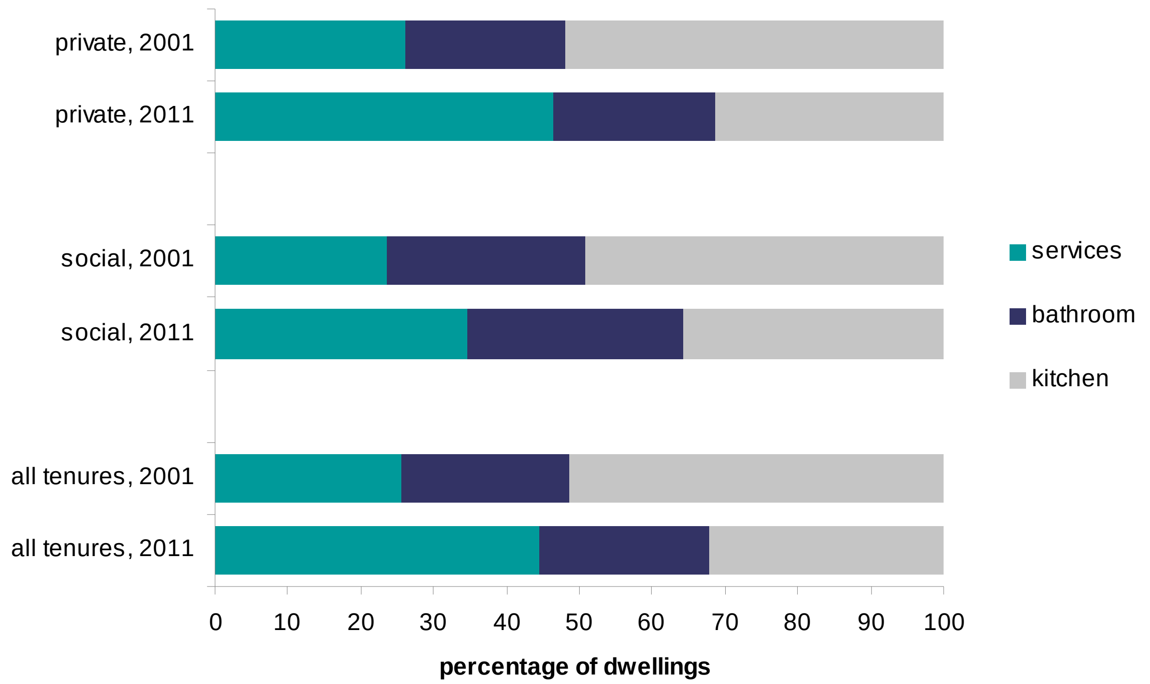


Base: all dwellings
Note: underlying data are presented in Annex Table 3.6
Sources:
2001: English House Condition Survey;
2011: English Housing Survey, dwelling sample

3.14 In 2011, the largest proportion of all costs for amenity and services repairs was accounted for by repairs to services[3] (44%). Repairs to kitchen amenities accounted for a higher proportion than for bathroom amenities (32% and 23% respectively). This is different from 2001, when kitchen amenity repairs accounted for 51% of the total and service costs accounted for just 26%. Similar changes were seen in both the private and social sectors, Figure 3.5.

[3] services include all electrical wiring, electrical fittings, consumer unit, gas pipework, space heating systems/appliances and water heating systems/appliances inside the dwelling itself.

Figure 3.5: Distribution of amenity and service repair costs by element and tenure, 2001 and 2011



Base: all dwellings
Note: underlying data are presented in Annex Table 3.7
Sources:
2001: English House Condition Survey;
2011: English Housing Survey, dwelling sample

Dampness and mould

3.15 If left untreated, damp conditions and mould growth in the home can significantly affect the health of occupants by increasing the risk of respiratory problems. They can also have a negative impact on the fabric of the dwelling, leading to its rapid deterioration, creating further problems and so increasing the costs of repair.

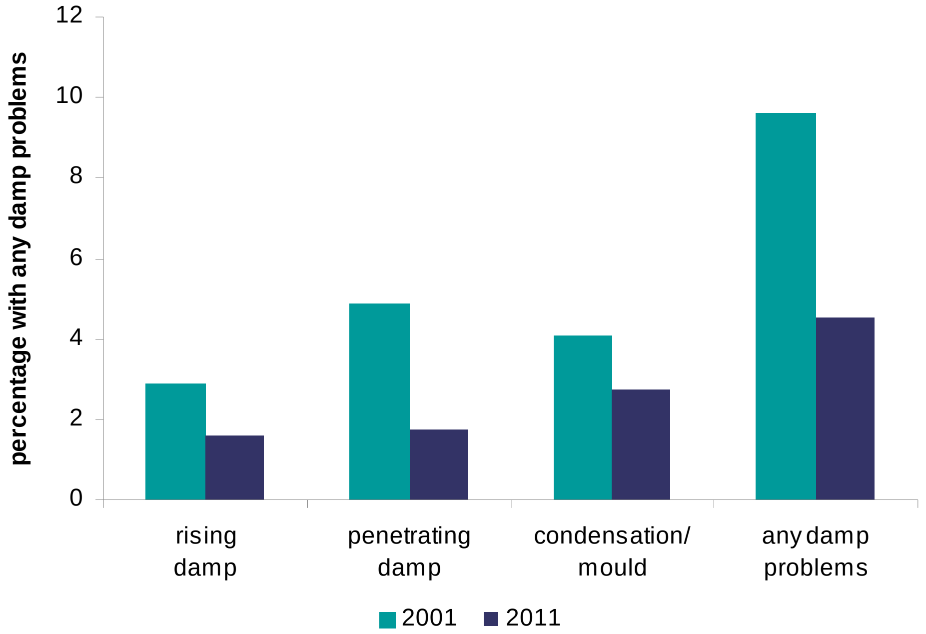
3.16 This section examines the incidence of any damp, and the three types of dampness that can occur: rising damp; penetrating damp; and serious condensation and mould growth. It then explores whether this has changed since 2001.

Types of damp

3.17 In 2011 around 5% of dwellings had some damp problems. Serious condensation and mould growth was the most common type of damp problem, affecting 3% of homes in 2011. Rising damp and penetrating damp were less prevalent, each affecting around 2% of homes, Annex Table 3.8.

3.18 The proportion of dwellings with any damp problem has fallen since 2001 (from 10% to 5%). The largest reduction was for penetrating damp (5% to 2%), which was the most common type of damp problem in 2001, Figure 3.6. This type of damp is normally caused by leaks through the external fabric or leaks from internal plumbing (including central heating radiators) or blocked gutters. This reduction is linked to the overall improvement in the way properties are maintained, as noted in paragraph 3.5.

Figure 3.6: Percentage of dwellings with different types of damp problems, 2001 and 2011

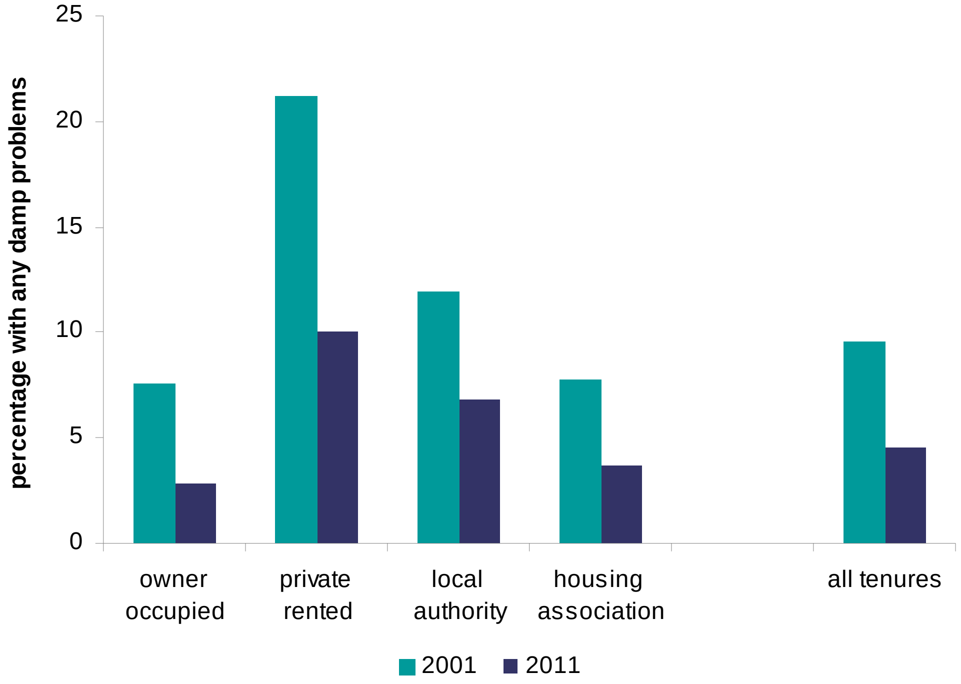


Base: all dwellings
Note: underlying data are presented in Annex Table 3.8
Sources:
2001: English House Condition Survey;
2011: English Housing Survey, dwelling sample

3.19 It may appear surprising that the incidence of problems with condensation and mould has not reduced more substantially, given that considerable progress has been made in improving heating and insulation in dwellings between 2001 and 2011 (see chapter 4). A much higher proportion of homes with serious condensation now also have working extractor fans (29% had one in the kitchen and 35% had one in the bathroom in 2011, compared to 18% and 22% respectively in 2001), Annex Table 3.9. However, in most recent years there have been large increases in fuel costs, increasing the number of households struggling to heat their homes. This may result in a reluctance to use extractor fans or open windows, which in turn would increase the incidence of problems with condensation.

3.20 The private rented sector showed the most noticeable improvement since 2001 with around 10% of homes affected by damp in 2011 compared with over 21% in 2001. The level of such problems has also decreased in other tenures, although less markedly, Figure 3.7.

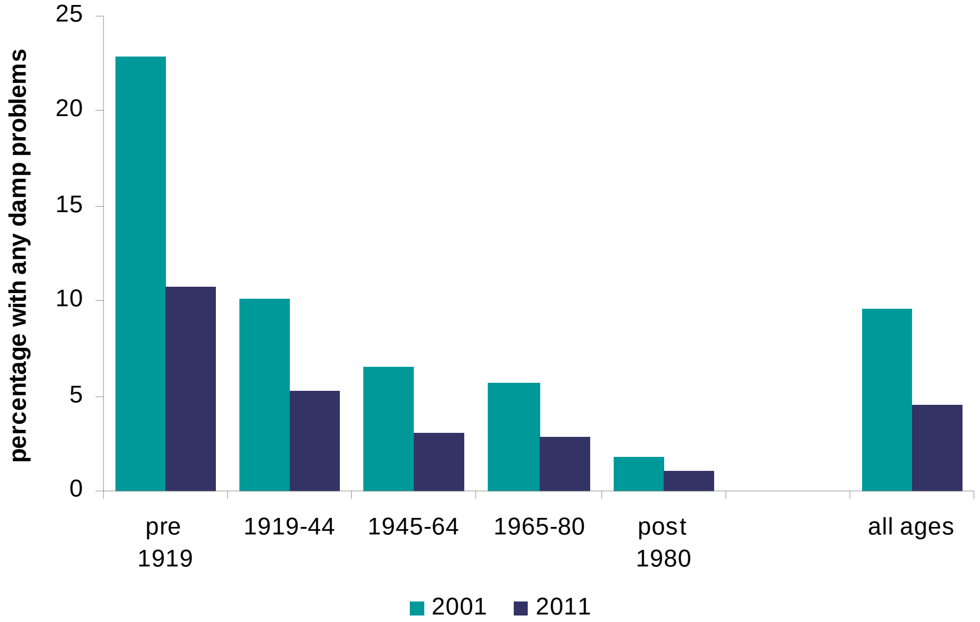
Figure 3.7: Percentage of dwellings with any type of damp problem by tenure, 2001 and 2011



Base: all dwellings
Note: underlying data are presented in Annex Table 3.10
Sources:
2001: English House Condition Survey;
2011: English Housing Survey, dwelling sample

3.21 Although the incidence of damp problems has reduced across all dwelling age bands since 2001, this has improved most for pre 1919 dwellings, reducing from 23% in 2001 to 11% in 2011. Not surprisingly, newer properties were less likely to be affected by damp problems. This is reflected in both the 2001 and 2011 figures, Figure 3.8.

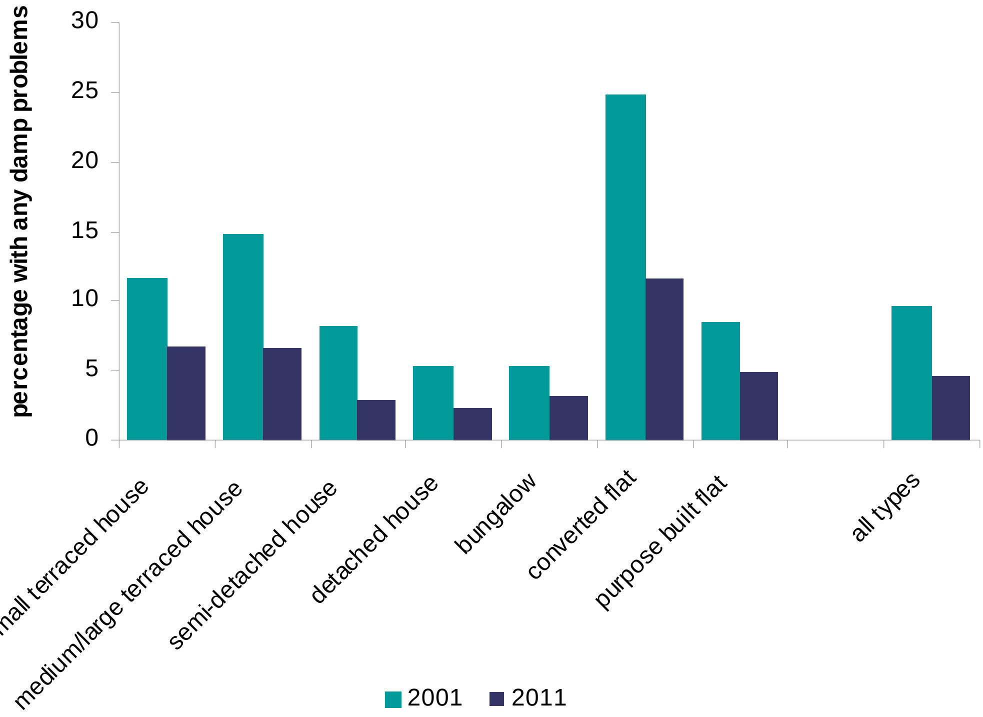
Figure 3.8: Percentage of dwellings with any type of damp problem by dwelling age, 2001 and 2011



Base: all dwellings
Note: underlying data are presented in Annex Table 3.10
Sources:
2001: English House Condition Survey;
2011: English Housing Survey, dwelling sample

3.22 Between 2001 and 2011, there was a reduction in damp problems across all dwelling types. In 2001, damp was most common in converted flats (25%) and terraced houses (15% for medium/large and 12% for small terraces). Although damp problems were still more common for these dwelling types in 2011, its occurrence had decreased significantly. In contrast, detached houses were less affected by such problems (5% in 2001, 2% in 2011), Figure 3.9.

Figure 3.9: Percentage of dwellings with any type of damp problem by dwelling type, 2001 and 2011



Base: all dwellings
Note: underlying data are presented in Annex Table 3.10
Sources:
2001: English House Condition Survey;
2011: English Housing Survey, dwelling sample

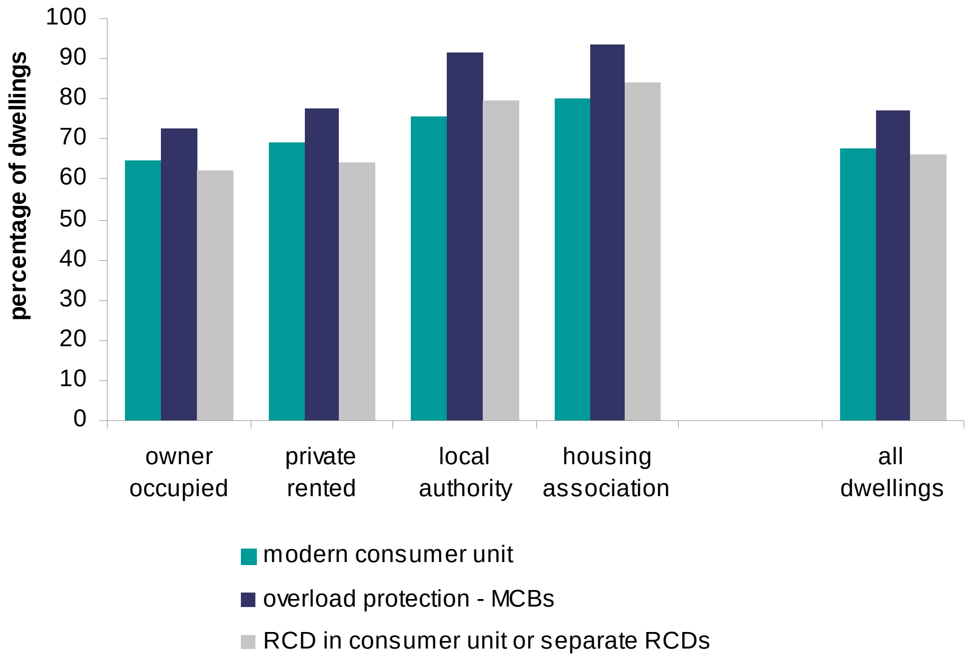
Electrical safety

3.23 In 2011, a significant minority of homes were still without modern electrical safety features such as Residual Current Devices (RCDs) (34%) and Miniature Circuit Breakers (MCBs) (23%). Some 1% of dwellings still had older (non PVC sheathed) wiring and 5% had older types of earthing, Annex Table, 3.11. For a full explanation of these electrical safety features see the glossary.

3.24 Social sector homes, especially those in the housing association sector, were more likely to have modern consumer units, RCDs and MCBs, compared with private sector homes, Figure 3.10. The private rented sector, however, outperformed the owner occupied sector in the provision of these safety features; probably because of legislation which places obligations on landlords to ensure that electrical installations are safe[4].

[4]by law, private landlords must ensure electrical installations and wiring are maintained in a safe condition throughout the tenancy. For HMOs, landlords are required to have fixed electrical installations inspected and tested at intervals not exceeding 5 years by a qualified electrician. A certificate must be obtained.

Figure 3.10: Percentage of dwellings with modern consumer units and electrical protection measures by tenure, 2011

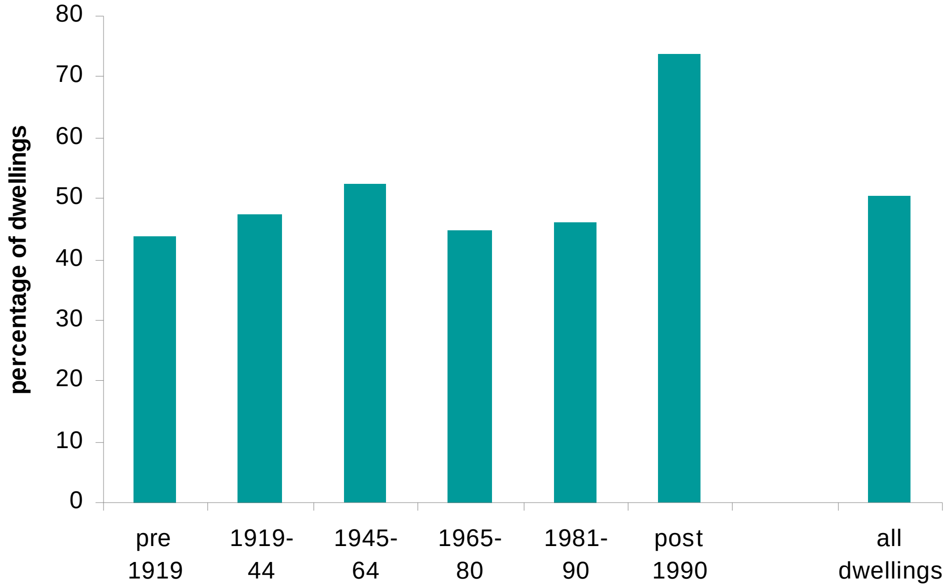


Base: all dwellings
Note: underlying data are presented in Annex Table 3.11
Source: English Housing Survey, dwelling sample

3.25 Homes built after 1990 or between 1945 and 1964 were more likely to have these modern electrical safety features than those of other ages. The relatively better performance of homes built from 1945 to 1964 is partly because a high proportion of homes dating from this period are in the social sector. Around three quarters (74%) of homes built after 1990 and 52% of homes built between 1945 and 1964 had all five electrical safety features[5], Figure 3.11.

[5]all 5 safety features are: modern wiring, modern earthing, modern consumer units, MCBs and RCDs

Figure 3.11: Percentage of dwellings with all five electrical safety measures by dwelling age, 2011

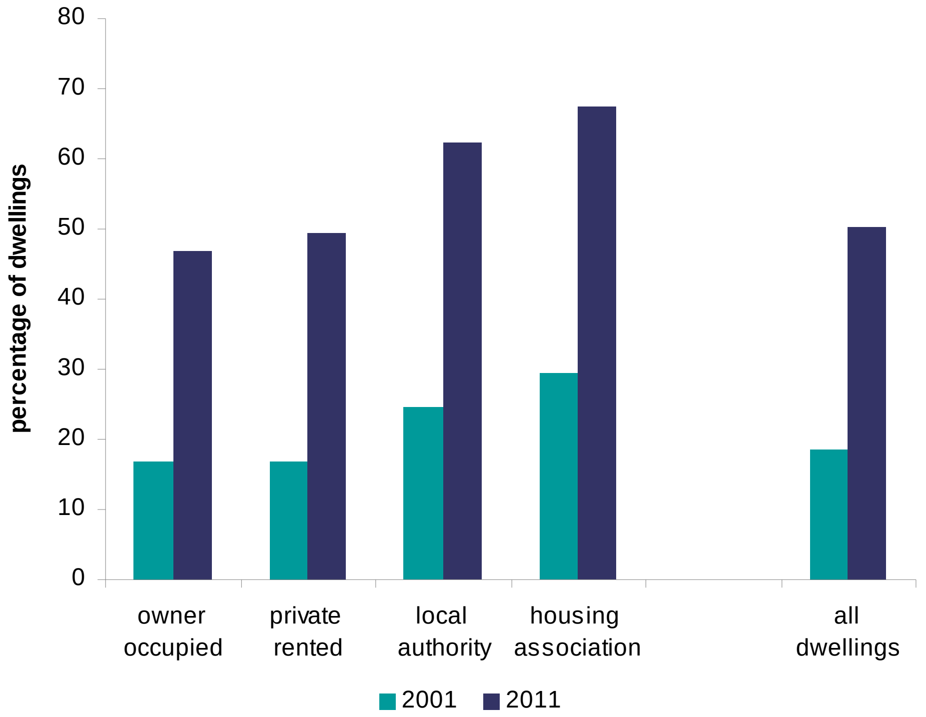


Base: all dwellings
Note: underlying data are presented in Annex Table 3.12
Source: English Housing Survey, dwelling sample

3.26 Whilst the proportion of homes with modern wiring remained constant between 2001 and 2011 (98%), there was a marked improvement in the provision of modern earthing (from 85% to 93%), modern consumer units (32% to 68%) and other electrical safety measures (48% to 77% for MCBs and 40% to 66% for RCDs). These improvements were evident for all tenures. The rise in the provision of RCDs was most noticeable for all rented homes and the rise in the provision of MCBs particularly evident for private rented homes (from 44% in 2001 to 78% in 2011), Annex Table 3.11.

3.27 The proportion of homes with all five safety features rose from 19% in 2001 to 50% in 2011, Figure 3.12. Although electrical safety improved across all tenures, homes in the social sector continued to have a higher proportion of homes with all five safety features.

Figure 3.12: Percentage of dwellings with all five electrical safety measures by tenure, 2001 and 2011



Base: all dwellings
Note: underlying data are presented in Annex Table 3.11
Sources:
2001: English House Condition Survey;
2011: English Housing Survey, dwelling sample

3.28 The significant improvements between 2001 and 2011 in the provision of modern consumer units and other electrical safety measures were evident across the stock, irrespective of age. The rate of improvement was not as large for those homes built after 1990 but this is not surprising as many of these homes already had better provision of the safety features in 2001, Annex Table 3.12.

Housing Health and Safety Rating System (HHSRS)

3.29 The HHSRS is a risk-based assessment that identifies hazards in dwellings and evaluates their potential effects on the health and safety of occupants and visitors (see Glossary for further details). The EHS assesses 26 out of the 29 hazards covered by the HHSRS.

3.30 Almost 3.5 million dwellings (15%) had one or more Category 1 hazards in 2011. The most common types of such hazards were related to falls (4 types in total), affecting 9% of all dwellings, followed by excess cold (6%). Other Category 1 hazards were far less common: just 3% of dwellings had Category 1 hazards relating to one or more of the other 21 hazards covered by the survey.

3.31 Dwellings most likely to have any Category 1 hazard were those built before 1919 (32%); converted flats (27%); those in rural areas (23%); private rented (22%); and vacant homes (21%). In contrast, only 5% of homes built after 1980 had such a hazard, as did 7% of purpose built low rise flats[6] and 7% of homes in the social sector, Annex Table 3.13. Further information on the incidence of these hazards is given in the section on poor housing conditions below.

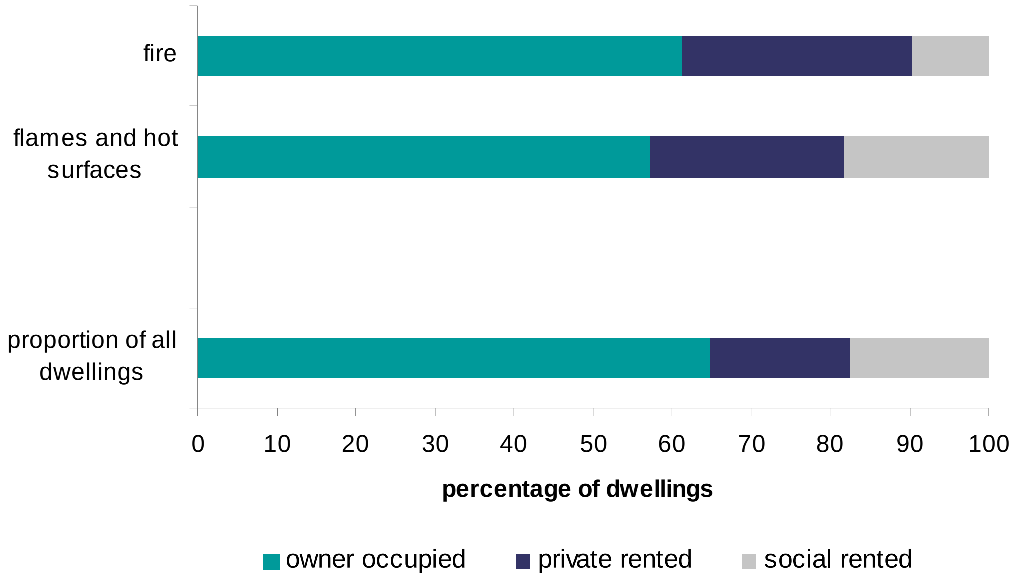
3.32 This next section examines the number and profile of dwellings with either Category 1 hazards or other, less severe, problems (assessed by surveyors as having a significantly higher risk than average) in relation to four specified hazards: fire; hot surfaces and materials; collision and entrapment; and entry by intruders. Hazards related to hot surfaces and materials arise most frequently due to problems with the location of cookers (often because the kitchen is too small or badly laid out) or location of heaters. For collision and entrapment, doors and windows that are difficult to open and close increase the risk of someone trapping a hand (e.g. door closers are too strong, sash cords are weak or broken, windows pivot). Low headroom at doors or over stairs can also increase the risk of collision injuries.

3.33 Just over 1 million dwellings (5%) had a significantly higher than average risk related to fire, of which 129,000 homes represented a Category 1 hazard in 2011. Some 23% of these 1 million dwellings were flats, Annex Table 3.14. Around 29% of these homes were in the private rented sector and 10% in the social sector, Figure 3.13.

3.34 Around 565,000 dwellings (3%) had a significantly higher than average risk in relation to flames and hot surfaces in 2011, of which 107,000 represented a Category 1 hazard. Of these 565,000 dwellings, around 22% were flats, Annex Table 3.11. One quarter (25%) of these dwellings were in the private rented sector and a further 18% in the social sector, Figure 3.13.

[6]figure is based on a small sample size and should be treated with caution.

Figure 3.13: Profile of dwellings with significantly higher than average risks of fire and flames and hot surfaces hazards by tenure, 2011



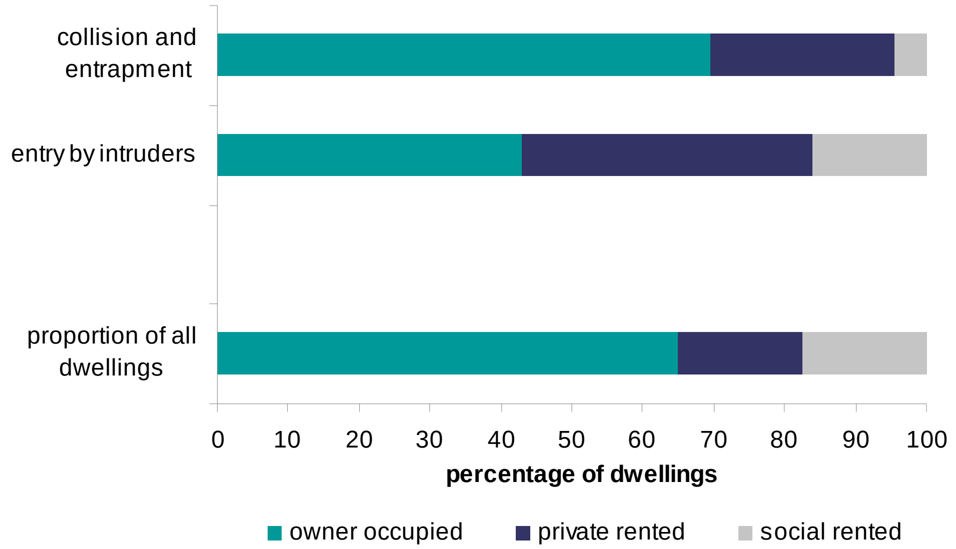
Base: all dwellings with a significantly higher than average risk of each specified hazard
Notes:
1) base for the bottom stacked bar is all dwellings
2) underlying data are presented in Annex Table 3.14
Source: English Housing Survey, dwelling sample

3.35 Around 74,000[7] dwellings had a Category 1 hazard in relation to collision and entrapment, but a further 433,000 dwellings had a significantly higher than average risk in relation to this type of hazard, Annex Table 3.15. Among all these 507,000 dwellings, 84% were houses or bungalows and 26% were private rented. The social sector performed relatively well in this respect, with just 5% of such dwellings[8], Figure 3.14

3.36 Around 491,000 dwellings had a significantly higher than average risk in relation to entry by intruders; for an estimated 47,000[9] of these, the risk was high enough to constitute a Category 1 hazard. Of the 491,000 dwellings almost one third (31%) were flats, Annex Table 3.15. The tenure distribution of these dwellings showed a much higher proportion of private rented homes than for the stock as a whole (41% compared to 18%). Only 16% of these dwellings were in the social rented sector, Figure 3.14.

[7]figure is based on a small sample size and should be treated with caution.
[8]figure is based on a small sample size and should be treated with caution.
[9]figure is based on a small sample size and should be treated with caution.

Figure 3.14: Profile of dwellings with significantly higher than average risks of collision and entrapment and entry by intruders hazards by tenure, 2011



Base: all dwellings with a significantly higher than average risk of each specified hazard
Notes:
1) base for the bottom stacked bar is all dwellings
2) underlying data are presented in Annex Table 3.15
Source: English Housing Survey, dwelling sample

Summary of poor housing conditions

3.37 This section summarises the incidence of the three key measures of poor housing examined so far in this chapter (substantial disrepair[10], serious damp, and Category 1 HHSRS hazards), together with the incidence of homes failing the Decent Homes standard[11]. Altogether, some 6.8 million homes (30%) had one or more of these four problems, Annex Table 3.16.

3.38 It then examines the extent to which these four categories of poor housing conditions overlap given that, for a significant number of dwellings, these problems do not exist in isolation. For example, if a dwelling has a Category 1 HHSRS hazard, then, by definition, it also fails the Decent Homes standard.

3.39 Dwellings in the private rented sector were more likely to have each of these problems than any other tenure. In contrast, housing association dwellings were least likely to have these, with the exception of damp. This variation is mainly because the private rented dwellings were more likely to be built before 1919 and these older dwellings tend to have poorer housing conditions (see Chapter 1 and Figure 3.17). Failing the Decent Homes standard (on any of the criteria: disrepair, thermal comfort, HHSRS or modernisation) was the most common of the four problems in all tenures. Whilst private rented and

[10] basic standardised repair costs of £35m² or more
[11] For this analysis the criterion for meeting the statutory minimum standard for housing is based on 15 of the 29 HHSRS hazards collected by the EHS.

owner occupied dwellings were more likely to have Category 1 hazards than problems with disrepair, the reverse was true for local authority homes, Figure 3.15.

Figure 3.15: Percentage of dwellings with different types of condition problems by tenure, 2011

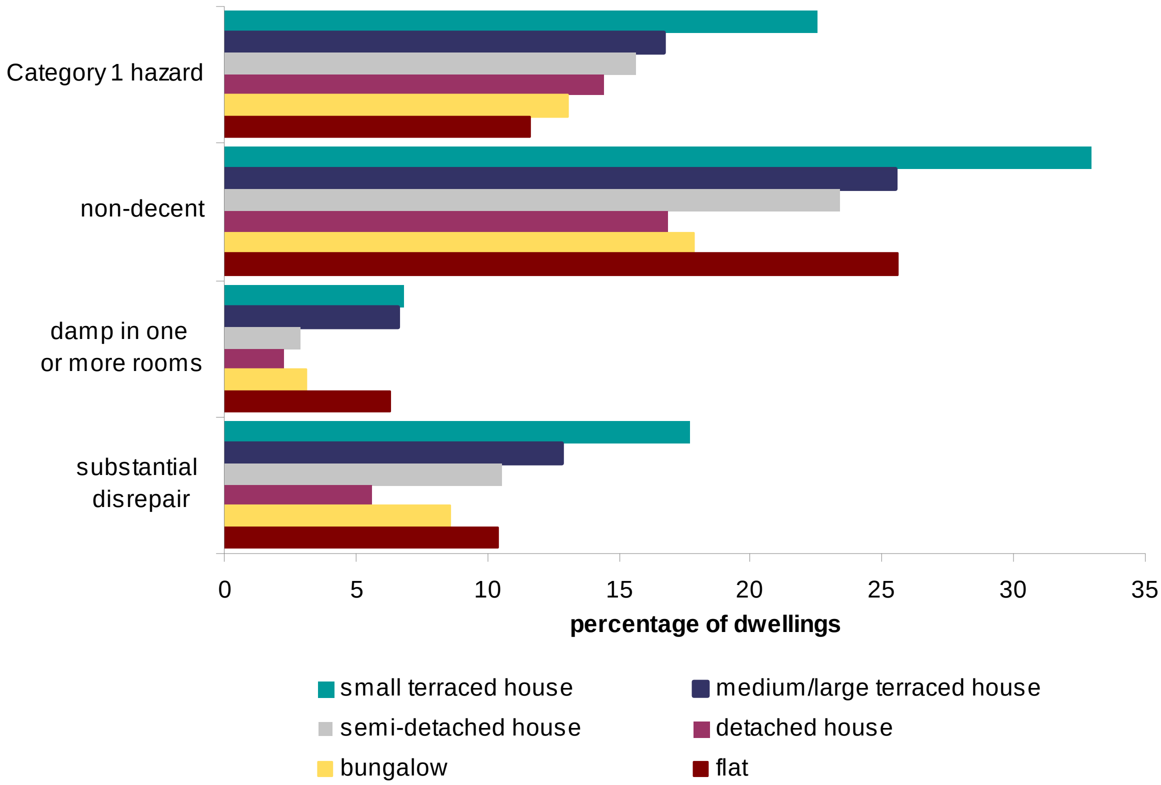
Base: all dwellings
Note: underlying data are presented in Annex Table 3.16
Source: English Housing Survey, dwelling sample

3.40 Perhaps not surprisingly, vacant dwellings were much more likely to be in substantial disrepair than occupied dwellings (24% compared with 10%). They were also more likely to fail the Decent Homes standard (32% compared with 23%). However there was no difference between occupied and vacant dwellings with regards to damp, Annex Table 3.16.

3.41 Small terraced houses were most likely to be affected by each condition measure, except damp which was also equally a problem in medium/large terraced houses and flats, Figure 3.16. For flats and terraced houses, serious condensation and mould was more prevalent than other types of damp, whilst for other dwellings the incidence of each type of damp was similar, Annex Table 3.17.

3.42 The pattern for these Category 1 hazards reflects the fact that the majority of these are related to excess cold or one of the falls hazards. With four external walls, internal stairs and generally larger plots, detached houses are more likely to have such hazards than bungalows or flats. Flats perform best as they tend to be newer and have a much smaller external wall to floor area ratio than most house types. Also, most flats will only have stairs in the common areas which, in the case of most purpose built blocks, will be less steep and safer than those in many older houses.

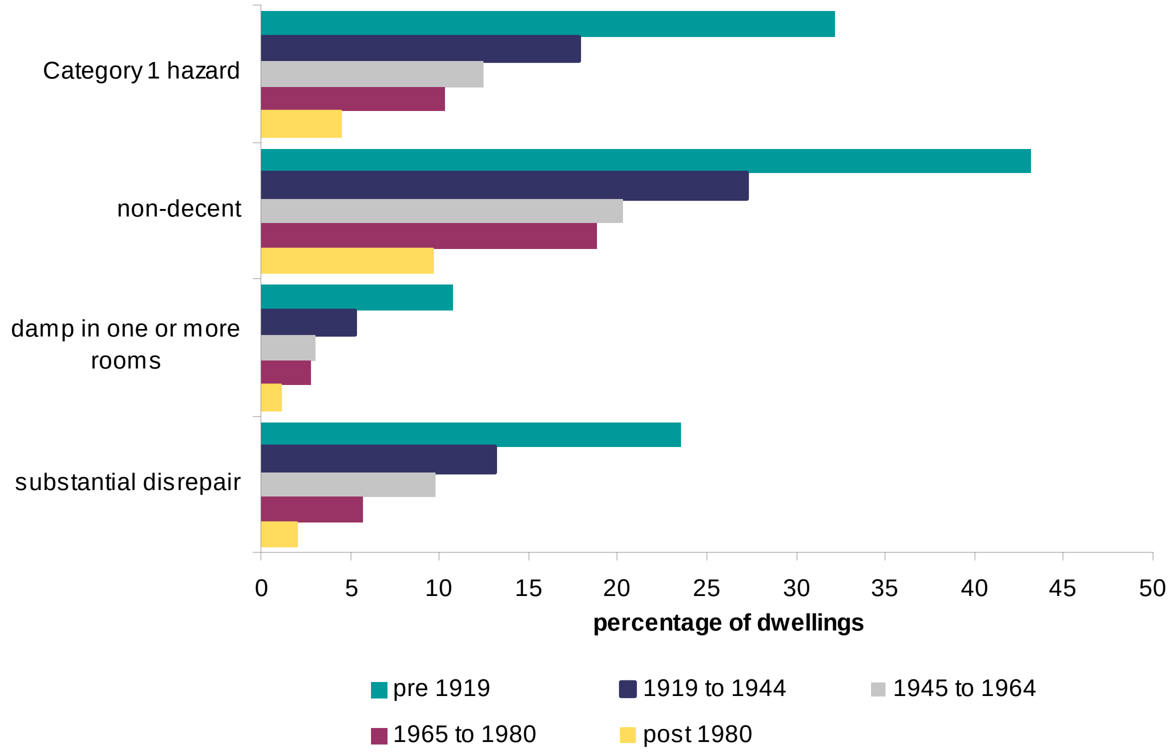
Figure 3.16: Percentage of dwellings with different types of condition problems by dwelling type, 2011



Base: all dwellings
Note: underlying data are presented in Annex Table 3.16
Source: English Housing Survey, dwelling sample

3.43 The four measures of poor condition were generally more prevalent in older houses. For pre 1919 dwellings, for example, the proportion with damp problems (11%) was at least double that for homes in other age bands. The proportion of non-decent homes among these pre 1919 dwellings (43%) was also substantially higher than for more modern homes (10-27%), Figure 3.17 and Annex Table 3.16.

Figure 3.17: Percentage of dwellings with different types of condition problems by dwelling age, 2011



Base: all dwellings
Note: underlying data are presented in Annex Table 3.16
Source: English Housing Survey, dwelling sample

Dwellings with multiple poor housing conditions

3.44 This section examines those 6.8 million dwellings with any of the above measures of poor housing, looking particularly at where these may co-exist.

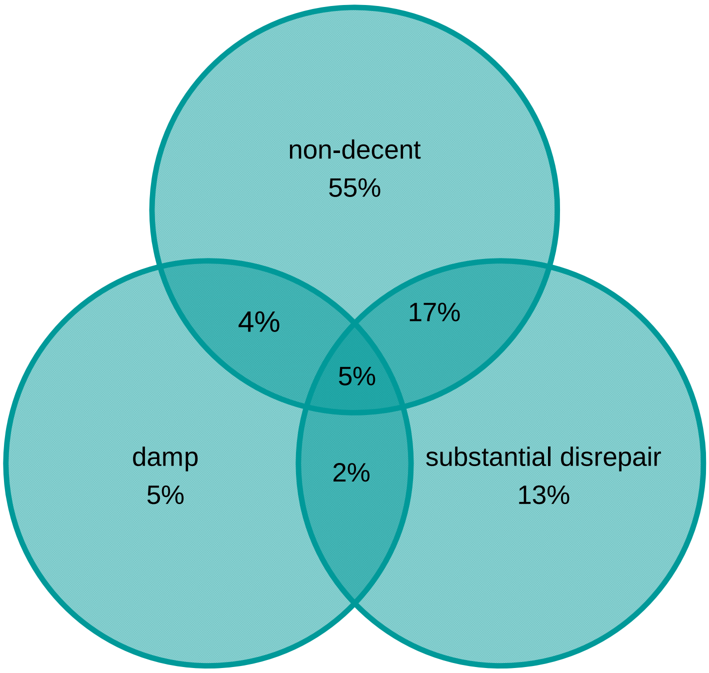
3.45 As a dwelling with any Category 1 hazard by definition fails to meet the Decent Homes standard, the three summary measures used in this analysis are:

- non-decency
- substantial disrepair
- damp

3.46 For this analysis, the Decent Homes standard criterion is based on all 26 HHSRS hazards collected by the EHS (as opposed to the 15 hazards used in the above 'summary of poor housing' section).

3.47 Some 1.5 million homes (22% of all those with poor housing condition) had two out of the three problems set out above, and around 323,000 (5% of all those with poor housing condition) had all three, Figure 3.18.

Figure 3.18: Percentage of dwellings with different combinations of condition problems, 2011



Base: all dwellings with poor housing conditions
Notes:
1) total does not add up to 100% due to rounding
2) underlying data are presented in Annex Table 3.18
Source: English Housing Survey, dwelling sample

3.48 This pattern held true for private sector homes, which comprised the majority of these dwellings (85%). However, private rented homes (10%) were much more likely than owner occupied dwellings (3%) to have all three problems. Social sector dwellings were less likely to have more than one type of problem (21% of all dwellings with poor housing conditions, compared with 28% in the private sector), Annex Table 3.18.

3.49 Pre 1919 dwellings were more likely to have multiple problems than those built after 1919 (39% compared with 19%) and some 8% had all three types of problem (compared with 3% of older dwellings). Only 46% of pre 1919 homes solely had problems with non-decency, compared with 61% of newer dwellings. For pre 1919 homes, the most common combination was non-decency together with substantial disrepair (24%), Annex Table 3.18.

‘Worst’ homes

3.50 This final section builds on the findings in the section above about the incidence of poor housing measures and the extent to which they co-exist, in order to examine the overall performance of different dwelling types. An overall scale of poor housing has been developed that also takes into account the energy performance (SAP rating – see Glossary for further detail) of the dwelling, Box 3.3[12].

Box 3.3: Overall scale of dwelling condition

Worst - has a Category 1 HHSRS hazard.

Poor - the dwelling has some damp, substantial disrepair (basic standardised repair costs over £35m²), or a SAP rating of less than 45.

Worse than average - the dwelling has higher than average levels of disrepair (basic standardised repair costs over £13.76m²), or a SAP rating below the mean for all dwellings (56.65 or less).

Generally satisfactory - the dwelling has below average levels of disrepair (basic standardised repair costs of £13.76m² or less), or a SAP rating over the mean for all dwellings (over 56.65).

3.51 Using this scale, some 15% of homes were classed in the ‘worst’ category, 15% as ‘poor’, 27% as worse than average and the remaining 43% as ‘generally satisfactory’, Annex Table 3.20.

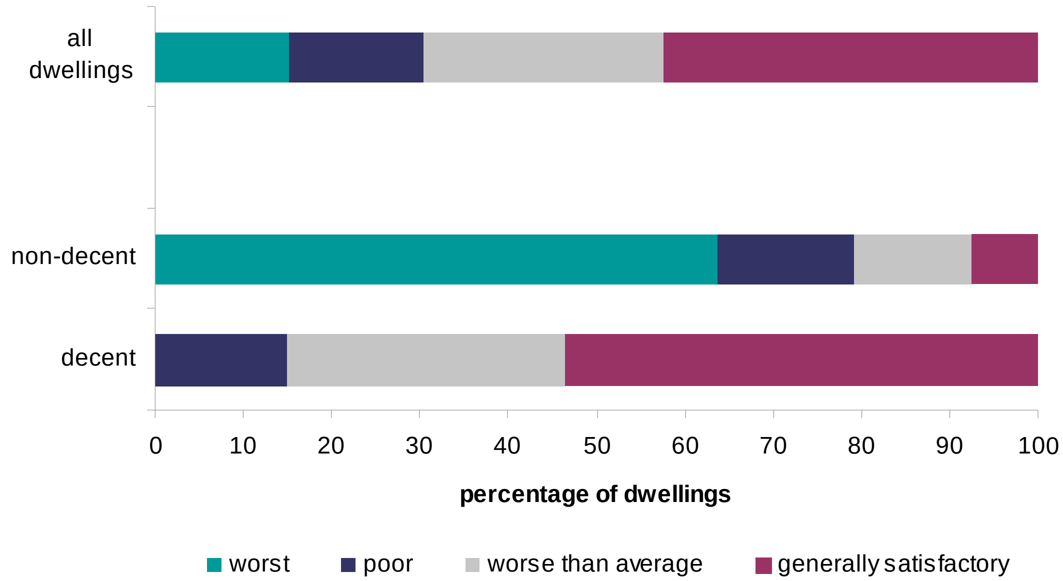
3.52 This is a very different measure to the Decent Homes standard. Firstly, it is a simple scale rather than a pass/fail classification. Secondly, it includes indicators that are not part of Decent Homes, e.g. presence of damp problems, and does not include factors that are part of the Decent Homes standard e.g. age of kitchen and bathroom amenities. Finally, some apparently similar aspects are measured in a totally different way: Decent Homes thermal comfort is not based on SAP, and Decent Homes disrepair is not based on total repair costs. For more details, see the Glossary.

3.53 Although no decent homes were classified as in ‘worst’ condition using the above scale (because of the absence of a Category 1 hazard in both cases), around 8 million decent homes (47%) were classed as ‘poor’ or ‘worse than average’. Conversely, 7% of non-decent dwellings were classed as ‘generally

[12] The methodology used for this scale is unable to provide an exact 50:50 division between those dwellings that are generally satisfactory and those that fall into other categories. However, this approach is designed to give an informative overview of the range of housing conditions within the stock.

satisfactory', Figure 3.19. Some 64% of non-decent homes were classified as 'worst' on the poor housing scale.

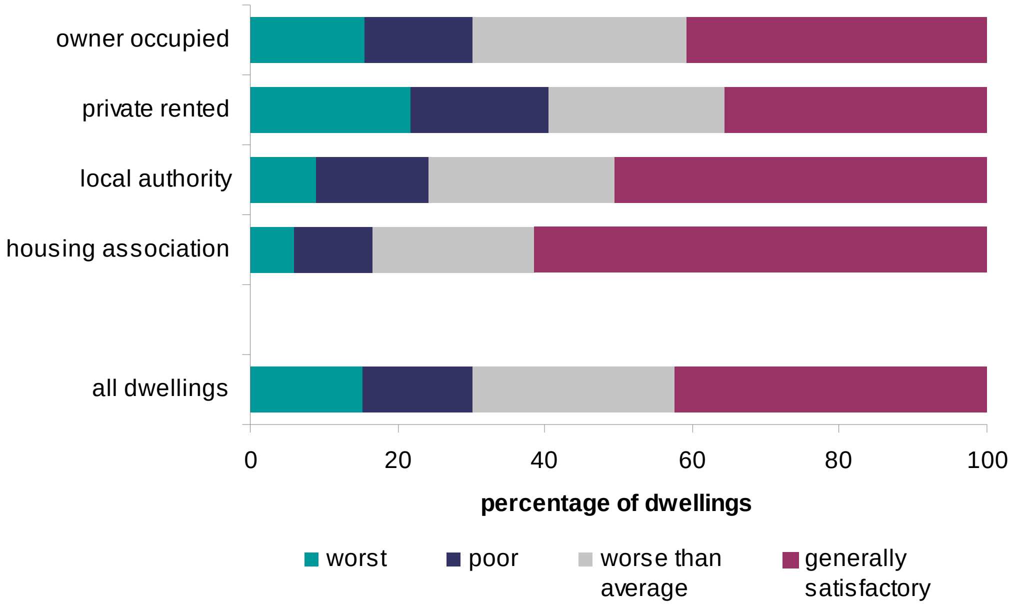
Figure 3.19: How non-decent and decent homes score on the 'worst' dwellings scale, 2011



Base: all dwellings
Note: underlying data are presented in Annex Table 3.19
Source: English Housing Survey, dwelling sample

3.54 Given that homes in the private rented sector were more likely to have each of the four poor housing measures (see Figure 3.15) it is not surprising that these were least likely to be classed as generally satisfactory. However, the proportion of homes that were 'worse than average' was similar amongst both private and social rented homes (22%-25%). The most marked difference was for those classed as 'worst': 17% for private sector homes compared with 7% for those in the social sector. Some 16% of owner occupied homes were classed as 'worst' housing, a smaller proportion than the private rented sector (22%) but greater than the social sector (6%-9%).

Figure 3.20: Percentage of dwellings in each 'worst' dwellings category by tenure, 2011

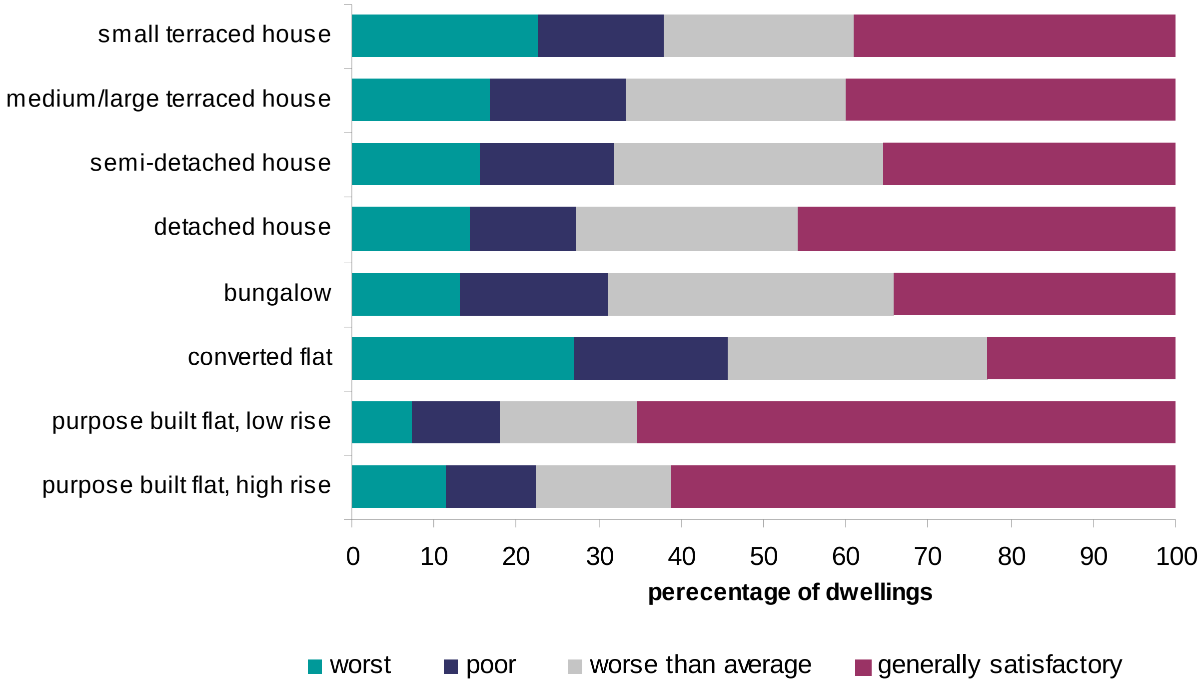


Base: all dwellings
Note: underlying data are presented in Annex Table 3.20
Source: English Housing Survey, dwelling sample

3.55 Whilst a similar proportion of vacant and occupied homes were classed as generally satisfactory (40% and 43% respectively), vacant homes were far more likely to be classed as worst or poor housing (41% compared to 30%), Annex Table 3.20.

3.56 Purpose built flats were far more likely to be classed as generally satisfactory (low rise 65% and high rise 61%) than converted flats (23%) and all houses and bungalows (39%). Interestingly, over one half of bungalows (53%) were classed as 'poor' or 'worse than average'.

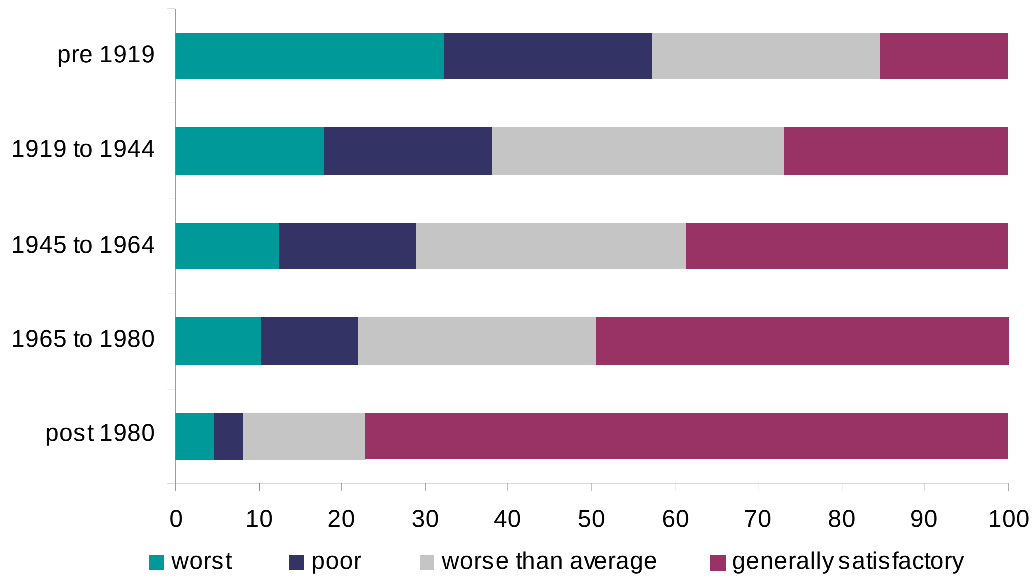
Figure 3.21: Percentage of dwellings in each 'worst' dwellings category by dwelling type, 2011



Base: all dwellings
Note: underlying data are presented in Annex Table 3.20
Source: English Housing Survey, dwelling sample

3.57 Not surprisingly, the newer the dwelling, the greater the likelihood of it being generally satisfactory. Some 77% of homes built after 1980 were generally satisfactory, compared with 27% of homes built between 1919 and 1945 and just 15% of those built before 1919, Figure 3.22. Although pre 1919 homes were more likely to be 'worst' or 'poor', it is clear that the condition of these homes is very mixed reflecting the diverse nature of these homes, the scope and type of improvements that have been carried out during their lives and the market conditions in which they are located.

Figure 3.22: Percentage of dwellings in each 'worst' dwellings category by dwelling age, 2011



Base: all dwellings
Note: underlying data are presented in Annex Table 3.20
Source: English Housing Survey, dwelling sample

Chapter 4
Energy performance

Reducing energy use and cutting down on waste can reduce energy bills, make energy systems more sustainable, and reduce greenhouse gas emissions. For these reasons, successive governments have introduced a number of policy measures and funding mechanisms to try to reduce the amount of energy used in the housing stock. This chapter assesses how energy efficiency and carbon dioxide emissions have improved between 2001 and 2011, highlighting groups of homes that have seen the most and least improvements. It then explores the potential for making further improvements to homes, providing estimates of the impact of these further works on energy bills and carbon dioxide emissions. Finally, it examines households' awareness of Energy Performance Certificates, and assesses how much and what type of improvements have been carried out in response to these certificates and more generally.

Additional findings relating to energy performance, heating and insulation can be found in the web tables DA6101 to DA7104.

Key findings

- Between 2001 and 2011, the overall energy efficiency rating of English housing stock increased significantly. As was the case in 2001, social sector homes in 2011 were more energy efficient than those in the private sector.

- The percentage of homes with central heating rose from 85% in 2001 to 90% in 2011. Over the same period, the proportion with individual room heaters fell from 7% to 3% and the proportion of homes with electric storage heaters remained fairly constant at 7-8%.

- The proportion of cavity wall dwellings with insulation in the walls increased from 39% in 2001 to 63% in 2011. The proportion of dwellings with at least 150mm of loft insulation also increased, from 24% of dwellings with lofts in 2003 to 47% in 2011. Energy efficient condensing boilers, first introduced around 10 years ago, were present in 38% of dwellings in 2011.

- There is considerable potential to improve energy efficiency further. Some 6.4 million homes could potentially be improved by installing cavity wall insulation, 5.9 million by installing or topping up loft insulation, and 10.6 million by replacing the existing conventional central heating boiler with a condensing unit.

- In 2011, the majority of homes (88%) obtained hot water via the central heating system and most of the rest (10%) had an immersion heater as the primary source of hot water. Since 2001, the incidence of centrally heated water systems has increased from 17.7 million to 19.9 million dwellings (84% to 88%), with the biggest increase in the private rented sector.

- In 2011, 8.9 million homes (39%) had low energy lighting in at least half of all the rooms surveyed. Social sector dwellings were most likely to have such lighting (61% of housing association dwellings and 58% of local authority dwellings). Low energy lighting was more common in private rented homes than owner occupied homes (45% compared with 32%).

- Of the 5.2 million households who should have seen their home's EPC, less than half (43%) recall seeing it at all and only 3% carried out any of the recommendations contained therein. Furthermore, those who had seen an EPC were no more likely to undertake energy improvement works to their home than other households.

Energy efficiency

4.1. The key measures of energy performance of the housing stock used throughout this chapter are the energy efficiency (SAP) rating and carbon dioxide (CO_2) emissions, Box 4.1.

Box 4.1: Key measures of energy performance

Energy efficiency rating: The SAP rating is based on each dwelling's energy costs per square metre and is calculated using a simplified form of the Standard Assessment Procedure (SAP). The energy costs take into account the costs of space and water heating, ventilation and lighting, less any cost savings from energy generation technologies. The rating is expressed on a scale of 1-100 where a dwelling with a rating of 1 has poor energy efficiency (high costs) and a dwelling with a rating of 100 represents a completely energy efficient dwelling (zero net energy costs per year).

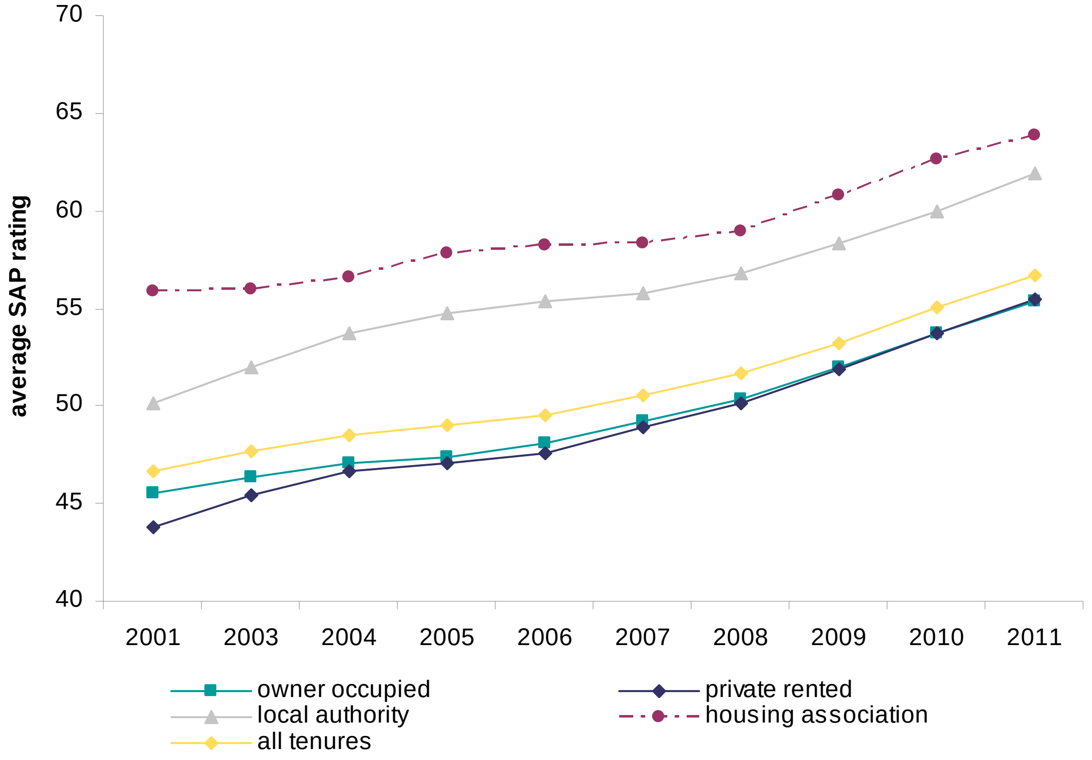
The energy efficiency rating is also presented in an A to G banding system for an Energy Performance Certificate, where Energy Efficiency Rating (EER) Band A represents low energy costs (the most efficient band) and EER Band G represents high energy costs (the least energy efficient band).

Carbon dioxide emissions: The carbon dioxide (CO_2) emissions estimates are derived from space heating, water heating, ventilation and lighting, less any emissions saved by energy generation, and are measured in tonnes per year. This chapter deals with the average emissions per dwelling and the total emissions for different sub-sections of the stock.

It is important to emphasise that this assessment of the housing stock is not based on actual energy consumption and emissions, but on the consumption (and resulting emissions) assumed under a standard occupancy and standard heating pattern for each dwelling. This enables the performance of the housing stock to be assessed on a comparable basis (between sections of the stock and over time).

4.2. The average SAP rating for all dwellings increased from 47 in 2001 to 57 in 2011. The largest increases were evident in the private rented and local authority sectors, where the average SAP rating increased by 12 SAP points. Housing association dwellings have consistently had the highest average SAP rating, reaching 64 in 2011, largely because this sector contains the highest proportion of newer homes.

Figure 4.1: Energy efficiency, average SAP rating by tenure, 2001-2011



Base: all dwellings
Note: underlying data are presented in Annex Table 4.1
Sources:
2001-2007: English House Condition Survey;
2008 onwards: English Housing Survey, dwelling sample

4.3. Social sector homes had higher average SAP ratings than private sector homes mainly because they have higher levels of insulation. This is partly because they tend to be newer and are therefore insulated to higher standards. It is also partly because of their built form: the social sector contains a far higher proportion of terraced houses and flats than the private sector (see Chapter 1) and these have far less exposed surface area (external walls and roofs) through which heat can be lost than detached or semi-detached houses, which are more common in the private sector.

4.4. Chapter 6 of the EHS Homes Report 2010 contains detailed analysis of the mean SAP, mean CO_2 and total CO_2 emissions for different types and ages of dwellings. The picture is unlikely to have changed significantly since then.

Energy efficiency measures

Heating systems

4.5. In 2011, virtually all dwellings in England had a mains electricity supply (99%), and 16% of dwellings had an off peak electricity supply[1], Annex Tables 2.1 and 2.2. Some 86% of homes had a mains gas supply, Annex Table 2.3.

4.6. The most marked change in the heating systems of homes since 2001 has been the increase in central heating[2] and the reduction in the proportion of homes with individual room heaters such as gas fires or fixed electric heaters. The percentage of homes with central heating (whether gas-fired or other), which is generally considered to be the most cost effective and efficient type of heating, rose from 86% in 2001 to 90% in 2011, Annex Table 4.2.

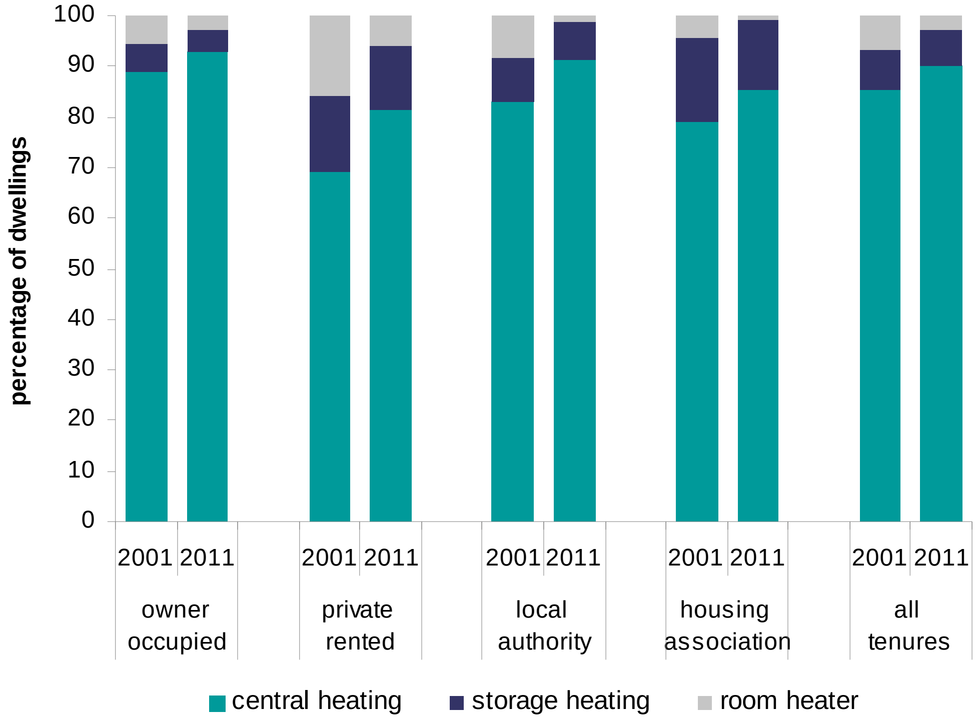
4.7. Over the same period, the proportion with individual room heaters, which tend to be the least cost effective and least efficient method of heating, fell from 7% to 3%. The fall in the use of individual room heaters was particularly marked for private rented dwellings (16% to 6%). The proportion of homes with electric storage heaters has remained fairly constant since 2001 at 7-8%. Virtually all electric storage heaters used an off-peak electricity supply, Annex Table 4.3.

4.8. Chapter 6 of the EHS Homes Report 2010 contains further information on the distribution of non-boiler heating systems over time.

4.9. In 2011, owner occupied dwellings (93%) were more likely to have central heating than those in the social sector (88%) and private rented sector (81%), Annex Table 4.2. This is because owner occupied dwellings included a much lower proportion of flats, which have a far greater proportion of storage and individual room heaters compared to houses. Private rented dwellings (6%) were more likely to have individual room heaters than owner occupied dwellings.

[1] a supply offered at a lower price than on peak supply. This can be utilised by storage heaters to reduce the cost of heating.
[2] central heating is defined as a system with a boiler that feeds radiators. It does not include warm air, underfloor or ceiling systems or electric storage heaters.

Figure 4.2: Distribution of heating systems, 2001 and 2011



Base: all dwellings
Note: underlying data are presented in Annex Table 4.2
Sources:
2001: English House Condition Survey;
2011: English Housing Survey, dwelling sample

Cavity wall insulation

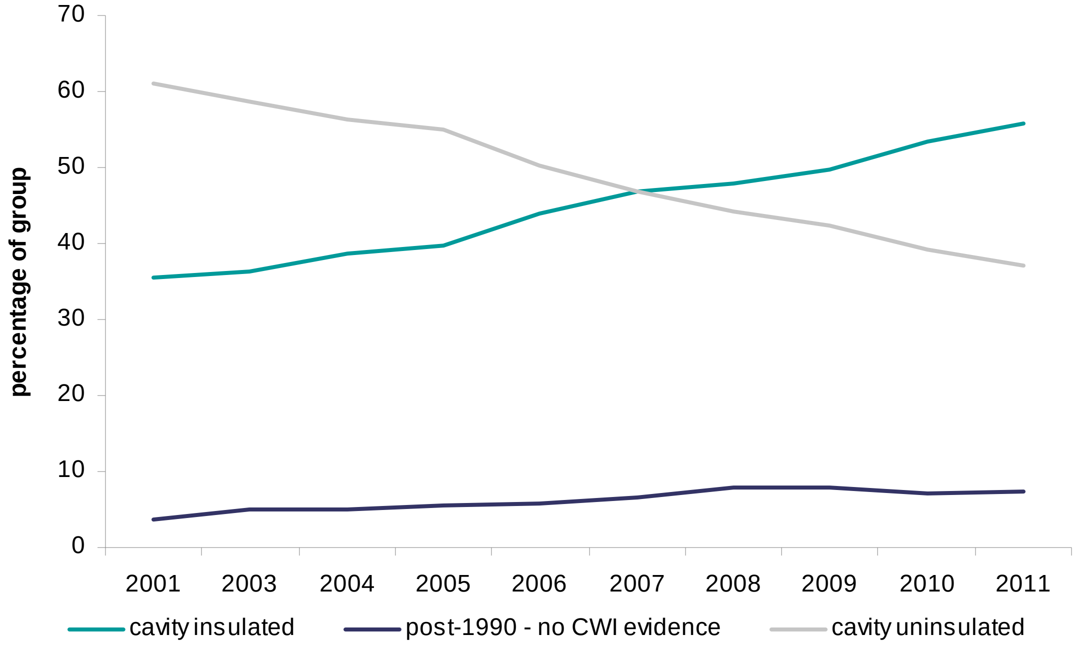
4.10. The EHS collects data on cavity wall insulation by examining the dwelling for evidence of insulation. External walls of cavity construction normally provide greater energy efficiency than solid walls by reducing heat loss. This type of construction became more prevalent from around 1930 onwards. In order to comply with Building Regulations most dwellings built since 1990 with cavity walls had cavity wall insulation fitted as part of the original construction; however compliance could also be achieved through other techniques.

4.11. Some older cavity walled homes have had cavity wall insulation installed by injecting insulating material into the cavity, and this very often leaves some evidence that would be recognised by a trained surveyor. Nonetheless, the survey may under-estimate the total number of dwellings with cavity wall insulation by excluding those newer homes with insulation fitted at the time of construction.

4.12. This section examines the number of dwellings showing evidence of cavity wall insulation as a proportion of all cavity walled homes, along with the number of additional dwellings built post 1990 which may have been built with insulated cavity walls but where there was no visible evidence of this at the time of the survey[3].

4.13. In 2001, around 5.2 million dwellings showed evidence of cavity wall insulation (35% of all cavity walled homes), with an additional 524,000 (4%) in the post 1990 category. In 2011, these figures had risen to 8.7 million (56%) observed cases and 1.1 million (7%) in the post 1990 category. Combining these categories indicates a steady increase in the proportion of cavity walled dwellings with cavity wall insulation from 39% in 2001 to 63% in 2011, Figure 4.3.

Figure 4.3: Proportion of dwellings with insulated cavity walls, 2001-2011



Base: all dwellings with cavity walls
Note: underlying data are presented in Annex Table 4.4
Sources:
2001-2007: English House Condition Survey;
2008 onwards: English Housing Survey, dwelling sample

4.14. In 2011, housing association dwellings were the most likely to have cavity wall insulation (72% of cavity walled dwellings). The private rented sector had the lowest proportion of cavity walls with cavity wall insulation: 49% were estimated to have cavity wall insulation, and just 38% showed evidence of such insulation, Annex Table 4.5.

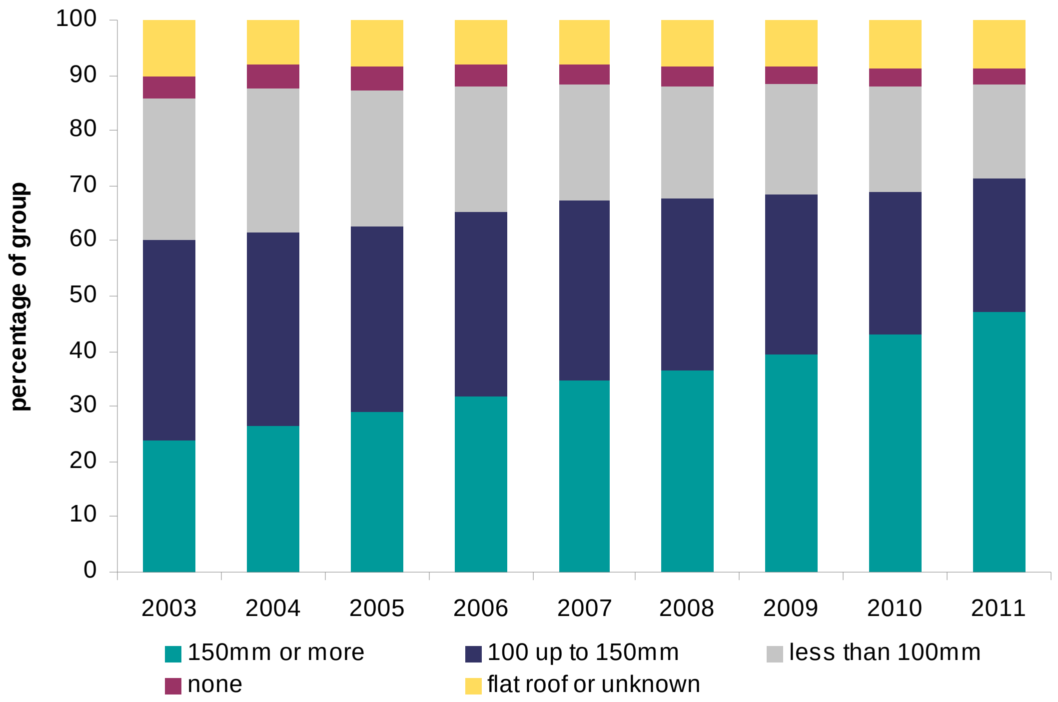
[3] combining these two categories provides the most reliable estimate of the total number of homes with cavity wall insulation because, although there will be some post 1990 dwellings without cavity wall insulation, there will also be some dwellings built with insulated cavity walls in the 1980s but where there is no visible evidence of this. Further details of the difficulties in providing an estimate are given in the Technical Advice Note on Energy Efficiency and Energy Improvements.

Loft insulation

4.15. Information on loft insulation could not be collected for some homes, e.g. where the loft hatch was inaccessible or where the roof had a very shallow pitch with no access point. Also, a number of dwellings have flat roofs above and these do not have a loft space. These inaccessible or unknown cases are included in Figure 4.4 because they are included in the analysis on potential for improving energy efficiency, reported later in this chapter. These dwellings formed a consistent 8-10% of dwellings over time and may be suitable for some type of roof insulation. This would include the same as for a flat roof – either fitting insulated board below the current ceiling or lifting the roof cover and fitting insulation between the timbers.

4.16. Current Building Regulations require new dwellings to have around 270mm of loft insulation. In 2011, some 47% of dwellings with a loft space above had at least 150mm of loft insulation, a significant improvement from the 24% in 2003[4]. Nonetheless, there is considerable potential for improving this further, especially in the private rented sector where just 31% of homes with lofts had at least 150mm of loft insulation in 2011, Annex Table 4.6.

Figure 4.4: Percentage of dwellings with different amounts of loft insulation, 2003-2011



Base: all houses and top floor flats
Note: underlying data are presented in Annex Table 4.7
Sources:
2003- 2007: English House Condition Survey;
2008 onwards: English Housing Survey, dwelling sample

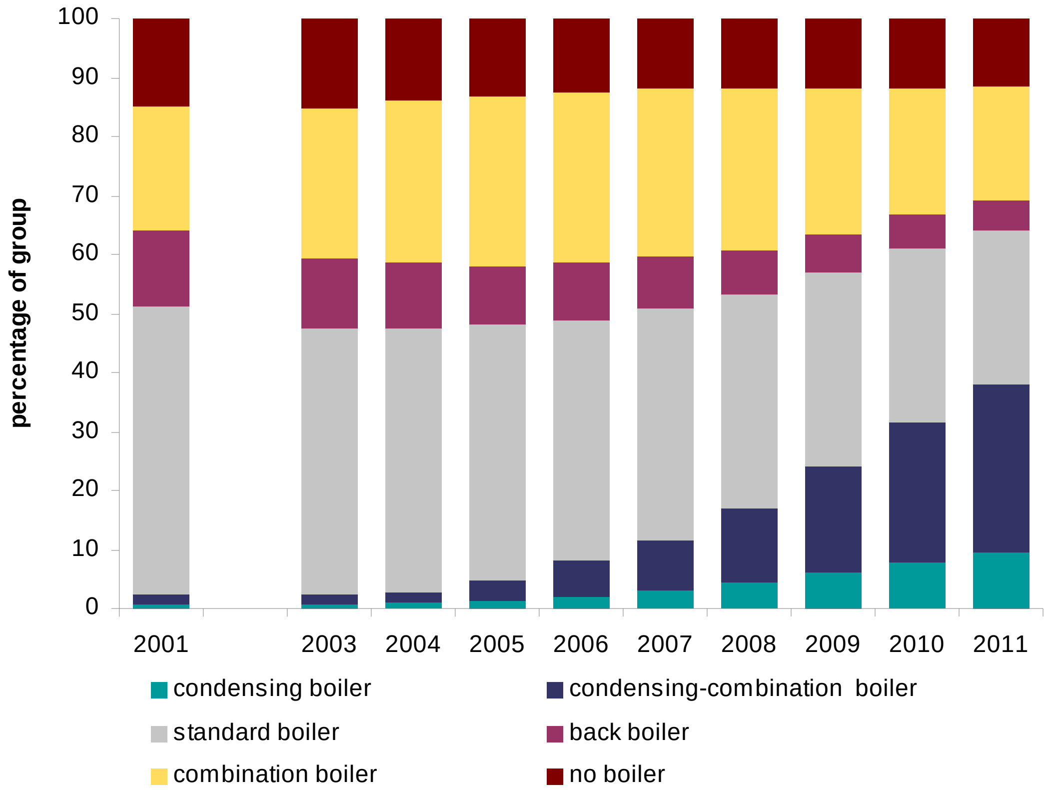
[4] it is not possible to give equivalent 2001 figures for loft insulation as the English House Condition Survey only surveyed lofts in houses built before 1980.

Boiler systems

4.17. Changes to Building Regulations in 2005 made it mandatory for replacement boilers to be of the more efficient condensing types (where feasible). In 2001, only 2% of homes had either a condensing or a condensing combination boiler, but uptake of these has increased considerably, and by 2011 well over a third (38%) of all dwellings had one of these types, Figure 4.5. The increase has been mainly due to the large number of condensing combination boilers installed[5].

4.18. Over the same period, the proportion of homes with back boilers[6] fell from 13% in 2001 to 5% in 2011, and the proportion of homes with standard boilers fell from 49% in 2001 to 26%.

Figure 4.5: Percentages of dwellings with given boiler types, 2001-2011



Base: all dwellings
Note: underlying data are presented in Annex Table 4.8
Sources:
2001-2007: English House Condition Survey;
2008 onwards: English Housing Survey, dwelling sample

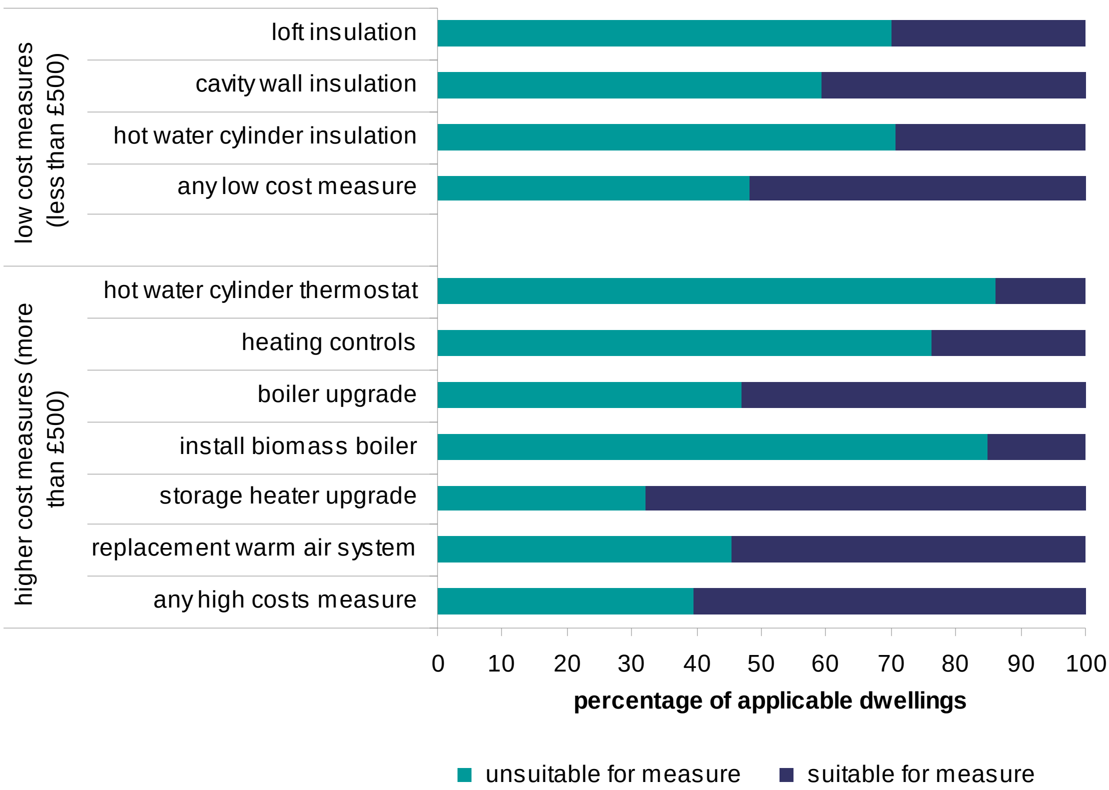
[5]combination boilers provide hot water instantaneously and tend to be installed in smaller houses and flats in preference to standard boilers (with a hot water cylinder), at least partly to reduce future maintenance or replacement of hot water cylinders and associated piping.
[6]these are located behind a room heater and are designed to provide hot water for space heating, and may also provide domestic hot water indirectly through a separate hot water storage cylinder.

Potential for energy improvements

4.19. The cost effective improvement measures included in this section are based on the lower and higher cost recommendations covered by the Energy Performance Certificate (EPC), described in more detail in the Glossary. Details of how the EHS provides an assessment of homes that could benefit from these measures are described in the Technical Advice Note on Energy Efficiency and Energy Improvements

4.20. In 2011, 17.4 million dwellings (76% of the housing stock) could potentially benefit from at least one of the cost effective improvements listed in Annex Table 4.9. The measures which could benefit the most dwellings were: replacing the existing conventional central heating boiler with a condensing boiler (10.6 million); installing cavity wall insulation (6.4 million); and installing or topping up loft insulation (5.9 million), Figure 4.6.

Figure 4.6: EPC recommended energy efficiency measures, 2011



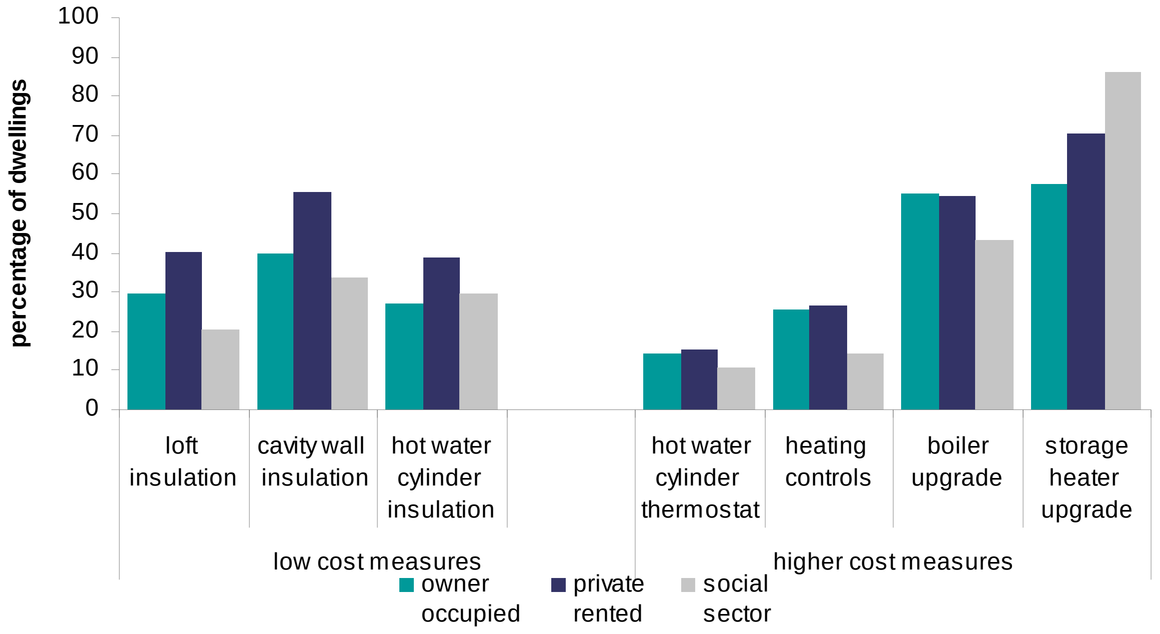
Base: all dwellings
Notes:
1) figures show the proportion of dwellings where this improvement might be possible, e.g. for cavity wall insulation this is the number of dwellings with cavity walls
2) biomass boiler installation is applicable to homes with solid fuel heating
3) improvement costs at 2010 prices
4) underlying data are presented in Annex Table 4.9
Source: English Housing Survey, dwelling sample

4.21. A further 2.3 million dwellings, without mains gas, had storage radiators or other non-central, electric heating systems and 68% of these could benefit from replacing these with more modern slim-line storage heaters which tend to be cheaper to run[7].

4.22. Some 24% of the 20.1 million dwellings that had boiler systems with radiators or warm air heating systems could benefit from the installation of heating controls. Around 29% of the 11.6 million dwellings with hot water cylinders could be improved by upgrading the cylinder insulation, and around 14% by fitting a cylinder thermostat.

4.23. Private rented dwellings were the most likely to have potential to install low cost measures: 41% of these homes with lofts and 56% with cavity walls could potentially benefit from insulation, Figure 4.7. In contrast, social sector homes had the least potential for most of the low cost improvement measures, partly because many of these works had already been carried out through the Decent Homes programme. However, for homes with storage heaters as the main heating source, those in the social sector were the most likely to be able to benefit from storage heater upgrades.

Figure 4.7: Percentages of eligible dwellings that would benefit from EPC recommended energy efficiency measures by tenure, 2011



Base: number of dwellings where this improvement might be possible, e.g. for cavity wall insulation the base is the number of dwellings with cavity walls
Notes:
1) replacement warm air systems and installation of biomass boilers have been omitted due to the small numbers of dwellings that would benefit
2) underlying data are presented in Annex Table 4.10
Source: English Housing Survey, dwelling sample

[7] modern, slim-line storage heaters often have a charge control (or an automatic charge control) which can adjust the amount of heat stored overnight. If the temperature is milder it stores less heat, saving money in the process.

4.24. The potential for installing beneficial energy efficiency measures also varied by dwelling age. Those homes built after 1990 typically had less potential, largely because the requirements for energy efficiency within Building Regulations have improved considerably in the last 20 years. Interestingly, the improvement potential was not always greatest for the oldest homes, Annex Table 4.11. This is largely because many older homes had been upgraded to reasonably modern standards whilst many homes dating from around 1945-1980 retained the levels of energy efficiency which existed at the time they were built.

4.25. Overall, houses were more likely to be able to benefit from improvements to heating controls, installation of a cylinder thermostat and boiler upgrades, whereas flats were more likely to be able to benefit from the low cost measures and from storage heater upgrades, Annex Table 4.12.

Solid wall insulation

4.26. The survey estimates that there were 7.1 million homes with solid walls, of which 307,000 already had insulation applied (either internally or externally) to the majority of their walls[8], Annex Table 4.13. Most external wall insulation systems involve fixing insulation boards/material to the outside walls and rendering over the top. This means that the type and condition of the existing wall finish and the presence of projections such as bays or conservatories will affect the complexity and cost of the work. There are other factors too which are likely to increase costs and technical complexity and these are examined in more detail in Chapter 7 of the 2010 EHS Homes report, and in Chapter 5 of this report in relation to the dwellings with the poorest energy efficiency.

Renewable energy

4.27. The EHS collects basic information on the presence of solar panels for hot water, solar photovoltaic panels or a domestic wind turbine contributing to electricity production. Data for solar photovoltaic panels and domestic wind turbines has only been collected since 2009 and sample sizes are small[9]. Consequently, any conclusions drawn from the data require careful consideration as longer term validation is needed.

4.28. It is estimated that about 295,000 dwellings had either a solar panel for hot water or photovoltaic panels in 2011, Table 4.1. Photovoltaic panels were slightly more common (168,000) and these may be at least partly due to the Feed-in Tariffs (FITs) scheme introduced in 2010, rewarding investment in low-carbon technology. Some 88% of these two renewable features were estimated to be in the private sector.

[8]these figures relate to all dwellings of non-cavity construction. This methodology differs from that in the 2010 report which included some cavity walled dwellings with predominant evidence of internal insulation.
[9]the sample numbers of dwellings with wind turbines are too small to provide robust estimates.

Table 4.1: Renewable energy measures, 2011

all dwellings

	private sector	social sector	all dwellings	*sample size*
		thousands of dwellings		
solar hot water	137	*11*	148	*89*
photovoltaic	143	*26*	168	*94*
any solar renewable	**260**	***35***	**295**	***173***
		percentage of dwellings		
solar hot water	92.4	*7.6*	100.0	
photovoltaic	84.8	*15.2*	100.0	
any solar renewable	**88.1**	***11.9***	**100.0**	

Base: all dwellings with a renewable energy measure
Note: figures in *italics* are based on small samples and should be treated with caution
Source: English Housing Survey, dwelling sample

Post-improvement performance

4.29. If all the potential cost effective improvement measures[10] covered by EPCs were installed in all eligible dwellings, the mean SAP rating for the stock would rise by 6 points from 57 to 63. Under the standard occupancy and heating patterns used by SAP to assess stock performance, this could result in the following (Annex Table 4.14):

- a potential 15% reduction in heating, lighting and ventilation costs of average fuel bills for all households (from £957 to £810 at 2011 standard energy prices)
- average CO_2 emissions falling by 1 tonne/year across the whole stock (from 5.4 to 4.4 tonnes/year)
- a total saving of 22.3 million tonnes/year of CO_2 (or 18% of total emissions accounted for by the housing stock).

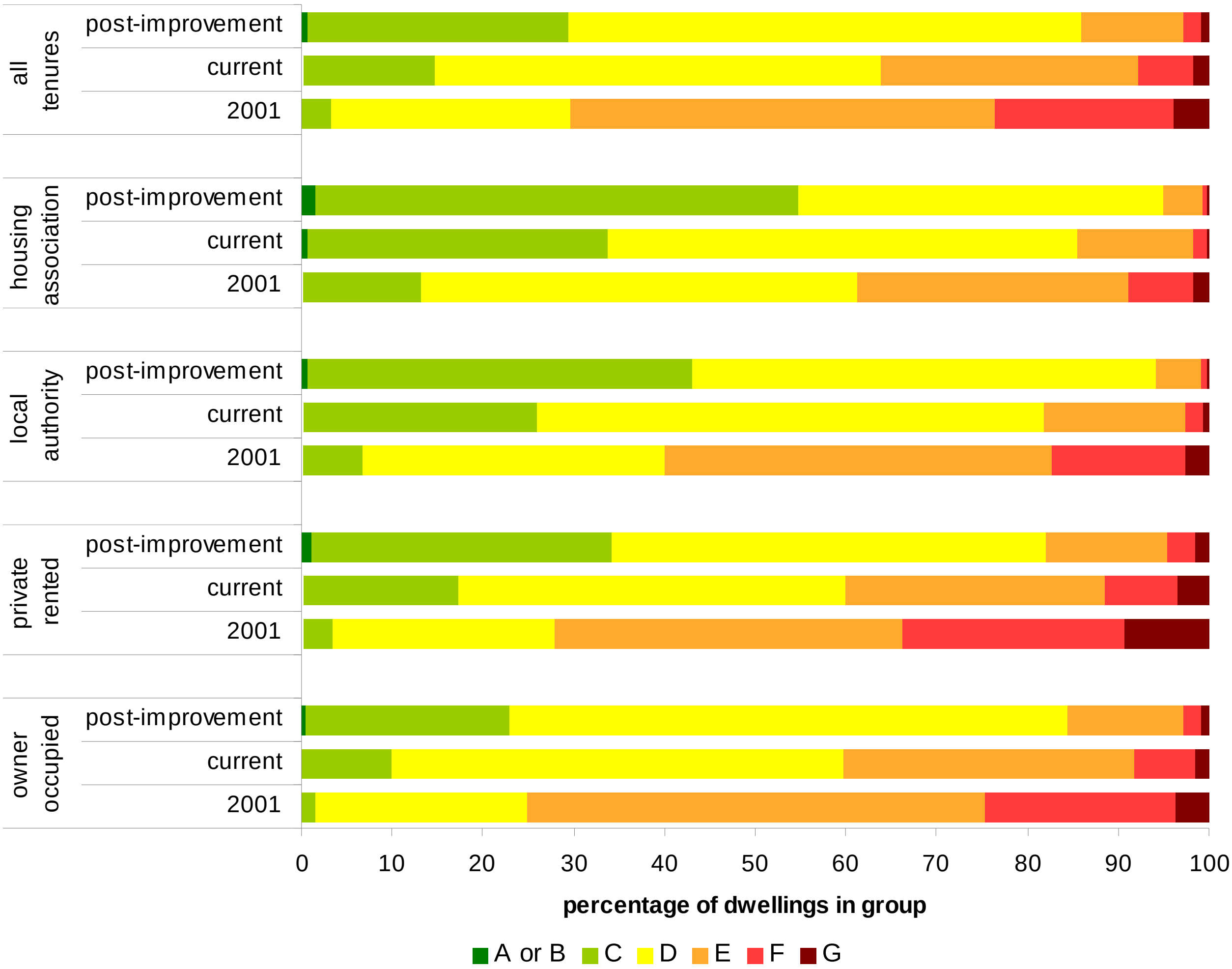
4.30. The improvements in the average SAP rating would be larger for owner occupied and private rented dwellings (both up 7 points) than for social sector homes (up by 5 points), whilst falls in the average CO_2 emissions would be lower for social sector homes, at around 0.5 tonnes compared to around 1.1 tonnes in the private sector. Private sector homes would see a much larger potential reduction in annual energy costs than social sector homes (saving an average £161 compared with £81).

[10] replacing warm air system has been included in the post-improvement Energy Efficiency Rating/CO2 emissions but, due to modelling complexity, installation of a biomass boiler has not. Given the relatively small number of dwellings that could benefit from a HETAS approved biomass boiler this will not have any significant effect on the overall indicators of post-improvement performance used in this section.

4.31. There were substantial improvements in energy efficiency from 2001 to 2011 with the proportion of dwellings in the top energy efficiency bands (A - C) rising from 3% in 2001 to 15% in 2011. Applying the full range of cost effective EPC measures would double the proportion of dwellings in these bands to 30%. Furthermore, these measures would reduce the percentage in the least efficient bands (E to G) to 14%. This would represent a very significant reduction from the 70% of homes in these bands in 2001, Figure 4.8.

4.32. Applying the full range of measures would result in there being very few social sector homes in Bands E to G (7%). Some 55% of housing association dwellings and 43% of social sector dwellings would be in Bands A to C, compared with 34% of private rented dwellings and 23% of owner occupied dwellings, Annex Table 4.15. This is largely because the private sector has a higher proportion of both the oldest pre 1919 homes and of semi-detached and detached houses. After the full range of measures had been applied, some 54% of the dwellings in Bands E-G would be pre 1919 stock, and a similar proportion (51%) would be semi-detached or detached houses, Annex Table 4.16.

Figure 4.8: Percentage of dwellings in each Energy Efficiency Rating Band by tenure, 2001 and current and post-improvement performance, 2011[11]



Base: all dwellings
Note: underlying data are presented in Annex Table 4.15
Sources:
2001: English House Condition Survey;
2011: English Housing Survey, dwelling sample

4.33. Chapter 7 of the EHS Homes Report 2010 contains much more detailed analysis of the potential improvements in CO_2 emissions if EPC recommended measures were applied. These findings are unlikely to have changed significantly since then.

4.34. The average cost of applying all of these cost effective EPC improvements would be in the region of £992 per improved dwelling, amounting to a total of £17.2 billion. However, for 20% of dwellings the measures required would cost less than £390 to install. At the other end of the scale, the most expensive 20% would cost in excess of £1,390 each. On average, the most expensive dwellings to improve were housing association properties (£1,016) and owner occupied homes (£1,008), detached houses (£1,187) and

[11]improvements are those EPC recommended energy efficiency measures given in Figure 4.6.

bungalows (£1,087). Interestingly, the oldest dwellings did not have significantly different average costs than more recently built ones, Annex Table 4.17. This is probably because they are more likely to have had some improvement works already.

Other energy performance factors

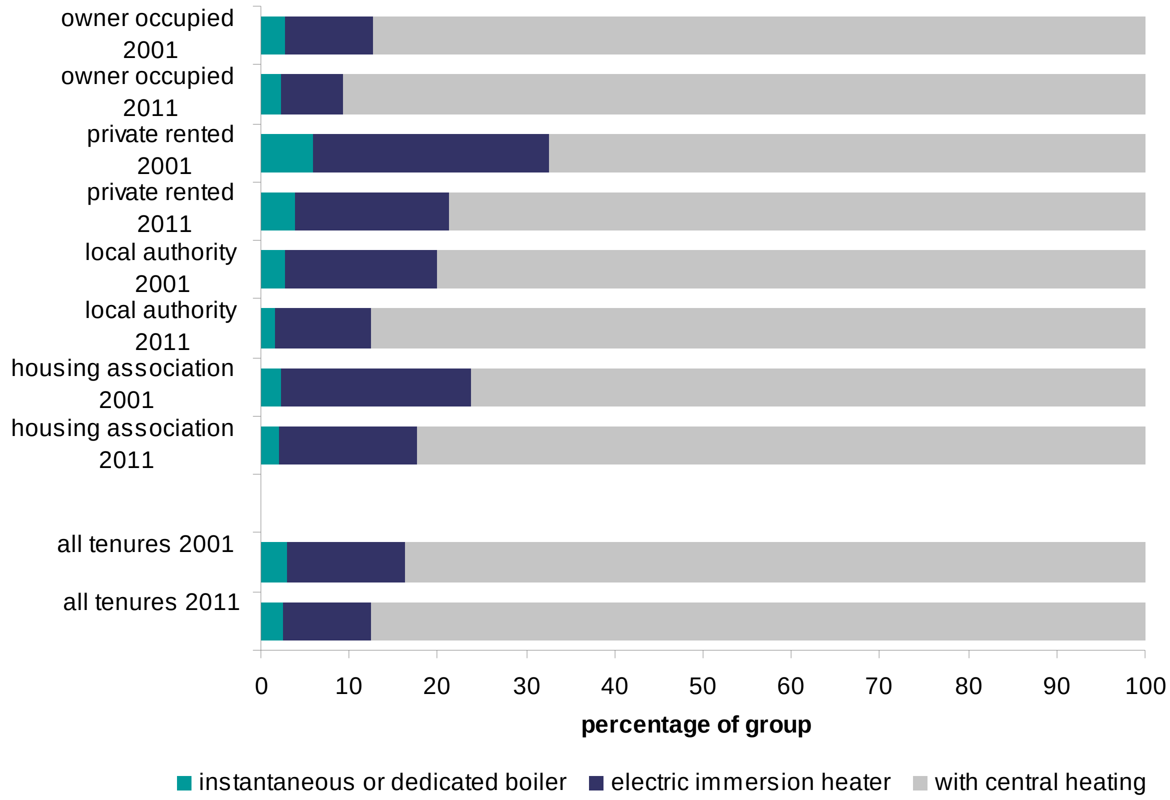
4.35. Aside from the core energy measures covered by the EPC, there are several other aspects of energy performance that can influence how energy efficient a dwelling is. Some examples of these, such as water heating and low energy lighting, are examined in this section.

Water heating

4.36. In 2011, the majority of homes (88%) obtained hot water via the central heating system simply because most homes had central heating that also provided hot water. Most of the rest (10%) had an immersion heater as the primary source of hot water, with relatively few having instantaneous water heaters or a dedicated boiler. However, there was some variation by tenure. Private rented homes were more likely to have an immersion heater as the main source of hot water than owner occupied homes (17% compared with 7%), Annex Table 4.18.

4.37. Since 2001, the incidence of centrally heated water systems has increased from 17.7 million to 19.9 million dwellings (84% to 88%), with the biggest increase (of 1.7 million) in the private rented sector. This mirrors the trend of increasing central heating use, especially in the private rented sector. The number of homes with an immersion heater as the primary means of providing hot water reduced from 2.8 million to 2.3 million over the same period. The relative change in the proportion of dwellings with each type of water heating system is given in Figure 4.9.

Figure 4.9: Distribution of water heating types by tenure, 2001 and 2011



Base: all dwellings
Note: underlying data are presented in Annex Table 4.18
Sources:
2001: English House Condition Survey;
2011: English Housing Survey, dwelling sample

Secondary heating

4.38. In 2011, 15.6 million (69%) dwellings had some form of secondary heating present. Where secondary heating was present, this most commonly consisted of gas fires or heaters (50%). Some 32% of homes with secondary heating had additional heaters that used electricity and 17% had those that used solid fuel. Owner occupied homes were more likely to have secondary heating than rented dwellings (77% compared with 53-54%), and such heating was also more likely to be gas fires or heaters, Annex Table 4.19.

4.39. The only tenure to show a marked change in secondary heating provision since 2001 was the local authority sector, where the proportion of homes with secondary heating fell from 60% to 54%[12]. This change may be linked to the reduction in the number of larger homes in this sector over the same period (see Chapter 1). It may also have arisen partly because many local authority homes with central heating still had original back boilers with a gas fire at the front in 2001, but by 2011 most of these had been replaced with wall or floor

[12]for the purposes of the comparative analysis in this report, 2001 and 2011 data have been modelled using the same methodology.

mounted boilers for safety reasons[13]. The old gas fire fronts would have been removed and, in many cases, were not replaced with a new unit. Also, in 2001 a significant minority of local authority homes had old storage heaters which were inefficient and difficult to control and meant occupants had to use other heaters. Once these were replaced with more modern heating, the need for secondary heaters would have been reduced.

Low energy lighting

4.40. In 2011, 8.9 million homes (39%) had low energy lighting[14] in at least half of all the rooms surveyed. Social sector dwellings were most likely to have such lighting (61% of housing association dwellings and 58% of local authority dwellings). Interestingly, low energy lighting was more common in private rented homes than owner occupied homes (45% compared with 32%), Annex Table 4.20.

4.41. The presence of low energy lighting has increased dramatically since 2001, when only 0.7 million dwellings (3%) had this in at least half of all rooms. Low-energy lights, which have a smaller wattage rating, are fast becoming the norm and older, inefficient bulbs are being phased out, Annex Table 4.20.

Conservatories

4.42. In 2011, 3.7 million (16%) of homes had a conservatory and the vast majority of these (92%) were in homes that were owner occupied. Semi-detached and detached houses or bungalows were also more likely than other types to have a conservatory (20% and 32% respectively). This is partly because these dwellings were more likely to be owner occupied and partly because they tend to have more space to build one on the plot without blocking out too much light or ventilation from other rooms, Annex Table 4.21.

4.43. Having a door between a conservatory and a heated house can reduce heat loss from the dwelling if the door is closed in cold weather. In 2011, some 90% of conservatories had a closable door, which is lower than in 2008 when it was 92%.

4.44. Conservatories typically have a very high proportion of their surface area taken up by windows and therefore the type of window (single or double glazed) can have a significant impact on the heat loss. In 2011, some 88% of conservatories were double glazed[15], Annex Table 4.21.

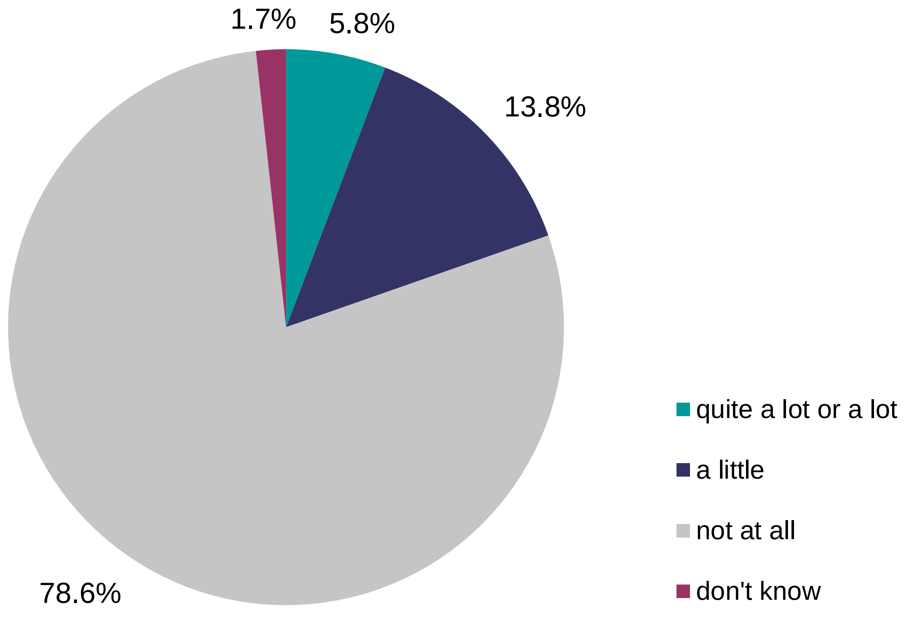
[13] the main concerns centred around about combustion fumes leaking through the chimney into the dwelling if the chimney lining was inadequate or degraded.
[14] includes low energy light bulbs and fluorescent strip lighting.
[15] comparative data for 2008 is not available due to a large number of unknown cases.

Household awareness of Energy Performance Certificates (EPCs)

4.45. Since October 2008 it has been a requirement for those selling or renting out dwellings to provide the new or potential occupants with an Energy Performance Certificate (EPC). In the EHS interview survey for 2011-12, all those who had moved into their current home on or after October 2008 (24% of all households) were asked whether they had seen an EPC relating to their new home. Respondents were given a show card illustrating what the EPC looks like so that they were clear about what was being asked. Only 43% of those who had moved in after this date said they had seen an EPC. It is not clear to what extent this is because they had forgotten having seen it or because they had genuinely not seen it in the first place. Owner occupiers were much more likely to say that they had seen the EPC than renters (70% compared with 31%), Annex Table 4.23.

4.46. Where households had seen an EPC, 42% said that they had discussed it with the estate agent, solicitor, landlord or letting agent, Annex Table 4.23. The proportions were very similar for owners and renters. The majority (79%) of those who said they had seen the EPC said that it had not influenced their choice of property at all and only 6% said that it had influenced their choice a lot or quite a lot, Figure 4.10.

Figure 4.10: Percentage of households influenced by the EPC in their choice of property, 2011-12

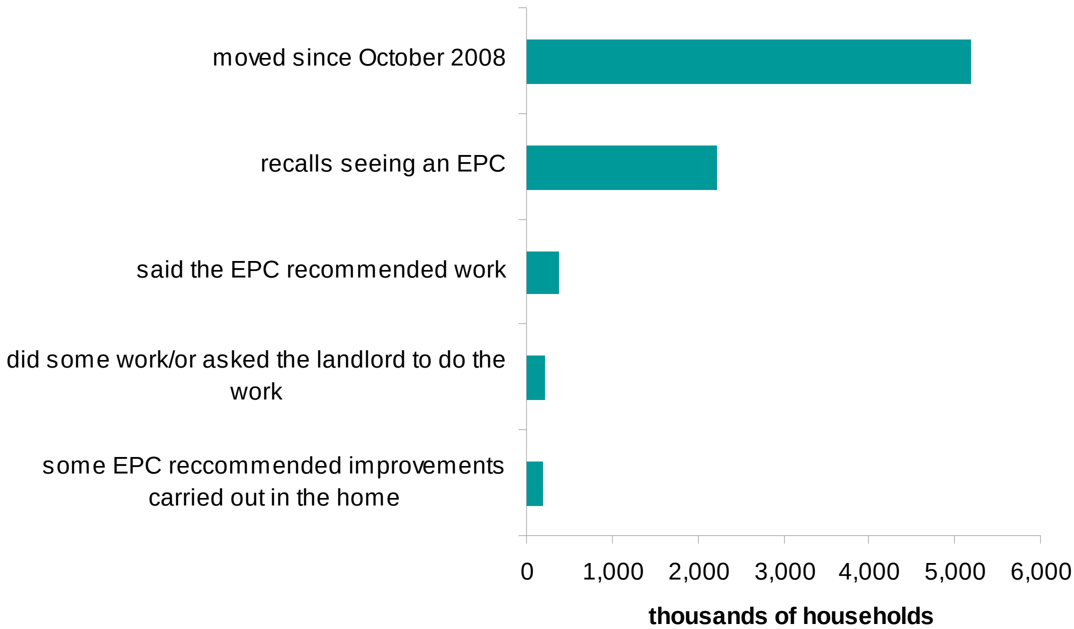


Base: all households that had seen the EPC for their home and responded to the question
Note: underlying data are presented in Annex Table 4.22
Source: English Housing Survey, full household sample

4.47. Of those households that recalled having seen the EPC, only 42% recalled the actual energy rating of their home, Annex Table 4.23. When asked, 28% of respondents were unable to remember whether the EPC had recommended some work to improve energy efficiency. Just 17% said that some improvements had been recommended, and only half of these households (53%) had either carried out some of these improvements themselves or asked their landlord to carry them out. Altogether, of the 17% of households that recalled the EPC recommendations, just under half of their homes (47%) had been improved.

4.48. Of all of the 5.2 million who should have seen the EPC, only 178,000 households (3.4%) actually acted, or asked their landlord/freeholder to act, on any of its recommendations, Figure 4.11.

Figure 4.11: Number of households moving in since October 2008 who saw an EPC, recalled any recommendations and acted on them, 2011-12

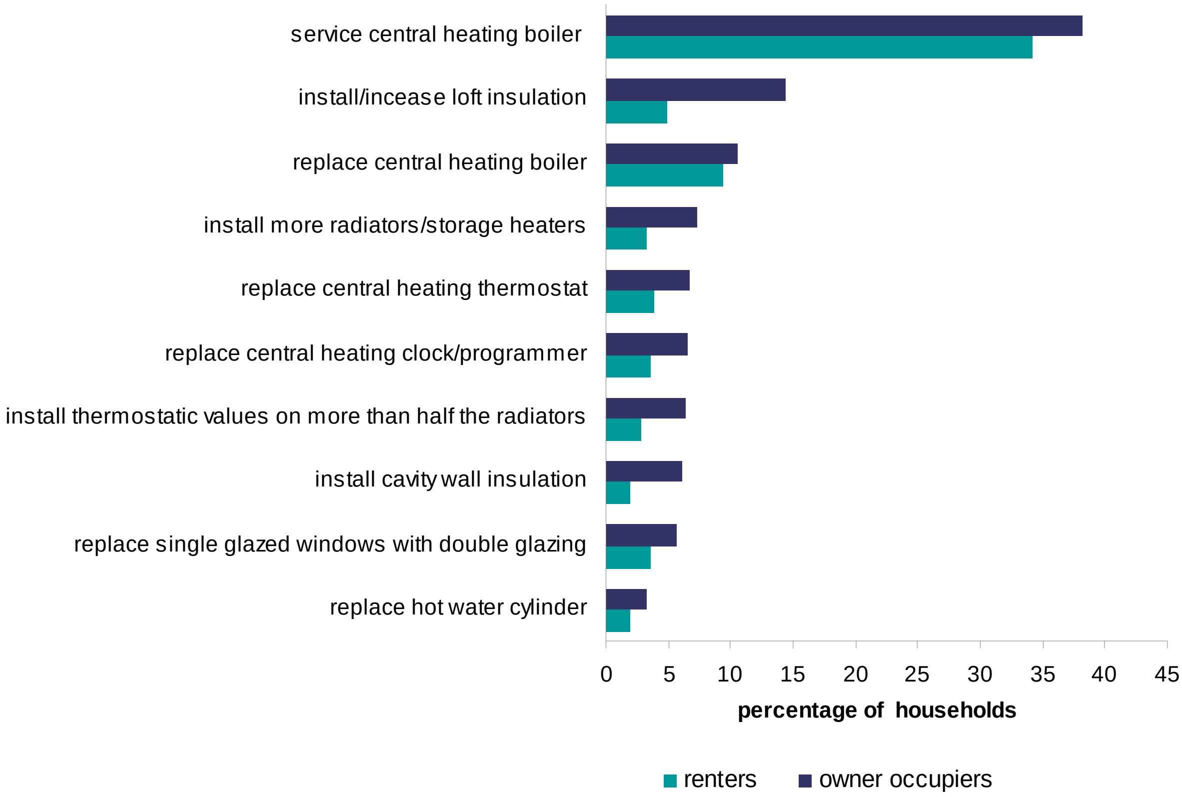


Base: all households that moved since October 2008
Note: underlying data are presented in Annex Table 4.23
Source: English Housing Survey, full household sample

Energy improvement works carried out in the previous 12 months

4.49. Overall, some 57% of all households reported that they or their landlord/freeholder had carried out some of the energy improvement works listed in Figure 4.12 to their home in the past 12 months. This appears to be higher than the proportion of those who recalled that works were recommended by the EPC and had carried some out (see above), but it is difficult to draw robust conclusions due to the small sample sizes. Owner occupiers were more likely to have had had such work done than tenants (60% compared with 50%) Annex Table 4.24. The most common jobs carried out were: servicing the boiler; insulating the loft; and replacing the central heating boiler, Figure 4.12.

Figure 4.12: Top ten most common energy efficiency improvements carried out over the past 12 months, 2011-12

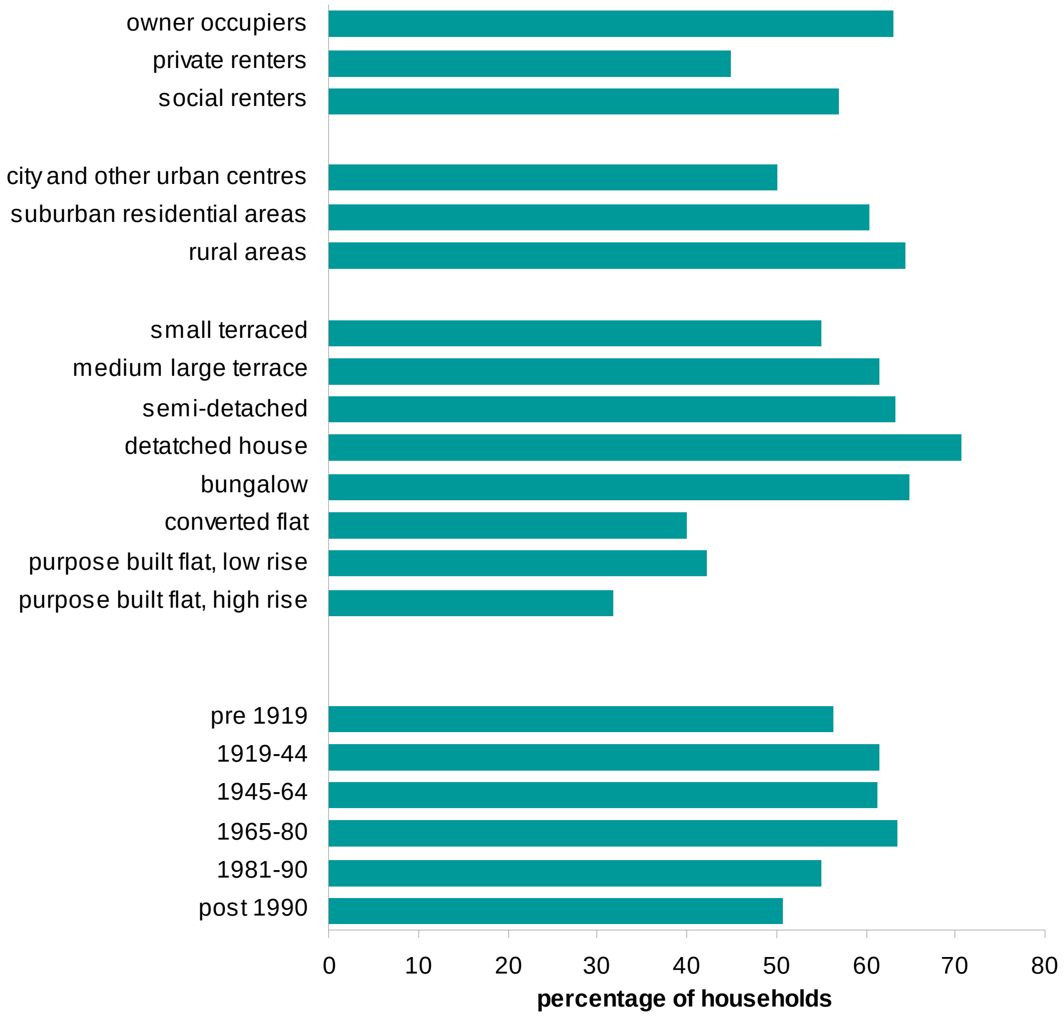


Base: all households
Note: underlying data are presented in Annex Table 4.25
Source: English Housing Survey, full household sample

4.50. By matching in data from the physical survey, it is possible to examine which types of dwellings were most likely to have had improvements carried out. This analysis uses the paired sample for the single year 2011-12.

4.51. Households living in detached houses (71%), rural areas (64%) and suburban areas (60%) were more likely to have had improvements carried out than those living in most other types of homes or in city and other urban areas. Homes in urban areas were more likely to be flats, where there is less scope to undertake such work than houses. Households in homes built before 1919 (56%) also had fewer improvements carried out than those in homes built between 1919 and 1980 (61-64%). These pre 1919 homes typically have a solid wall construction type which is expensive to insulate. Renters reported less energy improvements carried out (45-57%) than owner occupiers (63%); this is mostly likely due to renters having less scope to carry out work or because they are unaware of the work carried out prior to them moving in, Figure 4.13.

Figure 4.13: Percentage of households which had carried out any energy improvement work, by area, dwelling type and dwelling age, 2011-12



Base: all households
Note: underlying data are presented in Annex Table 4.26
Source: English Housing Survey, household sub sample

4.52. Not surprisingly, households living in homes with the worst current energy ratings (bands F and G), were less likely to report energy improvements carried out in the last 12 months than those in homes rated in bands A to E (51% compared with 59%). While nearly half of those living in F and G band homes had made some energy efficiency improvements, these had not been sufficient to improve their dwelling to a band E or better, Annex Table 4.27. The next chapter goes on to examine those dwellings with the worst energy efficiency in more detail.

Chapter 5
Energy inefficient dwellings

This chapter focuses on those dwellings that had the worst energy performance (energy efficiency rating bands F and G) in 2011. It compares the profile of these homes, and the households who live in them, with other homes and assesses the potential to improve their performance. It also examines common barriers that prevent such measures from being applied and how far these dwellings have other problems related to their condition. Finally, it presents some case studies to illustrate key and common issues.

Additional findings relating to energy inefficient dwellings can be found in web tables DA7101 to DA7104.

Key findings

- In 2011, some 1.8 million dwellings (8%) had a SAP rating in bands F and G and were therefore energy inefficient. The vast majority of these dwellings (95%) were in the private sector; 84% were houses or bungalows; almost half (49%) were built before 1919; and 37% were located in rural areas.

- The profile of households living in these inefficient homes was also different from the profile of those living in more efficient homes. Households that contained one or more people age 60 or over were overrepresented and both households from ethnic minorities and those with dependent children were under-represented in the inefficient homes.

- Nearly half of these dwellings (47%) could potentially improve their energy efficiency by installing or increasing the amount of loft insulation, and almost three quarters (72%) could potentially benefit from higher cost measures such as upgrading the heating system.

- If all of the potential improvements were undertaken to these dwellings, approximately 1.1 million or 64% of them would move out of the F and G energy efficiency rating bands.

- However, improving the energy efficiency of these homes would not always be straightforward or inexpensive. Improving loft insulation would be more problematic or complicated for around a third (32%) of these homes, and only half (50%) of the dwellings that could potentially benefit from cavity wall insulation could have this installed as a straightforward job.

- The potential for external solid wall insulation is less clear as the EHS does not identify whether dwellings are listed or located in conservation areas, both of which would restrict its application. Even without this consideration, installing external solid wall insulation would only be a relatively easy and straightforward job in 21% of the dwellings that could potentially benefit from it.

- Energy inefficient dwellings were also much more likely to have other problems related to condition, which would mean improving the whole home to a reasonable standard would be more expensive and problematic. These homes were more likely to have damp problems (13%); suffer from substantial disrepair (29%); or have Category 1 HHSRS hazards relating to falls (18%) than other homes.

Homes with the worst energy efficiency

Dwelling and household profiles

5.1 In 2011, some 1.8 million dwellings (8% of all dwellings) had the poorest energy efficiency ratings (SAP bands F and G), Annex Table 5.1.

5.2 The profile of these homes was very different to the profile of other dwellings in terms of tenure, age, type and location. The vast majority (95%) were in the private sector, 84% were houses or bungalows and almost half (49%) were built before 1919. Some 24% were detached houses and 13% were bungalows, compared with 16% and 8% respectively for more energy efficient homes. These dwellings were also overrepresented in rural locations (37% compared with 15% of other homes). Table 5.1 provides further information on the profile of these dwellings and how these compare to the more energy efficient housing stock (those in SAP Bands A to E).

Table 5.1: Profile of homes with the worst energy efficiency compared with the profile of the rest of the housing stock, 2011

all dwellings

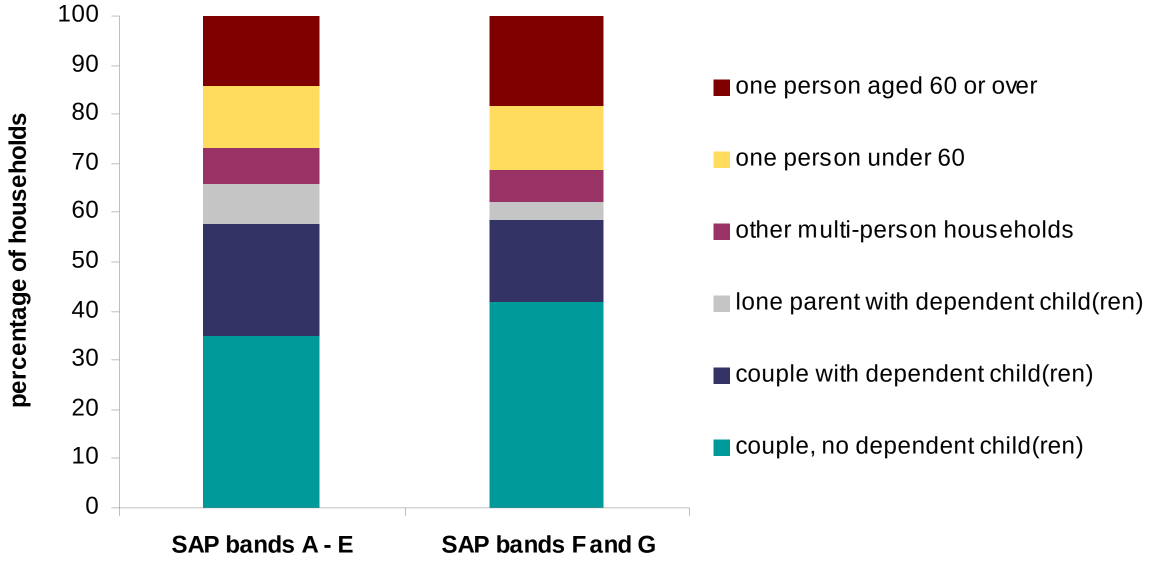
	SAP bands A - E	SAP bands F and G
	percentage of dwellings	
tenure		
private sector	81.5	95.0
social sector	18.5	5.0
dwelling type		
terraced	28.8	21.4
semi detached	26.0	25.7
detached	16.0	23.9
bungalow	8.4	13.1
all houses	79.3	84.0
converted flat	3.8	8.2
purpose built flat	16.9	7.8
all flats	20.7	16.0
dwelling age		
pre 1919	18.5	49.2
1919 to 1944	16.1	21.6
1945 to 1964	20.4	12.8
1965 to 1980	21.7	12.3
post 1980	23.3	*4.1*
area		
city and other urban centres	20.5	21.0
suburban residential areas	64.0	42.4
rural areas	15.5	36.6
all dwellings	**100.0**	**100.0**
sample size	*13,900*	*1,051*

Base: all dwellings
Note: underlying data are presented in Annex Table 5.1
Source: English Housing Survey, dwelling sample

5.3 The profile of households in energy inefficient homes also differed from the profile of those in other dwellings. Some 47% of households in inefficient homes contained one or more people aged 60 or over, but only 34% of households living in more efficient homes contained people aged 60 or over. Interestingly, some household groups that included people who may be considered vulnerable on account of their long term illness or disability, or groups which tend to be disadvantaged such as those in poverty, were not overrepresented among the most energy inefficient dwellings compared with the other housing stock. This is mainly because these households were more likely to live in social sector homes, and these had higher average SAP ratings than those in the private sector (see Chapter 4). Ethnic minority households were under-represented in inefficient homes (6% compared with 11% in more efficient homes), Annex Table 5.2.

5.4 Some 42% of households in energy inefficient homes were couples with no dependent children. Couples with dependent children were under-represented amongst households (17%) in these inefficient homes, and just 4% consisted of lone parents with dependents, Figure 5.1. The very low proportion of lone parents amongst households in energy inefficient homes arises partly because a relatively high percentage of this group live in social sector homes.

Figure 5.1: Household profiles by SAP rating, 2011



Base: all households
Note: underlying data are presented in Annex Table 5.2
Source: English Housing Survey, household sub sample

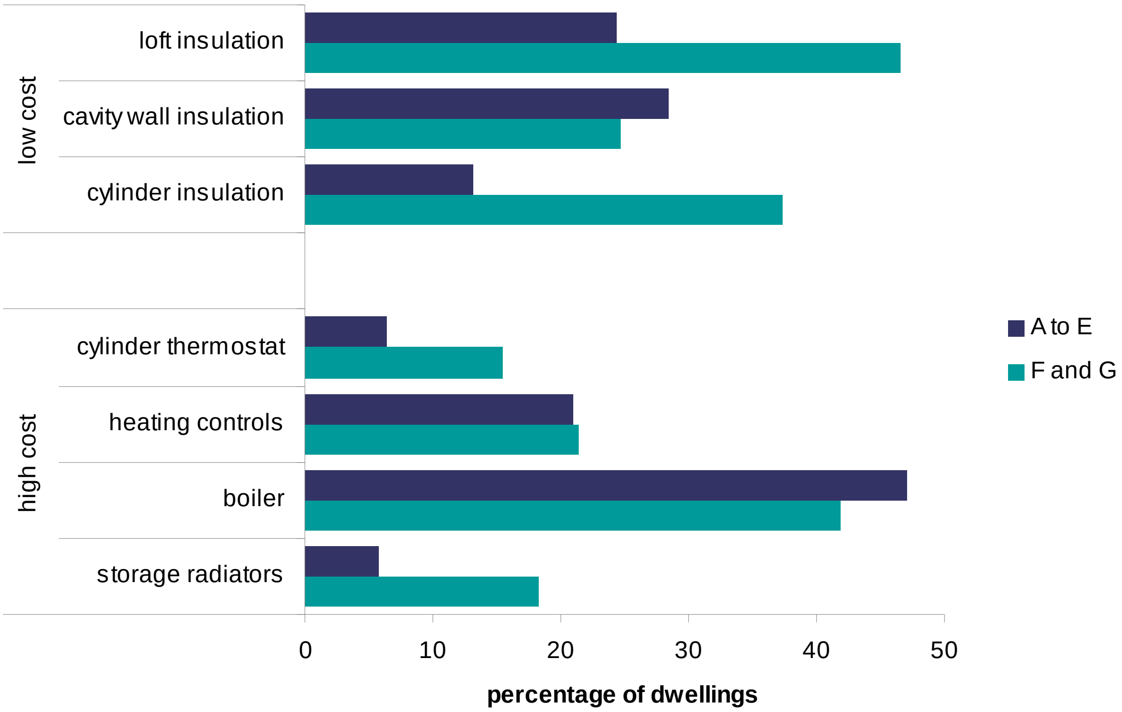
Energy measures and the potential for improvement

5.5 Many of these energy inefficient dwellings lacked effective insulation measures. Some 25% of these homes had cavity walls that had not been insulated and 65% were non cavity walled dwellings without additional external or internal insulation. Some 14% of these dwellings had a flat roof and a further 11% had no loft insulation at all. These homes were also less likely to be fully double glazed than the more energy efficient homes, Annex Table 5.3.

5.6 The energy inefficient dwellings were also less likely to have central heating with radiators than more efficient homes (61% compared with 93%), and only 46% of them used gas for the main heating compared with 87% of other homes. Some 36% of energy inefficient dwellings used an electrical system for the main heating and 11% used an oil fired system. Also, only 7% had a condensing or condensing-combination boiler compared with 40% of more efficient homes.

5.7 There is clearly potential to improve the energy efficiency of these homes. Nearly half (47%) of such dwellings with lofts could potentially benefit from installing or topping up the insulation in the loft. Some 71% of all band F and G dwellings could potentially benefit from one or more of the higher cost measures listed in the EPC, Annex Table 5.4 (see Chapter 4 for more details).

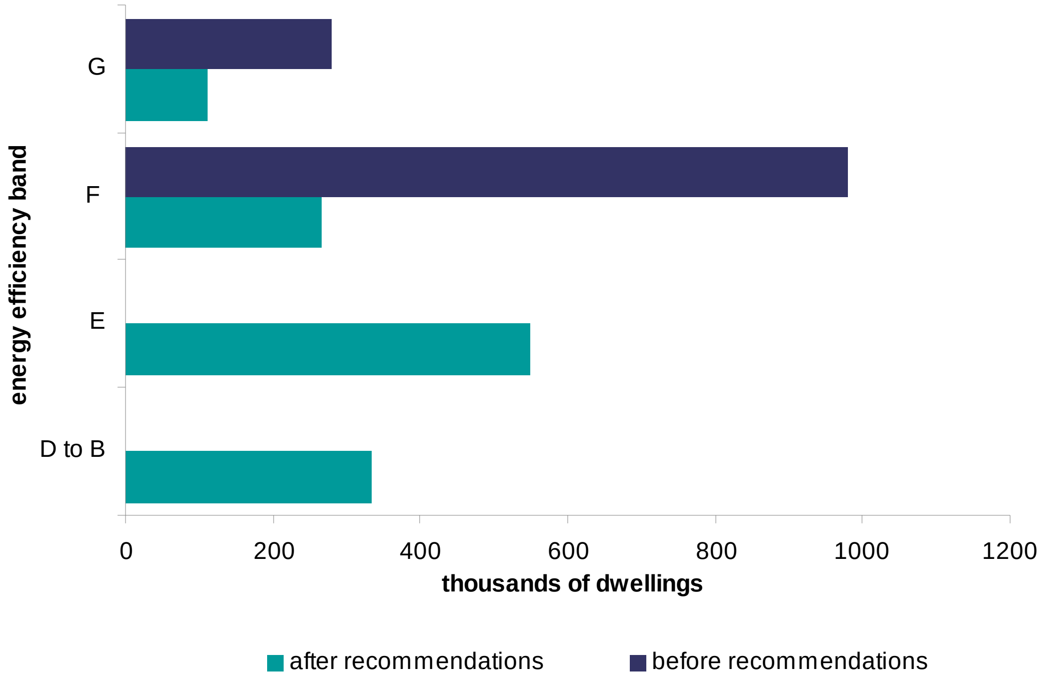
Figure 5.2: Energy performance upgrades by SAP rating bands for all dwellings, 2011



Base: number of dwellings where this improvement might be possible, e.g. for cavity wall insulation the base is the number of dwellings with cavity walls
Note: underlying data are presented in Annex Table 5.5
Source: English Housing Survey, dwelling sample

5.8 Around 1.3 million (of the 1.8 million) dwellings in bands F and G would be suitable for the application of just low cost measures which would make a considerable difference to their SAP rating. If all of the recommended low cost measures were applied to these dwellings, approximately 881,000 dwellings would move up into higher bands. Typically these energy inefficient properties only have limited potential for improvement, and most of those that would move to another band would only move up to band E, but around 330,000 dwellings would move into band D or above, Figure 5.3.

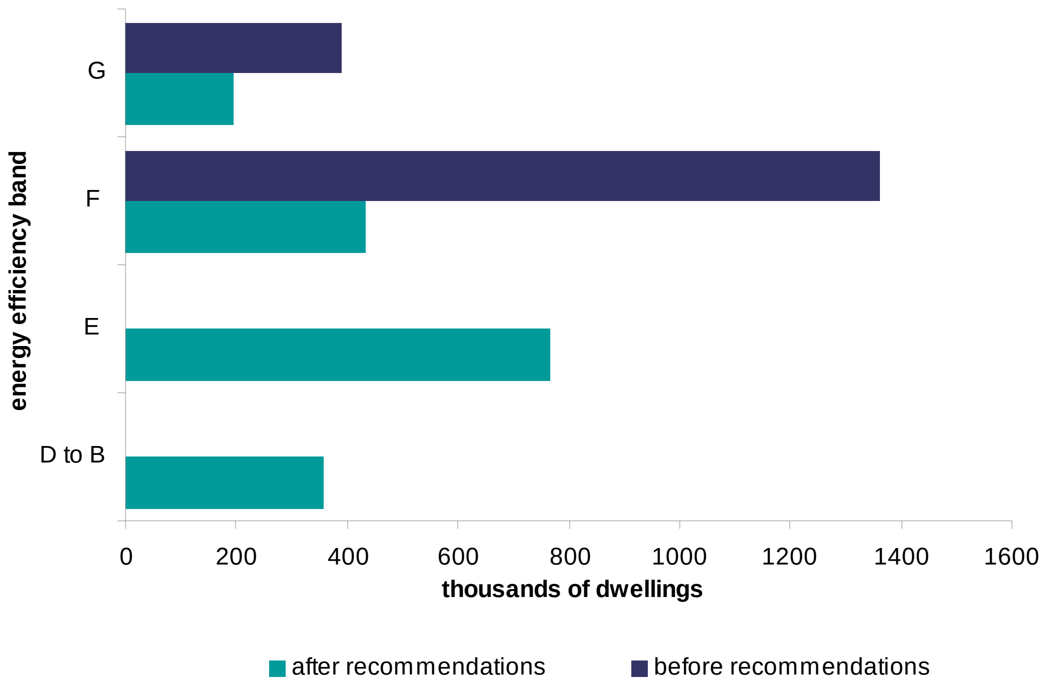
Figure 5.3: SAP rating before and after low cost measures have been applied, 2011



Base: all energy inefficient dwellings with low cost recommendations
Note: underlying data are presented in Annex Table 5.6
Source: English Housing Survey, dwelling sample

5.9 If the high cost improvements were also made, many more dwellings would move out of SAP bands F and G: approximately 1.1 million dwellings (64%) would move into higher bands. As before, most of those that would change bands would only move up one band to an E rating, but about 359,000 dwellings would improve by two bands or more, Figure 5.4.

Figure 5.4: SAP rating before and after low and high cost recommendations have been carried out, 2011



Base: all energy inefficient dwellings
Note: underlying data are presented in Annex Table 5.6
Source: English Housing Survey, dwelling sample

5.10 This still leaves 36% (629,000) of the energy inefficient homes in bands F and G, and improving them further would require additional measures. Some 82% of those still in F and G after EPC listed improvements were non cavity walled dwellings, the vast majority of which had no additional external or internal insulation. These could potentially benefit from solid wall insulation. Pre-1919 dwellings made up 61% of the dwellings still in bands F and G and dwellings in rural areas formed 43% of this group, Annex Table 5.7.

5.11 The energy improvements delivered by solid wall insulation vary considerably depending on the precise construction and thickness of the original wall (e.g. single leaf brick, 9-inch brick, stone or concrete). External solid wall insulation is applied by fixing insulating boards to the outside of the building and covering them with a weatherproof render and sometimes false stone or brick cladding. Internal insulation can be added in a similar way using insulated plasterboard and a standard plaster finish, or by constructing a timber frame inside the existing wall and filling this with mineral wool insulation, with a plasterboard and plaster finish. This work involves the added cost associated with moving power points, radiators, kitchen and bathroom fittings etc. as well as making good to or adjusting floor coverings and decorations. Also, the affected rooms will be slightly smaller than before – a key consideration in some small terraced houses and converted flats.

5.12 Estimates for the cost of insulating a typical solid walled dwelling range from £9,400 to £13,000 for external insulation and from £5,500 to £8,500 for internal insulation[1]. These costs can be mitigated by combining the work with other necessary improvements such as renewing damaged plaster or render.

Barriers to improving insulation

5.13 This analysis aims to provide a more realistic indication of the potential for carrying out these improvements by identifying common scenarios where these types of work may be less straightforward and/or more costly. It is not intended to form any definitive guidance on how these homes should or should not be treated, as this can only be undertaken on a case by case basis.

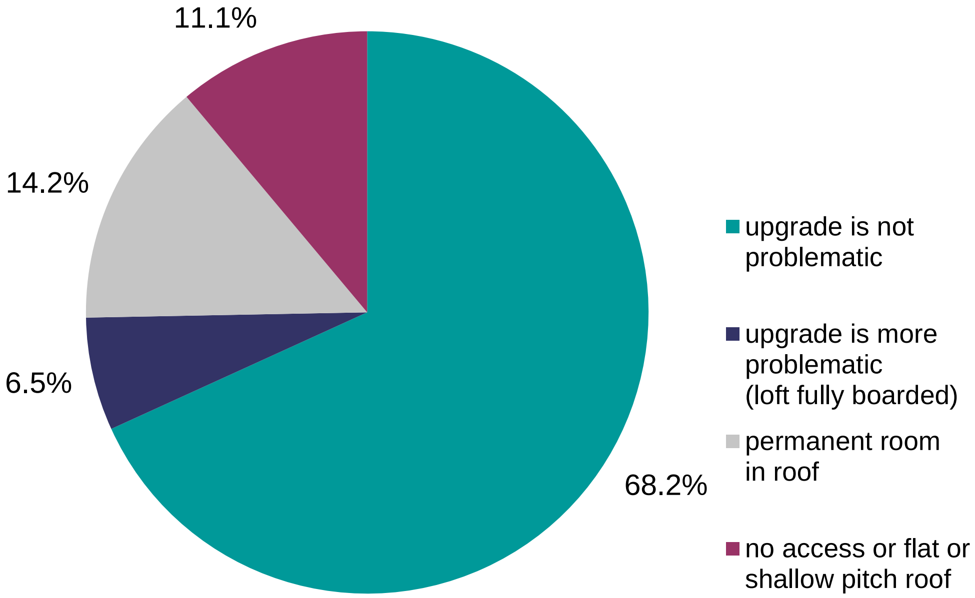
Loft insulation

5.14 Some 1.1 million worst energy performing homes would benefit from a loft insulation upgrade. For 745,000 (68%) of these homes, an upgrade would not be problematic. In contrast, around 6% of homes would be more problematic due to the loft being fully boarded across the joists, requiring extra work and expense, Annex Table 5.8.

5.15 Some 14%, however, were likely to be unsuitable for an upgrade as they had a permanent room in the roof so the insulation would need to be added between the rafters; this would involve very extensive work and considerable expense. A further 11% would be unsuitable for insulation as there was no access into the loft or no loft space because the roof was flat or had a very shallow pitch, Figure 5.6.

[1] http://www.energysavingtrust.org.uk/Insulation/Solid-wall-insulation

Figure 5.5: Barriers to upgrading loft insulation in the worst energy efficient dwellings, 2011



Base: all energy inefficient dwellings with a loft and where an upgrade is recommended
Note: underlying data are presented in Annex Table 5.8
Source: English Housing Survey, dwelling sample

Cavity wall insulation

5.16 A four-point scale was devised to give some indication of the ease with which uninsulated wall cavities may be filled. This scale was used in Chapter 7 of the 2010 EHS Homes report to examine the degree of wall 'fillability' of all cavity walled dwellings. These findings would not have changed significantly in 2011.

5.17 Of the 432,000 energy inefficient homes that could potentially benefit from cavity wall insulation, in around half of cases the work would be straightforward because the walls were classed as 'standard fillable', having none of the barriers or complications to this improvement which are covered by the EHS. These are typically houses with masonry cavity walls and masonry pointing or rendered finishes and no conservatory attached, Annex Table 5.8.

5.18 A further 130,000 (30%) of these homes had external features, such as conservatories and porches, or areas of non-masonry wall finish, which present some less problematic issues. However, 18% of these dwellings were more problematic e.g. where the majority of the wall finish was not masonry pointing or where there was a mixture of wall structure types, requiring more than one insulation solution. Energy inefficient homes presenting more problematic installation also included flats (individual leaseholders have to provide their consent and financial contribution), and flats or houses with four or more storeys, where building height would make access and installation particularly costly and problematic. The remaining dwellings are classed as 'unfillable'[2], and include dwellings with a timber or steel frame and those where none of the external wall finish consists of either pointed masonry or rendering.

External solid wall insulation

5.19 This section examines the ease with which solid walls may have external insulation applied. A similar approach was used in Chapter 7 of the 2010 EHS Homes report for all eligible dwellings[3]. These findings would not have changed significantly in 2011.

5.20 Some 1.1 million[4] homes with the worst energy efficiency could potentially benefit from the installation of solid wall insulation, but installing externally applied insulation would be non-problematic for only 235,000 (21%) of these. Among the remaining dwellings there were various barriers to installing solid wall insulation. The most common barrier, in 34% of these homes, was the presence of predominantly rendered walls**;** this is likely add to the costs of the work as the render may need to be removed, repaired or treated before the insulation can be installed. Some 26% of these homes had an external feature such as a conservatory, bay window or a porch which would require additional work and therefore additional expense, Annex Table 5.8.

5.21 Some 16% of the worst energy efficiency homes which could benefit from solid wall insulation were flats. As with cavity wall insulation, any work requires the consent and financial contribution of individual leaseholders which may be difficult given the scale of the costs involved.

5.22 The remaining dwellings where barriers existed were those with wall finishes which would either add to the costs of work such as stone cladding or tile, or where the wall structure itself (stone or timber) would prevent insulation[5].

5.23 In addition to these barriers, there are further restrictions for which the EHS does not collect data. These include planning restrictions that apply in conservation areas and listed building status. Overall, there are around 374,000 listed buildings in England[6], some of which are dwellings, and it is estimated that an additional 1.1 million dwellings are located in conservation areas[7]. A proportion of these will be dwellings in bands F and G with solid walls.

---

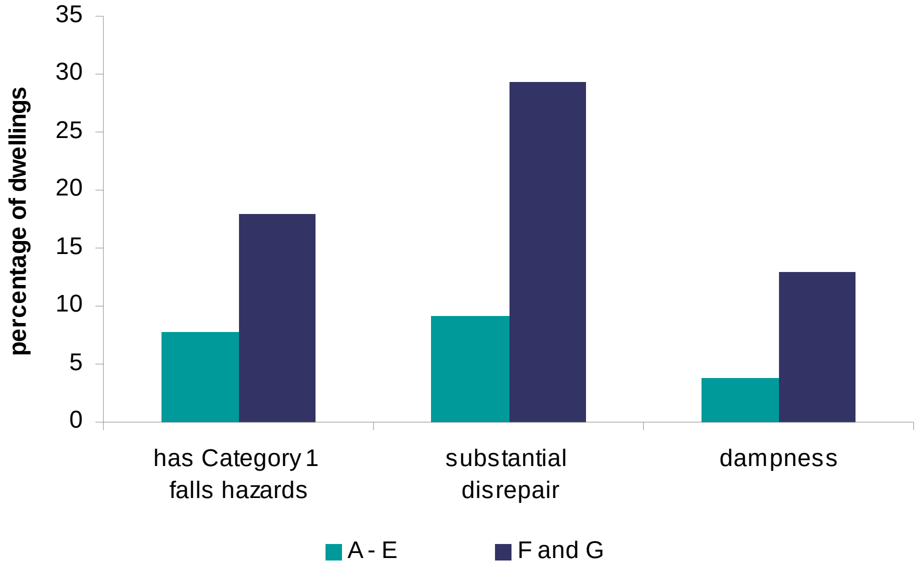
[2]figure not provided as sample size too small to provide a reliable estimate.
[3]the 2011 methodology differs from that used in the 2010 EHS report. In 2011 non cavity walled dwellings with no internal insulation are classed as requiring no action but in 2010 these were classed as eligible for insulation with any barriers to installation included
[4]this includes all dwellings with non-cavity walls plus those classed as 'cavity walls' that have a timber or steel frame where cavity wall insulation is not recommended
[5]figures are not given due to small sample sizes which will not provide reliable estimates
[6]http://www.english-heritage.org.uk/caring/listing/listed-buildings/
[7]http://www.eci.ox.ac.uk/research/energy/downloads/40house/background_doc_K.pdf

Other poor housing conditions

5.24 Energy inefficient dwellings were much more likely to suffer from other poor housing conditions that may complicate the installation of improvement measures and/or make them more costly, or which may be seen by the occupier as more of a priority to remedy.

5.25 Not surprisingly, the dwellings with the worst energy efficiency were far more likely to suffer from any damp (13%) compared with the rest of the stock (4%). Some 513,000 dwellings (29%) had substantial disrepair[8] and 314,000 (18%) had a Category 1 HHSRS hazard relating to falls[9].

Figure 5.6: Other poor housing conditions in the worst energy efficient dwellings and other dwellings, 2011



Base: all dwellings
Note: underlying data are presented in Annex Table 5.9
Source: English Housing Survey, dwelling sample

Case studies – energy inefficient homes

5.26 This chapter has examined the characteristics of dwellings in bands F and G and considered some of the barriers that may prevent their improvement. Below are three case studies[10] which take stereotypes of dwellings with poor energy efficiency ratings and summarise potential improvements, barriers to further improvement, and the effect these would have on the SAP rating.

[8] standardised basic repair costs of over £35m² (see glossary)
[9] HHSRS falls hazards relate to those on stairs, on the level, between levels and those associated with baths (see glossary)
[10] the photos for the case studies are taken from BRE's photo library and are for illustrative purposes only. They are not dwellings sampled as part of the EHS.

Case 1: A 19th century mid-terraced house.

5.27 This substantial mid-terraced house on 3 floors dates from the 1880s. It has a total internal floor area of about 140m^2 and is constructed from solid 9-inch brickwork with a rendered rear face and a partial render finish at basement level at the front. There is no gas supply and the main heating is through electric heaters, supplemented by a solid fuel fire, whilst hot water is provided by an instantaneous electric heater. There is no insulation whatsoever in the loft and it has a SAP rating of 11 (SAP band G). In addition, it has Category 1 HHSRS hazards relating to falling on stairs and steps and it requires other general repairs, including treating serious rising damp in the basement, estimated to be around £4,000.

5.28 The only appropriate low cost measure that could be installed is loft insulation which would improve the SAP to 22 (SAP band F). Adding the higher cost measure of a heating upgrade to efficient storage radiators would further increase it to 37 but this is still very low, with the house remaining in SAP band F. Solid wall insulation may be an option but the costs would be high given the additional complications of the rendering at basement level and it would also detract significantly from its aesthetic appearance. A further improvement would be to connect to the gas network and install a full central heating system, but this would be very expensive.

Case 2: A mid-20th century detached bungalow

5.29 This detached bungalow was built in 1957 and a conservatory was added very recently. The rendered cavity brick walls are not insulated and there is only 50mm of insulation in the loft. The property has mains gas and is heated by an old floor standing boiler. Hot water is provided by an immersion heater attached to an uninsulated storage cylinder. The property has a SAP rating of 24 and in addition it has Category 1 hazards relating to falls on the level but otherwise it is in a fairly good state of general repair.

5.30 A number of low cost energy improvement measures could be applied to this dwelling, including upgrades to the loft and hot water cylinder insulation and the installation of cavity wall insulation, although the rendering and conservatory at the rear would increase the costs of this measure. These improvements would increase the SAP to 53 whilst the higher cost measure of a heating upgrade to a condensing boiler would further increase it to 61, moving it into SAP band D.

Case 3: A 19th century city centre purpose built flat

5.31 This small one bedroom flat is situated on the first floor of a four storey block dating from 1890. The walls are solid masonry with decorative brickwork to the front and rendering to the rear. It is heated using storage heaters with an electric immersion heater supplying hot water. It has a SAP rating of 16 and there is no mains gas supply. In addition it has Category 1 hazards related to falling on stairs and steps and falling between levels because the common staircase is very steep and poorly lit and there are missing portions of handrail and balustrading. It also requires other major repairs to the windows, floors and internal walls amounting to about £7,000.

5.32 The lack of a mains gas supply means that there are fewer options for improving the heating. As there are no cavity walls or loft space, improvements to insulation are also very limited. Installing the low cost measure of improved cylinder insulation and the more expensive measure of upgraded storage heaters would improve the SAP to 34, still well below the current mean SAP rating for homes built before 1919 and particularly low for a purpose built flat. External solid wall insulation may be an option but would be more complicated and expensive due to the bay windows and brickwork detail, whilst planning permission would also be difficult to obtain for a dwelling of this age and type. Also, the agreement of the other flat owners and their commitment to pay their share of the costs would be required before such measures could be contemplated.

5.33 Other options that could improve the energy efficiency include secondary glazing to the large windows and internal wall insulation. However the latter would necessitate removing and re-installing most of the kitchen and shower room and would make these rooms, which are already very small and cramped, even smaller still.

Appendix A
Sampling and grossing

General description

In April 2008, the English House Condition Survey (EHCS) was integrated with the Survey of English Housing (SEH) to form the English Housing Survey (EHS).

The EHS is a continuous cross-sectional survey of households in England. It consists of two main elements: an initial interview survey of around 13,800 households and a follow up physical inspection of a sub-sample of about 6,400 dwellings, including vacant dwellings.

Up until 2010-11, the EHS also formed part of the Office for National Statistics' (ONS) Integrated Household Survey (IHS). However, the IHS was cancelled in 2011-12 as part of a cost review of the survey. More information about the IHS is available from the ONS website:
http://www.ons.gov.uk/ons/guide-method/method-quality/specific/social-and-welfare-methodology/integrated-household-survey/index.html

The EHS interview questionnaire covers the key topics included under the former SEH and EHCS. The content of the physical survey remains largely unchanged from the former EHCS.

Sampling

1. In 2011-12, 38,416 addresses were selected as a systematic random sample from the July 2010 postcode address file (PAF) ordered by postcode. This systematic sampling ensured that the sample's distribution across Local Authorities was close to the overall PAF distribution.

2. As a cost cutting measure, the number of addresses issued to interviewers on the EHS was reduced from 32,100 in 2010-11 to 24,299. However, because reducing the sample size uniformly across the full sample would reduce the numbers within certain tenures to a level that would not facilitate reliable analysis, owner occupied addresses were sub-sampled. To achieve reliable numbers, the originally drawn sample of 38,416 addresses was sub-sampled in postcodes that were predominantly owner occupied, while all sampled addresses from other postcodes were retained. Predominant tenure was identified using Experian's

Residata[1] classifications; addresses were then grouped into strata and sub-sampled at the rates of 54.5% for owner occupied and 100% for other tenures, see Table A1:

Table A1: Sub-sampling of PAF addresses, 2011-12

assessed tenure from Residata (predominant tenure)	PAF sample	sub-sampling rate	issued EHS sample
owner occupied	31,027	54.5%	16,910
private rented	731	100%	731
social rented	6,474	100%	6,474
mixed tenure	122	100%	122
unknown tenure	62	100%	62
total	38,416		24,299

3. Interviews were attempted at all of the sampled 24,299 addresses over the course of the survey year from April 2011 to March 2012. A proportion of addresses were found not to be valid residential properties (e.g. demolished properties, second or holiday homes, small businesses, and properties not yet built).

4. Of the 13,829 addresses where interviews were achieved (the 'full household sample'), a sub-sample of addresses were deemed eligible to have a physical survey. A proportion of vacant residential properties was also sub-sampled. The sub-sampling rates used to select dwellings eligible for a physical survey are listed in Table A2.

Table A2: Sub-sampling rates for eligibility for a physical survey at interview by tenure and quarter

	qtr 1	qtr 2	qtr 3	qtr 4
owner occupied	54.5%	45.0%	40.0%	50.0%
private rented	100%	100%	90.0%	90.0%
local authority	100%	100%	85.0%	90.0%
registered social landlord	100%	100%	85.0%	90.0%

5. Physical surveys were completed in 6,459 cases, and these cases form the achieved 'dwelling sub-sample'.

6. Findings based on data from the full household sample are mostly presented in the 2011-12 EHS Households report, and those based on data from the dwelling sub-sample are presented in the 2011 EHS Housing Homes Report. Where this is not the case the source has been indicated.

[1] Experian possess a database that contains information obtained from a number of sources including insurance companies, Census, etc. referred to as Residata. It is from this that we take information on predominant tenure within a postcode as well as other information. The matching of the EHS sample to Residata is carried out by BRE.

Grossing methodology

7. The grossing methodology accounts for the sampling and sub-sampling, and adjusts for any identifiable non-response bias at each stage of the survey. Household results are then weighted to population totals by age, sex and region, and to the tenure distribution of the Labour Force Survey (LFS). This method is very similar to that used previously by the Survey of English Housing

8. As part of data validation prior to the grossing, tenure corrections are made where cases are reported as local authority tenancies but where the local authority is known to have transferred all its stock to a housing association under a large scale voluntary transfer. Similarly, where a local authority's stock is known to be managed by an arm's length management organisation (ALMO), cases where an ALMO is reported as the landlord are re-coded as local authority tenancies. This results in a more robust split between the local authority and housing association stock, and is consistent with past practice in the English House Condition Survey but not that of the Survey of English Housing.

9. More detailed information can be found in the EHS Technical Advice Notes: https://www.gov.uk/government/publications/english-housing-survey-technical-advice

Appendix B
Sampling error

Sources of error in surveys

1. Like all estimates based on samples, the results of the EHS are subject to various possible sources of error. The total error in a survey estimate is the difference between the estimate derived from the data collected and the (unknown) true value for the population. The total error can be divided into two main types: systematic error and random error.

2. Systematic error, or bias, covers those sources of error which will not average to zero over repeats of the survey. Bias may occur, for example, if certain sections of the population are omitted from the sampling frame, if non-respondents to the survey have different characteristics to respondents, or if interviewers systematically influence responses in one way or another. When carrying out a survey, substantial efforts are put into the avoidance of systematic errors but it is possible that some may still occur.

3. The most important component of random error is sampling error, which is the error that arises because the estimate is based on a sample survey rather than a full census of the population. The results obtained for any single sample may, by chance, differ from the true values for the population but the difference would be expected to average to zero over a number of repeats of the survey. The amount of variation depends on the size of the sample and the sample design and weighting method.

4. A measure of the impact of the variation introduced by the sample design and the weighting is the design factor (deft). This is evaluated relative to the error that would have been produced had the survey been carried out using a simple random sample[1] of the same size. A deft greater than one shows that the design and weighting have increased the variability of the estimate and increased the measure of the standard error relative to the reference. The EHS effectively is a simple random sample the deft arises solely from the weighting adjustments.

5. Random error may also arise from other sources, such as variation in the informant's interpretation of the questions, or interviewer variation. Efforts are made to minimise these effects through interviewer training and through pilot work.

---

[1] Technically, the deft is the estimate of the standard error produced under the complex design divided by the standard error under an equally weighted simple random sample.

Confidence intervals

6. Although the estimate produced from a sample survey will rarely be identical to the population value, statistical theory allows us to measure the accuracy of any survey result. The standard error can be estimated from the values obtained for the sample and this allows calculation of confidence intervals which give an indication of the range in which the true population value is likely to fall.

7. Tables B1 and B2 provide standard errors and 95% confidence intervals around selected key survey estimates.

Table B1: Sampling errors using weighted data: percentages, 2011

					95% confidence interval (including impact of deft)	
characteristic	**unweighted base**	**percentage**	**standard error (percentage)**	**design factor (deft)**	**lower**	**upper**
tenure	14,951					
owner occupied		64.89	0.45	1.10	64.01	65.77
private rented		17.65	0.32	0.96	17.02	18.28
social rented						
local authority		8.27	0.21	0.74	7.87	8.68
housing association		9.18	0.22	0.76	8.75	9.62
all social rented		17.46	0.33	0.88	16.82	18.10
dwelling type	14,951					
end terrace		9.95	0.29	1.16	9.39	10.52
mid terrace		18.30	0.38	1.19	17.56	19.04
semi detached		26.01	0.43	1.22	25.16	26.85
detached		16.64	0.37	1.29	15.92	17.36
bungalow		8.77	0.26	1.08	8.26	9.28
converted flat		4.17	0.21	1.38	3.75	4.59
purpose built flat, low rise		14.27	0.31	1.03	13.66	14.88
purpose built flat, high rise		1.90	0.12	0.95	1.67	2.12
dwelling age	14,951					
pre 1919		20.83	0.40	1.25	20.03	21.62
1919-44		16.53	0.37	1.26	15.80	17.26
1945-64		19.78	0.38	1.13	19.04	20.53
1965-80		21.02	0.39	1.16	20.25	21.78
1981-90		8.43	0.27	1.20	7.89	8.97
post 1990		13.41	0.34	1.22	12.76	14.07

continued

characteristic	unweighted base	percentage	standard error (percentage)	design factor (deft)	95% confidence interval (including impact of deft) lower	upper
decent Homes- HHSRS 15 model						
owner occupied	7,147					
decent		77.71	0.56	1.13	76.62	78.80
non-decent		22.29	0.56	1.13	21.20	23.38
private rented	3,058					
decent		64.98	1.02	1.19	62.97	66.98
non-decent		35.02	1.02	1.19	33.02	37.03
social rented						
local authority	2,286					
decent		82.26	0.92	1.15	80.47	84.06
non-decent		17.74	0.92	1.15	15.94	19.53
housing association	2,460					
decent		84.12	0.84	1.14	82.48	85.76
non-decent		15.88	0.84	1.14	14.24	17.52
all social rented	4,746					
decent		83.24	0.62	1.14	82.03	84.45
non-decent		16.76	0.62	1.14	15.55	17.97
all tenures	14,951					
decent		76.43	0.42	1.22	75.60	77.25
non-decent		23.57	0.42	1.22	22.75	24.40
energy efficiency rating band (SAP2009)						
owner occupied	7,147					
A to C		9.87	0.41	1.20	9.06	10.67
D and E		81.96	0.52	1.15	80.95	82.97
F and G		8.17	0.36	1.09	7.47	8.87
private rented	3,058					
A to C		17.31	0.80	1.20	15.73	18.88
D and E		71.28	0.96	1.19	69.40	73.16
F and G		11.41	0.68	1.19	10.08	12.74
social rented						
local authority	2,286					
A to C		25.95	1.06	1.17	23.88	28.03
D and E		71.41	1.09	1.17	69.27	73.55
F and G		2.64	0.38	1.14	1.89	3.39
housing association	2,460					
A to C		33.87	1.10	1.17	31.72	36.02
D and E		64.33	1.11	1.16	62.15	66.50
F and G		1.81	0.29	1.07	1.24	2.38
all social rented	4,746					
A to C		30.12	0.77	1.17	28.61	31.62
D and E		67.68	0.78	1.16	66.15	69.22
F and G		2.20	0.24	1.11	1.73	2.66
all tenures	14,951					
A to C		14.72	0.34	1.11	14.06	15.37
D and E		77.58	0.40	1.16	76.79	78.37
F and G		7.70	0.26	1.25	7.18	8.22

continued

characteristic	unweighted base	percentage	standard error (percentage)	design factor (deft)	95% confidence interval (including impact of deft) lower	upper
floor area						
owner occupied	7,147					
less than 50 sqm		4.30	0.28	1.26	3.74	4.86
50 to 69 sqm		18.65	0.52	1.15	17.63	19.67
70 to 89 sqm		28.82	0.60	1.13	27.64	30.01
90 to 109 sqm		17.52	0.51	1.13	16.53	18.52
110 or more sqm		30.70	0.60	1.09	29.53	31.88
private rented	3,058					
less than 50 sqm		22.21	0.93	1.30	20.39	24.02
50 to 69 sqm		31.94	1.00	1.19	29.97	33.90
70 to 89 sqm		25.14	0.89	1.11	23.40	26.89
90 to 109 sqm		9.73	0.58	1.05	8.59	10.87
110 or more sqm		10.99	0.62	1.07	9.77	12.21
social rented						
local authority	2,286					
less than 50 sqm		28.62	1.13	1.22	26.41	30.84
50 to 69 sqm		39.10	1.17	1.14	36.82	41.39
70 to 89 sqm		25.09	1.01	1.08	23.12	27.06
90 to 109 sqm		5.66	0.57	1.18	4.53	6.79
110 or more sqm		1.52	0.28	1.05	0.98	2.06
housing association	2,460					
less than 50 sqm		29.09	1.05	1.16	27.03	31.16
50 to 69 sqm		35.88	1.11	1.15	33.71	38.06
70 to 89 sqm		27.33	0.97	1.06	25.42	29.24
90 to 109 sqm		5.75	0.53	1.12	4.72	6.78
110 or more sqm		1.95	0.29	1.03	1.37	2.53
all social rented	4,746					
less than 50 sqm		28.87	0.78	1.20	27.35	30.40
50 to 69 sqm		37.41	0.80	1.15	35.84	38.98
70 to 89 sqm		26.27	0.70	1.08	24.89	27.65
90 to 109 sqm		5.71	0.39	1.15	4.95	6.47
110 or more sqm		1.75	0.20	1.04	1.35	2.14
all tenures	14,951					
less than 50 sqm		11.75	0.29	1.04	11.18	12.33
50 to 69 sqm		24.27	0.41	1.13	23.47	25.07
70 to 89 sqm		27.73	0.44	1.19	26.87	28.59
90 to 109 sqm		14.09	0.36	1.31	13.39	14.78
110 or more sqm		22.17	0.41	1.29	21.36	22.98
whether occupied/vacant						
owner occupied	7,147					
occupied		97.20	0.19	1.16	96.82	97.58
vacant		2.80	0.19	1.16	2.42	3.18
private rented	3,058					
occupied		90.11	0.57	1.20	89.00	91.23
vacant		9.89	0.57	1.20	8.77	11.00

continued

characteristic	unweighted base	percentage	standard error (percentage)	design factor (deft)	95% confidence interval (including impact of deft) lower	upper
social rented						
local authority	2,286					
occupied		96.00	0.53	1.30	94.95	97.04
vacant		4.00	0.53	1.30	2.96	5.05
housing association	2,460					
occupied		96.09	0.52	1.45	95.08	97.10
vacant		3.91	0.52	1.45	2.90	4.92
all social rented	4,746					
occupied		96.05	0.41	1.52	95.24	96.86
vacant		3.95	0.41	1.52	3.14	4.76
all tenures	14,951					
occupied		95.75	0.00	0.00	95.75	95.75
vacant		4.25	0.00	0.00	4.25	4.25
main heating system						
owner occupied	7,147					
central heating		92.98	0.34	1.17	92.31	93.66
storage heater		4.39	0.27	1.14	3.85	4.92
fixed room heating		2.63	0.22	1.22	2.20	3.06
private rented	3,058					
central heating		81.27	0.84	1.24	79.63	82.92
storage heater		12.95	0.72	1.25	11.53	14.37
fixed room heating		5.78	0.50	1.24	4.79	6.76
social rented						
local authority	2,286					
central heating		91.41	0.68	1.21	90.07	92.75
storage heater		7.47	0.64	1.21	6.22	8.72
fixed room heating		1.12	0.27	1.28	0.59	1.64
housing association	2,460					
central heating		85.55	0.82	1.18	83.94	87.16
storage heater		13.54	0.80	1.19	11.96	15.12
fixed room heating		0.91	0.20	1.00	0.53	1.30
all social rented	4,746					
central heating		88.33	0.54	1.19	87.26	89.39
storage heater		10.66	0.52	1.20	9.63	11.69
fixed room heating		1.01	0.16	1.14	0.69	1.33
all tenures	14,951					
central heating		90.10	0.29	1.16	89.54	90.66
storage heater		6.99	0.24	1.10	6.53	7.46
fixed room heating		2.90	0.17	1.31	2.57	3.24

Table B2: Sampling errors using weighted data: mean SAP, 2011

characteristic	unweighted base	mean SAP	standard error (mean)	design factor (deft)	95% confidence interval (including impact of deft)	
					lower	upper
energy efficiency rating (SAP09)						
owner occupied	7,147	55.34	0.16	1.14	55.02	55.66
private rented	3,058	55.45	0.32	1.24	54.82	56.08
social rented						
local authority	2,286	61.89	0.24	1.16	61.42	62.35
housing association	2,460	63.82	0.22	1.15	63.38	64.26
all social rented	4,746	62.91	0.16	1.16	62.58	63.23
all tenures	14,951	56.68	0.12	1.22	56.44	56.92

Glossary

Accessibility features: The four accessibility features reported on form the basis of the requirements in part M of the Building Regulations, although the EHS cannot exactly mirror the detailed requirements. The four features are:

1. **level access:** there are no steps between the gate/pavement and the front door into the house or block of flats to negotiate. The path also has a gradient of less than 1 in 20.

2. **flush threshold:** a wheelchair can be wheeled directly into the dwelling from outside the entrance door with no steps to negotiate and no obstruction higher than 15mm. For houses, this usually involves a specified adaptation. Flats on upper or basement levels can be regarded as having a flush threshold provided that there is a lift and there are no obstructions higher than 15mm on the route from outside the entrance door to the block into the flat itself.

3. **sufficiently wide doors and circulation space:** the doors and circulation space serving habitable rooms, kitchen, bathroom and WC comply with the requirements of Part M listed in the table below. This means that doorways should be at least 750mm wide and corridors 900mm wide and that these minimum widths are higher where the person has to turn into the room from the corridor than when the corridor leads head on into the room.

4. **WC at entrance level:** there is an inside WC located on the entrance floor to the dwelling. For houses, this is usually the ground floor and for flats it will be the same level as the main entrance door into the flat. The WC does not have to be fully wheelchair accessible to be coded as ‘at entry level’.

For more details see the Technical Advice Note on Dwelling and Neighbourhood Conditions.

Age: The date of construction of the oldest part of the building.

Area type:

- **city or other urban centre:** includes
    - *city centre*: the area around the core of a large city.
    - *other urban centre*: the area around towns and small cities, and also older urban
    - areas which have been swallowed up by a metropolis.

- **suburban residential**: the outer area of a town or city; characterised by large planned housing estates.

- **rural**: includes:
    - *rural residential*: a suburban area of a village, often meeting the housing needs of people who work in nearby towns and cities.
    - *village centre*: the traditional village or the old heart of a village which has been suburbanised.
    - *rural*: an area which is predominantly rural e.g. mainly agricultural land with isolated dwellings or small hamlets.

Basic repair costs: Basic repairs include urgent work required in the short term to tackle problems presenting a risk to health, safety, security or further significant deterioration plus any additional work that will become necessary within the next five years. See the Technical Advice Note on Dwelling and Neighbourhood Conditions for more information about how these are calculated and assumptions made.

Carbon dioxide (CO_2) emissions: The total carbon dioxide emissions from space heating, water heating, ventilation and lighting, less the emissions saved by energy generation as derived from the Standard Assessment Procedure (SAP; defined below) calculations and assumptions. These are measured in tonnes/year. Unlike the Energy Impact Rating (EIR; defined below) the CO_2 emissions presented are not adjusted for floor area and represent emissions from the whole dwelling. The highest and lowest emitting performers have also been grouped with cut-off points set at 3 tonnes per year for the low emitters and 10 tonnes per year for the highest. CO_2 emissions for each dwelling are based on a standard occupancy and a standard heating regime.

Construction type: The construction method refers to the main structural components supporting the roof and floors, and possibly walls. These components generally comprise either some frame structure or some part of the external walls. The most common construction method is **Boxwall,** consisting of a rigid 'box' formed by all of the external walls and perhaps some internal walls. All 'traditional' buildings are of this construction.

The next most common method of construction is **Crosswall,** whereby two opposite walls (of the four), usually the party or end walls are loadbearing, while the others consist of lightweight non-loadbearing panels normally incorporating large windows. Under the **frame** method of construction, the load of the roof, floors and walls is borne on a skeleton of metal, concrete or timber.

The most common construction material is masonry (brick, block, stone, flint etc).

Comprehensive repair costs: Comprehensive repairs include urgent work required in the short term to tackle problems presenting a risk to health, safety, security or further significant deterioration plus any additional work, including replacement of elements that will become necessary within the next ten years. See the Technical Advice Note on Dwelling and Neighbourhood Conditions for more information about how these are calculated and assumptions made.

Damp and mould: Damp and mould in dwellings fall into three main categories:

1. **rising damp**: where the surveyor has noted the presence of rising damp in at least one of the rooms surveyed during the physical survey. Rising damp occurs when water from the ground rises up into the walls or floors because damp proof courses in walls or damp proof membranes in floors are either not present or faulty.

2. **penetrating damp**: where the surveyor has noted the presence of penetrating damp in at least one of the rooms surveyed during the physical survey. Penetrating damp is caused by leaks from faulty components of the external fabric e.g. roof covering, gutters etc. or leaks from internal plumbing, e.g. water pipes, radiators etc.

3. **condensation or mould**: caused by water vapour generated by activities like cooking and bathing condensing on cold surfaces like windows and walls. Virtually all dwellings have some level of condensation. Only serious levels of condensation or mould are considered as a problem in this report, namely where there are extensive patches of mould growth on walls and ceilings and/or mildew on soft furnishings.

Decent home: A home that meets all of the following four criteria:

1. it meets the current statutory minimum standard for housing as set out in the Housing Health and Safety Rating System (HHSRS – see below).
2. it is in a reasonable state of repair (related to the age and condition of a range of building components including walls, roofs, windows, doors, chimneys, electrics and heating systems).
3. it has reasonably modern facilities and services (related to the age, size and layout/location of the kitchen, bathroom and WC and any common areas for blocks of flats, and to noise insulation).
4. it provides a reasonable degree of thermal comfort (related to insulation and heating efficiency).

The detailed definition for each of these criteria is included in *A Decent Home: Definition and guidance for implementation*, Communities and Local Government, June 2006[1].

From 2006 the definition of decent homes was updated and the Fitness Standard was replaced by the Housing Health and Safety Rating System (HHSRS) as the statutory criterion of decency. Estimates using the updated definition of decent homes are not comparable with those based on the original definition. Accordingly any change in the number of decent and non-decent homes will be referenced to 2006 only. Estimates for 1996 to 2006 using the original definition are available in the 2006 English House Condition Survey Headline[2] and Annual[3] Reports

[1] https://www.gov.uk/government/publications/a-decent-home-definition-and-guidance

[2] http://webarchive.nationalarchives.gov.uk/20121108165934/http://www.communities.gov.uk/publications/housing/ehcsheadline2006

[3] http://webarchive.nationalarchives.gov.uk/20121108165934/http://www.communities.gov.uk/publications/corporate/statistics/ehcs2006annualreport

Double glazing: This covers factory made sealed window units only. It does not include windows with secondary glazing or external doors with double or secondary glazing (other than double glazed patio doors, which are surveyed as representing two windows).

Dwelling: A self-contained unit of accommodation (normally a house or flat) where all the rooms and amenities (i.e. kitchen, bath/shower room and WC) are for the exclusive use of the household(s) occupying them. In rare cases, amenities may be located outside the front door but provided they are for the exclusive use of the occupants, the accommodation is still classed as a dwelling.

For the most part a dwelling will be occupied by one household. However, it may contain none (vacant dwelling) or may contain more than one (House in Multiple Occupation or HMO).

Dwelling type: Dwellings are classified, on the basis of the surveyor's inspection, into the following categories:

- **small terraced house:** a house with a total floor area of less than $70m^2$ forming part of a block where at least one house is attached to two or more other houses.
- **medium/large terraced house:** a house with a total floor area of $70m^2$ or more forming part of a block where at least one house is attached to two or more other houses.
- **end terraced house:** a house attached to one other house only in a block where at least one house is attached to two or more other houses.
- **mid-terraced house:** a house attached to two other houses in a block.
- **semi-detached house:** a house that is attached to just one other in a block of two.
- **detached house:** a house where none of the habitable structure is joined to another building (other than garages, outhouses etc.).
- **bungalow:** a house with all of the habitable accommodation on one floor. This excludes chalet bungalows and bungalows with habitable loft conversions, which are treated as houses.
- **converted flat:** a flat resulting from the conversion of a house or former non-residential building. Includes buildings converted into a flat plus commercial premises (such as corner shops).
- **purpose built flat, low rise:** a flat in a purpose built block less than six storeys high. Includes cases where there is only one flat with independent access in a building which is also used for non-domestic purposes.

- **purpose built flat, high rise:** a flat in a purpose built block of at least six storeys high.

Door viewer: This includes a 'spyhole' type viewer fitted to the main entrance door and also any glazing in the room containing the door that enables the occupant to see clearly who is at the door.

Electrical safety:

- **wiring**: this is the cabling from the input electrical supply point, which runs through the meters and consumer units and leading out into the dwelling. The earliest types of wiring used lead or black rubber sheathings to enclose the wires. The danger with this type of cable is the degrading of the rubber: any failure of the insulation can cause the outer covering to become live. Modern wiring is PVC sheathed.

- **earthing**: these are the wires joining the components at the electrical distribution centre. The early forms of earthing wires were unsheathed then later covered with green rubber, then green plastic. In 1977 the colour convention changed and all wires had to be coloured green and yellow.

- **consumer unit arrangement (fuse boxes)**: in older systems, each individual electrical circuit was fed through an individual switch and fuse box. From 1960s through to the 1980s, fuses were collected together into a small number of smaller boxes, normally with a switch on the front which controlled all the circuits leading to the box. These boxes were normally fitted with a cover, the removal of which gave access to the fuses hidden inside. From the early 1980s, the newly named consumer unit (some dwellings have two) catered for the whole dwelling and was also designed to accommodate modern safety measures namely circuit breakers and residual current devices.

- **overload protection / miniature circuit breakers:** these provide the most modern form of electrical current overload protection, replacing cartridge fuses and the original wire fuses (these simply melt when overheated) which formed the earliest form of protection.

- **Residual current devices (RCDs)**: these are designed to break an electrical current very easily by detecting any abnormality in the circuit, for example, through someone touching a live wire. They are normally located in the consumer unit but a separate RCD may exist to protect an additional circuit, for example, an electrical circuit used in the garden.

Energy cost: The total energy cost from space heating, water heating, ventilation and lighting, less the costs saved by energy generation as derived from SAP calculations and assumptions. This is measured in £/year using constant prices based on average fuel prices for 2009 (which input into the 2009 SAP) and do *not* reflect subsequent changes in fuel prices. Energy costs for each dwelling are based on a standard occupancy and a standard heating regime.

Energy Performance Certificate (EPC): The EPC provides a range of indicators based on current performance, whether the property would benefit in terms of improved performance from a range of low cost and higher cost measures, and the likely performance arising from the application of those measures. The EPC assessment is based on a simplified form of the energy efficiency SAP known as reduced data SAP.

The EHS currently provides the following EPC based indicators, calculated using the survey's own approach to SAP (see the Technical Advice Note on Energy Efficiency and Energy Improvements for further information):

- **current performance:**
    - *energy efficiency rating* (EER) and bands
    - *environmental impact rating* (EIR) and bands
    - *primary energy use* (kWh/m^2/year)
    - *energy cost* (£/year), but unlike the EPC these are based on 2005 constant prices
    - *CO_2* (carbon dioxide) emissions (tonnes/year)

- **improvement measures:** as part of the EPC, certain improvement measures are suggested, which would increase the energy efficiency of the dwelling. These include improvements to both heating and insulation measures.

    a) *higher cost measures* (more than £500):

    upgrade to **central heating controls**, for boiler driven systems, typically to a stage where a room thermostat, a central programmer and thermostatic radiator valves (TRV's) have been installed (although the range of upgraded controls can vary depending on the heating system);

    upgrading to a **class A condensing boiler** using the same fuel (mains gas, LPG or fuel oil), where a non-communal boiler is in place (this improvement measure is most appropriate when the existing central heating boiler needs repair or replacement);

    upgrading existing storage radiators (or other electric heating) to more **modern, fan-assisted storage heaters**;

    installation of a **hot water cylinder thermostat** where a storage cylinder is in use but no thermostat exists;

    replacement **warm-air unit** with a fan-assisted flue, where the original warm-air heating unit is pre-1998;

    installation of a manual feed **biomass boiler** or **wood pellet stove** where an independent, non-biomass solid fuel system exists. This measure was assessed to identify the number of dwellings that would benefit from this measure but was not included in the post improvement energy efficiency rating or carbon dioxide emissions (reported in section 4) due a combination of the small amount of dwellings that would benefit and modelling complexity.

b) *lower cost measures* (less than £500):

installation or upgrade of **loft insulation** which is less than 250mm, where the dwelling is not a mid- or ground-floor flat and where the loft does not constitute a full conversion to a habitable room;

installation of **cavity wall insulation**, where the wall is of cavity construction;

installation or upgrade of **hot water cylinder insulation** to a level matching a 160mm jacket. Recommended where the current level is less than 25mm of spray foam or less than a 100mm jacket.

The survey is not able to include the following improvements: draft proofing and low energy lighting. Other more expensive measures that are not included are: solar water heating; double or secondary glazing; solid wall insulation; complete change of heating system to class A condensing boiler (including fuel switching); solar photovoltaics (PV) panels.

- **Cost of energy efficiency improvement measures**: the cumulative cost of implementing the measures that have been recommended for each dwelling is calculated by applying standard costs on a per unit area basis for loft and cavity wall insulation and a single unit cost for other measures.

Energy efficiency rating: A dwelling's energy costs per m^2 of floor area for standard occupancy of a dwelling and a standard heating regime and is calculated from the survey using a simplified form of the SAP. The energy costs take into account the costs of space and water heating, ventilation and lighting, less cost savings from energy generation technologies. They do not take into account variation in geographical location. The rating is expressed on a scale of 1-100 where a dwelling with a rating of 1 has poor energy efficiency (high costs) and a dwelling with a rating of 100 represents zero net energy cost per year.

The detailed methodology for calculating SAP to monitor the energy efficiency of dwellings was updated in 2009 to reflect developments in the energy efficiency technologies and knowledge of dwelling energy performance. This means that a SAP rating using the 2005 method is not directly comparable to one calculated under the 2009 methodology, and it would be incorrect to do so. All SAP statistics used in reporting from 2010 are based on the SAP 2009 methodology and this includes time series data from 1996 to the current reporting period (i.e. the SAP 2009 methodology has been retrospectively applied to 1996 and subsequent survey data to provide consistent results in the 2010 and following reports).

Energy efficiency rating (EER) bands: The energy efficiency rating is also presented in an A-G banding system for an Energy Performance Certificate, where Band A rating represents low energy costs (i.e. the most efficient band) and Band G rating represents high energy costs (the least efficient band). The break points in SAP used for the EER Bands are:

- Band A (92–100)

- Band B (81–91)
- Band C (69–80)
- Band D (55–68)
- Band E (39–54)
- Band F (21–38)
- Band G (1–20)

Environmental impact rating (EIR): Based on the EPC, the EIR is a measure of a dwelling's impact on the environment in terms of CO_2 emissions/m^2 of floor area. The emissions take into account space heating, water heating, ventilation and lighting, less the emissions saved by energy generation technologies. The rating is expressed on a scale of 1–100 where a dwelling with a rating of 1 has high CO_2 emissions and a dwelling with a rating of 100 represents zero net emissions per year.

The EIR rating is also expressed in an A-G banding system for Energy Performance Certificates where an A rating represents low carbon emissions and a G rating represents high carbon emissions. The EER and the EIR use common break points for their Bands (see above).

Energy use: The energy use relates to the primary energy used. This takes into account distribution losses and energy used to produce fuels along with the energy actually used in the dwelling (as derived from SAP calculations and assumptions). This is measured in kWh/m^2 per year. Energy use for each dwelling is based on a standard occupancy and a standard heating regime.

Excess cold (HHSRS Category 1 hazard): Households living in homes with a threat to health arising from sub-optimal indoor temperatures. The assessment is based on the most vulnerable group who, for this hazard, are those aged 65 years or more (the assessment does not require a person of this age to be an occupant). The EHS does not measure achieved temperatures in the home and therefore this hazard is based on dwellings with an energy efficiency rating of less than 35 based on the SAP 2001 methodology. Under the SAP 2009 methodology the comparable threshold was recalculated to be 35.79 and the latter is used in providing statistics for the HHSRS Category 1 hazard.

Faults (to shared facilities and building elements): A defect that is not purely cosmetic in nature and that satisfies at least one of the three criteria below:

1. it affects at least 5% of the element in question; or
2. regardless of its extent, represents an immediate health or safety hazard; or
3. regardless of its extent, it threatens further deterioration to the element any other part of the building/structure.

Heating system

a) main space heating type:

central heating system: most commonly a system with a gas fired boiler and radiators which distribute heat throughout the dwelling (but also included in this definition are warm air systems, electric ceiling/underfloor and communal heating). It is generally considered to be a cost effective and relatively efficient method of heating a dwelling.

storage heaters: predominately used in dwellings that have an off-peak electricity tariff. Storage heaters use off-peak electricity to store heat in clay bricks or a ceramic material, this heat is then released throughout the day. However, storage heating can prove expensive if too much on peak electricity is used during the day.

room heaters: this category includes all other types of heater such as fixed gas, fixed electric or portable electric heaters, this type of heating is generally considered to be the least cost effective of the main systems and produces more carbon dioxide emissions per kWh.

b) heating fuel:

gas: mains gas is relatively inexpensive and produces lower emissions per unit of energy than most other commonly used fuels. Liquefied Petroleum Gas and bottled gas are still associated with slightly higher costs and emissions.

electricity: standard rate electricity has the highest costs and CO_2 emissions associated with main fuels, but is used in dwellings without a viable alternative or a back-up to mains gas. An off-peak tariff such as Economy 7, is cheaper than bottled gas but with the same emissions as standard electricity.

oil: in terms of both costs and emissions, oil lies between main gas and electricity.

solid fuel: these are similar costs to oil with the exception of processed wood which can be more expensive than off-peak electricity. Fuels included are coal and anthracite, with CO_2 emissions above those of gas and oil; wood, which has the lowest emissions of the main fuels; and smokeless fuel, whose emissions are close to those of electricity. By law, areas (usually towns or cities) are designated as smoke control areas where solid fuels emitting smoke are illegal.

c) water heating system:

combined: provides heat to supply hot water for the dwelling.

separate: dwellings which have electrical space heating systems often use electric immersion heaters to heat water. Other dwellings may be fitted within instantaneous water heaters, such as electric showers.

d) boiler type:

standard: provides hot water or warm air for space heating with the former also providing hot water via a separate storage cylinder.

back: located behind a room heater and feeds hot water to a separate storage cylinder. They are generally less efficient than other boiler types.

combination: provides hot water or warm air for space heating and can provide hot water on demand negating the need for a storage cylinder, therefore requiring less room.

condensing: standard and combination boilers can also be condensing. A condensing boiler uses a larger, or dual, heat exchanger to obtain more heat from burning fuel than an ordinary boiler, and is generally the most efficient boiler type.

Household: A household is defined as one person living alone, or a group of people (not necessarily related) living at the same address who share cooking facilities AND a living room or sitting room or dining area. Shared houses where the occupants have a joint tenancy or where they came together as a group to rent the house and would themselves fill any vacancies rather than expecting the landlord to do this are also classed as a single household; even though they may not share a sitting room or a meal per day.

Household reference person (HRP): The person in whose name the dwelling is owned or rented or who is otherwise responsible for the accommodation. In the case of joint owners and tenants, the person with the highest income is taken as the HRP. Where incomes are equal, the older is taken as the HRP. This procedure increases the likelihood that the HRP better characterises the household's social and economic position.

Household groups

- **ethnic minorities**: where the respondent defines their ethnicity as something other than white.
- **illness or disability**: a household where at least one person in the household has a long-term illness or disability. The respondent assesses this and long-term is defined as anything that has troubled the person, or is likely to affect them, over a period of time.
- **in poverty**: a household with income below 60% of the equivalised median household income (calculated before any housing costs are deducted).
- **older people 60+**: a household that includes at least one person aged 60 or over.

Housing Health and Safety Rating System (HHSRS): A risk assessment tool used to assess potential risks to the health and safety of occupants in residential properties in England and Wales. It replaced the Fitness Standard in April 2006.

The purpose of the HHSRS assessment[4] is not to set a standard but to generate objective information in order to determine and inform enforcement decisions. There are 29 categories of hazard, each of which is separately rated, based on the risk to the potential occupant who is most vulnerable to that hazard. The individual hazard scores are grouped into 10 bands where the highest bands (A-C representing scores of 1,000 or more) are considered to pose Category 1 hazards. Local authorities have a duty to act where Category 1 hazards are present, and may take into account the vulnerability of the actual occupant in determining the best course of action.
For the purposes of the decent homes standard, homes posing a Category 1 hazard are non-decent on its criterion that a home must meet the statutory minimum requirements.

The EHS is not able to replicate the HHSRS assessment in full as part of a large scale survey. Its assessment employs a mix of hazards that are directly assessed by surveyors in the field and others that are indirectly assessed from detailed related information collected. For 2006 and 2007, the survey (the then English House Condition Survey) produced estimates based on 15 of the 29 hazards. From 2008, the survey is able to provide a more comprehensive assessment based on 26 of the 29 hazards. See the EHS Technical Note on Housing and Neighbourhood Conditions for a list of the hazards covered.

Income/equivalised income: Household incomes have been 'equivalised', that is adjusted (using the modified OECD scale) to reflect the number of people in a household. This allows the comparison of incomes for households with different sizes and compositions.

The EHS variables are modelled to produce a Before Housing Cost (BHC) income measure for the purpose of equivalisation. The BHC income variable includes: Household Reference Person and partner's income from benefits and private sources (including income from savings), income from other household members, housing benefit, winter fuel payment and the deduction of net council tax payment.

Insulation:

a) **wall insulation:**

cavity walls: where a dwelling has external walls of predominantly cavity construction, it is defined as having cavity wall insulation if at least 50% of the cavity walls are filled with insulation. This could have been fitted during construction or retrospectively injected between the masonry leaves of the cavity wall.

non-cavity walls: where a dwelling has not been defined as cavity walled, analysis is carried out on information regarding additional insulation applied either externally (e.g. insulated board attached to the external face with a render finish) or internally (e.g. insulated plasterboard fitted to the external walls inside each room, with a plaster finish). This is often referred to as solid wall insulation, but for

[4] https://www.gov.uk/government/organisations/department-for-communities-and-local-government/series/housing-health-and-safety-rating-system-hhsrs-guidance

reporting purposes any dwelling with non-cavity walls (e.g. timber, metal or concrete frames) are included in this analysis.

b) loft insulation:

the presence and depth of loft insulation is collected for all houses and top-floor flats. Insulation could be found between joists above the ceiling of the top floor of the dwelling or between the roof timbers where the loft has been converted to a habitable space. Where insulation could not be observed, information is taken from the householder or from imputed estimates based on the age and type of the dwelling.

Local environment: The area around the dwelling of which the dwelling seems to be a part. The surveyor puts an imaginary 'boundary' round this area taking into account the character of the surrounding streets. It is likely, but not necessarily, defined in relation to physical boundaries such as roads, railway lines, canals etc. Surveyors define this environment to be a manageable size so that they can visually inspect the whole area on foot which means that, for very large housing estates, the 'local environment' will be just part of the estate.

Parking provision: The 'best' parking available to the dwelling i.e. if the home has both a garage and off street parking, parking provision is coded as 'garage'. The parking provision does not have to be located on the plot of the dwelling – the off street parking space or garage may be in a block further down the street or round the corner.

SAP: The energy cost rating as determined by Government's Standard Assessment Procedure (SAP) and is used to monitor the energy efficiency of dwellings. It is an index based on calculated annual space and water heating costs for a standard heating regime and is expressed on a scale of 1 (highly inefficient) to 100 (highly efficient with 100 representing zero energy cost).

The method for calculating SAP was comprehensively updated in 2005, with a further update in 2009-10. This new SAP09 methodology has been used in all EHS reports since 2010-11.

Scale of poor dwelling condition

- **worst**: the dwelling has a Category 1 HHSRS hazard
- **poor**: the dwelling has some damp, substantial disrepair (basic standardised repair costs over £35m^2), or a SAP rating of less than 45
- **worse than average**: the dwelling has higher than average levels of disrepair (using basic standardised repair costs), or an average or below average mean SAP rating for all dwellings
- **generally satisfactory**: the dwelling has average or below average levels of disrepair (using basic standardised repair costs), or a SAP rating over the mean for all dwellings

Secure windows and doors: The main entrance door to the dwelling and any accessible windows need to be assessed by surveyors as either highly secure or fairly highly secure

- **Main entrance door:**
    - **High**: good quality door that is double glazed or contains no glazing. It should have a strong frame, and auto deadlocking rim lock in the top one-third of the door plus a mortice lock in the lower third of the door.
    - **Fairly high:** as above but with either a standard Yale lock instead of the auto deadlocking rim lock or the locks not set apart.

- **Accessible windows:**
    - **High:** double glazed windows with key locks
    - **Fairly high:** double glazed windows without key locks

Secondary amenities: Additional WCs and baths/showers that are located inside the dwelling.

Serious condensation or mould: See 'damp and mould growth'

Size: The total usable internal floor area of the dwelling as measured by the surveyor, rounded to the nearest square metre. It excludes integral garages, balconies, stores accessed from the outside only and the area under partition walls. Dwellings are also grouped into the following five categories:

- less than $50m^2$
- 50 to $69m^2$
- 70 to $89m^2$
- 90 to $109m^2$
- $110m^2$ or more.

Storeys: The number of storeys *above* ground i.e. it does not include any basements.

Tenure: Four categories are used for most reporting purposes, and for some analyses these four tenure categories are collapsed into two groups:

- **private sector**: includes:
    - *owner-occupied*: includes all households who own their own dwellings outright or buying them with a mortgage/loan; also includes shared-ownership schemes.

    - *private rented*: includes all households living in privately owned property which they do not own. Includes households living rent free, or in tied dwellings and tenants of housing associations that are not registered.

- **social rented**: includes:

    - *local authority*: includes Arms Length Management Organisations (ALMOs) and Housing Action Trusts.
    - *housing association*: mostly Registered Social Landlords (RSLs), Local Housing Companies, co-operatives and charitable trusts.

Urgent repair costs: These cover urgent work only which is defined as work required in the short term to tackle problems presenting a risk to health, safety, security or further significant deterioration of the building. See the Technical Advice Note on Dwelling and neighbourhood conditions for more information about how these are calculated and assumptions made.

Vacant dwellings: The assessment of whether or not a dwelling is vacant is made at the time of the interviewer's visit. Clarification of vacancy is sought from neighbours. Surveyors are required to gain access to vacant dwellings and undertake full inspections.

ISBN: 978-1-4098-3922-4