



Ministry of Housing,  
Communities &  
Local Government



# English Housing Survey

Headline Report 2023-24:  
housing quality and energy efficiency

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## Introduction and background to the 2023-24 data

The English Housing Survey (EHS) is a national survey of people's housing circumstances and the condition and energy efficiency of housing in England. It is a repeated cross-sectional survey that pairs a household interview with a physical inspection of the home. It is an Accredited Official Statistic (previously known as National Statistics), and is one of the longest standing government surveys, first run in 1967.

To support timely and relevant reporting, the usual EHS Headline report has been split into two releases. This report is the second publication of findings from the 2023-24 survey and focuses on housing quality and energy efficiency. The first report was published in November 2024 and focused on [household demographics, dwelling characteristics, and financial resilience](#).

The 2023-24 physical survey data published in this report is the first since 2019 that was not impacted by the methodological changes undertaken during the COVID-19 pandemic. That is, full dwelling surveys were undertaken for both years of data used for analysis of dwellings. This means that, for the first time since 2019, we have access to the full set of housing quality and energy efficiency variables. While compiled on a comparable basis to 2019, the changes in methodology necessitated by the Covid pandemic mean that comparisons across intervening years within this report should be made with caution. In the main, we compare analysis that uses the physical survey to pre-pandemic data to ensure it is comparable. For analysis using the interview survey, we may compare to more recent data, depending on the changes we observe. In consultation with users, we have updated the content of this report to reflect the availability of this data as well as user interest in more data on housing quality and energy efficiency.

While compiled on a comparable basis to 2019, the changes in methodology necessitated by the Covid pandemic mean that comparisons across intervening years within this report should be made with caution. In the main, we compare analysis that uses the physical survey to pre-pandemic data to ensure it is comparable. For analysis using the interview survey, we may compare to more recent data, depending on the changes we observe.

More information on the impact of COVID-19 on the English Housing Survey and the modelling methodology can be found in Annex 5.5 of the [Technical Report](#).

The headline findings will be followed up with a series of more detailed topic reports in the spring and summer of 2025.

### **This report**

This report contains headline findings on housing quality and energy efficiency. It is split into two chapters.

The first chapter focuses on housing quality and condition, including decency, safety and damp. Rates of overcrowding and under-occupation by tenure are also examined.

The second chapter covers energy efficiency, heating and insulation. It also looks at smart meters, electricity payment methods, subjective overheating and the cost to improve to an energy efficiency rating of band C.

The overarching findings show general improvements to both housing quality and energy efficiency in the long term. Compared to a decade ago, we see fewer non-decent and unsafe homes, and more homes in the highest energy efficiency bands. Nonetheless, we still observe a persistent level of homes that fail the Decent Homes Standard, or have poor energy efficiency ratings. More particularly, we have seen increases in levels of damp and mould and have also observed changes to the space available in homes and the size of households that could have knock-on effects for housing quality.

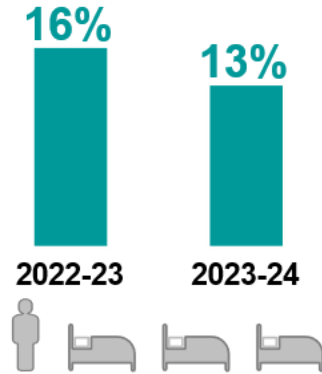
In 2023, we observed a notable increase in levels of dangerous damp and mould in all tenures when compared to the pre-pandemic levels (2019). This is in contrast to improvements in the Decent Homes Standard, the reduction of Category 1 hazards, and improvements to energy efficiency. While there is a correlation between these measures and dangerous damp and mould, the other standards only capture damp and mould to a limited degree. This increase in dangerous damp and mould is particularly important given recent policy developments and health concerns.

We also observed a reduction in the number of bedrooms available in the rented sectors, which is partly responsible for the decrease in under occupation levels seen in the rented sectors. It could also be related to the slight increases we have seen in average overcrowding levels. Overcrowding can be related to affordability issues, as well as correlated to housing quality issues such as a higher incidence of damp and mould and, as such, this is something we will continue to monitor in further surveys.


Additional [annex tables](#) provide further detail to that covered in the main body of the report.

## Key findings

The overall rate of overcrowding in England in 2023-24 was 3%, similar to previous years. There was a decrease in the proportion of underoccupied dwellings in the private rented sector from 16% in 2022-23 to 13% in 2023-24.

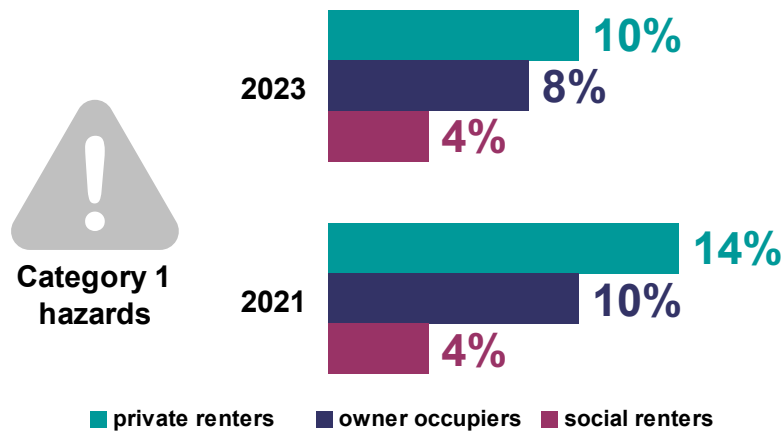


There was a decrease in the overall prevalence of non-decent homes compared to pre-pandemic estimates: from 17% in 2019 to 15% in 2023. Across tenure, there were decreases in the owner occupied sector (from 16% to 14%) and the social rented sector (from 12% to 10%) over that time, but no statistically significant decrease in the private rented sector.

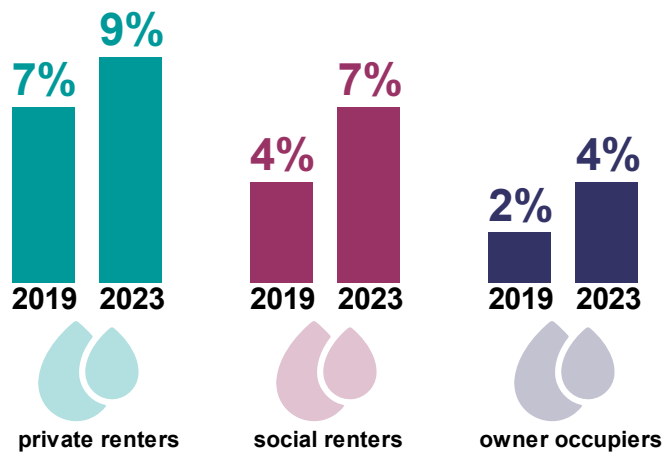


	2019	2023	
all tenures	17%	15%	↓
owner occupiers	16%	14%	↓
private renters	23%	21%	≡
social renters	12%	10%	↓

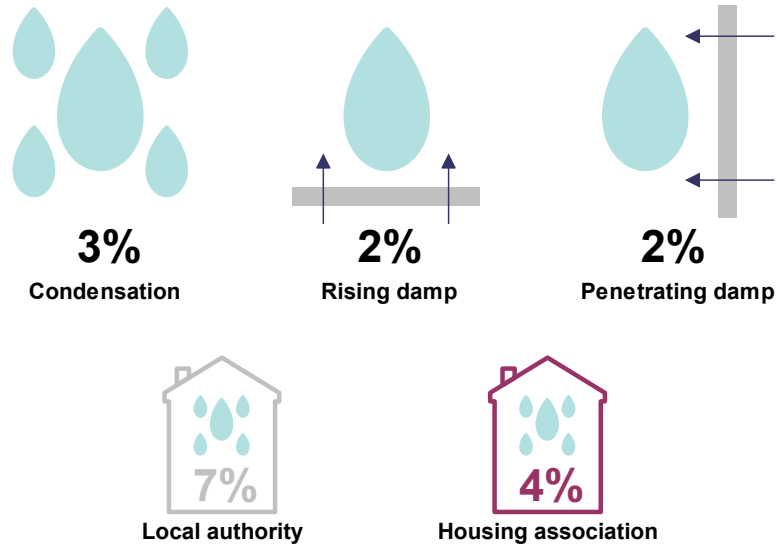
In 2023, Category 1 hazards remained more prevalent in the private rented sector (10%) than the owner occupied sector (8%) and the social rented sector (4%). However, since 2021, there was a decrease in the prevalence of Category 1 hazards in the private rented sector from 14%, and the owner occupied sector from 10%. From 2019 to 2021, the prevalence of Category 1 hazards remained unchanged across all tenures, and this statistically significant drop has only taken place in the last two years.



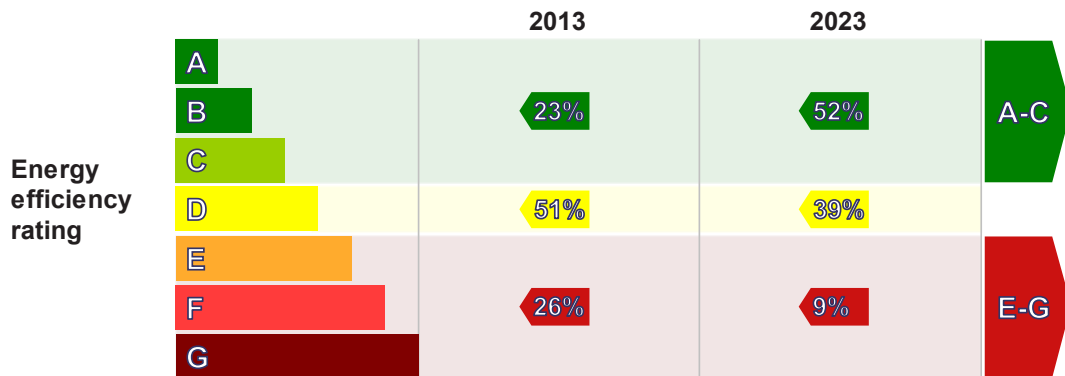
In 2023, 5% of dwellings in England had a problem with damp, higher than in any of the last five years (3-4%). Damp increased across all tenures since 2019, and was more prevalent in the private rented sector (9%), compared to the social rented sector (7%) and owner occupied sector (4%).



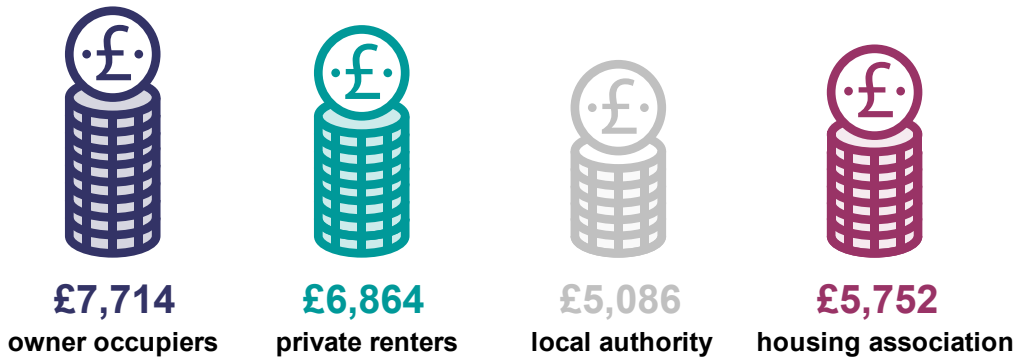
In 2023, serious condensation was more prevalent in homes (3%) than rising damp (2%) and penetrating damp (2%). Within the social rented sector, local authority dwellings were more likely to have serious condensation (7%) than housing association dwellings (4%).



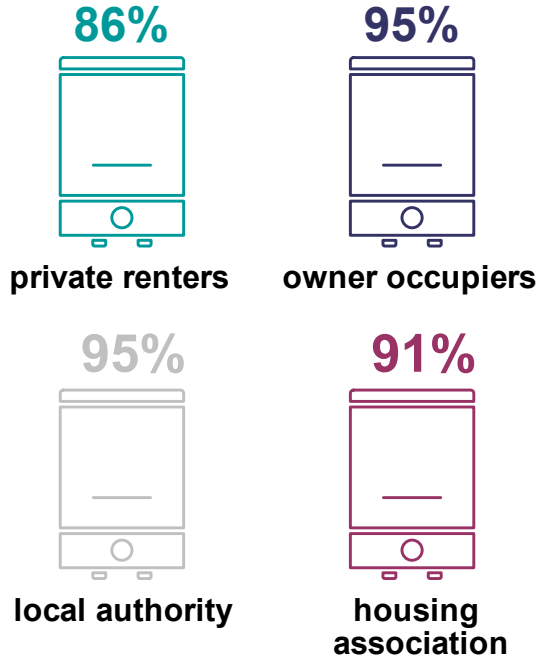
Over the last ten years, the proportion of homes in the highest energy efficiency bands A to C increased from 23% to 52%, while the proportion within the lowest bands of E to G decreased (26% to 9%).



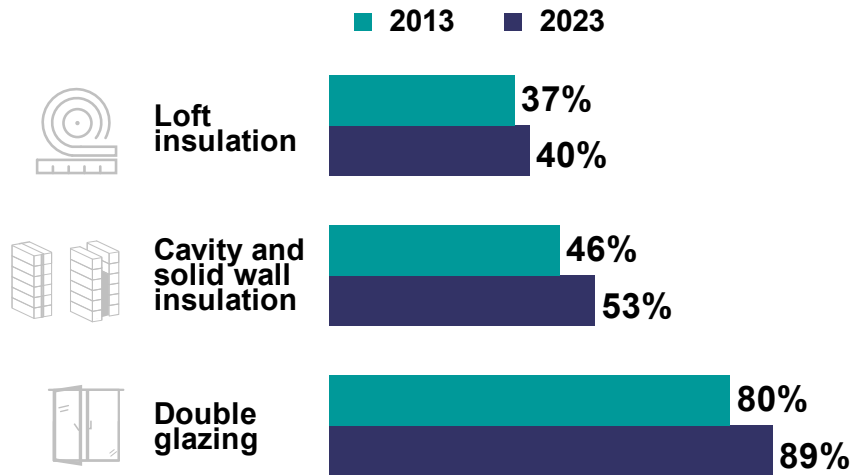
The estimated average cost to improve dwellings to at least an energy efficiency band C was £7,320 across all tenures, with owner occupied dwellings costing the most and social rented homes costing the least.



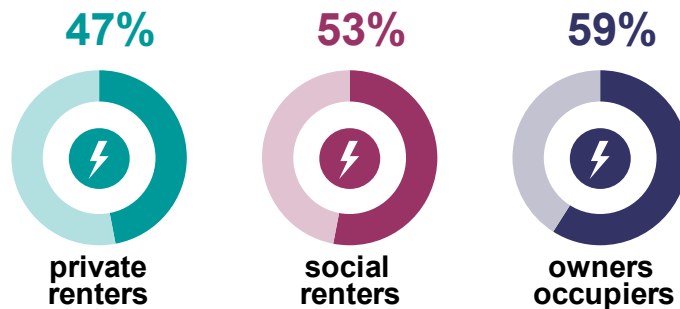
Owner occupied and local authority homes had the highest proportion of central heating (both 95%), followed by housing association homes (91%). Private rented homes had the lowest proportion of central heating (86%).



Loft and wall insulation increased over the last ten years. Around 40% of dwellings had loft insulation (over 200m thickness), an increase from 37% in 2013. Just over half (53%) of dwellings had cavity or solid wall insulation (up from 46% in 2013) and 89% of homes had full double glazing, up from 80% of homes in 2013.



In 2023-24, owner occupiers (59%) and social renters (53%) were more likely to report having an electricity smart meter, compared to private renters (47%).



## Acknowledgements and further queries

Each year the English Housing Survey relies on the contributions of a large number of people and organisations. The Ministry of Housing, Communities and Local Government (MHCLG) would particularly like to thank the following people and organisations without whom the 2023-24 survey and this report would not have been possible: all the households who gave up their time to take part in the survey, NatCen Social Research, the Building Research Establishment (BRE) and CADS Housing Surveys.

This report was produced by the Housing Evidence Research and Surveys Team at MHCLG. If you have any queries about it, would like any further information or have suggestions for analyses you would like to see included in future EHS reports, please contact [ehs@communities.gov.uk](mailto:ehs@communities.gov.uk).

The responsible analyst for this report is: Chauncey Glass, Housing and Planning Analysis Division, MHCLG. Contact via [ehs@communities.gov.uk](mailto:ehs@communities.gov.uk).

## Chapter 1: Housing Quality

This chapter begins by presenting the number of bedrooms available to households and levels of overcrowding and under-occupation, followed by an assessment of EHS housing quality measures: decent homes, Housing Health and Safety Rating System (HHSRS) and damp by tenure. It ends by discussing the presence of a working smoke alarm, the household frequency of testing smoke alarms, and whether dwellings with or without a solid fuel appliance have a carbon monoxide detector.

### Bedrooms available to households

Compared to pre-pandemic data (in 2019-20), there was a decrease in the number of bedrooms available to rented sector households, alongside a decrease in the mean household size.

In the private rented sector, 22% of households in 2023-24 had one bedroom, up from 18% of households in 2019-20. Concurrently, there was a decrease in the proportion of private rented sector households with three or more bedrooms available, dropping from 44% in 2019-20 to 37% in 2023-24, Annex Table 1.1.

The social rented sector saw a similar shift. The proportion of households who had one bedroom increased from 28% in 2019-20 to 31% in 2023-24, and dropped for households with three or more bedrooms available from 36% to 32%.

There was no change for owner occupied household over this time period. A small proportion (3%) of households had one bedroom available in both 2019-20 and 2023-24. Similarly, 76% of owner occupied households had three or more bedrooms available in both years, Figure 1.1.

**Figure 1.1: Households with one bedroom, by tenure, 2019-20 and 2023-24**

**Base:** all households

**Note:** underlying data are presented in Annex Table 1.1

**Sources:**

English Housing Survey, full household sample

Compared to pre-pandemic times, the mean household size also decreased in both the private rented sector (from 2.5 persons to 2.3 persons) and the social rented sector (from 2.3 persons to 2.1 persons), Annex Table 1.3, [English Housing Survey 2023-24 Headline Findings on Demographics and Household Resilience](#).

## Overcrowding and underoccupation

Levels of overcrowding and under-occupation are measured using the bedroom standard (see [glossary](#) for more detail). This is essentially the difference between the number of bedrooms needed to avoid undesirable sharing (given the number, ages and relationship of the household members) and the number of bedrooms available to the household.

Since the number of overcrowded households included in each survey year is too small to enable reliable overcrowding estimates for any single year, data from the three most recent survey years (2023-24, 2022-23 and 2021-22) were combined to produce the overcrowding estimates in this section. Care should be taken in interpreting individual year-on-year changes.

The overall rate of overcrowding in England in 2023-24 was 3%, with approximately 790,000 households living in overcrowded conditions. This is similar to 2020-21 where around 738,000 households were overcrowded (3%), Annex Table 1.2.

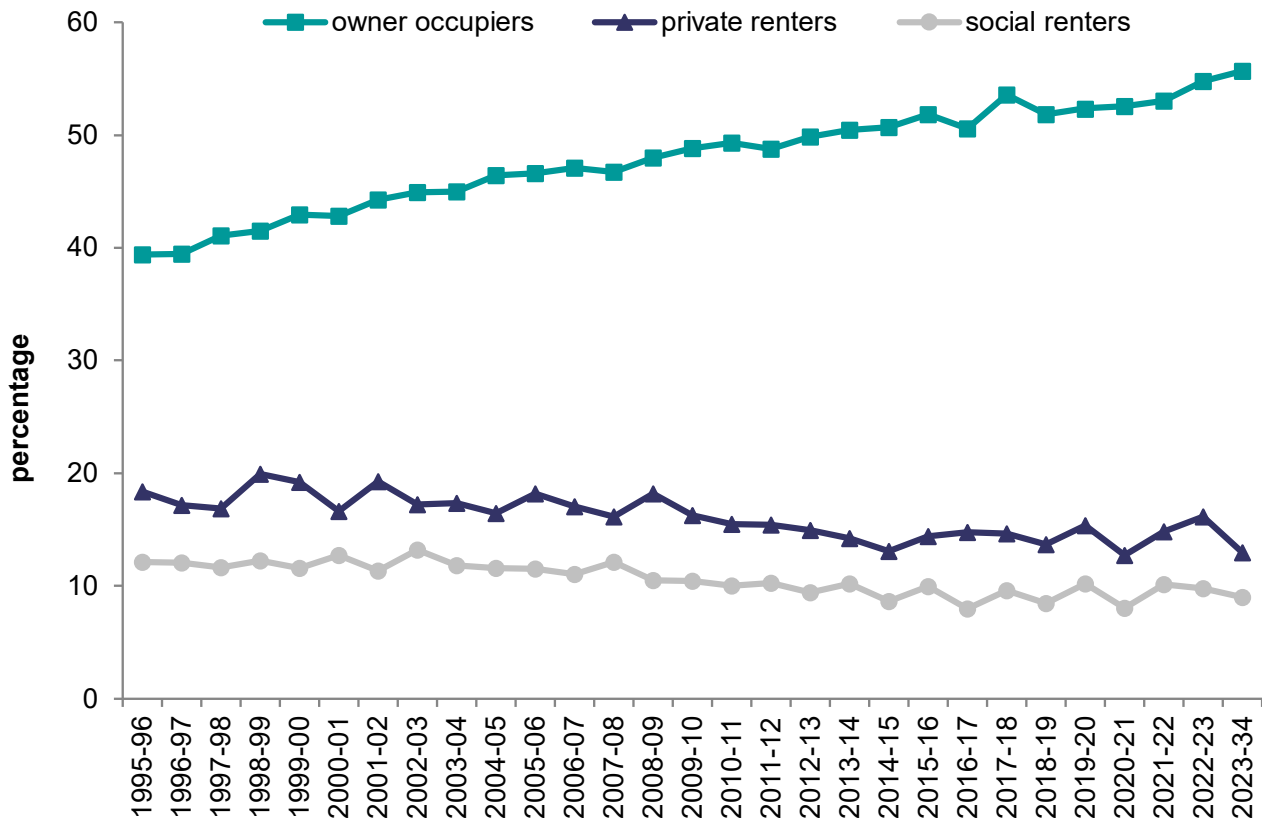


under-occupied in 2023-24, compared with 13% of private rented (605,000) and 9% of social rented (364,000) households.

There was a significant decrease in the proportion of under-occupied households in the private rented sector, from 16% in 2022-23 to 13% in 2023-24.

The overall proportion of under-occupied households among owner occupiers in England increased between 2013-14 and 2023-24 from 50% (7.2 million households) to 56% (8.9 million households), Figure 1.2.

**Figure 1.3: Under-occupation, by tenure, 1995-96 to 2023-24**



Base: all households

Note: underlying data are presented in Annex Table 1.3

Sources:

1995-96 to 2007-08: Survey of English Housing

2008-09 onwards: English Housing Survey, full household sample

## Dwelling quality and condition

Data from 2023 represents the first time since the COVID-19 pandemic where surveyors were able to undertake full surveys of dwellings. During the pandemic, a more limited 'external plus' approach was taken to the physical survey, and detailed assessments of housing quality variables were not possible. This year, we are able to produce and analyse a full range of housing quality variables. Housing quality measures modelled during the COVID-19 period (2020 and 2021) were for occupied dwellings only, and in 2022, a hybrid variable which combined actual measured data from 2022-23 with modelled data from 2021-22, which included vacant dwellings, was used. Comparisons made between 2023 and pandemic years (2020-2022) should be considered with caution. Where appropriate, we have made additional comparisons with pre-pandemic data (2019).

### Decent homes

For a dwelling to be considered 'decent' under the Decent Homes Standard it must:

- \* meet the statutory minimum standard for housing (the Housing Health and Safety System (HHSRS) since April 2006), homes which contain a Category 1 hazard under the HHSRS are considered non-decent
- \* be in a reasonable state of repair
- \* have reasonably modern facilities and services
- \* provide a reasonable degree of thermal comfort

The Decent Homes Standard (DHS) was introduced as a regulatory standard in the social rented sector in 2006. In the owner occupied and private rented sector, the DHS is not a regulatory standard, though is tracked through the EHS. Regulatory standards in the private rented sector are assessed against the existing Housing Health and Rating System (HHSRS), i.e. Criterion A of the DHS.

In 2023, 15% or 3.8 million dwellings failed to meet the Decent Homes Standard, similar to 2022, Annex Table 1.4.

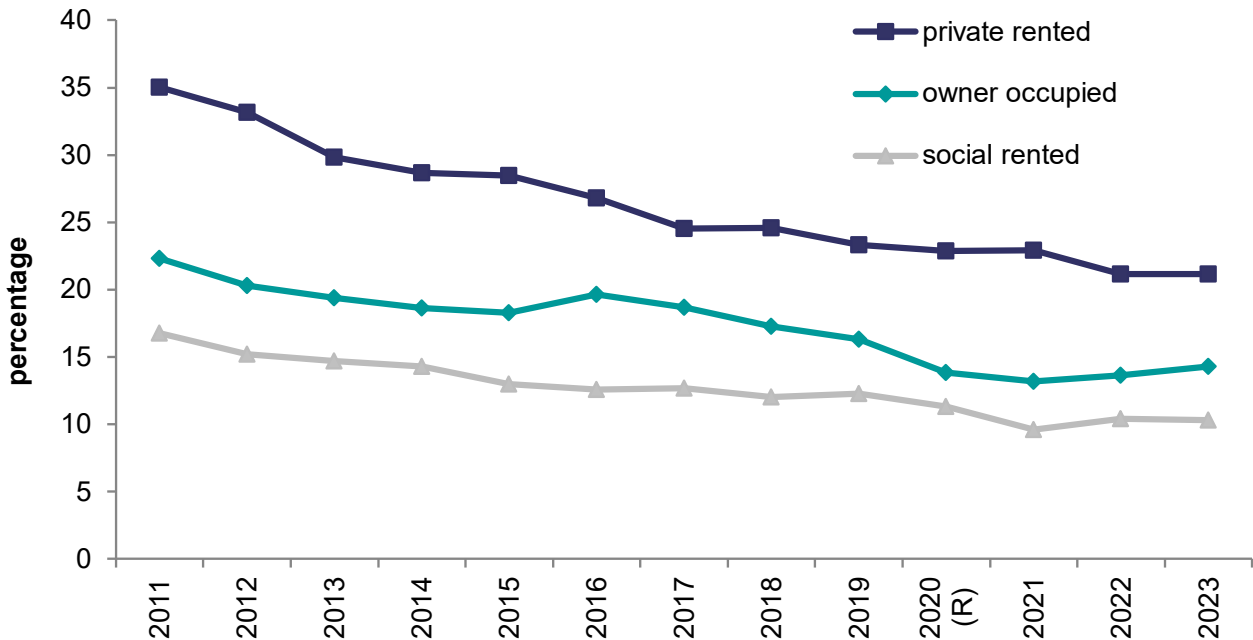
As in previous years, the private rented sector had the highest proportion of non-decent dwellings (21%) while the social rented sector had the lowest (10%). Among owner occupied dwellings, 14% failed to meet the Decent Homes Standard, similar to 2022, Figure 1.4.

Over the last 10 years, a decrease in the prevalence of non-decency occurred across all tenures. Since 2013, the proportion of private rented sector dwellings considered non-decent decreased from 30% to 21%, in the owner occupied sector from 19% to 14%, and in the social rented sector from 15% to 10%.

Between 2011 and 2019, there was a notable reduction in the prevalence of non-decent dwellings across all tenures. From 2019 to 2023, the proportion of non-decent dwellings in the private rented sector remained stable. In 2023, 1.0 million private rented sector dwellings were non-decent, a number not statistically different from 1.1 million in 2019.

However, there have been decreases in the owner occupied sector (from 16% to 14%) and the social rented sector (from 12% to 10%) from 2019 to 2023.

**Figure 1.4: Non-decent homes, by tenure, 2011 to 2023**



Base: 2011-2019 and 2022-2023 all dwellings; 2020-2021, occupied dwellings

Notes:

- 1) 2020 and 2021 figures are estimated based on dwelling level modelled data
- 2) 2020 were revised from extrapolated to dwelling modelled data and marked with an (R)
- 3) underlying data are presented in Annex Table 1.4

Sources:

2011-2019, 2023 English Housing Survey, dwelling sample

2020-2021 English Housing Survey, modelled data based on occupied dwelling sample

2022 English Housing survey dwelling sample, modelled and observed data based on all dwellings

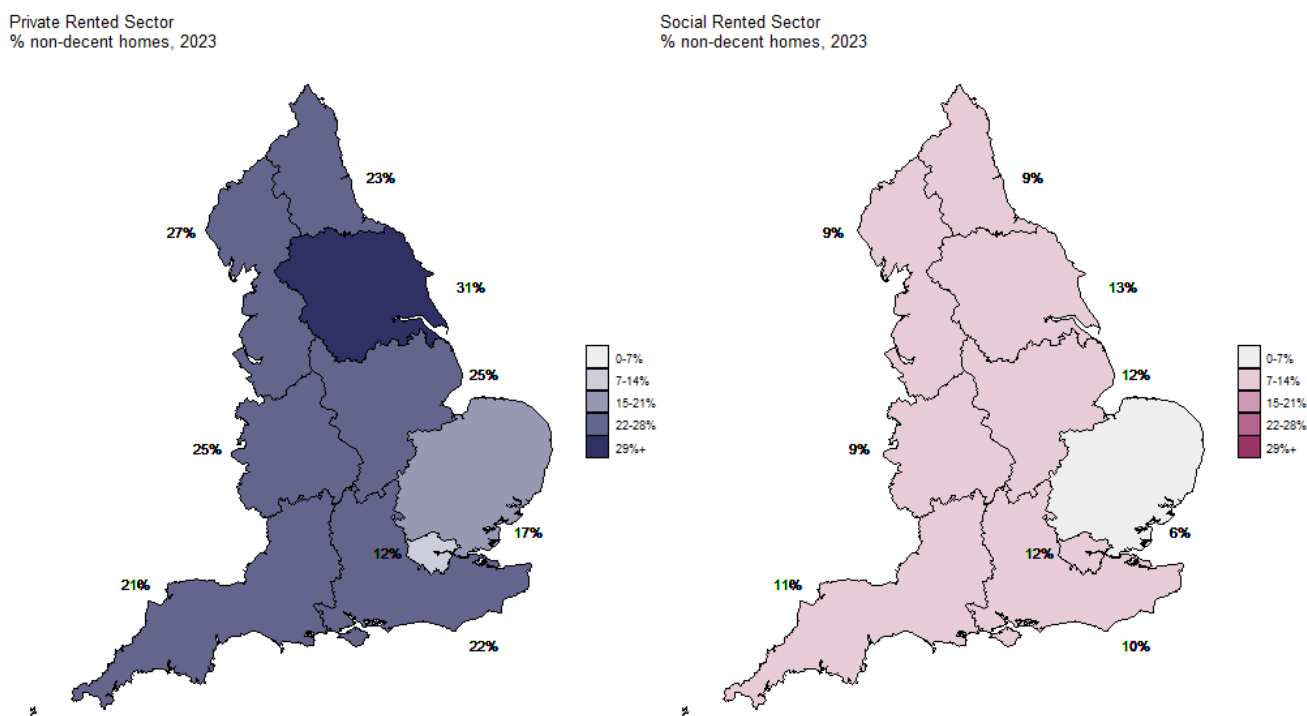
[Local Authority Housing Statistics \(LAHS\)](#), published in November 2024, show that 9% of local authority homes did not meet the Decent Homes Standard on 31<sup>st</sup> March 2024. The LAHS figures show a lower proportion of non-decent homes for multiple reasons. Firstly, only the properties that local authorities have been made aware of (e.g. after a property is vacated or if the tenant raises an issue) are included in the count. Additionally, LAHS represents dwellings as of 31<sup>st</sup> March, so will not include dwellings identified and then remediated during the year, compared to the English Housing Survey which assesses dwellings year-round. Cases where tenants have refused improvement work are also excluded.

The EHS shows there is significant variation in housing quality across England. In the owner occupied sector, London had a significantly lower rate of non-decent dwellings (9%) than all other regions (13-18%) except the North East and East of England (both 13%).

In the private rented sector, a similar pattern was seen, with London (12%) having a lower proportion of non-decent dwellings than all other regions (21-31%) with the exception of the East of England (17%). The highest rates of non-decency in the private rented sector were seen in Yorkshire and the Humber (31%).

In the social rented sector, however, the East of England had the lowest rate of non-decency (6%), significantly lower than all other regions with the exception of the North East (9%) and the West Midlands (9%), Figure 1.5.

**Figure 1.5: Non-decent homes, by region, 2023**



Base: all dwellings

Notes:

1) underlying data are presented in Annex Table 1.5

Sources:

2023 English Housing Survey, dwelling sample

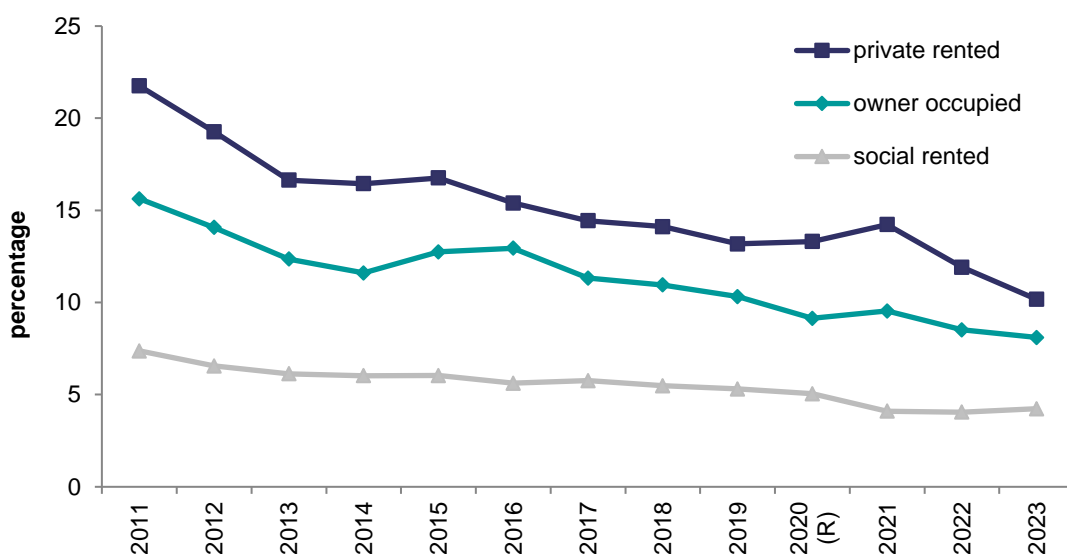
### Housing Health and Safety Rating System (HHSRS)

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 their visitors, particularly vulnerable people, e.g. children or older people. The most serious hazards are called Category 1 hazards and where these exist in a home, it fails to meet the statutory minimum standard for housing in England.

In 2023, 8% or 2.0 million dwellings in England had a HHSRS Category 1 hazard, less than in 2021 (9%). These hazards were more prevalent in private rented dwellings (10%) than in owner occupied (8%) or social rented dwellings (4%).

In the last two years, the proportion of dwellings with a Category 1 hazard has fallen in both the private rented sector (from 14% to 10%) and owner occupied sector (from 10% to 8%). There was also a decrease compared to before the COVID-19 pandemic (2019) when 10% of owner occupied dwellings and 13% of private rented sector dwellings contained a Category 1 hazard, Annex Table 1.6 and Figure 1.6.

**Figure 1.6: Homes with Category 1 hazards, by tenure, 2011 to 2023**



Base: 2011-2019 and 2022-2023 All dwellings; 2020-2021 Occupied dwellings

Notes:

- 1) 2020 and 2021 figures are estimated based on dwelling level modelled data
- 2) 2020 figures were revised from extrapolated to dwelling modelled data and marked with an (R)
- 3) underlying data are presented in Annex Table 1.6

Sources:

2011-2019, 2023 English Housing Survey, dwelling sample

2020-2021 English Housing Survey, modelled data based on occupied dwelling sample

2022 English Housing survey dwelling sample, modelled and observed data based on all dwellings

2023 English Housing Survey, dwelling sample

A dwelling with a Category 1 hazard automatically fails the minimum standard part of the Decent Homes Standard. However, not all non-decent dwellings contain a hazard, since they may fail on other DHS criteria regarding disrepair, modern facilities and thermal comfort. Dwellings can also fail the standard on multiple counts.

In the owner occupied and private rented sector, more dwellings failed on the minimum standard (8% and 10%) than on disrepair (4% and 6%), modern facilities (1% and 2%) and thermal comfort (4% and 8%). In the social rented sector, failures on the minimum standard and disrepair (both 4%) were more common than failures on modern facilities (1%) and thermal comfort (3%), Annex Table 1.7.

The most common Category 1 hazards found across all dwellings were falls on stairs (3%), excess cold (2%), falls on the level (1%), falls between levels (1%) and damp (1%), Annex Table 1.8.

The proportion of dwellings in the social rented sector with a falls on stairs hazard (1%) was significantly lower than in the owner occupied (3%) and private rented sectors (4%). This trend was similarly observed for excess cold, where 0.3% of social rented sector dwellings had this hazard, lower than in owner occupied (3%) and private rented (2%) dwellings.

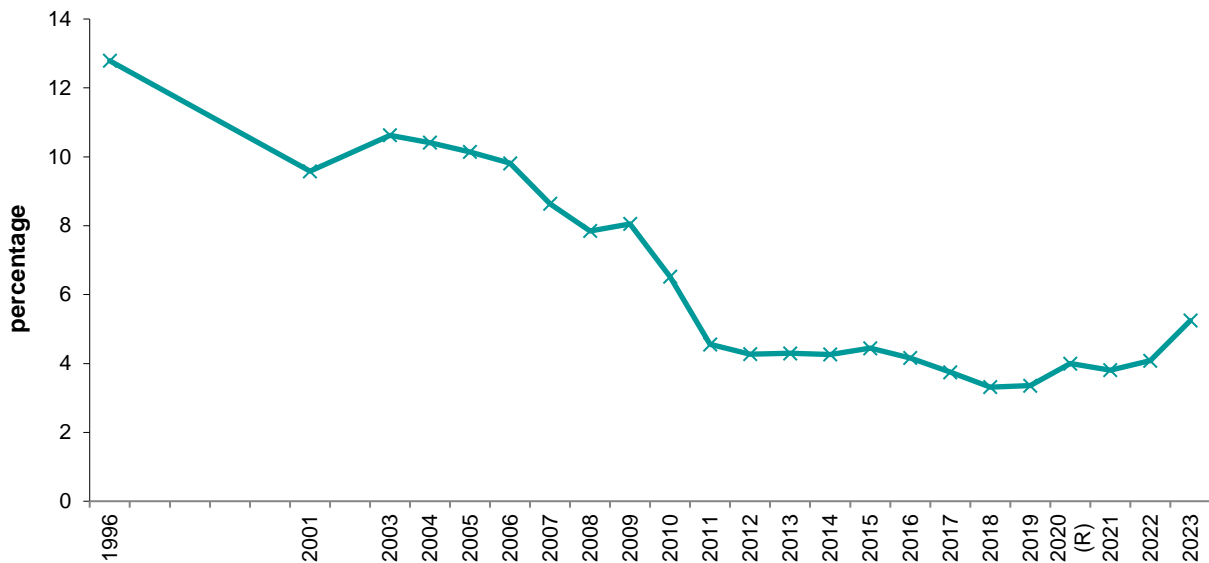
## **Damp**

In the English Housing Survey, a home is considered to have damp, or a problem with damp, if the surveyor records damp which is significant enough to be taken into consideration when making their HHSRS assessments. Therefore, minor issues of damp are not recorded.

Comparisons with recent years should be considered with caution, as modelled data was used from 2020 to 2022.

In 2023, 5% or 1.3 million dwellings had a problem with damp, an increase on the 4% in modelled data in both 2021 and 2022, Annex Table 1.9.

Between 1996 and 2011, there was a sizable reduction in the prevalence of all dwellings with damp problems, however, incidences of damp have increased since 2019, Annex Table 1.9 and Figure 1.7. While this goes against the general trend of housing quality improvement, it is not necessarily surprising. Remediation of damp caused by disrepair over the COVID-19 pandemic was possibly slowed since work could not be done under social distancing restrictions. Increasing energy costs over this time period may have also made it more difficult for households to effectively heat dwellings, a known driver of serious condensation. [The English Housing Survey 2022 to 2023: energy report](#) found that in 2022, in response to rising energy prices, 12.4 million households (51%) reported cutting down the number of hours they heated their home, 11.3 million households (46%) heated their homes to a lower temperature, and 8.1 million households (33%) heated fewer rooms.

**Figure 1.7: Damp problems, 1996 to 2023**

**Base: 1996-2019 and 2022-2023 All dwellings; 2020-2021 Occupied dwellings**

**Notes**

- 1) 2020 and 2021 figures are estimated based on dwelling level modelled data
- 2) 2020 have been revised from extrapolated to dwelling modelled data and marked with an (R)
- 3) underlying data are presented in Annex Table 1.9

**Sources**

1996-2007: English House Condition Survey, dwelling sample

2010-2019, 2023 English Housing Survey, dwelling sample

2020-2021 English Housing Survey, modelled data based on occupied dwelling sample

2022 English Housing survey dwelling sample, modelled and observed data based on all dwellings

Damp problems were more prevalent in private rented dwellings, with 9% of dwellings having a problem in 2023, compared to 7% of social rented dwellings and just 4% of owner occupied dwellings, Annex Table 1.10.

When compared to 2019 (pre-COVID), there was an increase across all tenures in the prevalence of damp. In 2019, 5% of local authority dwellings had a problem with damp, which increased to 9% in 2023. For housing association dwellings, the proportion rose from 4% to 5%.

Within the private sector, the prevalence of damp also increased. The proportion of private rented dwellings with damp rose from 7% in 2019 to 9% in 2023. In the owner occupied sector, damp was observed in 2% of dwellings in 2019, which doubled to 4% in 2023.

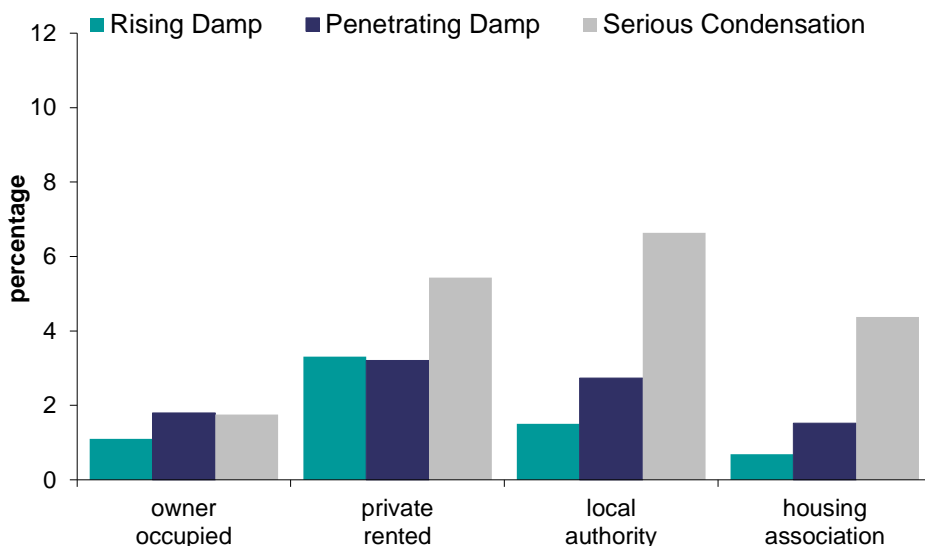
In 2023, serious condensation was more prevalent in homes (3%) than penetrating damp (2%) and rising damp (2%). Since 2019, the last time when specific types of damp were observed within the EHS, there has been an increase in rising damp from 1% to 2%, an increase in penetrating damp from 1% to 2% and an increase in serious condensation/mould from 2% to 3%.

In 2023, the proportion of dwellings with serious condensation was significantly higher in the social rented sector (5%) than in the owner occupied sector (2%). Within the social

rented sector, local authority dwellings were more likely to have serious condensation (7%) than housing association dwellings (4%).

In the private rented sector, the proportion of dwellings with penetrating damp and rising damp (both 3%) was higher than in the owner occupier sector (2% and 1% respectively), Figure 1.8.

**Figure 1.8: Type of damp problems in dwellings by tenure, 2023**



Base: 2023, all dwellings

Notes:

1) underlying data are presented in Annex Table 1.10

Source:

2023 English Housing survey dwelling sample

As a part of the interview for the English Housing Survey, respondents were asked about common problems that people may experience in their homes. In 2023, 29% of households reported their home had problems with condensation, damp or mould. Households in the private rented sector (44%) were more likely to mention this than households in the social rented sector (39%) and the owner occupied sector (22%).

Levels of self-reported damp are substantially higher than levels of damp recorded by surveyors. This is likely to be for several reasons. Households may have reported problems with condensation, damp or mould during the EHS interview where these issues were present at lower levels (they were not significant enough to be taking into consideration in a HHSRS assessment), or in rooms rarely or never used by the household. Additionally, damp, condensation and mould can be seasonal and transient in causing problems for households, which the separate EHS physical survey would not be able to observe if issues were not present on the day the surveyor visited. Finally, the self-reported damp measure is a subjective rather than objective measure, and there will inevitably be differences in the level or type of damp that households consider problematic.

Across all tenures, 13% of households who reported having a problem with condensation, damp or mould lived in a dwelling where surveyors observed a problem with damp, and 2% where a Category 1 hazard level of damp was present, Annex Table 1.11.

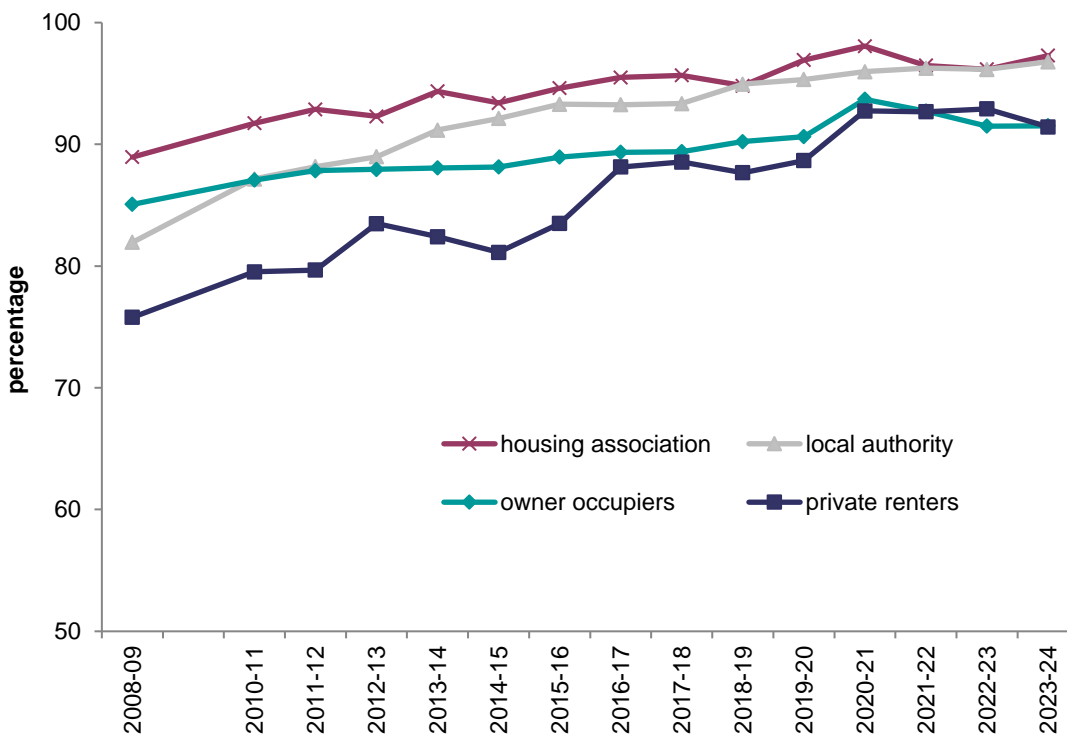
Mentioning a problem with condensation, damp or mould in the EHS interview may be driven by how a household uses and occupies their home in addition to the physical structure of the dwelling. From 2017 to 2019, the [Energy Follow-Up Survey](#) sampled respondents from the English Housing Survey to collect further detailed information on heating, hot water and appliances. The report found links between both the physical elements of dwellings and the socio-economic characteristics of the households and the likelihood of households reporting they had a problem with damp. This suggests variation and complexity in the reasons a household may report a problem within the EHS interview.

### Smoke alarms

In 2023-24, 92% of households reported having at least one working smoke alarm. The proportion of households reporting they have working smoke alarms varied by tenure. Social renters were most likely to report having at least one working smoke alarm (97%), compared with 92% of owner occupiers, and 91% of private renters, Annex Table 1.12 and Figure 1.9.

Over the last ten years, the proportion of households with a working smoke alarm increased from 88% to 92%, with no statistically significant changes between 2023-24 and 2022-23.

**Figure 1.9: Households with at least one working smoke alarm, by tenure, 2008-09 to 2023-24**



**Base: all households**

**Notes:**

1) data was not collected in 2009-10

2) underlying data are presented in Annex Table 1.12

Source: English Housing Survey, full household sample

While the proportion of households with smoke alarms increased over the last decade, almost a quarter of households (24%) reported they had never tested their smoke alarm in 2023-24, similar to 2022-23, Annex Table 1.13. (Smoke alarms have previously been explored in more detail in the [2014-15 Smoke Alarms in English Homes Report](#)).

In 2023-24, 30% of private renters, 28% of social renters and 20% of owner occupiers reported that they had never tested their smoke alarm. [Smoke Alarms in English Homes Report](#).

### **Carbon monoxide detectors**

In 2023, 60% of all dwellings had a carbon monoxide alarm, up from 44% in 2019, Annex Table 1.14.

Dwellings with a solid fuel burning appliance, such as a coal fire or wood burning stove, were more likely (66%) to have a carbon monoxide alarm than dwellings with no solid fuel appliance (59%).

From October 2015, private sector landlords have been required to install a carbon monoxide alarm in any room containing a solid fuel burning appliance. They were also required to ensure the alarm was working at the beginning of each new tenancy.

In 2023, 65% of private rented sector dwellings with a solid fuel appliance had a carbon monoxide alarm, less than in the social rented sector (82%) but similar to the owner occupied sector (66%). Across all tenures, the proportion of dwellings with a solid fuel burning appliance with a carbon monoxide alarm increased when compared to pre-pandemic data. In 2019, 52% of owner occupied dwellings, 47% of private rented sector dwellings and 59% of social rented sector dwellings with a solid fuel appliance had a carbon monoxide alarm present.

## Chapter 2: Energy Efficiency

This chapter discusses findings on energy efficiency ratings and heating systems and how this differs by tenure. It then goes on to discuss insulation measures in dwellings, smart meters by tenure and subjective overheating, then finishes with the average cost of improving dwellings to an EER band C.

### Energy Efficiency Ratings

The Government's Standard Assessment Procedure (SAP) is used to monitor the energy efficiency of homes. It is an index based on calculating 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 costs). Findings presented in this report were calculated using Reduced Data SAP (RdSAP) version 9.93.

For the 2023-24 survey, a number of form changes were introduced to collect new data and variables to be included into the SAP calculation, which allowed for greater accuracy and less reliance on assumptions. For more information on this see the Technical Notes at the end of this report.

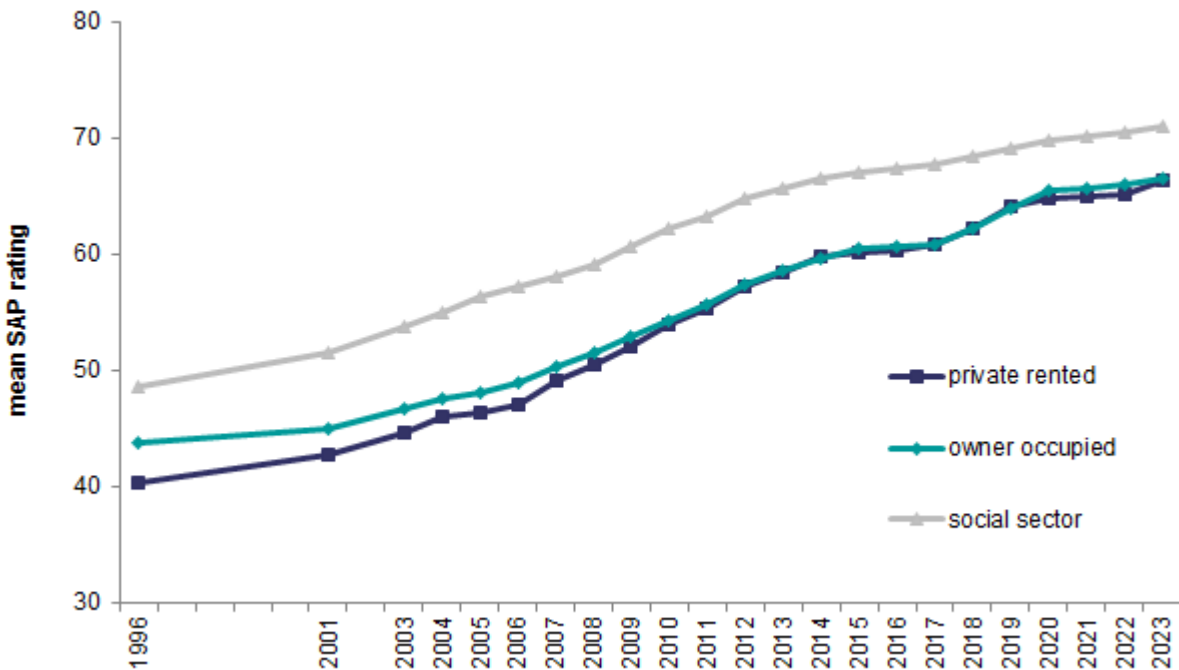
As mentioned elsewhere in this publication, the English Housing Survey physical data aggregates two years of the survey for analysis. Dwelling data from 2022-23 and 2023-24 saw full inspections and was not impacted by COVID-19 restrictions.

Overall, the energy efficiency of the English housing stock has continued to improve. In 2023, the average SAP rating of English dwellings was 67 points, up from 45 points in 1996. This longer-term upward trend was evident in all tenures and largely driven by improvements in the prevalence of the most common energy efficiency measures across the stock, particularly cavity wall insulation, boiler upgrades from standard to condensing combi and full double glazing, Annex Table 2.1 and Figure 2.1.

Over the last ten years, the biggest improvements were in owner occupied and private rented dwellings, an 8 point increase for both. However, the social rented sector continued to be the most energy efficient sector, where the average SAP rating of local authority dwellings increased from 65 in 2013 to 70 in 2023, and similarly, the average SAP rating of housing association dwellings increased from 66 in 2012 to 71 in 2023. This is not surprising given the age and type of dwellings in the private sector. The social sector contains a higher proportion of purpose built flats compared to the private sector, which have less exposed surface area (external walls and roofs) through which heat can be lost.

When compared to 2019 (pre-COVID), energy efficiency increased 3 points for owner occupied dwellings (from 64) and 2 points for both private and social rented sector homes (from 64 and 69 respectively), Annex Table 2.1, Figure 2.1.

**Figure 2.1: Mean SAP rating, by tenure, 1996 to 2023**



Base: 1996-2019 all dwellings; 2020-2021 occupied dwellings; 2022 modelled and observed data; 2023 all dwellings

**Notes:**

1) from 2018 the SAP 2012 methodology used new U values for cavity, solid and stone walls, both insulated and uninsulated.

2) underlying data are presented in Annex Table 2.1

**Sources:**

1996-2007: English House Condition Survey, dwelling sample

2008-2019: English Housing Survey, dwelling sample

2020-2021: English Housing Survey, modelled data based on occupied dwellings

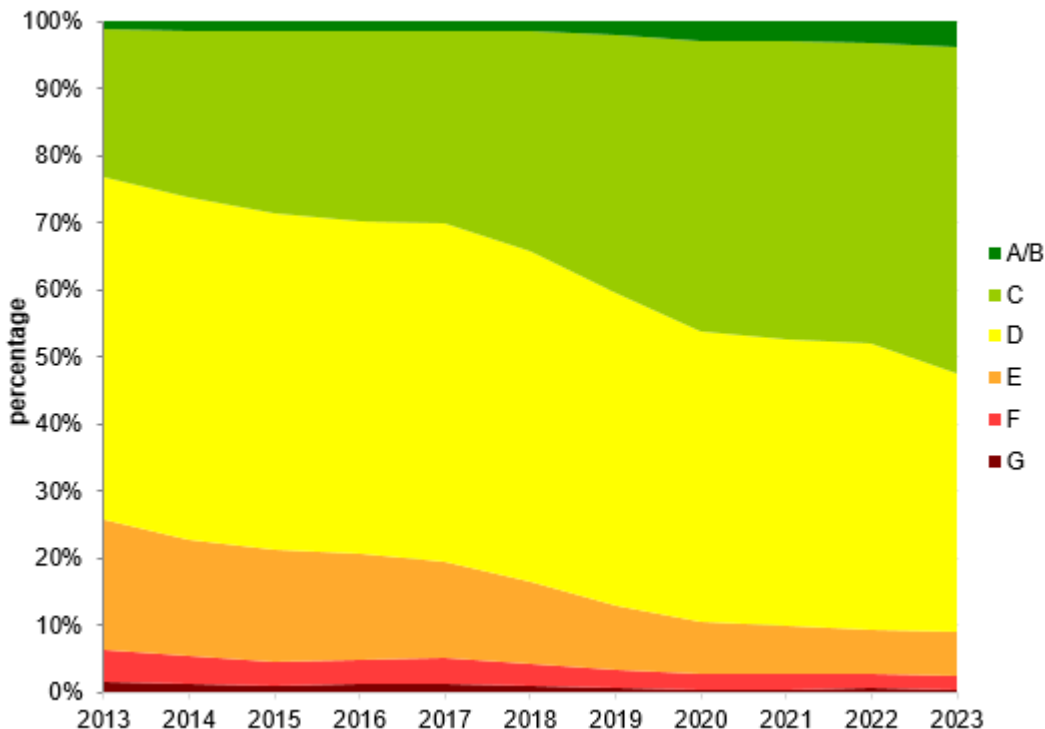
2022: English Housing Survey, dwelling sample, modelled and observed data based on all dwellings

2023: English Housing Survey, dwelling sample

The proportion of dwellings in the highest SAP energy efficiency rating (EER) bands A to C increased over the last decade, from 23% in 2013 to over half of all dwellings (52%) in 2023, Annex Table 2.2.

Figure 2.2 demonstrates the transition of the individual EER bands from 2013 to 2023, highlighting the overall improvement in the energy efficiency of the English housing stock.

**Figure 2.2: Energy efficiency rating bands, 2013 to 2023**



Base: 2013-2019 all dwellings; 2020-2021 occupied dwellings; 2022 modelled and observed data; 2023 all dwellings

Notes:

1) from 2018 the SAP 2012 methodology used new U values for cavity, solid and stone walls, both insulated and uninsulated.

2) EER bands A and B are grouped. There are currently insufficient numbers of Band A properties existing for which meaningful estimates can be made through a sample survey.

3) due to the COVID-19 pandemic, EHS surveyors did not conduct any inspection of vacant properties in 2020. Although an external inspection of vacant homes occurred in 2021, the 2021 combined survey dwelling sample is for occupied properties only.

4) underlying data are presented in Annex Table 2.3

Sources:

2013-2019: English Housing Survey, dwelling sample

2020-2021: English Housing Survey, modelled data based on occupied dwellings

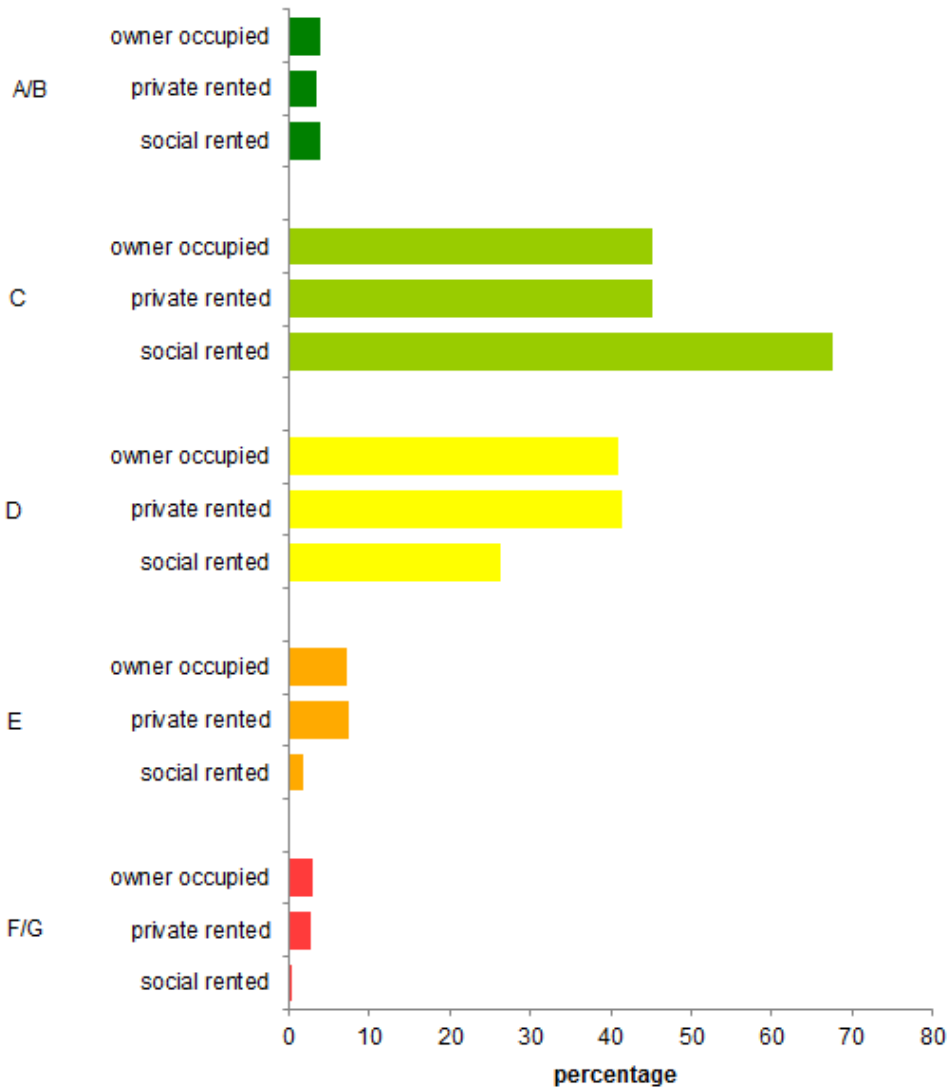
2022: English Housing Survey, dwelling sample, modelled and observed data based on all dwellings

2023: English Housing Survey, dwelling sample

### Energy efficiency rating bands, by tenure

In 2023, the most common EER band for owner occupiers and private rented dwellings was band C (both 45%). Although social rented dwellings had a higher proportion, with 67% for local authority dwellings and 68% for housing association dwellings, this is the first time that the most common EER band in the private rented sector was band C, Figure 2.3.

**Figure 2.3: Energy efficiency rating bands, by tenure, 2023**



Base: all dwellings

Notes:

1) underlying data are presented in Annex Table 2.2

Source: English Housing Survey, dwelling sample

**Energy efficiency rating bands, by dwelling characteristics**

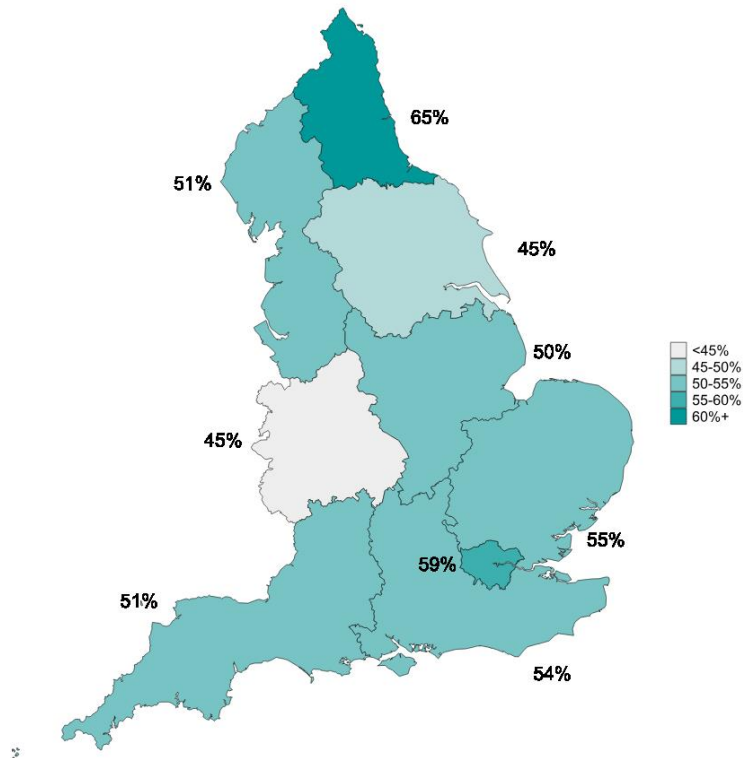
In 2023, the most energy efficient homes (EER bands A to C) were more likely to be newer dwellings. The majority of dwellings built after 1990 were in bands A to C (86%), whereas just 23% of dwellings built prior to 1919 had an EER of A to C, Annex Table 2.4.

Purpose built high rise (82%) and purpose built low rise (72%) flats had the highest proportion of A to C rated dwellings compared with all other dwelling types (between 39% to 52%), while bungalows (61%) had the largest proportion of D to G rated dwellings compared to all other dwelling types (between 18% to 54%).

### Energy efficiency rating bands, by region

Overall, the North East and London had a higher proportion of energy efficient dwellings compared to other regions. In the North East 65% of dwellings had an EER of A to C compared with 59% in London and 45% to 55% in all other regions, Figure 2.4 and Annex Table 2.4.

**Figure 2.4: Dwellings with energy efficiency rating of A to C, by region, 2023**



Base: all dwellings

Notes:

1) underlying data are presented in Annex Table 2.4

Source: English Housing Survey, dwelling sample

## Heating Systems

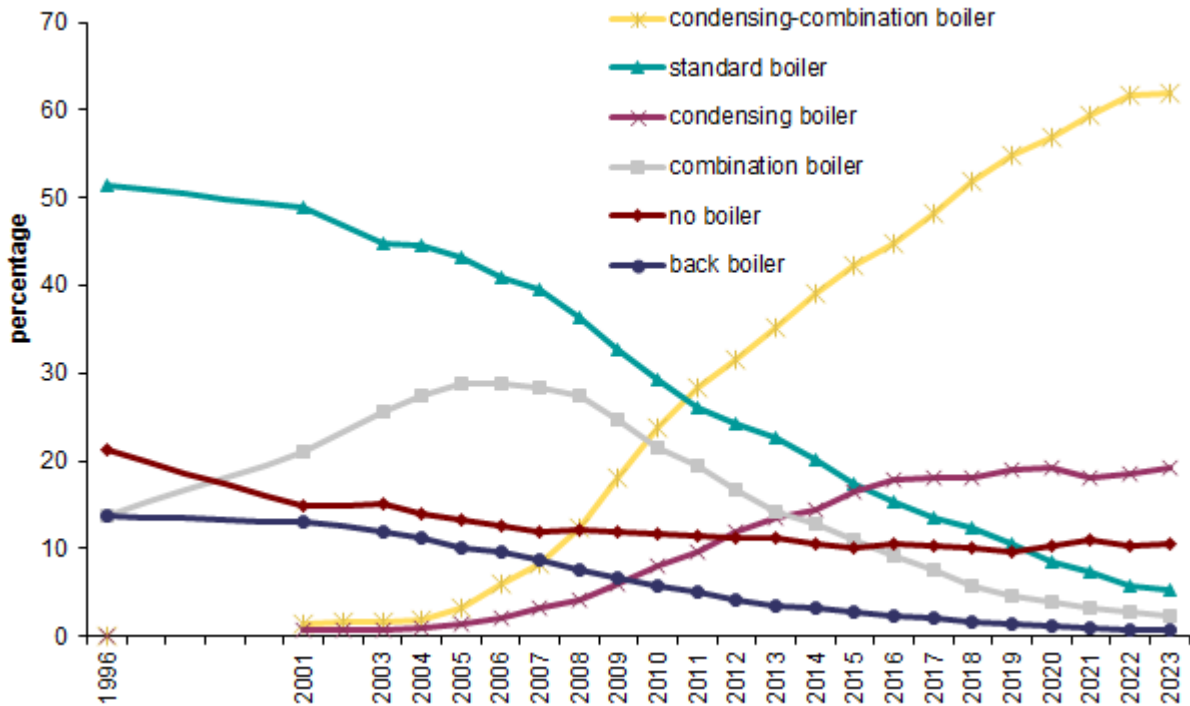
There are two key methods of increasing the energy efficiency of existing dwellings: upgrading the dwelling's heating system and increasing insulation.

Between 1996 and 2023, the proportion of homes with central heating increased (from 80% to 93%), while the proportion of homes with room heaters as their main heating source – the least cost-effective and most inefficient method of heating – decreased from 12% to 3%, Annex Table 2.5.

In 2023, owner occupied and local authority homes had the highest proportion of homes with central heating (both 95%), followed by housing association homes (91%), and private rented homes (86%) with the lowest. In addition, the proportion of dwellings in the private rented sector with fixed room heaters were higher than in other tenures (8% compared to 2% for owner occupied and 1% for the social rented sector), Annex Table 2.6.

Condensing boilers are generally the most efficient boiler type and since the mid-2000s have been mandatory for new and replacement boilers. As expected, the proportion of dwellings with condensing or condensing-combination boilers has increased considerably since 2001. In 2001, just 10% of homes had combination boilers and 28% had condensing-combination boilers. By 2023, this increased to 19% and 55% respectively, Figure 2.5 and Annex Table 2.11.

**Figure 2.5: Boiler types, 1996 to 2023**



Base: 1996-2019 all dwellings; 2020-2021 occupied dwellings; 2022 modelled and observed data; 2023 all dwellings

**Notes:**

1) Condensing and condensing-combination boilers were rare in 1996, so data on these types were not collected. Values of zero have been assumed to reflect this.

2) Underlying data are presented in Annex Table 2.7

**Sources:**

1996-2007: English House Condition Survey, dwelling sample

2008-2019: English Housing Survey, dwelling sample

2020-2021: English Housing Survey, modelled data based on occupied dwellings

2022: English Housing Survey, dwelling sample, modelled and observed data based on all dwellings

2023: English Housing Survey, dwelling sample

Private rented and housing association homes were also the most likely to have no boiler in their property at all (19% and 18% respectively), compared to 13% of local authority dwellings and 7% of owner occupied.

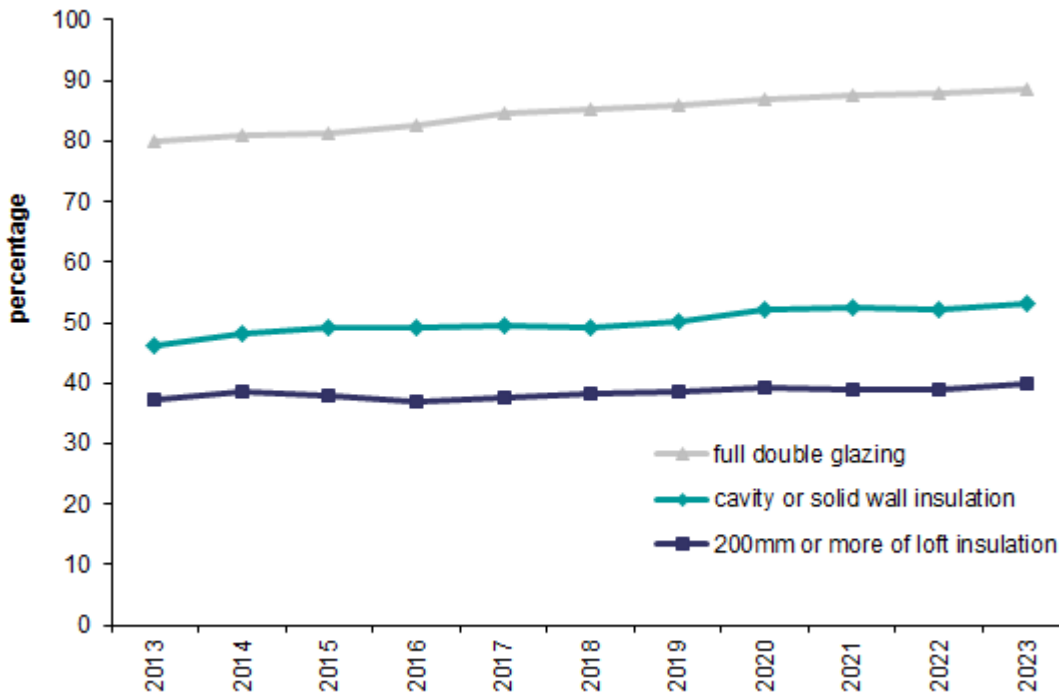
Overall, homes in the social rented sector were more likely to have newer, more energy efficient condensing-combination boilers (67%) compared to private rented and owner occupied dwellings (61% and 60% respectively). This may reflect the age and type of dwellings across tenures, Annex Table 2.8.

## Insulation

The second main method of increasing a dwelling’s energy performance is by installing or upgrading insulation. Standard insulation measures include installing cavity or solid wall insulation, loft insulation and double glazing. Installation of these measures has increased in the last ten years, though the changes are not as substantial as for other improvements.

In 2023, insulation with a thickness of 200mm or more had been installed in 40% of dwellings which had a loft (up from 37% in 2013). Just over half (53%) of dwellings had cavity or solid wall insulation (up from 46% in 2013) and 89% of homes in England had full double glazing, up from 80% of homes in 2013, Figure 2.6 and Annex Table 2.9.

**Figure 2.6: Insulation measures in dwellings, 2013 to 2023**



Base: 2013 to 2019 all dwellings; 2020-2021 occupied dwellings; 2022 modelled and observed data; 2023 all dwellings

Notes:

1) Percentages are based on all dwellings, including those with no loft or other wall type.

2) Underlying data are presented in Annex Table 2.9. See footnotes in this table for further detail on methodology for cavity and solid wall insulation.

Sources:

2013-2019: English Housing Survey, dwelling sample

2020-2021: English Housing Survey, modelled data based on occupied dwellings

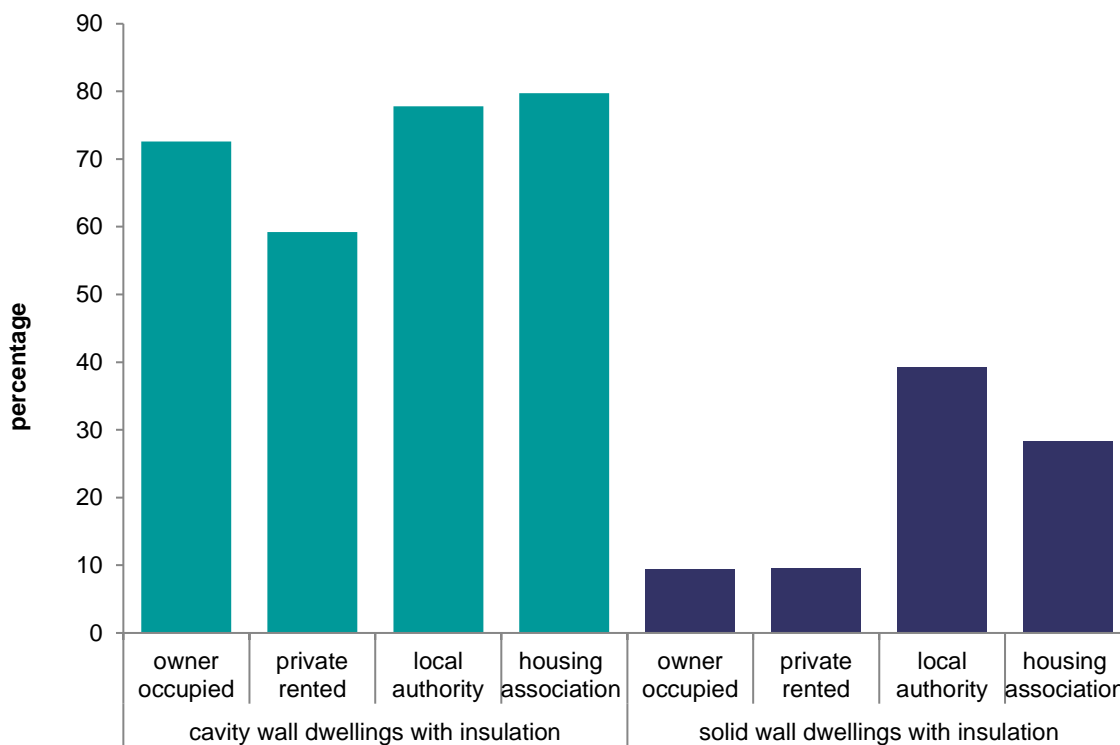
2022: English Housing Survey, dwelling sample, modelled and observed data based on all dwellings

2023: English Housing Survey, dwelling sample

Among dwellings with solid walls, the social rented sector had a higher proportion of dwellings with solid wall insulation (local authority housing 39%, and housing association 28%) compared to both private rented (10%) and owner occupied dwellings (9%), Annex Table 2.10.

Private rented dwellings had the lowest proportion of cavity wall insulation (60%) compared to all other tenures (73% owner occupied, 78% local authority and 80% housing association dwellings), Figure 2.7.

**Figure 2.7: Wall insulation, by main wall type and tenure, 2023**



**Base: dwellings with predominantly cavity walls (green); dwellings with predominantly solid walls (blue)**

**Note: underlying data are presented in Annex Table 2.10**

**Source: English Housing Survey, dwelling sample**

## Smart meters and electricity payment methods

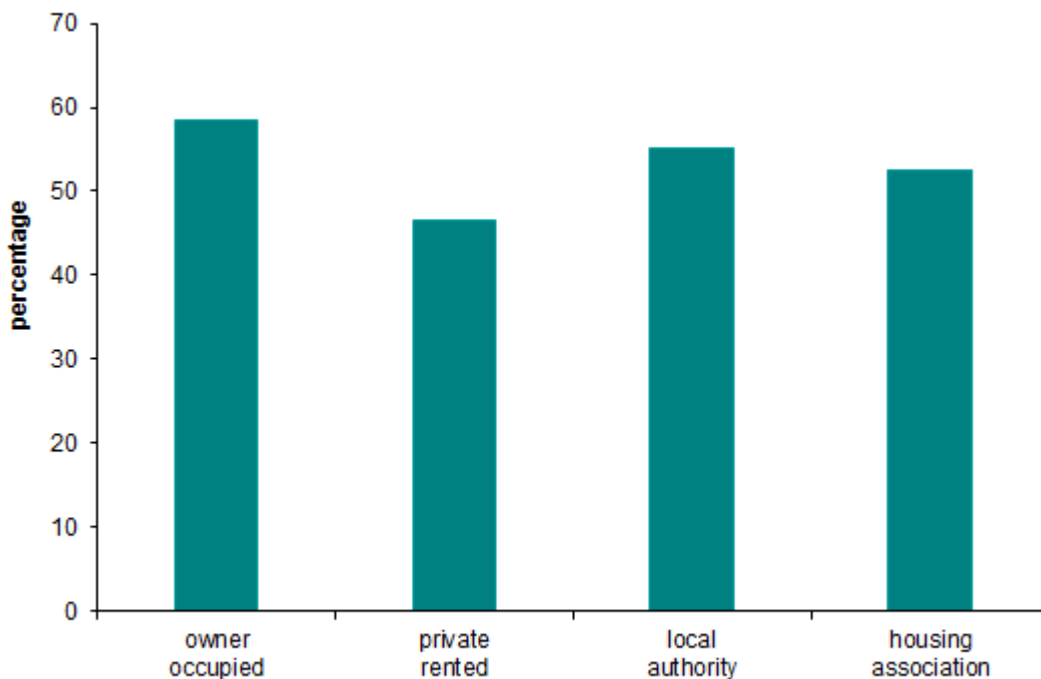
The replacement of traditional meters with smart meters is a national infrastructure upgrade that aims to make the country's energy system cheaper, cleaner and more reliable. Smart meters offer a range of intelligent functions. For example, they can tell residents how much energy they are using in pounds and pence via an In-Home Display. This information should help customers manage their energy use, save money and reduce emissions. When smart meters are working properly, they communicate automatically with energy suppliers, which avoids manual meter reads and provides customers with accurate bills.

The English Housing Survey asks residents whether they have a smart meter. This section of the report is based the information given by the resident and focuses on electricity meters only.

In 2023-24, over half of households in England reported having an electricity smart meter (55% or 14 million households), this represents an increase compared with 2022-23 (53%), Annex Table 2.11 and Figure 2.8.

In 2023-24, owner occupiers and social renters were more likely to report having an electricity smart meter (59% and 53% respectively) compared to private renters (47%), Figure 2.10. Since 2022-23, the proportions of households with a smart meter increased for both owner occupiers (59% in 23-24 compared to 56% in 22-23) and private renters (47% in 23-24 compared to 43% in 22-23).

**Figure 2.8: Electricity smart meters, 2023-24**



**Base: all households**

**Notes:**

**1) Self reported presence of electricity smart meters**

**2) Underlying data are presented in Annex Table 2.11**

**Source: English Housing Survey, full household sample**

Households who paid for their electricity by direct debit (57%) or pre-payment token (54%) were more likely to report having an electricity smart meter than those who paid on receipt of the bill (49%), standing order (47%) or by other methods (33%) e.g. included in the rent, fixed annual bill, Annex Table 2.11.

The EHS results are broadly in line with [smart meter statistics](#) from the Department for Energy Security and Net Zero (DESNZ). As of 30 September 2024, 68% of domestic properties had an electric smart meter. Differences between EHS and DESNZ statistics are likely to reflect the different time periods for data collection and the EHS survey reliance on self-reporting.

## Subjective overheating

The English Housing Survey includes a subjective measure for gauging whether residents feel any part of their home gets uncomfortably hot and, if so, which parts. The EHS also collects data on the potential risk of harm from excessively high indoor temperatures as part of the HHSRS though, due to the small numbers of dwellings meeting this threshold, these figures are not reported here.

In 2023, 12% of households reported at least one part of their home got uncomfortably hot. This was an increase from 11% in 2022.

Those in the owner occupied sector, (13%) were more likely to report at least part of their home got uncomfortably hot than those in the private and social rented sectors (both 11%).

Households living in detached houses (16%) were most likely to report overheating in their homes, compared with 6% in high rise flats, 11% in low-rise flats and a range of 9 to 12% for terraced and other types of houses, Annex Table 2.12.

Households in newer homes were more likely to report overheating than those in older homes. Older homes can be more difficult and costly to insulate compared to new homes. In 2023, 14% of residents in homes built from 2003 onwards reported at least one part of their home got uncomfortably hot. This was a higher proportion than for those in homes built between 1919 and 1964 (ranging from 10% and 11%).

## Costs to improve to energy efficiency rating band C

This chapter looks at the cost of improving dwellings with an energy efficiency rating (EER) band of D or lower to an EER band of at least C, by dwelling characteristics.

To estimate costs, for each dwelling identified as having an EER band of D or lower, improvement measures were simulated cumulatively using SAP as the underlying methodology. After each improvement, the SAP rating was recalculated until the dwelling reached the threshold for EER band C (SAP rating of 68.5 or higher).

In certain cases, a dwelling's energy efficiency rating may be improved beyond the target band, where a dwelling's energy efficiency rating is already close to the band C threshold. If a measure with a high SAP improvement yield is installed, for example cavity wall insulation, then the dwelling may be improved beyond a band C into the band B range.

### **Average costs to improve to EER band C**

In 2023-24 almost half of the dwellings in England (46%) would be eligible to be improved to an EER band C or higher, with around 2% (440,000) either not eligible or unable to reach band C, Annex Table 2.13.

The mean cost to improve dwellings to an EER band C was £7,320 per dwelling. The median cost per dwelling was slightly higher, at £8,017 to improve dwellings to band C, Annex Table 2.14.

Private sector (both owner occupied and private rented) dwellings had a higher average cost than social sector dwellings; £7,515 compared with £5,489. Within these sectors, owner occupied and private rented dwellings would cost on average £7,714 and £6,864, respectively to improve to a band C, compared to £5,086 and £5,752 required to improve local authority and housing association dwellings, Annex Table 2.14, Figure 2.9.

**Figure 2.9: Average cost to improve to energy efficiency rating band C, by tenure, 2023**



Base: all dwellings able to be improved to an EER band C

Notes: Underlying data are presented in Annex Table 2.14

Source: English Housing Survey, dwelling sample

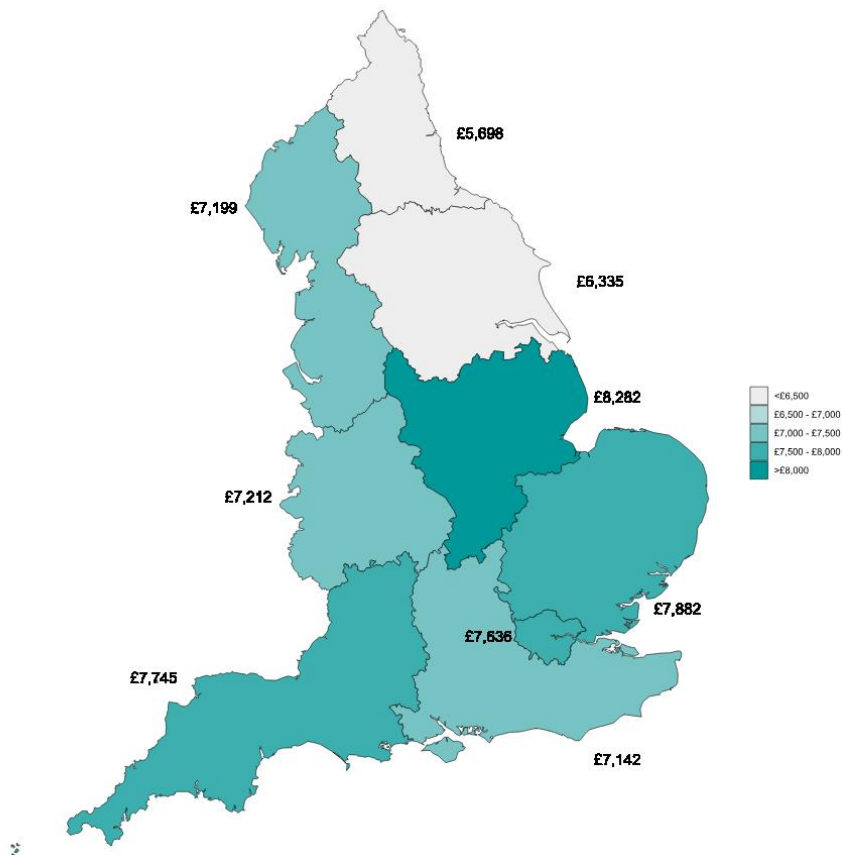
The age and type of dwelling have a large influence on the energy efficiency of homes, and it is not surprising that the cost to bring older dwellings up to a band C was higher. Dwellings built before 1919, which are more likely to be of solid wall construction, had the highest average cost to improve to a band C, at £10,788, followed by dwellings built between 1919 to 1944 (£6,849).

Detached dwellings had the highest average cost to reach band C, at £8,570, closely followed by medium/large terraced houses (£8,547). Conversely, purpose built, low rise and purpose-built, high rise flats had the lowest average costs, at £4,023 and £2,741, respectively.

As expected, dwellings with an EER rating of F and G had a higher average cost to improve to a band C than D or E rated dwellings; £16,983 compared with £6,018 and £12,381 respectively.

The North East had the lowest average cost of £5,698 to achieve an EER rating of band C, followed by Yorkshire and the Humber (£6,335), compared with all other regions (£7,142 to £8,282), Figure 2.10.

**Figure 2.10: Average cost to improve to energy efficiency rating band C, by region, 2023**



**Base:** all dwellings able to be improved to an EER band C  
**Notes:** Underlying data are presented in Annex Table 2.14  
**Source:** English Housing Survey, dwelling sample

**Banded costs to improve to energy efficiency rating band C**

It would cost between £1,000 to £4,999 to improve just over a quarter (28%) of eligible dwellings to an EER band C and around £5,000 to £9,999 to improve just under half (43%). Around 5% of eligible dwellings would require less than a £1,000 investment, whereas 16% of eligible dwellings would require larger investments of between £10,000 and £14,999. The remaining 8% would need more than £15,000 to improve to a band C, Figure 2.11, Annex Table 2.15.

**Figure 2.11: Banded costs to improve to energy efficiency rating band C, 2023**

**Base:** all dwellings able to be improved to an EER band C

**Notes:** Underlying data are presented in Annex Table 2.15

**Source:** English Housing Survey, dwelling sample

Owner occupied dwellings (9%) were more likely to cost £15,000 or more to bring up to band C compared to private rented (6%), housing association (2%) and local authority (1%) dwellings, Annex Table 2.15.

London (63%) was more likely to have dwellings that cost between £5,000 and £9,999 to improve to band C than other regions (33% to 48%).

# Technical Notes and Glossary

## Technical Notes

Results for households are presented for '2023-24' and are based on fieldwork carried out between April 2023 and March 2024 on a sample of 15,846 households. Throughout the report, this is referred to as the 'full household sample'.

Results that relate to the physical dwelling, are presented for '2023' and are based on fieldwork carried out between April 2022 and March 2024 (a mid-point of April 2023). The sample comprises 13,288 occupied and vacant dwellings. In 2022, face-to-face interviews and internal inspections of properties resumed with the option for the interview to be carried out by telephone if needed (knock to nudge approach).

A number of form changes were introduced to the 2023-24 EHS survey to collect more variables. These included solar hot water panel area, rooflight area, loft conversion date range, presence of draught lobby and triple glazing window and materials, and the number of sheltered sides of a dwelling. These additional variables collected on the survey allowed for greater accuracy and less reliance on modelled assumptions.

The reliability of the results of sample surveys, including the English Housing Survey, is positively related to the unweighted sample size. Results based on small sample sizes should therefore be treated as indicative only because inference about the national picture cannot be drawn. To alert readers to those results, percentages based on a row or column total with unweighted total sample size of less than 30 are italicised. To safeguard against data disclosure, the cell contents of cells where the cell count is less than 5 are replaced with a "u". 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.

A more thorough description of the English Housing Survey methodology is provided in the [Technical Report](#) which is published annually. A full account of data quality procedures followed to collect and analyse English Housing Survey data can be found in the [Quality Report](#), which is also updated and published annually.

For data underlying this report, see the Annex Tables and Figures published alongside this report.

## Glossary

For detailed glossary of terms used throughout this report please see the [Glossary](#).

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Ministry of Housing, Communities and Local Government  
Fry Building  
2 Marsham Street  
London  
SW1P 4DF  
Telephone: 030 3444 0000

Email: <mailto:EHS@communities.gov.uk>

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