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Scottish House Condition Survey: 2018 Key Findings

A National Statistics publication for Scotland

PEOPLE, COMMUNITIES AND PLACES

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The Scottish Government acknowledges and thanks the 2,964 households across Scotland who gave their time to take part in the Scottish House Condition Survey interview and physical dwelling inspection in 2018.

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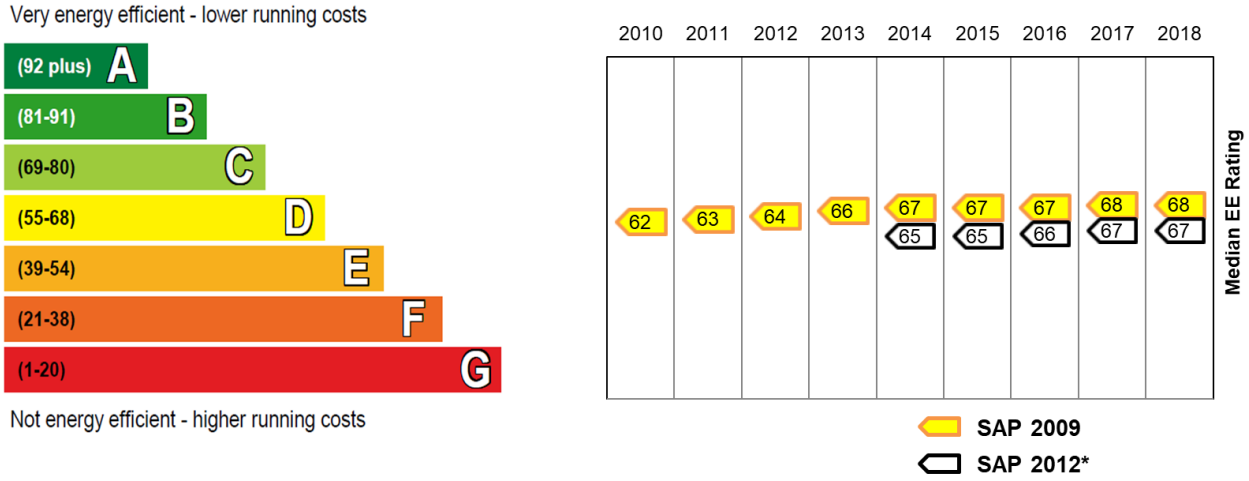
Key Findings Summary

Energy Efficiency and Carbon Emissions

- In 2018, 43% of Scottish homes were rated as EPC band C or better and half had an **energy efficiency rating** of 67 or higher (**SAP 2012 (RdSAP v9.93)**).

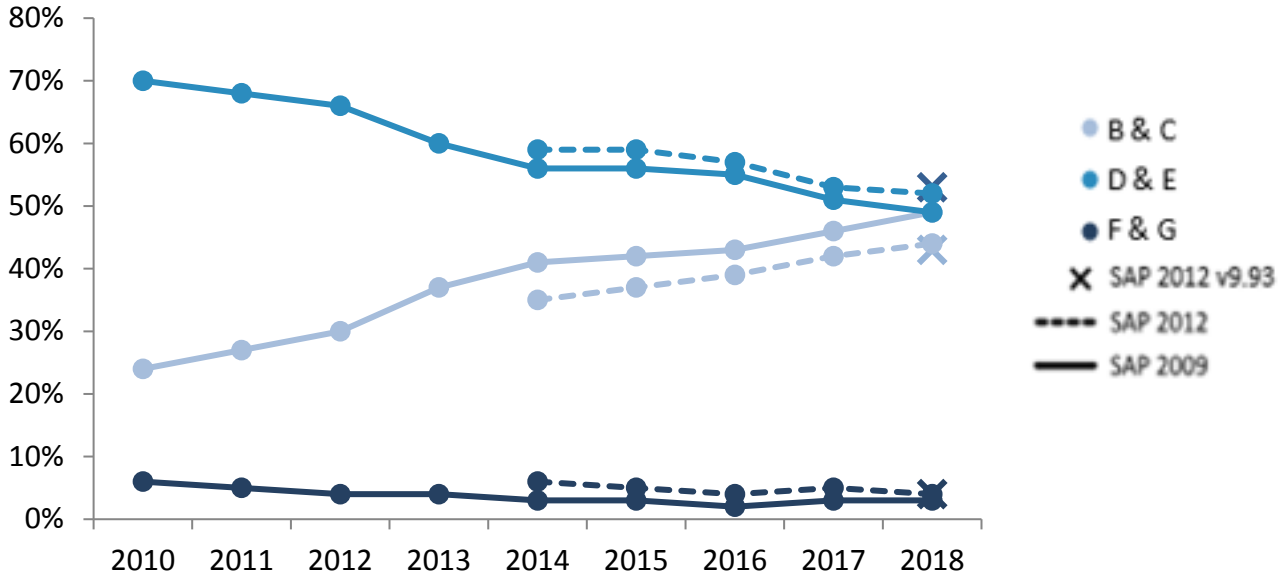
Median Energy Efficiency Rating Relative to EPC Band, SAP 2009 and SAP 2012*, 2010 to 2018



SAP 2012 (RdSAP v9.92) for 2014-2017 and SAP 2012 (RdSAP v9.93) for 2018.

- Using **SAP 2009** continues to show long-term improvement in the energy efficiency profile of housing. The share of the most energy efficient dwellings (rated C or better) increased from 24% in 2010 to 49% in 2018. In the same period, the proportion of properties in the lowest EPC bands (E, F or G) more than halved, reducing from 27% to 12%.

Proportion of Scottish Homes by Grouped EPC Band, SAP 2009, SAP 2012 (RdSAP v9.92) and SAP 2012 (RdSAP v9.93), 2010-2018



- The share of homes with **lofts** insulated to 100 mm or more remained at 94% in 2018. This represents an increase of 12 percentage points on 2010 levels. 30% of lofts were insulated to a high standard of insulation (300 mm or more), a similar level to 2015-2017 following significant increases from 5% in 2010.

- Wall insulation measures continue to be delivered under energy efficiency programmes such as the Energy Company Obligation (ECO)[1]. Levels of **wall insulation** remained similar in the last year, with 59% of walls having insulation in 2018. However, there is a longer term trend of improvement with 19% of solid wall dwellings and 73% of cavity wall dwellings being insulated in 2018, representing an increase from 11% and 66% respectively in 2012.

- In 2018, 62% of gas and oil **boilers** met the minimum efficiencies specified by current Building Standards, an increase of 5 percentage points from 2017.

- 33% of dwellings had an **Environmental Impact Rating** in band C or better in 2018 (SAP 2012 (RdSAP v9.93)). The mean rating was 61 and the median was 63, both of which lie in band D.

- Based on modelled energy use, the average Scottish home is estimated to produce 6.8 tonnes of **CO2** per year. Average modelled carbon emissions for all properties have continued to decrease to 73 kg/m^2 in 2018 compared to 80 kg/m^2 in 2014.

[1] https://www.gov.uk/energy-company-obligation

Fuel Poverty and Heating Satisfaction

- In July 2019 the Fuel Poverty (Targets, Definition and Strategy) (Scotland) Act[2] received Royal Assent. This Act contains a new definition of fuel poverty which affects how fuel poverty is to be defined and measured. The figures presented in this report are a best estimate of fuel poverty and extreme fuel poverty rates under the proposed new definition of fuel poverty, following amendments agreed at Stage 2 of the Fuel Poverty (Targets, Definition and Strategy) Bill.

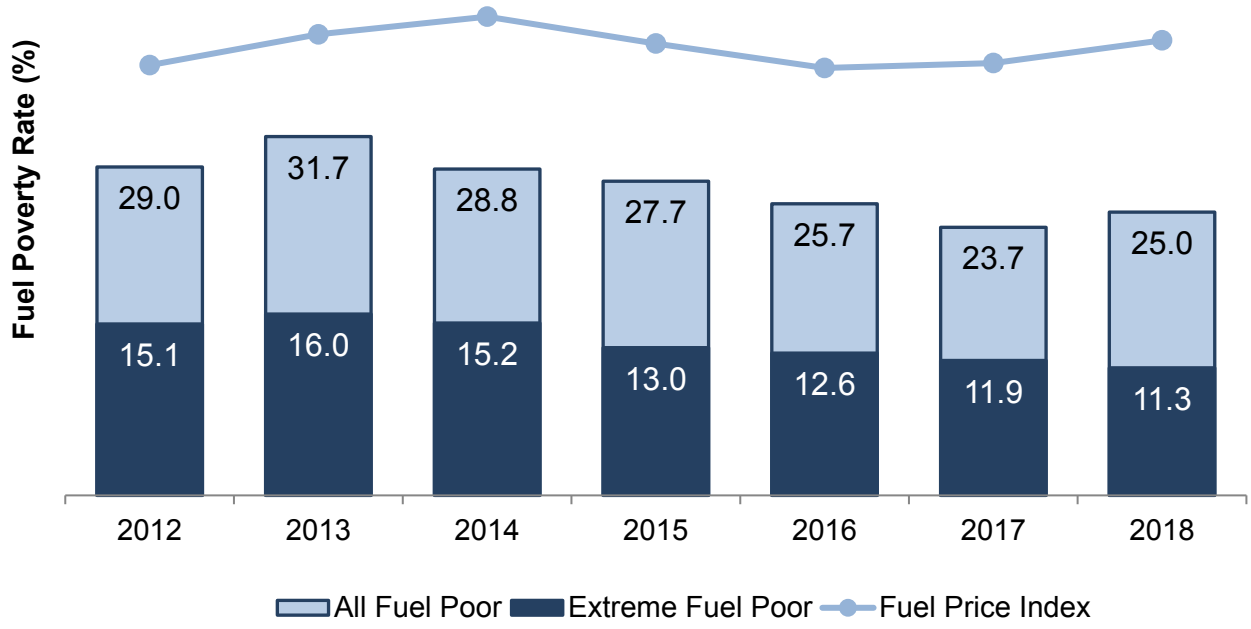
- The first set of fuel poverty estimates fully compatible with all of the elements of the new definition in the Fuel Poverty (Targets, Definition and Strategy) (Scotland) Act are expected to be published in December 2021. This requires additional information being collected in the 2020 Scottish House Condition Survey and the production of a new Minimum Income Standard (MIS) for Remote Rural, Remote Small Town and Island areas, which, for the Stage 2 estimates contained in this publication, has been estimated based on previous studies.

- In 2018, 25.0% of households (619,000) were estimated to be in **fuel poverty**, a similar level to 2017 (23.7% or 583,000 households). 11.3% (or 279,000 households) were living in **extreme fuel poverty** in 2018. This follows a period of annual decreases since 2013 and is the lowest rate recorded by the survey since 2012, the first year of data available under the new definition.

- The **actual median fuel poverty gap** for fuel poor households in 2018 was similar to 2017 (£650 and £690, respectively). The **median fuel poverty gap (adjusted for 2015 prices)** for fuel poor households in 2018 (£610) has decreased from £710 in 2012.

[2] http://www.legislation.gov.uk/asp/2019/10/contents/enacted

Proportion of Households in Fuel Poverty and Extreme Fuel Poverty, 2012-2018

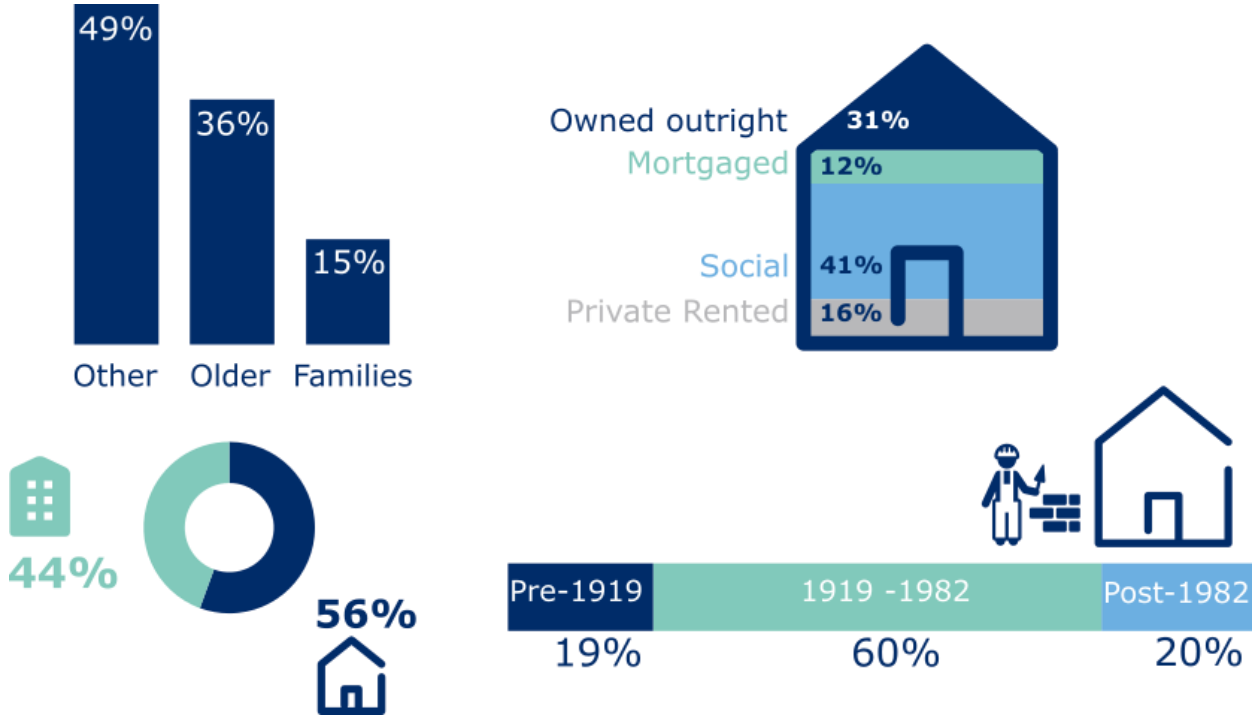


Note: Energy requirement underpinning fuel poverty estimate modelled on the following basis: 2012 – 2013: BREDEM 2012 v.1.0; from 2014 onwards: BREDEM 2012 v.1.1, and New Prices to the adjustment of fuel price sources from 2013. From 2016 a further improvement is included by assigning pre-payment metered fuel prices to the relevant households.
Note: This is the first time the 2012-2015 estimates have been published and the estimates are not comparable to those in previous Key Findings reports. See Section 4.1 for more details.

- The 2018 fuel poverty rate is likely to reflect changes in fuel prices, income and energy efficiency.
- Households using **gas** as their primary heating fuel had a similar fuel poverty rate in 2018 as in 2017. Consequently, fuel poverty rates for households living in **urban** areas were similar to that in 2017 (25% versus 23%), although **larger urban** areas saw an increase in fuel poverty from 21% in 2017 to 25% in 2018.
- Rates of fuel poverty differed between the **social** (39%) and **private sector** (20%) in 2018. These are similar rates to those in 2017 although households who owned outright saw an increase in fuel poverty rates with 23% estimated to be in fuel poverty compared to 18% in 2017.
- Fuel poverty has a strong association with **income** and households in the lower income bands have the highest rates of fuel poverty: 95% for the bottom income band and 55% for the 2nd bottom band. Fuel poverty rates across all income bands are similar to 2017 fuel poverty rates.

- Around half (49%) of fuel poor households are **adults without children (other)** households. Around 15% of households living in fuel poverty are families with children, and 36% are older households. 43% of fuel poor households are **owner occupiers**, 41% are **social housing** residents and the remaining 16% rent in the **private sector**.

Composition of Fuel Poor Households, 2018



- As in 2017, overall rates of extreme fuel poverty were similar between the **social** (13%) and **private** sector (10%) in 2018, although levels of extreme fuel poverty in **housing association** households have decreased from 18% in 2017 to 11% in 2018.
- Levels of extreme fuel poverty were higher in **rural** areas (17%) compared to **urban** areas (10%) in 2018.
- Households in the lower **income** bands have the highest rates of extreme fuel poverty: 68% for the bottom income band (<£200 a week) dropping to no cases in the highest income band (£700+ a week). Extreme fuel poverty rates in the second lowest income band (£200-£299.99 a week) have dropped in 2018 (16%) compared to 2017 (22%).
- Fuel poor and extreme fuel poor households are more likely to report **difficulties staying warm** in winter. 29% of fuel poor and 32% of extreme fuel poor say that their heating keeps them warm in winter “only sometimes” or “never” compared to 15% of all other households. 8% of fuel poor and 11% of extreme fuel poor households report that they cannot afford to heat their home, higher than the 3% of non-fuel poor households.

- Overall, there has been no change in the past year in the share of all householders reporting that their heating only sometimes (14%) or never (4%) keeps them warm in winter.

- The extent to which **home energy use is monitored** by householders has increased since last year with 58% stating they monitor their energy use “very” or “fairly closely”. 28% of households report owning an **energy monitoring device** – a 9 percentage point increase on 2017.

- Fuel poor and extreme fuel poor households are more likely to monitor their energy use than other households (62% and 65% respectively compared to 57% for non-fuel poor households) but they are less likely to own a monitoring device (23% for both compared to 29% for non-fuel poor households).

Housing Conditions

- The level of **disrepair** increased by 7 percentage points from last year, with 75% of all dwellings having some degree of disrepair, however minor it may be in 2018. Disrepair to **critical elements** stood at 57%, an increase of 7 percentage points since 2017.

- 30% of dwellings had some instances of **urgent disrepair**, and in 6% of the housing stock some **extensive disrepair** was present. Neither of these represent a statistically significant difference from 2017 although there is a longer-term trend of improvement since 2012.

- Levels of **damp and condensation** were similar to that seen in 2017: 89% of properties were free from any damp or condensation.

- Levels of compliance with the **tolerable standard** in 2018 decreased slightly from 2017, returning to 2016 levels: 2% (or 50,000) of all dwellings fell below the Tolerable Standard in 2018. Longer term this represents an improvement of 2 percentage points since 2012.

- In 2018, 41% of Scottish homes failed to meet the **Scottish Housing Quality Standard** (SHQS), similar to 2017 levels but down from 45% in 2016 and 61% in 2010. The majority of dwellings falling below the SHQS failed on a single criterion: this accounts for almost 8 out of 10 failures.

- The SHQS failure rate in the **social sector** was 36%, not allowing for abeyances and exemptions. This has fallen from 60% in 2010. 26% of social sector properties did not meet the **Energy Efficient criterion**. The majority of social sector dwellings falling below the SHQS failed on a single criterion: this accounts for more than 8 out of 10 failures.

- SHCS surveyors may not always be able to identify the presence of cavity wall insulation. The overall SHQS failure rate in the social sector would be 23% if it is assumed that all social dwellings have insulated cavity walls where this is technically feasible.

- For almost three quarters of social homes failing the SHQS this was due to falling short on a single one of the 55 elements which make up the standard. Most frequently these were cavity wall insulation, pipe and tank insulation, full and efficient central heating, effective loft insulation, at least six kitchen sockets, and safe common front and rear doors.

- **Overcrowding** levels in Scotland remain unchanged: 2% of all households (53,000) were living in overcrowded accommodation in 2018. Social sector dwellings (4%) were more likely to be overcrowded than private sector dwellings (1%).

1 Introduction

1. The statistics reported in this publication are based on a national survey of the housing stock, the only one of its kind in Scotland, which is part of the Scottish Household Survey (SHS). Until 2012 it was carried out as a stand-alone survey under the name Scottish House Condition Survey (SHCS). Following the review of the large-scale Scottish population surveys, the SHCS was incorporated within the SHS and became one of its modules. We continue to report the results from this module of the SHS under the name Scottish House Condition Survey.

2. The SHCS consists of an interview with householders and a physical inspection of the dwelling they occupy, which provides a picture of Scotland's occupied housing stock. It covers all types of households and dwellings across the country - whether owned or rented, flats or houses. The physical data about the dwelling is recorded by surveyors trained to collect detailed information on housing characteristics. This is combined with information about the household collected through a face to face interview with the householder. The interview covers a range of topics such as household characteristics, tenure, neighbourhood satisfaction, dwelling satisfaction, health status, income, etc. The result is a unique and powerful data set for examining the condition and characteristics of Scotland's housing stock alongside the views and experience of the people living in those dwellings.

3. This is the fifteenth 'Key Findings' report since the SHCS changed to a continuous format in 2003 and the seventh since it was integrated within the SHS. Details on the methodology and design of the survey are provided in the SHS Technical Report published on the Scottish Government website[3]. The incorporation of the SHCS within the SHS in 2012 introduced some discontinuities in the methodology of the survey and may contribute to some observed change over time.

4. In 2018 there were 2,964 surveyed properties. Statistics published in this report are based on fieldwork undertaken during 2018. A small proportion (3%) of the household interviews took place in the first quarter of 2019.

5. In 2009, the SHCS was designated as a National Statistics product by the UK Statistics Authority (UKSA). This demonstrates that the SHCS statistics are accurate, trustworthy and compliant with the high standards required of National Statistics.

[3] http://www.gov.scot/Topics/Statistics/16002/PublicationMethodology

6. In 2013 and 2014, there were changes made to the methodology used to analyse energy performance of the housing stock. This affects the comparability over time of statistics on energy efficiency, fuel poverty and carbon emissions from housing. Data presented in this report clearly highlights where methodology changes have occurred. Details of the impact of these methodology changes are published in the Key Findings reports and Methodology Notes for 2013[4] and 2014[5].

7. In November 2017, a new version of RdSAP (v9.93), used in the assessment of the energy performance of an existing dwelling, was released[6]. See section 3.3 for further information.

8. There have been no further changes to the energy modelling methodology and the current 2018 Key Findings report is based on the same methodology used in 2014, 2015, 2016 and 2017.

9. The 2014 Key Findings report also introduced some improvements to the method for determining the cost of the energy required to maintain an appropriate standard of heating and other energy use which underpins the fuel poverty estimates. Details on the nature of the changes and their impact are provided in the 2014 Methodology Notes[7] publication. In the 2016 survey, a further small improvement through the collection of information about pre-payment meters for energy supply was introduced. This has allowed us to improve the accuracy of fuel price information for these customers. The current report continues to use these improved methods for setting the cost of the domestic energy requirement.

10. There are no other significant methodological changes in this year's report in comparison to the previous publication. We always seek to improve and keep our methods and processes up to date and there may therefore be small changes to elements of data processing which do not impact significantly on the results. In such cases details are provided in the respective technical sections.

[4] 2013 SHCS Key Findings: http://www.gov.scot/Publications/2014/12/6903 and Methodology Notes: http://www.gov.scot/Topics/Statistics/SHCS/Downloads/MethodologyNotes2013

[5] 2014 SHCS Key Findings: http://www.gov.scot/Publications/2015/12/8460 and Methodology Notes: www.gov.scot/Topics/Statistics/SHCS/Downloads/Methodology2014

[6] https://www.bre.co.uk/filelibrary/SAP/2012/RdSAP-9.93/RdSAP_2012_9.93.pdf

[7] Methodology Notes 2014: www.gov.scot/Topics/Statistics/SHCS/Downloads/Methodology2014

11. In July 2019 the Fuel Poverty (Targets, Definition and Strategy) (Scotland) Act[8] received Royal Assent. This Act contains a new definition of fuel poverty which affects how fuel poverty is to be defined and measured. The figures presented in this report are a best estimate of fuel poverty and extreme fuel poverty rates under the proposed new definition of fuel poverty, following amendments agreed at Stage 2 of the Fuel Poverty (Targets, Definition and Strategy) Bill. The fuel poverty estimates in this Key Findings report are therefore not comparable to those in previous Key Findings reports, although they are comparable to the estimates presented in the 'Fuel poverty and extreme fuel poverty: estimates' publication[9]. Please see section 4.1 for further details on how fuel poverty has been defined and measured.

12. Differences between years or across characteristics are only highlighted in the commentary of this report if they are statistically significant. On occasion we also note where a difference is not statistically significant, particularly if it might appear large to the reader. Large differences which are not significant can occur if the statistic is based on a small sample size. Please see Chapter 7 for further details of confidence intervals, design effects and statistical significance.

13. The remainder of this report covers the following topics:

    - Key Attributes of the Scottish Housing Stock: this chapter describes key characteristics of the housing stock such as dwelling type and age of construction, main heating fuel in use, their location in relation to the gas grid, and the characteristics of the households that occupy them.
    - Energy Efficiency: this chapter presents an analysis of the energy efficiency of the housing stock including presence and level of insulation.
    - Fuel Poverty: this chapter presents an analysis of the number and characteristics of households in fuel poverty and extreme fuel poverty under the new definition following amendments agreed at Stage 2 of the Fuel Poverty (Targets, Definition and Strategy) Bill. It also examines the key drivers of fuel poverty and how they have changed over time.
    - Perceptions and Experiences: this chapter examines householders' reports of their experience and satisfaction with heating and the extent to which they monitor their use of energy.

[8] http://www.legislation.gov.uk/asp/2019/10/contents/enacted

[9] https://www.gov.scot/publications/latest-estimates-fuel-poverty-extreme-fuel-poverty-under-proposed-new-definition-following-stage-2-fuel-poverty-targets-definition-strategy-scotland-bill/

- Housing Conditions: this part of the report provides information on the number of dwellings in compliance with the tolerable standard and the Scottish Housing Quality Standard (SHQS). It also covers the presence of dampness, condensation and disrepair as well as some indicators of overcrowding and under-occupation.
- Technical Notes: the final chapter in the report provides information about the content of the survey and the definition of some of the key concepts used. Discussion on the statistical reliability of the estimates is also included.

2 Key Attributes of the Scottish Housing Stock

14. The Scottish House Condition Survey provides a snapshot of the Scottish housing stock in each survey year. This chapter sets out information on the basic attributes of occupied Scottish dwellings as captured in 2018. Subsequent chapters build on this and provide more details on energy efficiency, fuel poverty, housing quality and disrepair.

15. The following topics are included:

- the construction age and built form of Scottish domestic buildings;
- the dwellings' location in relation to the gas network and the type of fuel used to heat them;
- the relationship between the dwellings' attributes and household tenure; and
- the composition of the households who occupy them.

2.1 Dwelling Age and Type

16. The age of construction and the built form of a dwelling has consequences for energy performance, running costs and living conditions. For example, older dwellings built with solid stone walls are typically less effective at preventing heat transmittance between the inside and the outside of a building than properties that have been built using modern construction materials and that, since 1982, have been subject to increasingly rigorous minimum standards of energy efficiency and airtightness.

17. More information on the main dwelling types used in the SHCS is provided in section 7.11.1.

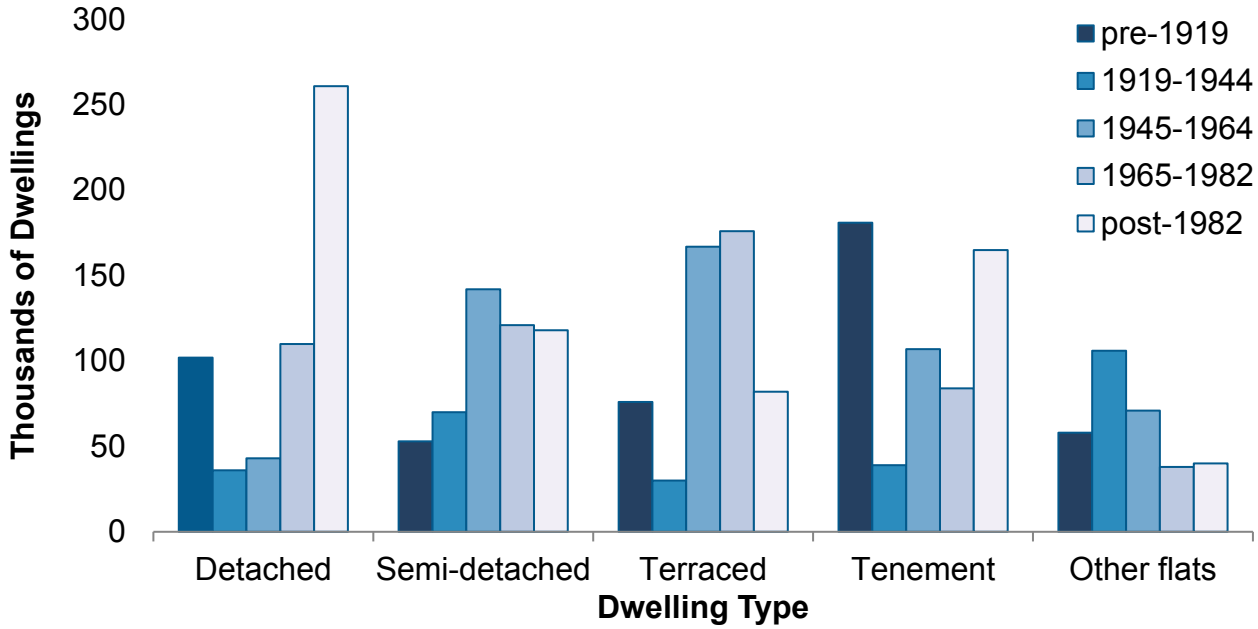
18. At the same time, types of dwellings can differ in terms of the size of the external surface area; dwellings with a smaller area of exposed wall, for example amongst those that are shielded by adjacent properties, typically have lower levels of heat loss than in buildings with fewer sheltered sides.

19. The Scottish housing stock is diverse and varies across the country and between rural and urban areas. However, some common types can be recognised in Figure 1:

    - Old (pre-1919) detached houses (4%; around 102,000) and tenement flats (7%; 181,000)
    - More modern post-1982 detached houses (11%; 261,000) and tenements (7%; 165,000)
    - Post-war terraced houses (14%; 343,000 built between 1945 and 1982)
    - Semi-detached houses, common across all age bands and accounting for around 20% of the stock alone.

20. These six broad categories account for 63% of the overall housing stock. However, there is also a good deal of variability within these groups; even among pre-1919 tenement flats of the type common in Edinburgh and Glasgow, there is a wide range of sizes, shapes and areas of exposure (for example in top floor flats the roof is exposed) which affects their energy efficiency and the living conditions experienced by the household.

Figure 1: Number of Occupied Scottish Dwellings by Age Band and Type, 2018



21. The proportion of the stock in each dwelling age band and type is provided in Table 1. Numbers of dwellings of each age group and type are shown in Table 2.

Table 1: Proportion of Occupied Dwellings by Age Band and Type, 2018 (Percentage of Whole Stock)

Age of dwelling	Type of Dwelling					
	Detached	Semi-detached	Terraced	Tenement	Other flats	Total
pre-1919	4%	2%	3%	7%	2%	**19%**
1919-1944	1%	3%	1%	2%	4%	**11%**
1945-1964	2%	6%	7%	4%	3%	**21%**
1965-1982	4%	5%	7%	3%	2%	**21%**
post-1982	11%	5%	3%	7%	2%	**27%**
Total	**22%**	**20%**	**21%**	**23%**	**13%**	**100%**
Sample size						*2,964*

Table 2: Number of Occupied Dwellings by Age Band and Type, 2018 (Thousands)

Age of dwelling	Type of Dwelling					
	Detached	Semi-detached	Terraced	Tenement	Other flats	Total
pre-1919	102	53	76	181	58	**469**
1919-1944	36	70	30	39	106	**281**
1945-1964	43	142	167	107	71	**530**
1965-1982	110	121	176	84	38	**529**
post-1982	261	118	82	165	40	**667**
Total	**552**	**505**	**532**	**576**	**313**	**2,477**
Sample size						*2,964*

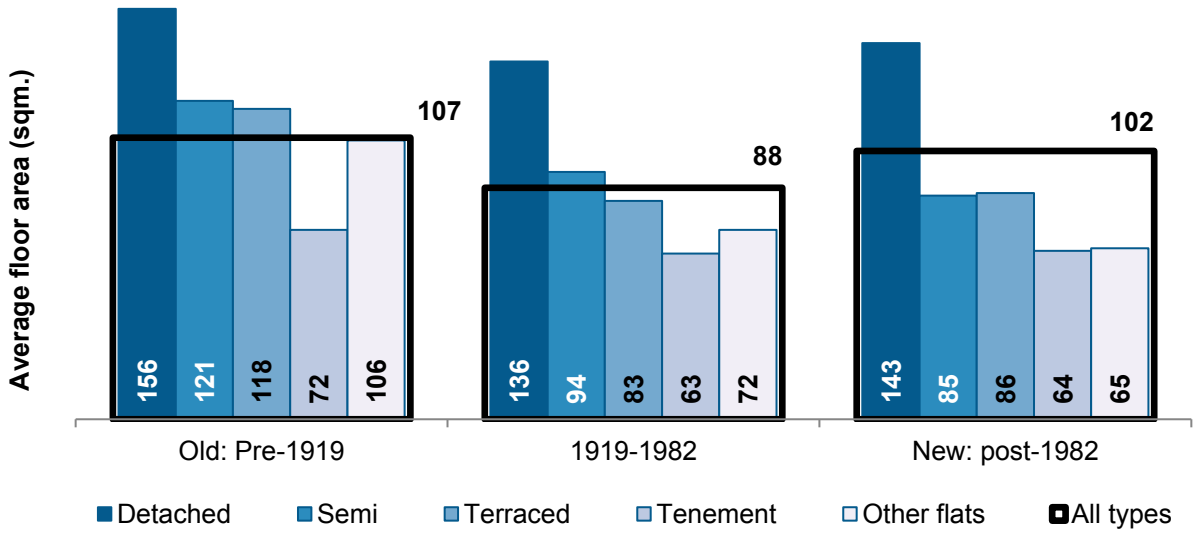
22. The category 'other flats' includes houses that have been converted to flats (36,000), towers / slabs (66,000) and so-called "4-in-a-block" flats (211,000).

- "4-in-a-block" flats were commonly built as social housing between 1919 and 1965 (70% of all flats of this type fall in that age category).
- 85% of towers / slabs were built in the 1945 to 1982 period, again often as social housing.
- Converted flats are almost exclusively pre-1919 structures (92%), where a house has been divided into multiple residences.

2.1.1 Dwelling Size (Floor Area)

23. The size of the internal floor area has implications for the heating requirements of a dwelling. Larger dwellings require greater heat inputs and therefore cost more to heat. This has a direct impact on fuel poverty (see Chapter 4).

Figure 2: Mean Floor Area (m^2) by Dwelling Type and Age, 2018



24. Pre-1919 dwellings tend to be larger than the other two age categories across dwelling types with the exception of pre-1919 detached properties which on average are comparable in size to more recently built ones (Figure 2). Semi-detached houses built after 1919 are on average around three-quarters of the size of those built pre-1919. Terraced houses built after 1919 are around seven-tenths the size those built pre-1919.

25. The overall average for post-1982 dwellings is somewhat higher compared to those built between 1919 and 1982. This is largely driven by differences in detached houses, which are both larger in size and more common in the post-1982 stock (see Table 2).

26. Rural dwellings are, on average, 33% larger than urban dwellings based on internal floor area, as shown in Table 3. The difference is smallest for dwellings built between 1919 and 1982 at 13%. Among older dwellings, rural properties are around 31% larger, while among the post-1982 stock the difference is 49%.

Table 3: Average Internal Floor Area (m^2) by Urban/Rural Location, 2018

Dwelling Age	Location			Rural % larger
	Urban	Rural	All	
Pre-1919	99	129	107	31%
Sample size	*338*	*183*	*521*	
1919-1982	86	98	88	13%
Sample size	*1,358*	*277*	*1,635*	
Post-1982	93	139	102	49%
Sample size	*596*	*212*	*808*	
All Age Bands	90	120	95	33%
Sample size	*2,292*	*672*	*2,964*	

2.2 Gas Grid Coverage and Rural/Urban Location

27. Approximately 18% of dwellings in Scotland are estimated to be outside the coverage of the gas grid[10]. As shown in Table 4, the majority (91%) of urban dwellings are within the coverage of the gas grid, whereas almost two-thirds (64%) of those in rural areas are not.

Table 4: Gas Grid Coverage Overall and by Urban/Rural Location, 2018

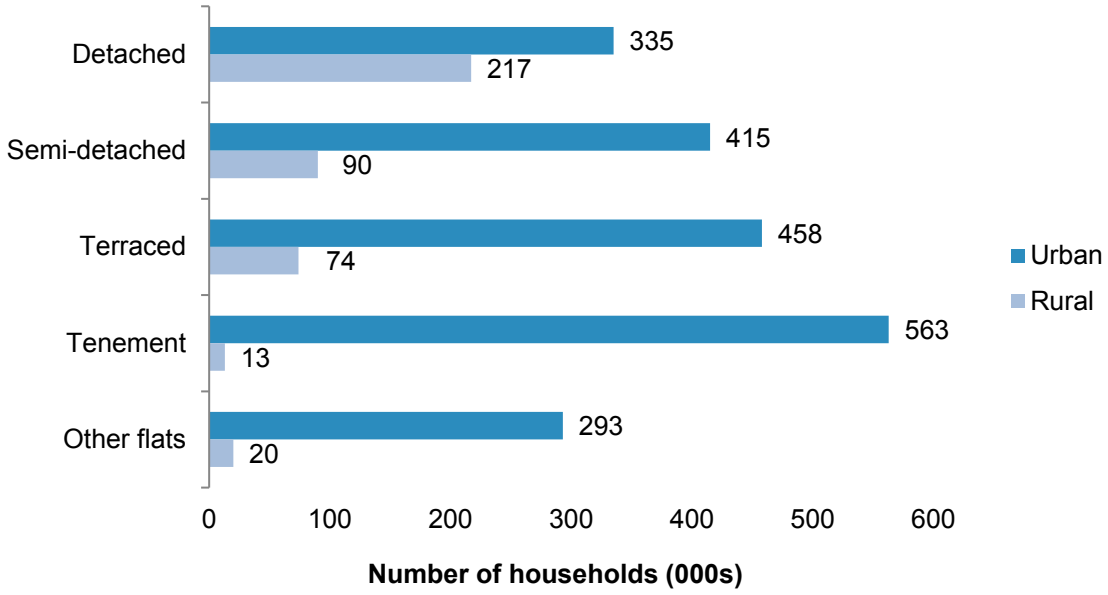
Gas Grid Coverage			Location			
			Urban		Rural	
	000s	%	000s	%	000s	%
On Gas Grid	2,032	82%	1,883	91%	149	36%
Off Gas Grid	445	18%	180	9%	265	64%
Total	2,477	100%	2,063	100%	414	100%
Sample size		*2,964*		*2,292*		*672*

28. Connection to the gas grid allows households to use gas for heating and hot water. As gas is currently the cheapest of the major commercial fuels, gas grid access can be a significant determinant in the required cost of heating a home to a satisfactory temperature.

29. Figure 3 shows the number of dwellings in rural and urban areas by property type.

[10] Gas grid coverage is determined on the basis of the distance of the dwelling from a low / medium / intermediate pressure gas distribution pipe. Based on the usual maximum distance for standard domestic connection (63 m), dwellings are classified as being “on” or “off” the grid. This does not reflect whether the dwelling is actually connected to the grid. Further details on the method for estimating distance to the gas grid are available in section 7.11.4 of this report and in SHCS Methodology Notes available at: http://www.gov.scot/Topics/Statistics/SHCS/Downloads

Figure 3: Dwelling Types in Rural and Urban Areas (000s), 2018



30. Just over half (52%; 217,000 households) of all rural dwellings are detached, and 22% (90,000) are semi-detached. Only 8% of rural dwellings are flats; 33,000 in total.

31. The most common dwelling type in urban areas is the tenement flat (563,000), accounting for around 27% of urban housing. Around 59% of urban stock is detached, semi-detached and terraced houses, in total accounting for almost 1.2 million of the 2 million urban dwellings.

2.3 Heating Fuel

32. This section examines the distribution of dwellings in terms of the primary heating fuel used and a range of other characteristics, such as age and type of dwelling. The relationship between the type of fuel used, the energy efficiency rating and fuel poverty will be explored further in later chapters.

33. Overwhelmingly the most common heating fuel is mains gas: 81% of Scottish households (around 2.0 million) use mains gas for heating, 10% use electricity and 6% use oil (Table 5), these are similar to 2017.

Table 5: Primary Heating Fuel, Households (000s) and %, for All Stock and by Sector, 2018

	All Stock		Private		Social	
Primary Heating Fuel	**000s**	**%**	**000s**	**%**	**000s**	**%**
Mains gas	2,002	81%	1,471	81%	530	81%
Electricity	247	10%	152	8%	95	14%
Oil	145	6%	145	8%	-	-
Communal Heating	32	1%	5	0%	27	4%
LPG bulk or bottled	27	1%	*	*	*	*
Solid mineral fuel	8	0%	*	*	*	*
Biomass	16	1%	16	1%	-	-
Sample size		*2,964*		*2,231*		*733*

"*" denotes cases where attributes appear too rarely to provide an adequate basis for reporting. "–" denotes no sampled cases. See section 7.1.6 for table conventions.

34. Gas and electricity are the main fuel types present in 95% of social housing. A further 4% (27,000 households) use some form of communal heating which is very uncommon in the private sector. Conversely, oil is rarely used to heat social housing, with no sampled cases in 2018, but was the primary fuel of 8% of private dwellings.

35. 85% of dwellings built between 1919 and 1982 use gas as their primary heating fuel (Table 6).In comparison, 78% of dwellings built after 1982 and 72% of dwellings built pre-1919 use gas. Older dwellings more commonly (18%) use other fuel types (than gas or electricity).

36. Primary heating fuel also varies by type of dwelling. As shown in Table 6 households living in detached houses are least likely to use mains gas for heating: 68% of them do, compared to 81% of households for Scotland as a whole and 89% of those households living in terraced houses. This is due to the greater prevalence of alternative heating fuels amongst pre-1919 detached houses. Less than a third (30%) of pre-1919 detached houses use gas as their primary heating fuel; 8% use electricity and 62% use some other fuel source. As shown in Figure 3 this is largely due to the higher proportion of detached dwellings in rural areas and Table 4 demonstrates that dwellings in rural areas are less likely to be within the coverage of the gas grid.

37. "Other" fuels (than gas or electricity) are most commonly used in detached houses. Flats have the highest levels of electricity as primary heating fuel (15%).

Figure 4: Primary Heating Fuel by Age and Type of Dwelling, 2018 (per cent of dwellings in age/type category using fuel type)

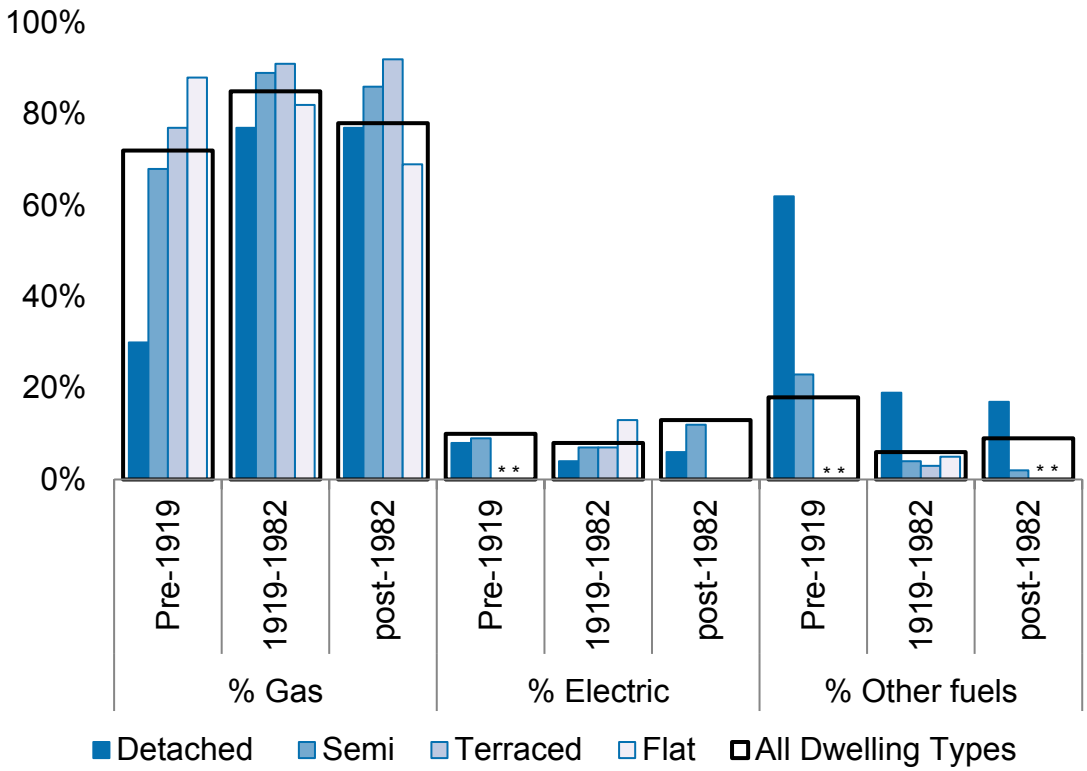


Table 6: Primary Heating Fuel by Age and Type of Dwelling, 2018

Dwelling Type	Dwelling Age	Primary Heating Fuel			*Sample size*
		Gas	**Electric**	**Other**	
All Dwelling types	**All age bands**	81%	10%	9%	*2,963*
	pre-1919	72%	10%	18%	*520*
	1919-1982	85%	8%	6%	*1635*
	post-1982	78%	13%	9%	*808*
Detached	**All age bands**	68%	6%	26%	*807*
	pre-1919	30%	8%	62%	*149*
	1919-1982	77%	4%	19%	*298*
	post-1982	77%	6%	17%	*360*
Semi	**All age bands**	86%	9%	5%	*659*
	pre-1919	68%	9%	23%	*64*
	1919-1982	89%	7%	4%	*439*
	post-1982	86%	12%	2%	*156*
Terraced	**All age bands**	89%	7%	4%	*633*
	pre-1919	77%	*	*	*89*
	1919-1982	91%	7%	3%	*451*
	post-1982	92%	*	*	*93*
Flat	**All age bands**	81%	15%	4%	*864*
	pre-1919	88%	*	*	*218*
	1919-1982	82%	13%	5%	*447*
	post-1982	69%	*	*	*199*

Note: There was one N/A response for Primary Heating Fuel which has been excluded from the table.

2.4 Household Type

38. In this report we describe households in terms of three main types which are derived from the more detailed classification used in the Scottish Household Survey[11]:

    - **Families.** These are households which contain at least one child aged under 16. The resident adults may be of any age.
    - **Older households.** One- or two-member households which include at least one resident aged 65 or older.
    - **Other households.** These are all other household types which are made up of adults only and have no resident children.

39. More details about the definitions are provided in section 7.11.2. This grouping was introduced in the 2015 Key Findings report and is different from the one used in previous reports, where the pensionable age for women was 60 and 65 for men. From 2015 onwards, 65 is adopted as the common age threshold for both men and women for older households reflecting the gradual increase in the state pension age for women.

40. There is a broad association between household types and the type of dwellings they occupy, as shown in Figure 5 and Table 7. While families and older households are more likely to live in houses (74% and 67% respectively), other households are more evenly split between houses and flats (57% and 43% respectively).

41. Families have the highest proportional occupancy of post-1982 houses: 26% of households with children live in post-1982 houses, compared with 13% of older households and 19% of other types of households. The highest occupancy of pre-1919 flats is observed among other types of households, 14%, compared to 6% for families and 6% for older households.

[11] Available at https://www.gov.scot/publications/scottish-household-survey-key-findings-2018/

Figure 5: Proportion of Households in Each Dwelling Type and Age Band, 2018

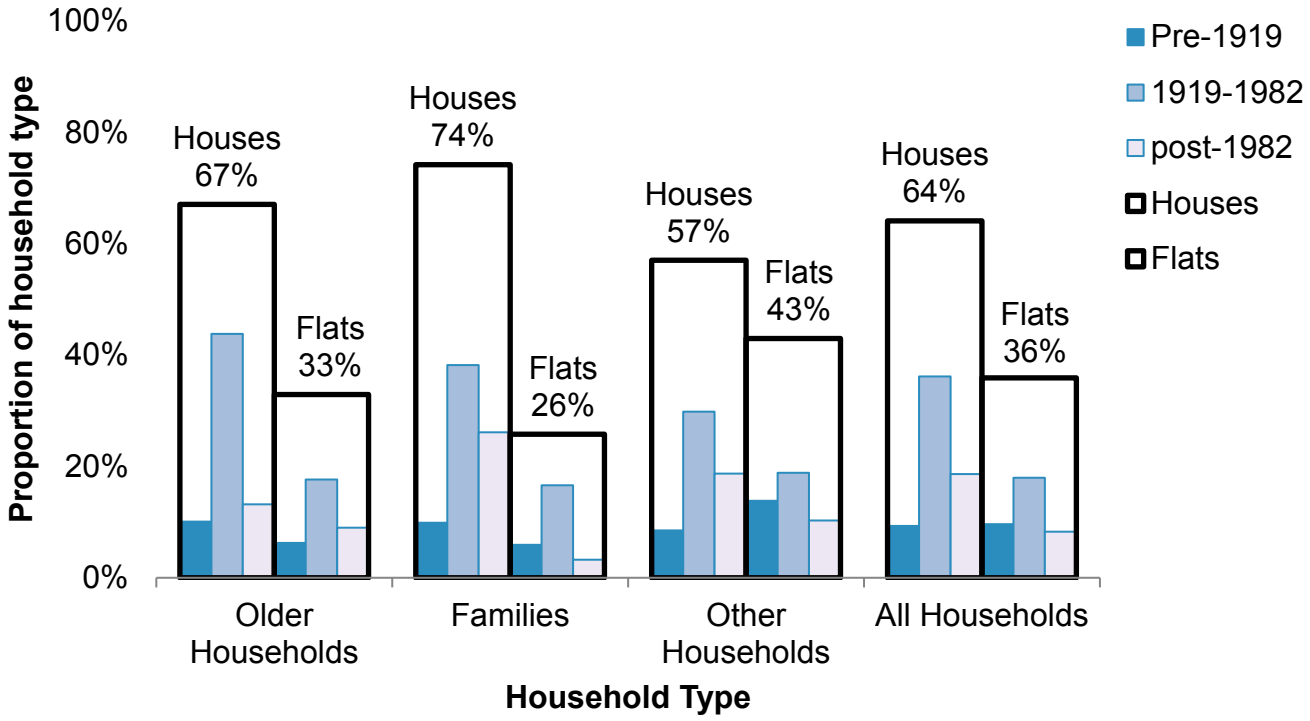


Table 7: Proportion of Households in Each Dwelling Type and Age Band, 2018

Dwelling Type and Age Band		Older Households	Families	Other Households	All Household Types
Houses	Pre-1919	10%	10%	8%	9%
	1919-1982	44%	38%	30%	36%
	Post-1982	13%	26%	19%	19%
	Subtotal	67%	74%	57%	64%
Flats	Pre-1919	6%	6%	14%	10%
	1919-1982	18%	17%	19%	18%
	Post-1982	9%	3%	10%	8%
	Subtotal	33%	26%	43%	36%
Total		100%	100%	100%	100%
Sample size		*974*	*667*	*1,323*	*2,964*

2.5 Tenure

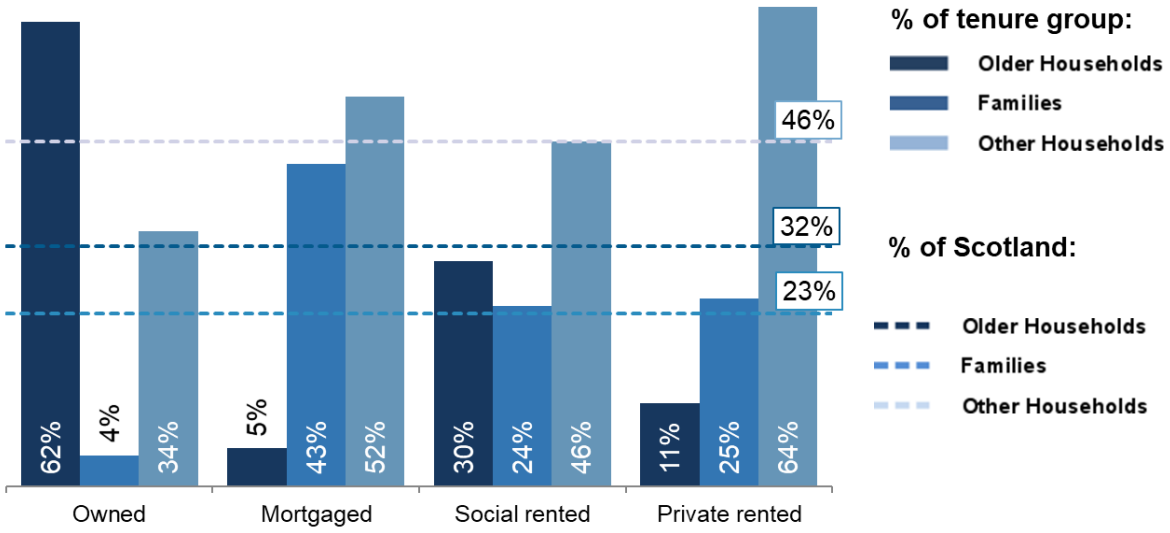
42. Statistics on tenure in the SHCS are based on the achieved sample of dwellings in the physical survey and are not calibrated against figures produced as part of the Scottish Government Housing Statistics for Scotland[12] publication or the Scottish Household Survey[13] publication (which is based on a larger sample and different weighting methodology). For estimates of the total number of dwellings by tenure, readers are referred to the Housing Statistics for Scotland publication which uses information from social landlords' returns which comprehensively cover the social housing sector and therefore provides more accurate estimates of the total stock.

43. In this section we explore data from the SHCS sample which provides more detailed information on the composition of each tenure type.

2.5.1 Household Type and Tenure

44. There are some clear differences in household type across tenure, as shown in Figure 6.

Figure 6: Proportion of Households in Each Tenure Group by Household Type, 2018



Note: Dashed lines represent the proportion of household type in Scotland as a whole.

[12] Housing Statistics for Scotland http://www.gov.scot/Topics/Statistics/Browse/Housing-Regeneration/HSfS/KeyInfoTables

[13] Scottish Household Survey publications: https://www2.gov.scot/Topics/Statistics/16002/PublicationAnnual

45. Owner occupiers with mortgages are predominantly families (43%) and other households (52%), while those who own their properties outright are dominated by older households (62%) and other types of households (34%).

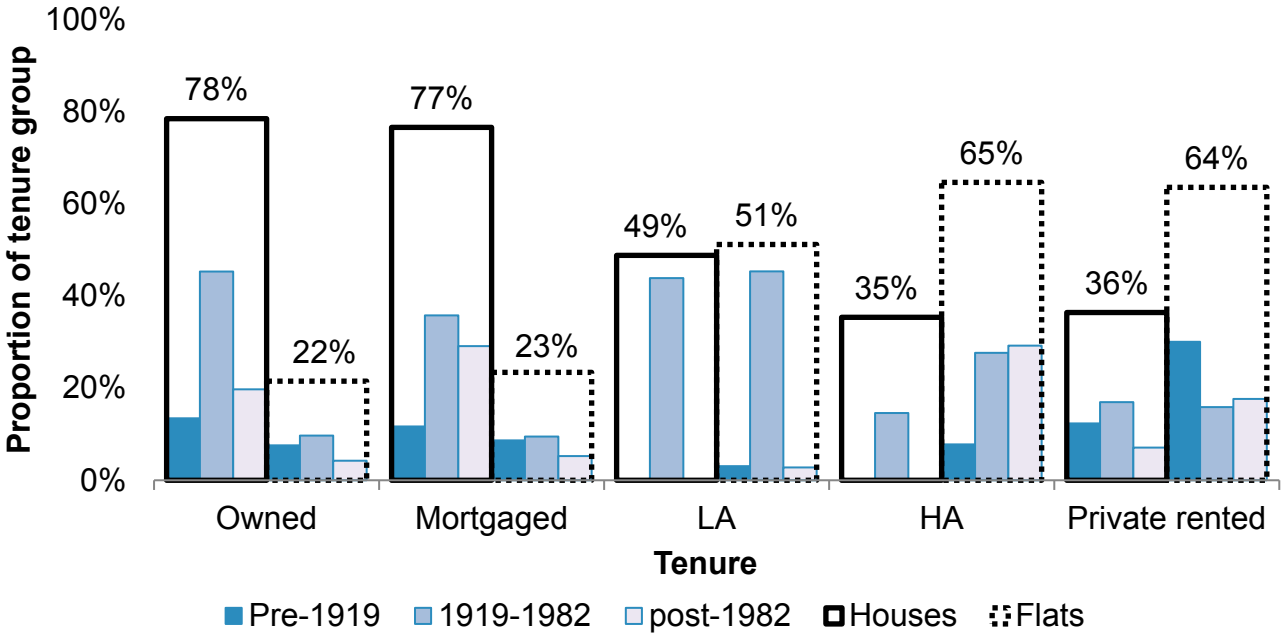
46. The majority of those who live in the private rented sector (PRS) belong to other households (64%) and only 11% are older households. A quarter of renters in both the private (25%) and the social sector (24%) are households with children, which reflects their share in the national population.

2.5.2 Dwelling Type and Tenure

47. Figure 7 shows that rented properties in the Housing Association (HA) and the private rented sector are more likely to be flats. Flats account for 65% of Housing Association (HA) stock and 64% of dwellings rented from private sector landlords.

48. Owner-occupied dwellings are more likely to be houses: 78% of dwellings owned outright and 77% of those with a mortgage, compared to 49% of dwellings owned by Local Authorities, 35% of Housing Association stock and 36% of private rented properties.

Figure 7: Proportion of Dwellings in Each Tenure Group by Age Band and Type of Dwelling, 2018



49. Almost all properties (89%) owned by Local Authorities were built between 1919 and 1982, while less than half (42%) of the Housing Associations stock was built in this period. Private rented sector dwellings are older, with 42% built before 1919, compared with a third built between 1919 and 1982 (Table 8).

Table 8: Proportion of Dwellings in Each Tenure Group, by Age Band and Type of Dwelling, 2018

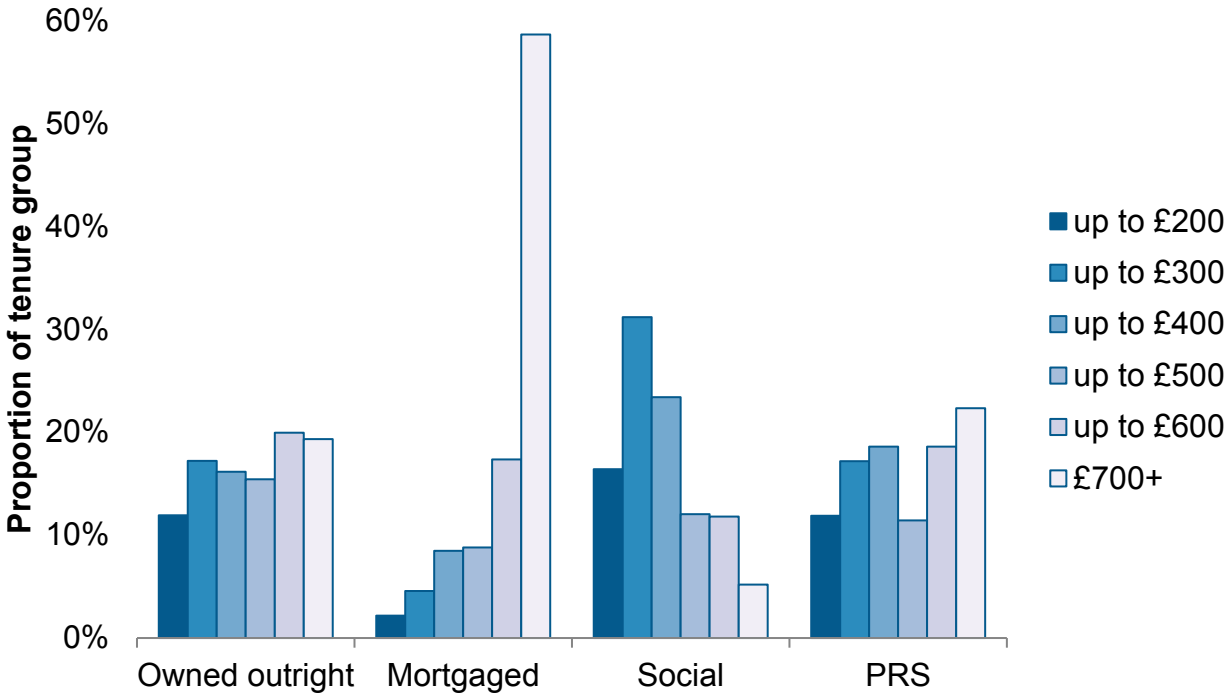
Dwelling Age and Type		Owned	Mort-gaged	LA	HA	Private rented
Houses	Pre-1919	13%	12%	*	*	12%
	1919-1982	45%	36%	44%	15%	17%
	Post-1982	20%	29%	*	*	7%
	Subtotal	78%	77%	49%	35%	36%
Flats	Pre-1919	8%	9%	3%	8%	30%
	1919-1982	10%	9%	45%	28%	16%
	Post-1982	4%	5%	3%	29%	18%
	Subtotal	22%	23%	51%	65%	64%
Total		100%	100%	100%	100%	100%
Sample size		*1,091*	*846*	*459*	*274*	*294*

2.6 Household Income Band

50. As we might expect, income and tenure are closely correlated. For social sector residents the distribution is skewed towards lower income groups, as shown in Figure 8, while households with mortgages have the largest share of higher income groups.

51. The distribution of households by income in the PRS is broadly similar to that for outright owner occupiers. It is generally wider than the social housing sector, including significant shares of both higher and lower income band households.

Figure 8: Proportion of Households in Each Tenure Group by Weekly Household Income Band, 2018



3 Energy Efficiency

52. The energy efficiency of a dwelling depends on its physical characteristics. Factors such as the age of construction, the dwelling type, the heating and hot water systems in use and the extent to which the building fabric is insulated, all affect energy efficiency.

53. Based on information about the characteristics of the dwelling collected in the SHCS physical survey, and using standard assumptions about the make-up and the behaviour of the occupying household, the energy consumption associated with the dwelling is modelled. This allows us to make comparisons of energy use, emissions and energy efficiency ratings between dwellings that are independent of occupant behaviour. Further details on the methodology underpinning these measures of energy efficiency are provided in the Methodology Notes[14].

54. In this chapter we report on analysis of:

- levels of insulation in Scottish dwellings (section 3.1);
- boiler efficiencies (section 3.2);
- Energy Efficiency Ratings (EER), also known as SAP ratings (section 3.3);
- National Home Energy ratings (NHERs) (section 3.4);
- modelled CO2 emissions from dwellings (section 3.5); and
- Environmental Impact Ratings (section 3.6).

[14] SHCS - Methodology Notes available at: http://www.gov.scot/Topics/Statistics/SHCS/Downloads

3.1 Insulation Measures

55. Installing or upgrading insulation is one of the most effective ways to improve the energy efficiency of a building. The Energy Saving Trust estimates that an un-insulated dwelling loses a third of all its heat through the walls and a further quarter through the roof[15]. As a result, insulation can significantly reduce energy consumption and therefore lower heating bills, making it cheaper to enjoy satisfactory levels of thermal comfort[16].

56. Additional insulation is most commonly added to a property through the insulation of loft spaces and by adding insulating material to external walls.

Key Points

- The majority of loft spaces are insulated. In 2018, **loft insulation** with a thickness of 100 mm or more had been installed in 94% of dwellings. This is unchanged from 2017 but an increase of 12 percentage points on 2010 levels.
- In 2018, 30% of lofts were insulated to a high standard of insulation (300 mm or more). This proportion has remained about this level since 2015, following year on year increases from the 2010 figure of 5%.
- The proportion of **insulated cavity walls** recorded by the SHCS was 73% in 2018, similar to the previous year. In the longer term, the share of insulated cavity walls has been increasing, with a 7 percentage point improvement since 2012.
- The proportion of **solid wall** dwellings with insulation was 19% in 2018, which was similar to 2017, and an increase of 8 percentage points on the 2012 figure.
- Levels of insulation (both loft and wall) are higher in the social sector than in the private sector. 55% of homes in the private sector have wall insulation compared to 70% in the social sector. In the private sector, 59% of lofts are insulated to 200 mm or more compared to 71% in the social sector. These figures are similar to 2017.

[15] EST: Roof and Loft Insulation http://www.energysavingtrust.org.uk/scotland/Insulation/ Roof-and-loft-insulation
EST: Wall Insulation http://www.energysavingtrust.org.uk/domestic/cavity-wall and http://www.energysavingtrust.org.uk/domestic/solid-wall
[16] See Chapter 4 on Fuel Poverty.

3.1.1 Loft Insulation

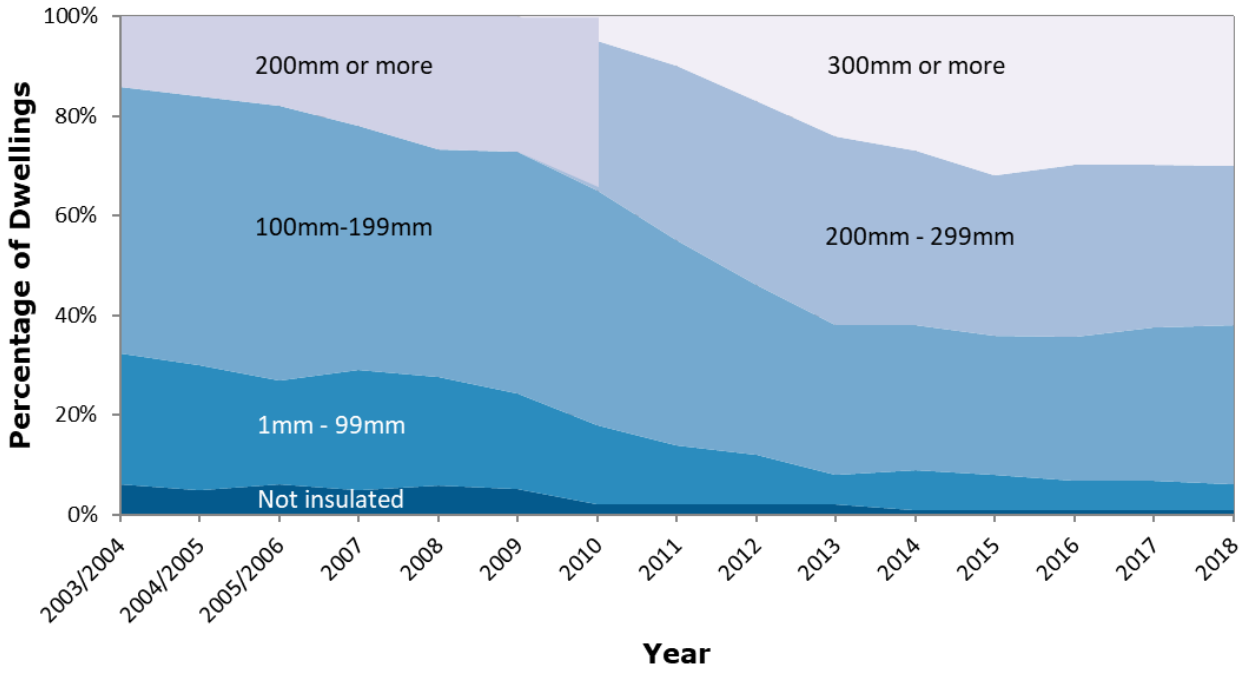
57. Since 2010, an overall improvement in the uptake of loft insulation has occurred. The proportion of all housing with 100 mm or more of loft insulation has increased by 12 percentage points on 2010 levels with 94% of applicable dwellings insulated in 2018 (see Table 10), similar to the level in 2017. Most of this improvement occurred before 2013.

58. Figure 9 shows the level of loft insulation in all dwellings back to 2003/4. The share of dwellings with no loft insulation has fallen from 6% in 2003/4 to 1% in 2018. Most of this decline occurred before 2010. Since then improvement has slowed down, suggesting that there may be barriers preventing the installation of insulation in the relatively few remaining uninsulated lofts.

59. Over the same period the thickness of loft insulation has increased significantly. In 2018, 62% of dwellings with lofts had insulation with a depth of 200 mm or more (Figure 9). Much of this increase has occurred between 2009 and 2013, when the percentage increased from 27% to 62%. This can largely be attributed to the installation of top-up insulation. The increase in the estimated number of dwellings with loft insulation between 100-199 mm between 2017 and 2018, and the associated decrease with 200+ mm over the same time period, are both within the margin of error of the survey.

60. The percentage of lofts with a high standard of insulation (300 mm or more) has remained similar since 2015, at 30%, following significant increases from 5% in 2010 (the first year the SHCS captured this information). In 2018, 29% of private sector dwellings had a high standard of loft insulation, compared to 33% of dwellings in the social sector; both of these figures are similar to 2017.

Figure 9: Depth of Loft Insulation (where applicable) 2003/04 – 2018



Note: A dwelling is classified as 'not applicable' for loft insulation if it has a flat roof or another dwelling above it (i.e. it is a mid- or ground-floor flat).

61. Between April 2008 and December 2012, the UK government Carbon Emissions Reduction Target (CERT) scheme delivered 410,937 loft insulation measures in Scotland[17] (Table 9).

62. Between January 2013 and December 2018 a further 68,681 loft insulation measures were delivered in Scotland by its successor scheme, the Energy Company Obligation (ECO)[18].

63. In total, around 480,000 loft insulation measures have been installed under these government programs since 2008.

[17] CERT-Summary-Report-Q19-by-English-Regions-Scotland-Wales, HEED dB, Nov 2014. Access available through Energy Saving Trust.

[18] Scottish Government analysis of data provided by Ofgem of measures installed under ECO. Provisional figures.

Table 9: Depth of Loft Insulation (000s), 2010 and 2012 to 2018

Loft Insulation	2018	2017	2016	2015	2014	2013	2012	2010
none	11	9	9	19	15	27	31	42
1mm-99mm	95	101	109	125	143	113	185	279
100mm-199mm	594	563	525	518	528	534	617	822
Subtotal: <200mm	701	673	643	663	686	675	834	1,143
200mm or more	1,135	1,152	1,197	1,161	1,123	1,118	975	621
Not applicable	641	638	612	610	611	606	577	592
All Dwellings	2,477	2,464	2,452	2,434	2,420	2,399	2,386	2,357
Sample Size	*2,964*	*3,002*	*2,850*	*2,754*	*2,682*	*2,723*	*2,787*	*3,114*
Cumulative recorded loft insulations under government schemes								
CERT (000s)							411	157
ECO (000s)	69	59	53	39	30	10		

64. As shown in Table 10 thickness of loft insulation is greater in social sector dwellings than private sector dwellings. In 2018, 94% of private housing lofts were insulated to 100 mm or more and 59% to at least 200 mm. In the social sector, 96% of dwellings had lofts insulated to 100 mm or more, and 71% had at least 200 mm of loft insulation.

65. One of the reasons for this difference between private and social sector is that the Scottish Housing Quality Standard (SHQS), which was introduced in 2004, requires at least 100 mm of loft insulation (see section 6.2.2 for more information).

66. The difference in the proportion of lofts with at least 100 mm insulation between the private and the social sector has been reducing gradually, from 17 percentage points in 2003/04 (81% in the social and 64% in the private sector) to 3 percentage points in 2018 (96% in the social sector and 94% in the private sector).

Table 10: Depth of Loft Insulation (000s and %) by Tenure, 2017 and 2018[19]

		Private Sector		Social Sector		All Tenures	
Year	**Loft Insulation**	000s	%	000s	%	000s	%
2018	none	10	1%	1	0%	11	1%
	1mm - 99mm	82	6%	13	3%	95	5%
	100mm+	1,350	94%	380	96%	1,730	94%
	100mm - 199mm	494	34%	101	26%	594	32%
	200mm - 299mm	444	31%	149	38%	594	32%
	300mm or more	412	29%	130	33%	542	30%
	Total	1,442	100%	394	100%	1,836	100%
2017	none	9	1%	-	0%	9	1%
	1mm - 99mm	92	6%	9	3%	101	6%
	100mm+	1,354	93%	361	97%	1,715	94%
	100mm - 199mm	480	33%	83	22%	563	31%
	200mm - 299mm	459	32%	142	38%	601	33%
	300mm or more	415	28%	136	37%	551	30%
	Total	1,455	100%	370	100%	1,825	100%
Samples	*2018*		*1,874*		*472*		*2,346*
	2017		*1,895*		*464*		*2,359*

3.1.2 Wall Insulation

67. The presence of **cavity wall insulation (CWI)** is becoming increasingly difficult for SHCS surveyors to identify as over time the injection holes age, fade or are covered up by later work. Contractors are also getting better at concealing their work. This may mean that the SHCS under-estimates the number of homes which have had CWI installed (see also section 6.2.2). Despite efforts to maintain the high quality of the SHCS physical survey fieldwork, some misclassifications may remain.

68. In Scotland around three quarters of dwellings have external cavity walls and the remaining one quarter have solid or other construction types of external wall. These “other” types include steel or timber-frame dwellings and dwellings made from pre-fabricated concrete. As the improvement of solid and other wall types generally requires more expensive interventions than CWI, this diverse group is addressed together in this chapter.

69. Table 11 and Table 12 show the number and proportion of insulated dwellings by type of external wall. Higher insulation levels in new buildings have been required by building standards since 1982. These dwellings are therefore treated as insulated when built.

[19] Dwellings without loft spaces are excluded.

Table 11: Cavity Wall Insulation, 2012 and 2014 to 2018[20]

	2018		2017		2016		2015		2014		2012	
	000s	%	000s	%	000s	%	000s	%	000s	%	000s	%
Not insulated	500	27%	457	25%	512	28%	525	29%	518	29%	606	34%
Insulated	1,331	73%	1,363	75%	1,323	72%	1,286	71%	1,287	71%	1,157	66%
Total	1,831	100%	1,821	100%	1,834	100%	1,811	100%	1,805	100%	1,772	100%
Sample		*2,240*		*2,284*		*2,154*		*2,099*		*2,017*		*2,051*
Cumulative reduction in SHCS uninsulated CWI since 2007												
000s	316		359		304		291		298		210	
Cumulative recorded CWI installations under government schemes since 2007, thousands												
CERT											218	
ECO	100		91		82		72		54			

70. In 2018, 73% of cavity wall dwellings in Scotland were insulated (Table 11), similar to 2017. We know from administrative data that 9,543 cavity wall dwellings were insulated with CWI during 2018 (through ECO). Although the percentage of insulated cavity wall dwellings identified through the SHCS appears to have decreased, this is not a statistically significant difference and reflects that this is a sample of all dwellings.

71. The longer term trend, showing a decrease in the share of uninsulated cavity walls of 7 percentage points since 2012, is broadly consistent with administrative data on the number of cavity wall insulation measures installed under the CERT and ECO schemes.

[20] Dwellings built post 1982 are presumed insulated when built.

72. Between April 2008 and December 2012, the CERT scheme delivered around 218,000 cavity and 9,000 solid and other wall insulation measures in Scotland[21]. Between January 2013 and December 2018 a further 100,328 cavity and 59,828 solid wall insulation measures were delivered in Scotland by the successor ECO scheme[22]. This equates to around 387,000 wall insulation measures, including around 318,000 cavity wall insulation measures, installed under these programs by the end of 2018. This is clearly reflected in the cumulative reduction of 316,000 uninsulated cavity wall dwellings reported by the SHCS since 2007 (Table 11).

73. Table 12 shows the levels of insulation in dwellings with **solid or other** construction type walls recorded by the survey in 2018. The results show that 19% of dwellings in this category had insulated walls in 2018; the difference with the level recorded in the previous year (18%) is not statistically significant but is an increase of 8 percentage points from 2012. Only 724 dwellings with solid walls were surveyed in 2018 as part of the SHCS. This relatively small sample does not allow enough precision to capture the increase in solid wall insulation measures which we know from administrative data is taking place. Since the beginning of January 2013 at least 59,828 solid wall insulation measures were delivered in Scotland[23].

74. In the social sector, three quarters (75%) of cavity wall dwellings and around half (48%) of dwellings with solid and other wall types were estimated to have insulation in 2018. Nearly three-quarters (70%) of social housing overall had insulated walls.

75. In the private sector, nearly three quarters (72%) of cavity wall dwellings and more than one tenth (13%) of solid and other wall dwellings, had insulation in 2018. Over half (55%) of all private sector dwellings had insulated walls.

[21] CERT-Summary-Report-Q19-by-English-Regions-Scotland-Wales, HEED dB, Nov 2014. Access available through Energy Saving Trust.

[22] Scottish Government analysis of data provided by Ofgem of measures installed under ECO. Provisional figures.

[23] This is the number of Solid Wall Insulation (SWI) measures delivered under ECO.

Table 12: Wall Insulation of Solid and Other Wall Types, 2012 and 2014 to 2018[24]

	2018		2017		2016		2015		2014		2012	
	000s	%	000s	%	000s	%	000s	%	000s	%	000s	%
Not insulated	524	81%	529	82%	524	85%	552	89%	528	86%	557	89%
Insulated	122	19%	115	18%	94	15%	71	11%	85	14%	66	11%
Total	646	100%	643	100%	617	100%	623	100%	613	100%	623	100%
Sample		*724*		*718*		*696*		*655*		*663*		*711*
Cumulative recorded installations under government schemes since 2007, thousands												
CERT											9	
ECO [1]	60		50		41		30		19			

1. ECO figures will include a small number of cavity walls with solid wall insulation types.

76. The information in Table 13 is broken down by type of cavity wall into hard to treat cavities (HTTC) and standard cavity walls using the ECO definition as far as possible with the available data (further details are available in section 7.11.6). HTTCs have certain attributes which make CWI more expensive, complex or inadvisable. Standard cavity walls have no such barriers.

77. 34% of cavity wall dwellings in Scotland have had retrofit cavity wall insulation, which is generally the lowest cost improvement available; the remainder of insulated cavity walls were insulated as built or insulated in another way.

78. Levels of insulation are higher in the social sector at 70% (all wall types) compared with 55% in the private sector. Within wall type, this tenure divide is also apparent for the more expensive insulation measures: internal / external insulation of cavity walls (15% of cavity wall dwellings in the social sector; 5% of private dwellings) and retrofit solid wall insulation measures (44% of solid wall dwellings in the social sector; 9% in the private sector).

79. No statistically significant improvements in wall insulation levels were recorded in the survey in the last year for either the private or the social housing sector. Low sample numbers mean the apparent decrease from 2017 in wall insulation amongst households in the social sector and the private sector are within the margin of error for the survey.

[24] Dwellings built post 1982 are presumed insulated when built.

Table 13: Insulation by Wall Type and Tenure, 2018 and Insulation of all Wall Types by Tenure, 2017 and 2018[25]

Wall and Insulation Type	Private Sector			Social Sector			Total		
	000s	%type	%all	000s	%type	%all	000s	%type	%all
2018									
Cavity									
Un-insulated	361	28%	20%	139	25%	21%	500	27%	20%
- HTTC	113	9%	6%	54	10%	8%	167	9%	7%
- Standard	248	19%	14%	85	16%	13%	333	18%	13%
Insulated	924	72%	51%	407	75%	62%	1,331	73%	54%
- CWI	428	33%	23%	195	36%	30%	623	34%	25%
- Int/External	60	5%	3%	83	15%	13%	143	8%	6%
- As built	436	34%	24%	129	24%	20%	565	31%	23%
Total	1,285	100%	71%	546	100%	83%	1,831	100%	74%
Sample Size		*1,617*			*623*			*2,240*	
Solid/Other									
Un-insulated	467	87%	26%	57	52%	9%	524	81%	21%
- Pre-1919	402	75%	22%	29	26%	4%	431	67%	17%
- Post-1919	65	12%	4%	29	26%	4%	93	14%	4%
Insulated	70	13%	4%	52	48%	8%	122	19%	5%
- Retrofit	51	9%	3%	48	44%	7%	99	15%	4%
- As built	19	4%	1%	4	4%	1%	23	4%	1%
Total	537	100%	29%	109	100%	17%	646	100%	26%
Sample Size		*614*			*110*			*724*	
All Wall Types									
Uninsulated	828		45%	196		30%	1,024		41%
Insulated	994		55%	460		70%	1,453		59%
Total	1,822		100%	656		100%	2,477		100%
Sample Size			*2,231*			*733*			*2,964*
2017: All Wall Types									
Uninsulated	811		44%	174		28%	986		40%
Insulated	1,026		56%	451		72%	1,478		60%
Total	1,838		100%	626		100%	2,464		100%
Sample Size			*2,274*			*728*			*3,002*

[25] Dwellings built post 1982 are presumed insulated when built

3.2 Boilers

Key Points

- In 2018, 62% of gas and oil boilers met the minimum efficiencies specified by the current Building Standards, an increase of 5 percentage points from 2017.

80. The heating system is a key factor in the thermal efficiency of a dwelling. Around 88% of households use a gas or oil-fuelled boiler. Trends in boiler efficiency are closely related to developments in energy efficiency and building standards regulations:

    - From 1998, minimum boiler efficiency standards were set by European Council Directive 92/42/EEC[26]
    - In 2007, Scottish Building Standards increased the efficiency requirements for all new and replacement boilers[27]

81. Building regulations in Scotland effectively require the installation of a condensing boiler[28] for gas and oil-fuelled heating in new builds or when boilers are replaced in any dwelling.

82. The SHCS has recorded the age of the household's heating system since 2010 and contains sufficient data to derive the Seasonal Efficiency (SEDBUK) ratings of surveyed boilers in the 2012-2018 data collections. For these years we can track the energy efficiency improvement of gas and oil boilers associated with the rising standards of the regulatory framework.

83. The methodology by which boiler efficiency ratings are calculated changed in 2016 and the time series was updated at that point to reflect this and to account for the minimum efficiency required of new oil combination condensing boilers. The data presented in Table 14 on the percentage of boilers compliant with standards is therefore comparable with the 2016 and 2017 Key Findings report but will not match data published in previous reports. Further details on the methodology change can be found in section 7.9.

[26] EU "Boiler Efficiency Directive" http://www.icqc.co.uk/userfiles/File/Directive_92_42.pdf

[27] Domestic Building Services Compliance Guide for Scotland http://www.gov.scot/Resource/0046/00460094.pdf

[28] This design has higher running efficiencies; a portion of the heat that would be lost through vented water vapour is recovered through condensation in a heat exchanger.

84. The minimum requirements applied in the assessment of whether a boiler is compliant with standards are: a minimum efficiency of 88% for condensing standard gas, oil and LPG boilers; for condensing combination boilers, 86% for oil, and 88% for gas and LPG; for ranges, back boiler and combined primary storage units (CPSUs), 75% when gas, and 80% when oil[29].

Table 14: Gas and Oil Boiler Improvements, 2010 & 2012-2018

	2018	**2017**	**2016**	**2015**	**2014**	**2013**	**2012**	**2010**
Households using gas or oil boilers for heating								
%	88%	85%	86%	85%	84%	84%	82%	83%
000s	2,171	2,104	2,097	2,075	2,041	2,022	1,960	1,945
… of which								
% "New" boilers (post-1998)	92%	91%	91%	89%	85%	83%	81%	70%
% condensing boilers	73%	67%	61%	56%	48%	43%	38%	22%
% standards compliant boilers	62%	57%	52%	47%	41%	33%	30%	
Sample size (gas/oil boilers)	*2,489*	*2,475*	*2,356*	*2,259*	*2,195*	*2,219*	*2,222*	*2,488*

85. In 2018 the survey found that 92% of the domestic gas and oil boilers in Scotland had been installed since 1998, when the European Boiler Efficiency Directive minimum standards came into effect. The proportion installed since 1998 has increased by 22 percentage points since 2010.

86. In 2018, almost three-quarters (73%) of gas and oil boilers were condensing boilers. This represents a rapid increase of 5 percentage points since 2017 and 50 percentage points since 2010.

87. In 2018, 62% of gas and oil boilers met the minimum efficiencies specified by the current Building Standards, an increase of 5 percentage points from 2017. As older boilers reach the end of their life and are replaced, we expect to see a continuation of this trend of improving efficiency.

[29] For existing dwellings, there are occasions where it may not be practical to install a condensing boiler. The 'Condensing Boiler Installation Assessment Procedure Guide' offers further guidance in this area. Where a non-condensing boiler is installed this may results in a boiler with poorer efficiency than that of a newly installed condensing boiler of the same fuel type.

3.3 Energy Performance Certificates

Key Points

- In 2018, 43% of Scottish homes were rated as EPC band C or better **under SAP 2012 (RdSAP v9.93)** (the first year in which data for this version of RdSAP is available).
- Under **SAP 2012 (RdSAP v9.92),** 44% of Scottish homes were rated as EPC band C or better in 2018, similar to the previous year but up from 39% in 2016 and from 35% in 2014 (the first year in which data based on SAP 2012 is available).
- Under **SAP 2009**, which allows comparisons over a longer period, almost half of dwellings (49%) were rated C or better, **up 25 percentage points since 2010**. In the same period, the proportion of properties in the lowest EPC bands (E, F or G) has more than halved, reducing from 27% in 2010 to 12% in 2018.

88. **Energy Performance Certificates (EPC)**[30] were introduced in January 2009 under the requirements of the EU Energy Performance Building Directive (EPBD). They provide energy efficiency and environmental impact ratings for buildings based on standardized usage. EPCs are required when a property is either sold or rented to a new tenant.

89. EPCs are generated through the use of a standard calculation methodology, known as Standard Assessment Procedure (SAP). SAP is the UK Government approved way of assessing the energy performance of a dwelling, taking into account the energy needed for space and water heating, ventilation and lighting and, where relevant, energy generated by renewables.

90. The Energy Efficiency Rating (EER) is expressed on a scale of 1-100 where a dwelling with a rating of 1 will have very poor energy efficiency and higher fuel bills, while 100 represents very high energy efficiency and lower fuel bills. Ratings can exceed 100 where the dwelling generates more energy than it uses.

91. Ratings are adjusted for floor area so that they are essentially independent of dwelling size for a given built form.

92. For Energy Performance Certificates EERs are presented over 7 bands, labelled A to G. Band A represents low energy cost and high energy efficiency, while band G denotes high energy cost (and low energy efficiency).

[30] An example of the current EPC format can be seen at http://www.gov.scot/Topics/Built-Environment/Building/Building-standards/enerperfor/epcguidance

93. Energy Efficiency Ratings reported in this publication are calculated under two versions of SAP, the SAP 2009 methodology[31] and the SAP 2012 methodology[32]. Using SAP 2009 enables us to examine the trend in the energy efficiency of the housing stock since 2010. SAP 2012 was first used in reporting data from the SHCS in the 2014 Key Findings report and therefore only four years of data are available.

94. SAP is periodically reviewed by the UK government to ensure it remains fit for purpose and to address its continued application across an increasing range of carbon and energy reduction policy areas. SAP is used for assessment of new buildings whilst a 'reduced data' version of the methodology, RdSAP, is applied to assessment of existing buildings.

95. SHCS energy modelling for SAP 2012 is currently based on RdSAP (v9.92) which was released on 7 December 2014. This introduced some technical updates and broadening of scope (for example, enabling assessment of 'park homes' as a dwelling type) as well as updating UK carbon factors and fuel costs based upon recent research undertaken by the Department for Business, Energy and Industrial Strategy (BEIS).

96. The latest version of RdSAP (v9.93)[33] was released on 19 November 2017 and contains revisions to the underlying assumptions used within the SAP calculations. The most notable update to the methodology in v9.93 was a change to the default U-values of cavity, solid and stone walls, built prior to 1976. These U-values are used to calculate the rate of heat loss through the walls, which contributes to the overall thermal performance of the building fabric of the dwelling. RdSAP v9.93 has been applied for the first time in this publication. Prior to the 2018 Key Findings report, the SAP 2012 methodology was aligned to RdSAP v9.92. To allow analysis of the effect of this update, 2018 EERs have been described in this report based on SAP 2012 under both RdSAP versions.

3.3.1 Energy Efficiency Rating, SAP 2009

97. Table 15 shows the trend in mean EERs based on SAP 2009, which rose from 59.9 in 2010 to 66.1 in 2018. These ratings fall into band D. There was around a 1 point increase in the mean EER each year between 2010 and 2014.

[31] BRE: The Government's Standard Assessment Procedure for Energy Rating of Dwellings, http://www.bre.co.uk/filelibrary/SAP/2009/SAP-2009_9-90.pdf

[32] http://www.bre.co.uk/filelibrary/SAP/2012/SAP-2012_9-92.pdf

[33] https://www.bre.co.uk/filelibrary/SAP/2012/RdSAP-9.93/RdSAP_2012_9.93.pdf

Improvement since then has been slower, and the increase between 2017 and 2018 was less than 1% which is not statistically significant.

Table 15: Average EER for 2010 – 2018, SAP 2009

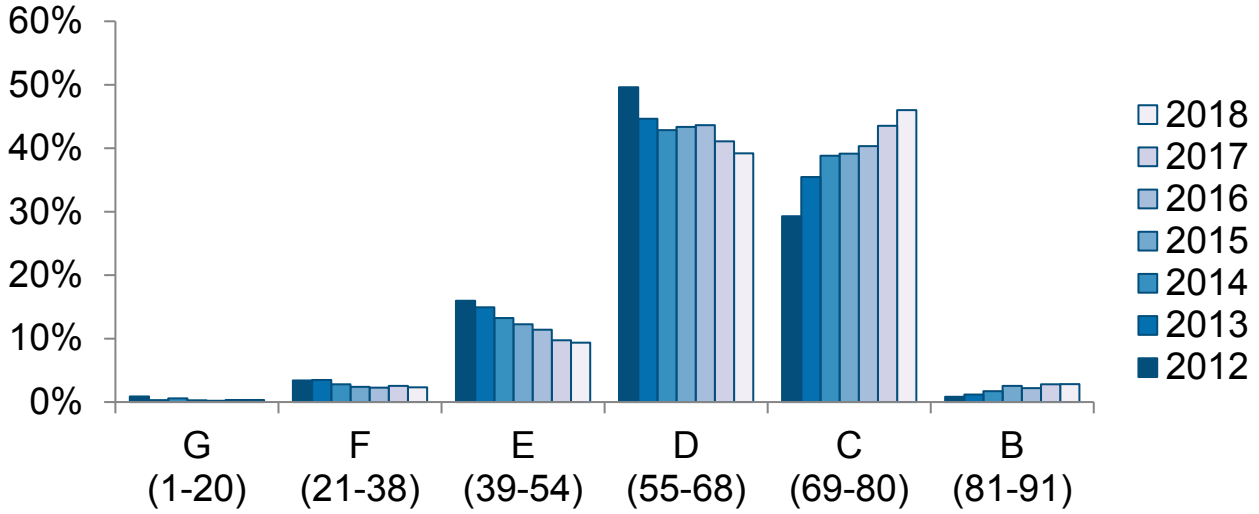
		2018	2017	2016	2015	2014	2013	2012	2011	2010
EER	**Mean**	66.1	65.6	65.1	64.6	64.1	63.2	61.8	60.9	59.9
	Median	68	68	67	67	67	66	64	63	62
Sample		*2964*	*3002*	*2850*	*2754*	*2682*	*2725*	*2787*	*3219*	*3115*

98. The median EE Rating has also improved since 2010. In 2018 half of all Scottish dwellings were rated 68 or better, an increase from 62 in 2010 (Figure 10). Both ratings fall into band D.

Figure 10: Median EER relative to EPC bands, SAP 2009, 2010-2018

99. The average figures reflect that Scottish housing is gradually moving up through the EPC bands, as shown in Figure 11 and Table 16.

Figure 11: Distribution of the Scottish Housing Stock by EPC Band, SAP 2009, 2012-2018



Note: Values for this figure are provided in Table 16.

100. Almost half (49%) of the housing stock in 2018 had an EPC rating of C or better, up 25 percentage points since 2010 (Table 16). Over the same period, the proportion of properties in the lowest EPC bands, E, F and G, has dropped 16 percentage points: 27% of properties were rated E, F or G in 2010 compared with 12% in 2018.

Table 16: Distribution of the Scottish Housing Stock by EPC Band, SAP 2009, 2010 and 2014 to 2018

EPC band	2018		2017		2016		2015		2014		2010	
	000s	%	000s	%	000s	%	000s	%	000s	%	000s	%
A (92-100)	-	-	-	-	-	-	-	-	-	-	-	-
B (81-91)	70	3%	69	3%	54	2%	62	3%	42	2%	18	1%
C (69-80)	1,140	46%	1,072	44%	989	40%	953	39%	939	39%	547	23%
D (55-68)	971	39%	1,012	41%	1,070	44%	1,055	43%	1,037	43%	1,157	49%
E (39-54)	232	9%	240	10%	279	11%	298	12%	321	13%	495	21%
F (21-38)	57	2%	63	3%	56	2%	59	2%	68	3%	127	5%
G (1-20)	8	0%	8	0%	5	0%	7	0%	14	1%	13	1%
Total	2,477	100%	2,464	100%	2,452	100%	2,434	100%	2,420	100%	2,368	100%
Sample		*2964*		*3002*		*2850*		*2754*		*2682*		*3115*

No A-rated properties were sampled between 2010 and 2018.

3.3.2 Energy Efficiency Rating, SAP 2012

101. This section examines the energy efficiency profile of the Scottish housing stock in 2018 under the most recent SAP 2012 methodology[34]. Time series analysis includes 2018 data for both SAP 2012 (RdSAP v9.93) and SAP 2012 (RdSAP v9.92). Breakdown analysis of 2018 data is presented under the updated methodology alone: SAP 2012 (RdSAP v9.93).

102. Dwellings with main heating fuels other than mains gas (for example oil or coal) have systematically lower SAP ratings in SAP 2012 than in SAP 2009 and this is particularly true at the lower end of the SAP range. The main reason for this is that between SAP versions 2009 and 2012, fuel prices for these fuels increased more than for mains gas. As a result, average EERs tend to be slightly lower under SAP 2012 compared to SAP 2009.

103. Table 17 and Table 18 show the energy efficiency profile of the Scottish housing stock between 2014 and 2018 under SAP 2012. Figure 12 shows this alongside the longer term change as measured by SAP 2009.

Table 17: Average EER for 2014-2018, SAP 2012 (RdSAP v9.92) and 2018, SAP 2012 (RdSAP v9.93)

		2018	2017	2016	2015	2014
EER (RdSAP v9.92)	**Mean**	64.8	64.3	63.7	62.8	62.2
	Median	67	67	66	65	65
EER (RdSAP v9.93)	**Mean**	64.7				
	Median	67				
Sample		*2,964*	*3,002*	*2,850*	*2,754*	*2,682*

104. In 2018, the mean energy efficiency rating of the Scottish housing stock under SAP 2012 (RdSAP v9.93) was 64.7 and the median was 67 points, indicating that half of the housing stock has an energy efficiency rating of 67 or better (Table 17).

105. In 2018, the mean energy efficiency rating of the Scottish housing stock under SAP 2012 (RdSAP v9.92) was 64.8 and the median was 67 points. The difference in mean rating between 2017 and 2018 was not significant. However, there has been an overall improvement since 2014.

106. Over two-fifths (43%) of all properties in 2018 were rated C or better under SAP 2012 (RdSAP v9.93) (Table 18). Less than a fifth (15%) were in bands E, F or G.

[34] www.bre.co.uk/sap2012

107. More than two-fifths (44%) of all properties in 2018 were rated C or better under SAP 2012 (RdSAP v9.92), similar to 2017 but an increase from 35% in 2014. Less than a fifth (15%) were in bands E, F or G – a drop of 6 percentage points over the 5-year period from 2014 to 2018.

108. The update to the underlying methodology had little effect in 2018. Both the mean and median EERs were similar for SAP 2012 (RdSAP v9.92) and SAP 2012 (RdSAP v9.93). Similarly, the distribution of the Scottish housing stock across EPC bands were similar for SAP 2012 (RdSAP v9.92) and SAP 2012 (RdSAP v9.93).

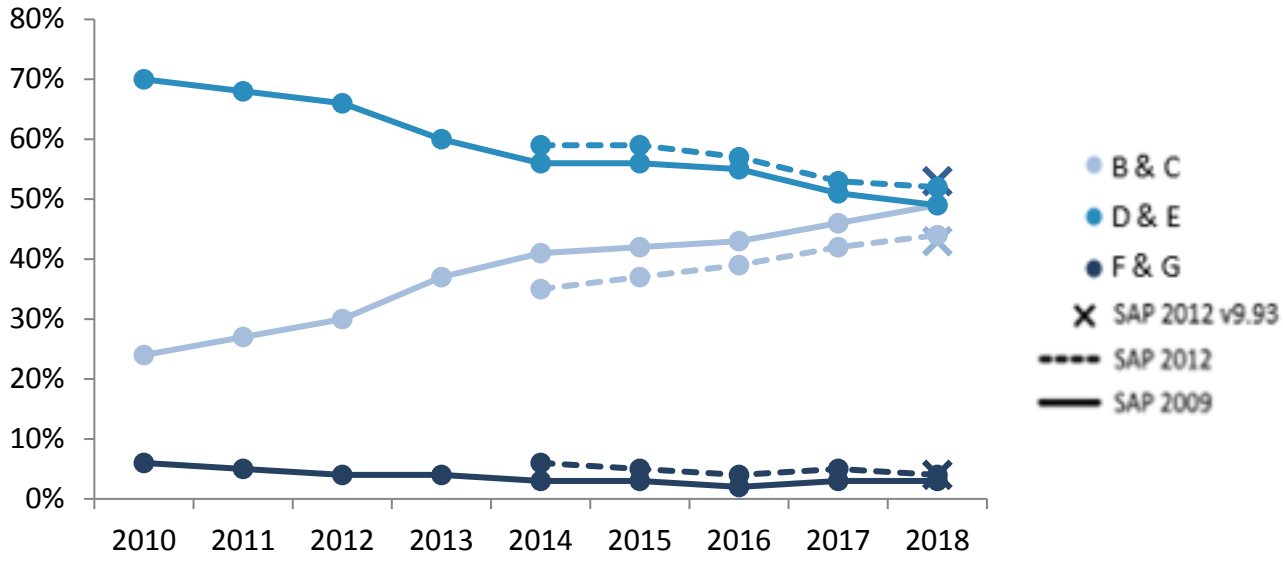
Table 18: Distribution of the Scottish Housing Stock by EPC Band, 2014-2018, SAP 2012 (RdSAP v9.92) and 2018, SAP 2012 (RdSAP v9.93)

EPC Band	RdSAP v9.93		RdSAP v9.92									
	2018		2018		2017		2016		2015		2014	
	000s	%	000s	%	000s	%	000s	%	000s	%	000s	%
A (92-100)	-	-	-	-	-	-	-	-	-	-	-	-
B (81-91)	68	3%	71	3%	65	3%	53	2%	53	2%	29	1%
C (69-80)	989	40%	1,028	41%	978	40%	910	37%	837	34%	830	34%
D (55-68)	1,039	42%	1,000	40%	1,028	42%	1,068	44%	1,061	44%	1,052	43%
E (39-54)	282	11%	277	11%	280	11%	321	13%	368	15%	369	15%
F (21-38)	83	3%	83	3%	95	4%	88	4%	94	4%	115	5%
G (1-20)	17	1%	18	1%	18	1%	13	1%	20	1%	25	1%
Total	2,477	100%	2,477	100%	2,464	100%	2,452	100%	2,434	100%	2,420	100%
Sample		*2,964*		*2,964*		*3,002*		*2,850*		*2,754*		*2,682*

No A-rated properties were sampled for 2014-2018

109. Figure 12 shows EPC bandings for SAP 2009 and SAP 2012 (RdSAP v9.92 and RdSAP v9.93). The chart shows a strong trend of improvement in the energy efficiency profile of the housing stock since 2010. The proportion of dwellings rated C or better increased from 24% in 2010 to 49% in 2018 (as measured under SAP 2009), and 35% in 2014 to 44% in 2018 (as measured under SAP 2012 (RdSAP v9.92)).

Figure 12: Grouped EPC Bands under SAP 2009, SAP 2012 (RdSAP v9.92) and SAP 2012 (RdSAP v9.93), 2010-2018



110. Table 19 shows the energy efficiency profile by broad tenure groups in 2018 using SAP 2012 (RdSAP v9.93). Figure 13 provides more details on the distribution of the least energy efficient properties by household characteristics.

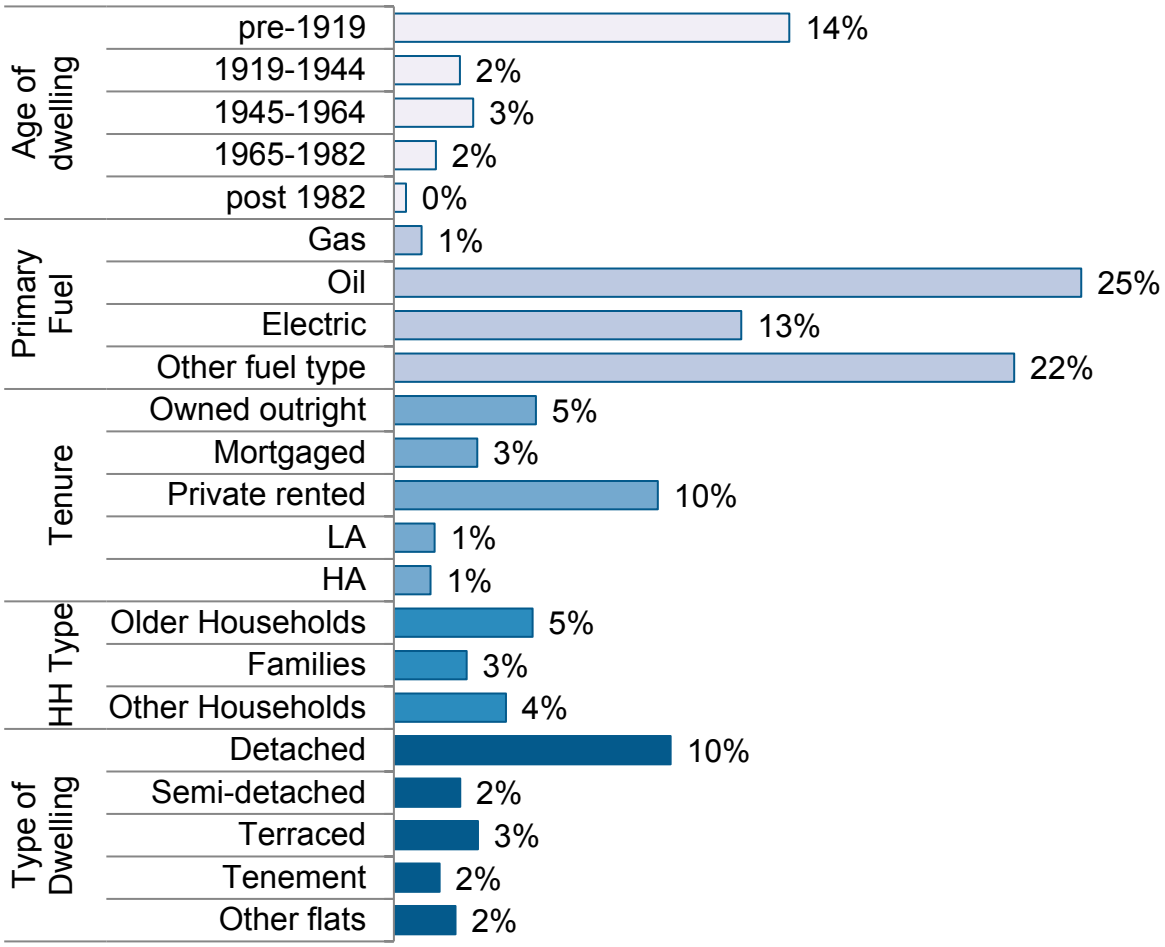
Table 19: EPC Band by Broad Tenure in 2018, SAP 2012 (RdSAP v9.93)

EPC Band	Owner occupied		Private rented		Social sector		All Tenures	
	000s	%	000s	%	000s	%	000s	%
A (92-100)	-	-	-	-	-	-	-	-
B (81-91)	38	2%	10	4%	19	3%	68	3%
C (69-80)	547	35%	109	40%	333	51%	989	40%
D (55-68)	694	45%	86	31%	260	40%	1,039	42%
E (39-54)	205	13%	42	16%	35	5%	282	11%
F & G (1-38)	65	4%	26	10%	9	1%	100	4%
Total	1,548	100%	273	100%	656	100%	2,477	100%
Sample		*1,937*		*294*		*733*		*2,964*

111. Over half (54%) of social housing is in band C or better under SAP 2012, compared to just over two-fifths (44%) in the private rented sector and 38% of owner-occupied households. 7 per cent of dwellings in the social sector are within EPC bands E, F or G, while 17% of owner occupied dwellings and 25% of the private rented sector are within these EPC bands. Housing in the social sector tends to be more energy efficient than the owner occupied or private rented sector. This could be driven by the Scottish Housing Quality Standard and the Energy Efficiency Standard for Social Housing which introduced minimum energy efficiency levels for that sector.

112. Figure 13 shows that the share of dwellings in the lowest energy efficiency bands (F and G) is particularly high for pre-1919 dwellings (14%), non-gas heated properties (between 13% and 25%), detached properties (10%) and in the private rented stock (10%). Across Scotland as a whole, 4% of properties were in bands F or G in 2018.

Figure 13: Proportion of Homes in Band F or G by Dwelling Age, Primary Heating Fuel, Tenure and Household and Dwelling Type in 2018 (SAP 2012 (RdSAP v9.93))



Base figures and more detailed breakdowns are provided in Table 20 and Table 21.

113. More detailed 2018 breakdowns are shown in Table 20 by household characteristics.

114. Mean SAP 2012 (RdSAP v9.93) ratings ranged from 62.3 in owned-outright dwellings to 70.3 in housing association dwellings, a statistically significant difference. Social housing as a whole is more energy efficient than the private sector, with a mean EER of 68.0 compared to 63.5 for private dwellings.

115. Older households (63.2) have higher average EER ratings than families (66.1) and other (adults without children) households (65.0).

116. Mean EER ratings were similar across all income bands and ranged from 64.2 to 65.7. Similarly, average EER ratings were similar across council tax bands and ranged from 63.0 to 65.3.

Table 20: Mean EER and Broad EPC Band, by Household Characteristics in 2018, SAP 2012 (RdSAP v9.93)

	EE Rating	**Band**			*Sample*
	Mean	BC	DE	FG	
Tenure					
Owned outright	62.3	33%	62%	5%	1,091
Mortgaged	65.3	44%	53%	3%	846
LA/Other public	66.6	45%	54%	1%	459
HA/co-op	70.3	68%	31%	1%	274
PRS	62.4	44%	47%	10%	294
Private	63.5	39%	56%	5%	2,231
Social	68.0	54%	45%	1%	733
Household Composition					
Older Households	63.2	36%	59%	5%	974
Families	66.1	47%	51%	3%	667
Other households	65.0	45%	51%	4%	1,323
Weekly Household Income					
< £200	64.9	39%	57%	4%	281
£200-300	64.2	43%	53%	4%	480
£300-400	65.7	48%	48%	4%	464
£400-500	64.9	39%	57%	4%	344
£500-700	64.2	42%	55%	4%	506
£700+	64.2	43%	52%	5%	830
Council Tax Band					
Band A	65.1	46%	51%	4%	597
Band B	64.8	38%	59%	3%	659
Band C	65.3	46%	49%	4%	490
Band D	64.7	45%	51%	4%	392
Band E	64.5	41%	55%	4%	395
Band F	63.4	40%	53%	7%	275
Band G & H	63.0	41%	54%	5%	156
Scotland	64.7	43%	53%	4%	2964

117. Table 21 shows that there is a strong association between dwelling characteristics and energy efficiency rating. Across **dwelling types**, detached properties have the lowest energy efficiency profile on average (mean EER 60.9) while flats have the highest rating (69.1 for tenements and 67.1 for other flats).

118. The **oldest, pre-1919**, properties are least energy efficient (mean EER of 55.3 and only 20% rated C or better) while those built after 1982 have the highest energy efficiency ratings (mean EER of 71.7, with 74% in band C or better).

119. **Primary heating fuel** is a key determinant of the energy efficiency of the dwelling. Properties heated by mains gas have an average rating of 67.0 and 47% are in band C or better. Dwellings heated by other fuels (including electric and oil) have considerably lower ratings. The average energy efficiency rating for oil heated properties is 47.7 (making the average dwelling in this group E rated) and only 4% are in band C or better.

120. Proximity to the **gas grid** has a similar effect on the energy efficiency rating (average SAP rating 66.1 for dwellings near the gas grid, higher than the 58.1 for other dwellings).

121. As dwelling characteristics associated with lower energy efficiency are disproportionately represented in **rural areas**, the average energy efficiency profile of rural properties is lower than that for **urban**; Table 21 shows that mean SAP 2012 rating is 66.6 for dwellings in urban areas, higher than the 54.8 for dwellings in rural areas .

122. Due to the change in the underlying SAP 2012 methodology, data for 2018 is not comparable to data from 2017 therefore improvements since 2017 have not been presented.

Table 21: SAP 2012 (RdSAP v9.93): Mean EER and Broad EPC Band, by Dwelling Characteristics, 2018

	EE Rating	Band			Sample
	Mean	BC	DE	FG	
Dwelling Type					
Detached	60.9	37%	53%	10%	*807*
Semi	62.7	28%	70%	2%	*659*
Terraced	64.2	36%	61%	3%	*633*
Tenement	69.1	62%	37%	2%	*514*
Other flats	67.1	52%	46%	2%	*351*
Age of dwelling					
pre-1919	55.3	20%	65%	14%	*521*
1919-1944	63.1	26%	71%	2%	*327*
1945-1964	64.7	36%	61%	3%	*654*
1965-1982	64.8	39%	60%	2%	*654*
post-1982	71.7	74%	26%	0%	*808*
Primary Heating Fuel					
Gas	67.0	47%	52%	1%	*2,233*
Oil	47.7	4%	71%	25%	*259*
Electric	56.5	26%	62%	13%	*396*
Other	58.5	49%	29%	22%	*75*
Location					
urban	66.6	47%	52%	2%	*2,292*
rural	54.8	21%	62%	16%	*672*
Gas Grid					
On	66.1	44%	55%	1%	*2,239*
Off	58.1	38%	47%	16%	*725*
Scotland	64.7	43%	53%	4%	*2,964*

Note: There was one N/A response for Primary Heating Fuel which has been excluded from the table but included in the Scotland statistics.

3.4 National Home Energy Ratings (NHER)

123. The National Home Energy Ratings (NHER) system was the main methodology used in the SHCS to report on the energy efficiency of the housing stock prior to 2013. With the publication of the 2013 SHCS Key Findings Report the energy modelling methodology was updated and it is no longer possible to reproduce exactly the original NHER method, as the full documentation of this method is not publicly available. However because of user interest and because NHER scores are taken into account under the energy efficiency criterion of the SHQS, we provide an approximate NHER score. Further details can be found in the Methodology Notes to the 2013 SHCS report[35].

124. Table 22 presents banded NHER scores and mean values for selected categories of dwellings and household types for 2018. Significant differences were seen by age of dwelling, with older dwellings having lower average values (6.2 for pre-1919) than properties that were built more recently (8.7 for post-1982). Private sector dwellings had significantly lower NHER scores (7.4) than social sector (8.2) with mean scores by detailed tenure ranging from 7.2 (owned outright) to 8.6 (housing associations). There were also differences by dwelling type ranging from detached properties at 7.1 to tenements at 8.4. Dwellings using oil as their main fuel had the lowest score at 5.5 while those fuelled by gas had the highest at 7.9.

125. Table 22 also shows the percentage of homes in each dwelling and household category that were rated as good, moderate, or poor. Significant differences in the percentage of dwellings that were rated as “good” were seen by type of dwelling (66% of detached properties, compared to 86% of tenement flats) and age of dwelling (48% of pre-1919 dwelling, lower than 93% of post-1982 dwellings). Primary heating fuel also had an impact on the proportion that were rated as good (84% of dwellings with gas as a primary fuel, compared to just 35% of dwellings with oil as a primary fuel). This profile is similar to SAP 2012 (RdSAP v9.93).

[35] SHCS - Methodology Notes 2013 available at http://www.gov.scot/Topics/Statistics/SHCS/Downloads/MethodologyNotes2013

Table 22: NHER Scores and Banded Ratings by Selected Dwelling and Household Characteristics, 2018

		NHER band			
	Mean	Good	Moderate	Poor	***Sample***
Scotland	7.6	77%	22%	2%	*2,964*
Dwelling Type (grouped)					
Detached	7.1	66%	30%	4%	*807*
Semi-detached	7.2	71%	29%	0%	*659*
Terraced	7.4	78%	21%	1%	*633*
Tenement	8.4	86%	13%	2%	*514*
Other flats	8.0	85%	14%	1%	*351*
Age of dwelling					
pre-1919	6.2	48%	46%	6%	*521*
1919-1944	7.3	77%	22%	1%	*327*
1945-1964	7.6	79%	19%	1%	*654*
1965-1982	7.6	79%	20%	0%	*654*
post 1982	8.7	93%	*	*	*808*
Primary Heating Fuel					
Gas	7.9	84%	16%	0%	*2,233*
Oil	5.5	35%	58%	8%	*259*
Electric	6.1	43%	48%	9%	*396*
Other fuel type	7.2	60%	36%	4%	*75*
Tenure					
Owned outright	7.2	70%	28%	2%	*1,091*
Mortgaged	7.6	78%	22%	1%	*846*
LA	7.9	85%	15%	1%	*459*
HA	8.6	89%	9%	1%	*274*
Private rented	7.3	71%	25%	4%	*294*
Private Sector	7.4	73%	25%	2%	*2,231*
Social Sector	8.2	86%	13%	1%	*733*
Household Composition					
Older Households	7.4	72%	26%	2%	*974*
Families	7.7	80%	19%	0%	*667*
Other Households	7.7	78%	20%	2%	*1,323*

Note: There was one N/A response for Primary Heating Fuel which has been excluded from the table but included in the Scotland statistics.

3.5 Carbon Emissions

Key Points

- Based on modelled energy use, the average Scottish home is estimated to produce 6.8 **tonnes of CO2** per year in 2018, which is almost double the average carbon emissions per household as reported by BEIS (3.6 tonnes per year) in 2017, based on actual energy use. This suggests that households are not heating their homes to the standard heating regimes.
- Average **modelled carbon emissions** for all properties have continued to decrease to 73 kg/m^2 in 2018 compared to 80 kg/m^2 in 2014.

126. **Carbon Emissions** are the amount of greenhouse gas emissions, expressed as their carbon dioxide gas equivalent, vented to the atmosphere. Estimates of emissions from the residential sector which take into account actual energy consumption by households are reported by BEIS at Local Authority and Scotland level annually[36]. This methodology is consistent with the Greenhouse Gas Inventory (GHGI) which is the source for monitoring progress against the Scottish Government's climate change commitments.

127. In contrast, emissions reported from the SHCS are modelled on the assumption of a standard pattern of domestic energy consumption and do not reflect differences in consumption behaviour due to preferences or changes in weather conditions. As such, they are distinct from the carbon emissions figures published by BEIS and compiled in GHG inventories.

128. Table 23 shows modelled emissions from the SHCS and provides a comparison with the estimates published by BEIS for the period 2012-2017.

[36] Local and Regional CO2 Emissions Estimates, BEIS: https://www.gov.uk/government/statistics/uk-local-authority-and-regional-carbon-dioxide-emissions-national-statistics-2005-to-2017

129. In 2012, cooler temperatures led to an increase in domestic energy consumption and an increase in CO_2 emissions from the domestic sector overall. This was reflected in the estimates of emissions levels from the domestic sector reported by BEIS. At the same time, modelled SHCS emissions per household fell by 1.4%, reflecting the improved energy efficiency of the sector in this period and the greater potential to reduce CO2 emissions. Average carbon emissions per household have decreased year on year since 2013, accompanied by a decrease in the SHCS based average modelled emissions, with the exception of 2014. However, there was a methodology change from 2014 so the modelled emissions figures between 2013 and 2014 are not fully comparable[37]. The SHCS estimates are not designed to capture the increased demand for heating due to colder weather or reduced demand associated with warmer weather in any particular year.

Table 23: Carbon Emissions and Modelled Emissions in Scottish Housing, 2012-2018

		2018	2017	2016	2015	2014	2013	2012
Carbon Emissions[1]: BEIS Domestic sector	Total (Mtonnes)		8.8	9.5	10.0	10.4	12.3	12.7
	per HH (tonnes)[2]		3.6	3.9	4.1	4.3	5.1	5.3
	% change per HH		-7.5%	-6.0%	-4.7%	-15.7%	-4.0%	5.9%
Modelled emissions: SHCS	Total ("Mt")	16.8	17.3	17.2	17.7	17.9	17.4	18.1
	per HH ("t")	6.8	7.0	7.0	7.3	7.4	7.3	7.6
	% change per HH	-3.4%	-3.2%	-3.0%	-1.8%	1.1%	-3.6%	-1.4%

[1] Local and Regional CO2 Emissions Estimates, BEIS. Data reflects revisions made in the most recent publication. https://www.gov.uk/government/statistics/uk-local-authority-and-regional-carbon-dioxide-emissions-national-statistics-2005-2017

[2] Number of households (HHs) sourced from National Records of Scotland, Estimates of Households and Dwellings, 2017: https://www.nrscotland.gov.uk/statistics-and-data/statistics/statistics-by-theme/households/household-estimates/2018

*Modelled emissions figures for 2014-2018 are not fully comparable to the previous years.

[37] SHCS Methodology Notes 2014 available at www.gov.scot/Topics/Statistics/SHCS/Downloads/Methodology2014

130. Estimates in the Third Report on Proposals and Policies (RPP3)[38] or in the Climate Change Plan[39] are also not comparable to SHCS estimates. RPP3 figures for the residential sector relate to non-traded emissions only (i.e. exclude electricity which is covered by the EU Emissions Trading System) while SHCS estimates cover all fuel types.

131. This report is only concerned with the level and variations in modelled emissions from the Scottish housing stock. These estimates are produced through the use of BREDEM 2012-based models, in line with other statistics on energy efficiency and fuel poverty reported here[40].

132. To derive emissions estimates, modelled energy demand is combined with carbon intensity factors as adopted for the 2012 edition of the SAP (see section 7.3). These are CO_2 equivalent figures which include the global warming impact of CH_4 and N_2O as well as CO_2.

133. The change in the underlying BREDEM 2012 model, first implemented in the reporting of 2014 data, has meant that carbon emissions for 2014-2018 are not estimated on a consistent basis with those for 2010-2013. Further details on this change are given in the Methodology Notes to the 2014 Key Findings report[41].

3.5.1 Modelled Emissions by Dwelling Type and Age of Construction

134. The annual modelled emissions from a property reflect the energy use for the whole dwelling heated according to the standard heating regime[42]. Figure 14 shows that dwellings with larger floor area generally have higher carbon emissions.

135. Newer dwellings have lower modelled emissions than older ones on average as a result of their better thermal performance and higher energy efficiency (as shown in section 3.3). Post-1982 flats have the lowest modelled emissions on average; less than 4 tonnes per year (Table 24).

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[38] RPP3 available at: https://www.gov.scot/publications/scottish-governments-climate-change-plan-third-report-proposals-policies-2018/pages/17/

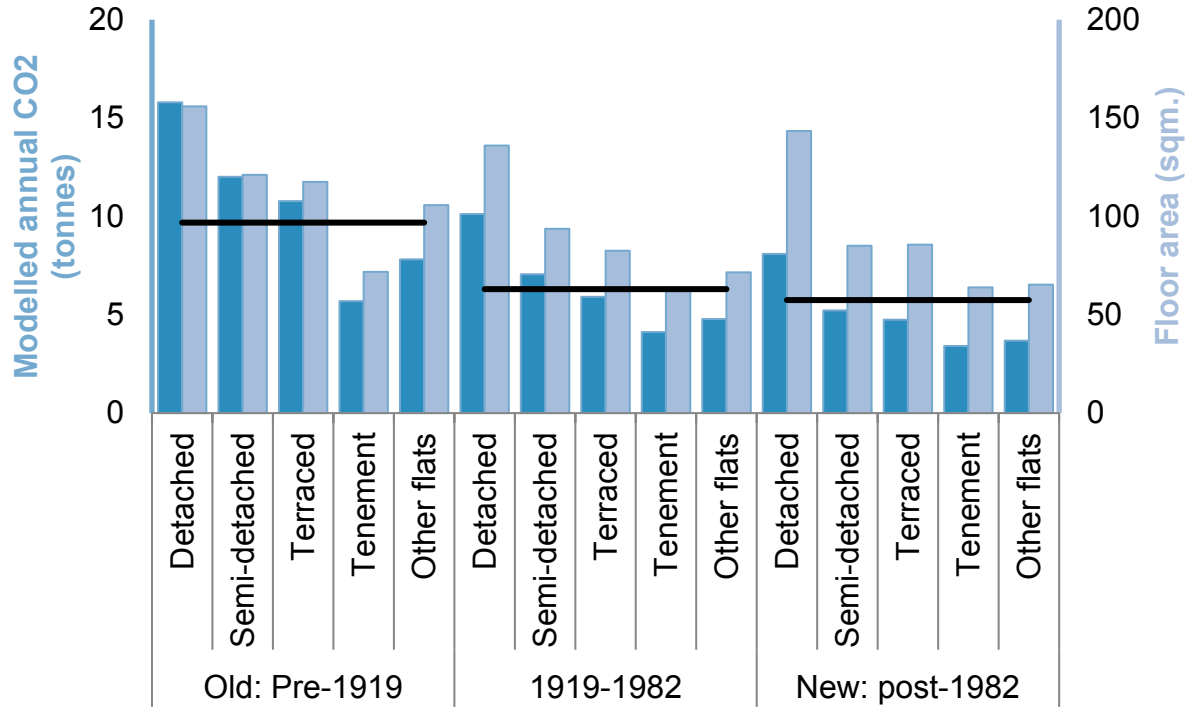
[39] https://www.gov.scot/publications/scottish-governments-climate-change-plan-third-report-proposals-policies-2018-9781788516488/pages/16/

[40] Information on the energy modelling is available in the methodology notes which are available on the SHCS website: https://www2.gov.scot/Topics/Statistics/SHCS/Downloads

[41] SHCS Methodology Notes 2014 available at www.gov.scot/Topics/Statistics/SHCS/Downloads/Methodology2014

[42] The standard heating regime is: 21°C in the living room (zone 1) and 18°C in other rooms (zone 2) for 9 hours a day during the week and 16 hours a day during the weekend.

Figure 14: Average Floor Area and Average Modelled Annual Emissions by Age and Type of Dwelling, 2018



Note: Floor areas for these subgroups are provided in section 2.1.1. Modelled carbon emissions figures are provided in Table 24. The black line indicates the average modelled emissions for the dwelling age group.

Table 24: Average Modelled Annual Carbon Emissions (tonnes per year) by Dwelling Age and Type, 2018

	Dwelling Age			
Dwelling Type	Pre-1919	1919-1982	Post-1982	All
Detached	15.8	10.1	8.1	10.2
Semi-detached	12.0	7.1	5.2	7.1
Terraced	10.8	5.9	4.7	6.4
Tenement	5.7	4.1	3.4	4.4
Other flats	7.8	4.8	3.7	5.2
All dwelling types	9.7	6.3	5.7	6.8

136. Across all age bands, detached houses have the highest modelled emissions due to a larger share of exposed surfaces. As shown in section 2.3, they are also the most likely to use high carbon-intensity fuels such as oil and coal in place of mains gas.

137. By dividing modelled emissions by total internal floor area we derive emissions per square meter (kg/m^2). Controlling for floor area in this way shows that pre-1919 detached houses have the highest modelled emissions per sq. m (112 kg/m^2), as shown in Table 25. Post-1982 detached dwellings (58 kg/m^2), tenements (57 kg/m^2) and other flats (60 kg/m^2) have the lowest emissions.

Table 25: Average Modelled Emissions per Square Meter of Floor Area (kg/m^2) by Age and Type of Dwelling, 2018

Dwelling Age		Pre-1919	1919-1982	Post-1982	All Ages
Type	Detached	112	78	58	75
	Semi	103	78	64	77
	Terraced	97	73	59	74
	Tenement	83	67	57	69
	Other flats	80	68	60	70
All types		94	73	59	73

3.5.2 Modelled Emissions by Tenure

138. Although data for 2014-2018 is not directly comparable to prior years, the data suggests that there is a longer term trend of declining emissions. Average modelled carbon emissions reduced from 92 kg/m^2 in 2010 to 80 kg/m^2 in 2013. Based on the updated carbon emissions methodology, there was then a further decrease from 80 kg/m^2 in 2014 to 73 kg/m^2 in 2018.

139. Table 26 and Figure 15 show how emissions differ across tenure for the period 2010-2018. The highest rates of emissions were observed for private rented dwellings (82 kg/m^2) and lowest for housing association dwellings (66 kg/m^2), with emissions from the other tenures falling in between those values. The values were similar to the previous year across all tenures, however the longer time series shows a decreasing trend over the 2010-2018 period for all tenures.

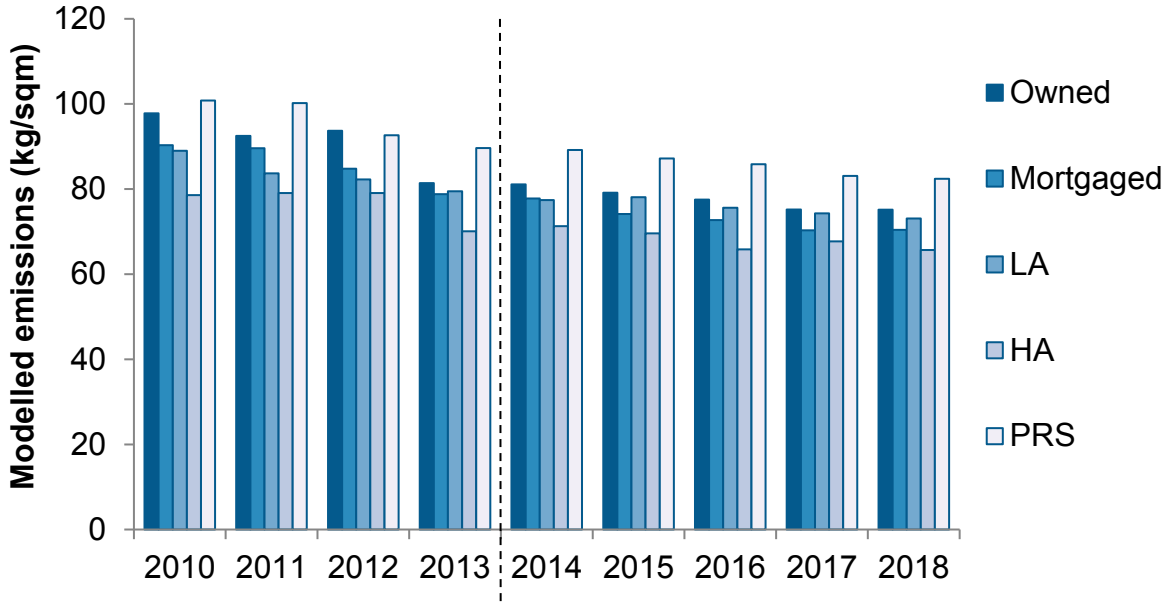
140. Changes to the tenure definitions and the revised carbon emissions methodology mean that figures for 2014-2018 by tenure are not fully comparable to earlier years. Differences that were statistically significant were seen in the mortgaged sector (reducing from 78 kg/m^2 in 2014 to 70 kg/m^2 in 2018) and households that are owned outright (reducing from 81 kg/m^2 to 75 kg/m^2 between 2014 and 2018).

Table 26: Average Modelled Emissions per Square Meter by Tenure, 2010, 2013, 2014-2018

	2018	2017	2016	2015	2014	2013	2012	2011	2010
Owned outright	75	75	78	79	81	81	94	92	98
Mortgaged	70	70	73	74	78	79	85	90	90
LA/Other public	73	74	76	78	77	79	82	84	89
HA/co-op	66	68	66	70	71	70	79	79	79
PRS	82	83	86	87	89	90	93	100	101
All Tenures	73	74	76	78	80	80	88	90	92

Data prior to 2014 does not include households living rent free. Figures for 2014-2018 are therefore not fully comparable to the previous years.

Figure 15: Modelled Emission per square meter (kg/m2) by Tenure, 2010-2018



Data prior to 2014 does not include households living rent free. Figures for 2014-2018 are therefore not fully comparable to previous years.

3.6 Environmental Impact Rating

141. The Environmental Impact Rating (EIR) represents the environmental impact of a dwelling in terms of carbon emissions associated with fuels used for heating, hot water, lighting and ventilation. Ratings are adjusted for floor area so they are independent of dwelling size for a given built form. Emissions for this measure are calculated using SAP methodology.

142. The latest version of RdSAP (v9.93)[43] was released on 19 November 2017 and contains revisions to the underlying assumptions used within the SAP calculations. RdSAP v9.93 has been applied for the first time in this publication. Prior to the 2018 Key Findings report, the SAP 2012 methodology was aligned to RdSAP v9.92. To allow analysis of the effect of this update, 2018 EIs have been described in this report based on SAP 2012 under both RdSAP versions.

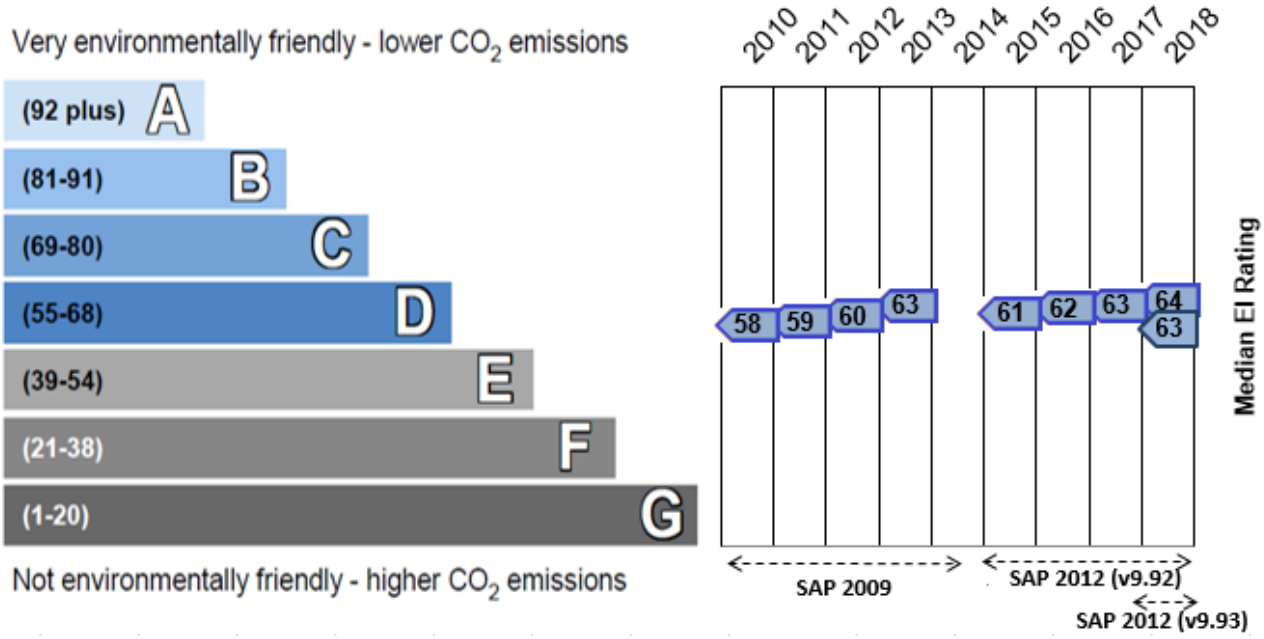
143. EI ratings for 2015-2018, produced on the basis of SAP 2012, are not fully comparable to those for the period 2010-2013, which were produced on the basis of SAP 2009.

144. Figure 16 illustrates the increasing trend in the median EIR between 2010 and 2018. This indicates that the environmental impact of Scottish housing is gradually falling over time.

145. The update to RdSAP v9.93 in SAP 2012 had no effect on the median EIR in 2018 which was similar for both SAP 2012 versions.

[43] https://www.bre.co.uk/filelibrary/SAP/2012/RdSAP-9.93/RdSAP_2012_9.93.pdf

Figure 16: Median EIR relative to Band, 2010-2013 (SAP 2009), 2015-2018 (SAP 2012 (RdSAP v9.92)) and 2018 (SAP 2012 (RdSAP v9.93))



146. As shown in Table 27, 33% of dwellings had EI ratings in band C or better under SAP 2012 (RdSAP v9.93) in 2018. The mean rating was 61 and the median was 63, both of which fall in band D.

147. Under SAP 2012 (RdSAP v9.92) 34% of dwellings had EI ratings in band C or better, an improvement on the 2017 figure of 32%. The mean rating was 61 and the median was 64, both of which fall in band D.

148. In 2018, 8% of dwellings were rated F or G in terms of their environmental impact under both SAP 2012 versions.

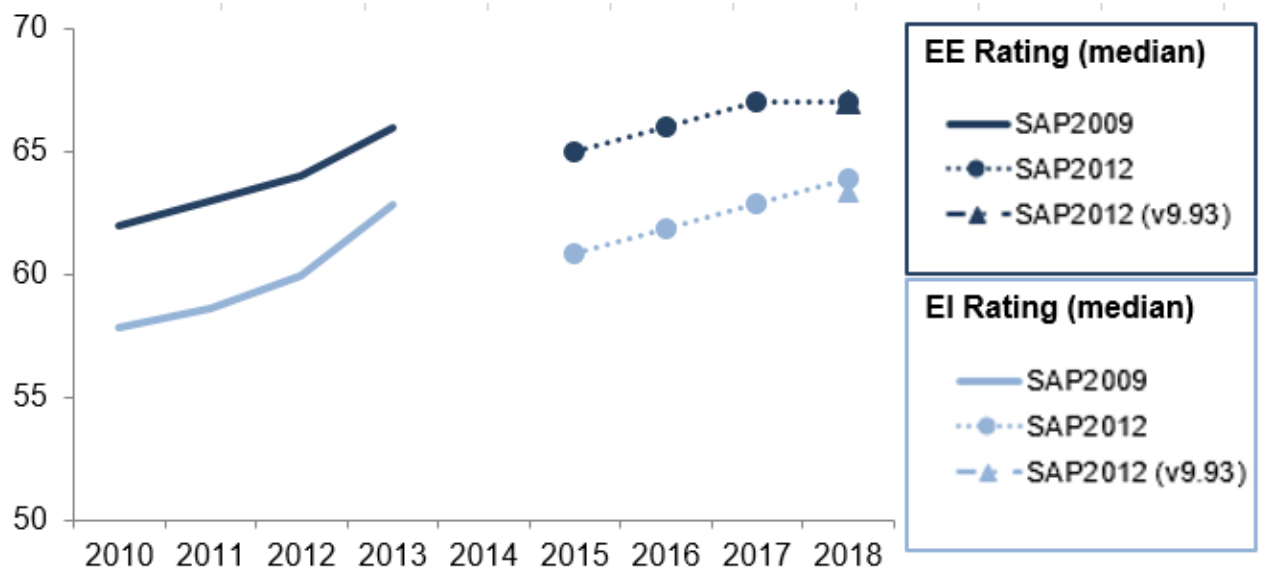
Table 27: EIR Bands in the Scottish Housing Stock, 2012-2013 and 2016-2018 SAP 2012 (RdSAP v9.92) and 2018 SAP 2012 (RdSAP v9.93)

EPC Band	RdSAP v9.93		RdSAP v9.92									
	2018		2018		2017		2016		2013		2012	
	000s	%	000s	%	000s	%	000s	%	000s	%	000s	%
A - B (81+)	125	5%	136	6%	120	5%	96	4%	79	3%	71	3%
C (69-80)	682	28%	709	29%	671	27%	613	25%	683	29%	524	22%
D (55-68)	993	40%	952	38%	929	38%	947	39%	895	37%	888	37%
E (39-54)	473	19%	476	19%	512	21%	558	23%	509	21%	587	25%
F (21-38)	171	7%	170	7%	191	8%	200	8%	197	8%	248	10%
G (1-20)	34	1%	34	1%	41	2%	39	2%	38	2%	64	3%
Total	2,477	100%	2,477	100%	2,464	100%	2,452	100%	2,402	100%	2,383	100%
Mean		61		61		60		59		60		57
Median		63		64		63		62		63		60
Sample		*2,964*		*2,964*		*3,002*		*2,850*		*2,725*		*2,783*

Data prior to 2014 does not include households living rent free. Figures for 2014-2018 are therefore not fully comparable to previous years.

149. Figure 17 illustrates that the energy efficiency and the environmental impact rating for the median Scottish dwelling have changed in parallel since 2010.

Figure 17: Trend in Median EE and EI Ratings, 2010-2013 and 2015-2018



150. Table 28 shows how EI ratings vary across different type of dwellings. As expected dwellings built since 1982 have better environmental impact ratings than other dwellings, with 60% rated C or better and only 2% in the bottom two bands (F and G). Flats have a lower environmental impact (higher EI rating) than houses, as do gas heated properties compared to those using oil or electricity.

151. Oil heating systems and houses are more common in rural areas, leading to lower overall environmental impact ratings for rural dwellings.

Table 28: SAP 2012 (RdSAP v9.93): Mean EIR and Broad EIR Band, by Dwelling Characteristics, 2018

	Environmental Impact Rating	EI Band			*Sample*
	Mean	ABC	DE	FG	
Dwelling Type					
Detached	56.1	24%	61%	15%	*807*
Semi-detached	57.5	17%	74%	9%	*659*
Terraced	60.1	28%	64%	8%	*633*
Tenement	67.1	54%	42%	4%	*514*
Other flats	64.2	40%	56%	4%	*351*
Age of Dwelling					
pre-1919	50.0	14%	62%	23%	*521*
1919-1944	58.7	19%	75%	6%	*327*
1945-1964	61.1	26%	68%	6%	*654*
1965-1982	60.5	28%	66%	7%	*654*
post-1982	69.4	60%	39%	2%	*808*
Primary Heating Fuel					
Gas	64.0	37%	61%	2%	*2,233*
Oil	39.6	*	52%	*	*259*
Electric	46.6	6%	60%	34%	*396*
Other fuel type	65.8	*	15%	*	*75*
Urban-Rural Indicator					
Urban	63.0	36%	60%	4%	*2,292*
Rural	50.0	16%	56%	28%	*672*
Gas Grid					
On	62.3	32%	64%	4%	*2,239*
Off	54.4	34%	38%	27%	*725*
Scotland	60.8	33%	59%	8%	*2,964*

Note: There was one N/A response for Primary Heating Fuel which has been excluded from the table but included in the Scotland statistics.

4 Fuel Poverty

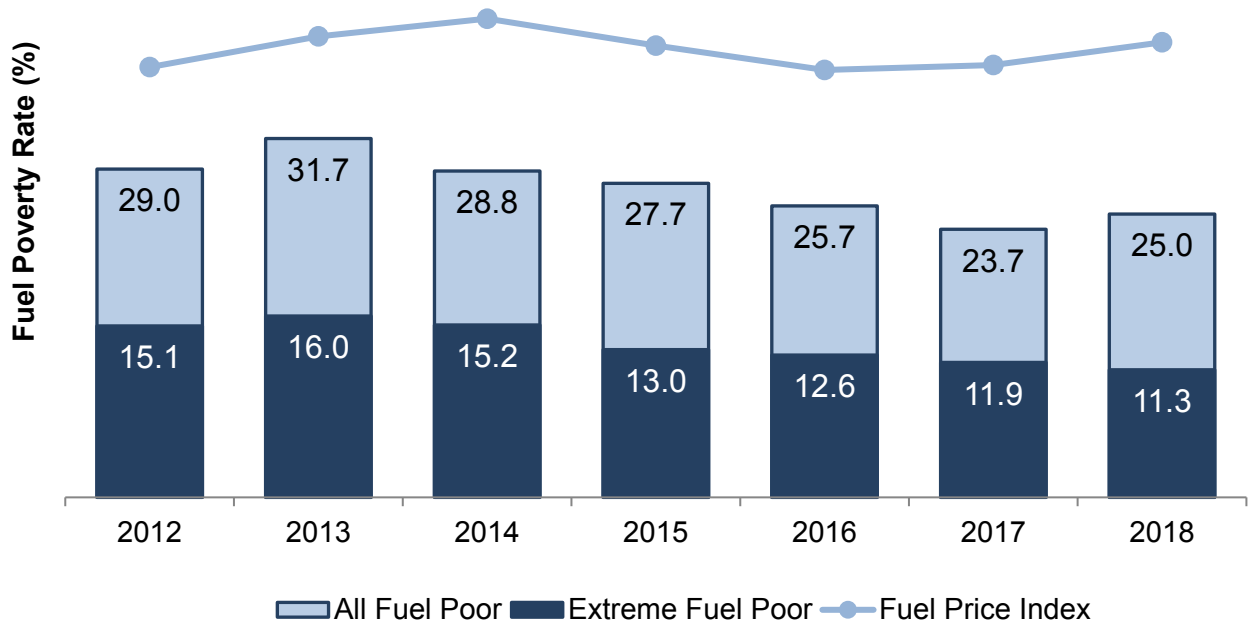
Key Points

- In July 2019 the Fuel Poverty (Targets, Definition and Strategy) (Scotland) Act[44] received Royal Assent. This Act contains a new definition of fuel poverty which affects how fuel poverty is to be defined and measured. The figures presented in this report are a best estimate of fuel poverty and extreme fuel poverty rates under the proposed new definition of fuel poverty, following amendments agreed at Stage 2 of the Fuel Poverty (Targets, Definition and Strategy) Bill.
- The first set of fuel poverty estimates fully compatible with all of the elements of the new definition in the Fuel Poverty (Targets, Definition and Strategy) (Scotland) Act are expected to be published in December 2021. This requires additional information being collected in the 2020 Scottish House Condition Survey and the production of a new Minimum Income Standard (MIS) for Remote Rural, Remote Small Town and Island areas, which, for the Stage 2 estimates contained in this publication, has been estimated based on previous studies.
- In 2018, 25.0% of households (619,000) were estimated to be **in fuel poverty**, a similar level to 2017 (23.7% or 583,000 households). 11.3% (or 279,000 households, a subset of the 619,000 in fuel poverty) were living in **extreme fuel poverty** in 2018. The rate of extreme fuel poverty has been decreasing since 2013 (16.0%) and is the lowest rate recorded by the survey since 2012, the first year of data available under the new definition.
- The 2018 fuel poverty rate is likely to reflect changes in fuel prices, income and energy efficiency.
- The **actual median fuel poverty gap** for fuel poor households in 2018 was similar to 2017 (£650 and £690, respectively). The **median fuel poverty gap (adjusted for 2015 prices)** for fuel poor households in 2018 (£610) has decreased from £710 in 2012.
- Between 2017 and 2018 rates of fuel poverty increased in large urban areas (from 21% to 25%), decreasing the gap when comparing urban (25%) to rural areas (27%).
- Rates of fuel poverty differed between the social (39%) and private sector (20%) in 2018. These are similar rates to those in 2017 although households who owned outright saw an increase in fuel poverty rates with 23% estimated to be in fuel poverty compared to 18% in 2017.
- As in 2017, overall rates of extreme fuel poverty were similar between the social (13%) and private sector (10%) in 2018, although levels of extreme fuel poverty in housing association households have decreased from 18% in 2017 to 11% in 2018.
- Levels of extreme fuel poverty were higher in rural areas (17%) compared to urban areas (10%) in 2018.

[44] http://www.legislation.gov.uk/asp/2019/10/contents/enacted

- Older households and other households (both 13%) in 2018 have a higher extreme fuel poverty rate than families (6%).
- Extreme fuel poverty rates in the second lowest income band (£200-£299.99 a week) have dropped in 2018 (16%) compared to 2017 (22%).
- For both fuel poor and extreme fuel poor households, the lowest rates of fuel poverty are associated with higher energy efficiency standards. Only 19% of households living in post-1982 dwellings or in dwellings rated C or better were fuel poor with 7% and 6% of households living in post-1982 dwellings or dwellings rated C or better, respectively, in extreme fuel poverty.
- 69% of fuel poor households are also income poor. This is similar to 2017 (71%).

Figure 18: Fuel Poverty and Extreme Fuel Poverty since 2012



Note: Energy requirement underpinning fuel poverty estimate modelled on the following basis: 2012 – 2013: BREDEM 2012 v.1.0; from 2014 onwards: BREDEM 2012 v.1.1, and New Prices to the adjustment of fuel price sources from 2013. From 2016 a further improvement is included by assigning pre-payment metered fuel prices to the relevant households.
Note: This is the first time the 2012-2015 estimates have been published and the estimates are not comparable to those in previous Key Findings reports. See Section 4.1 for more details.

4.1 Definition and Measurement of Fuel Poverty

152. Under the 2001 Housing (Scotland) Act (section 88), the Scottish Government was committed to eradicating fuel poverty as far as practicably possible by November 2016[45]. In June 2016, the Minister for Local Government and Housing informed Parliament that, based on the advice received from experts, it was unlikely that the statutory fuel poverty target would be met. This was confirmed by 2016 and 2017 fuel poverty rates, under the old definition of fuel poverty, of 26.5% and 24.9% respectively.

153. The Fuel Poverty (Targets, Definition and Strategy)(Scotland) Bill[46] was introduced to the Scottish Parliament on 26 June 2018 and the Fuel Poverty (Targets, Definition and Strategy)(Scotland) Act 2019[47] received Royal Assent on 18th July 2019. This includes a new definition of fuel poverty based on advice from an independent panel of experts and further scrutiny and amendment by the Scottish Parliament.

154. As set out in section 3 of the Fuel Poverty (Targets, Definition and Strategy) (Scotland) Act, a household is in **fuel poverty** if, in order to maintain a satisfactory heating regime, total fuel costs necessary for the home are more than 10% of the household's adjusted net income (after housing costs), and if after deducting fuel costs, benefits received for a care need or disability and childcare costs, the household's remaining adjusted net income is insufficient to maintain an acceptable standard of living. The remaining adjusted net income must be at least 90% of the UK Minimum Income Standard[48] to be considered an acceptable standard of living, with an additional amount added for households in remote rural, remote small town and island areas.

155. **Extreme fuel poverty** follows the same definition except that a household would have to spend more than 20% of its adjusted net income (after housing costs) on total fuel costs and maintain a satisfactory heating regime.

156. Where a household is in fuel poverty, the **fuel poverty gap** is the annual amount that would be required to move the household out of fuel poverty. This is either:

[45] Scottish Government's Fuel Poverty Policy, http://www.gov.scot/Topics/Built-Environment/Housing/warmhomes/fuelpoverty

[46] https://www.parliament.scot/parliamentarybusiness/Bills/108916.aspx

[47] http://www.legislation.gov.uk/asp/2019/10/contents/enacted

[48] https://www.lboro.ac.uk/research/crsp/mis/

- the amount required so that the fuel costs necessary for the home are no longer more than 10% of the household's adjusted net income (after housing costs), or
- the amount required which, after deducting fuel costs, benefits received for a care need or disability and childcare costs, means the household's remaining adjusted net income is sufficient to maintain an acceptable standard of living.

The figure taken to determine the gap for each household is the lower of the two options.

157. The Fuel Poverty (Targets, Definition and Strategy)(Scotland) Act 2019 also set targets to eradicate fuel poverty. The 2040 targets are that:
    - no more than 5% of households in Scotland would be in fuel poverty
    - no more than 1% of households in Scotland would be in extreme fuel poverty
    - the median fuel poverty gap of households in Scotland in fuel poverty would be no more than £250 adjusted to take account of changes in the value of money.
158. The figures presented in this report are a best estimate of fuel poverty rates, extreme fuel poverty rates and the median fuel poverty gap under the proposed new definition of fuel poverty, following amendments agreed at Stage 2 of the Fuel Poverty (Targets, Definition and Strategy) Bill. Regulations regarding the application of enhanced heating regimes and uplifts to the Minimum Income Standard (MIS) for households living in remote rural, remote small towns, and island (RRRSTI) areas have been laid and are expecting to come into force early in 2020. The first set of fuel poverty estimates fully compatible with all of the elements of the new definition in the Fuel Poverty (Targets, Definition and Strategy) (Scotland) Act[49], including the regulations above, will be published in the 2020 Key Findings report expected in December 2021. This requires additional information being collected in the 2020 Scottish House Condition Survey and the production of a new Minimum Income Standard (MIS) for Remote Rural, Remote Small Town and Island areas. The Minimum Income Standard (MIS) for Remote Rural, Remote Small Town and Island areas applied to the estimates in this publication have been estimated based on previous studies.

[49] http://www.legislation.gov.uk/asp/2019/10/contents/enacted

159. Due to the change in the underlying definition of fuel poverty, the estimates in this Key Findings report are not comparable to those in previous Key Findings reports. They are comparable to the estimates presented in the May 2019 publication titled: “Latest estimates of Fuel Poverty and Extreme Fuel Poverty – following Stage 2 of the Fuel Poverty (Targets, Definition and Strategy) (Scotland) Bill”[50]. This publication provides the first estimates under the new definition agreed at Stage 2 of the Bill process and also includes a comparison of fuel poverty rates between the old and new definition by various household and dwelling characteristics for 2016 and 2017, as well as 2015-2017 estimates by Local Authority areas.

160. Estimates include an uplift to the Minimum Income Standard (MIS)[51] for households living in remote rural, remote small towns, and island (RRRSTI) areas, based on previous studies, as well as deducting from net household income (at part 2 of the definition, for the comparison to MIS) amounts received in care or disability benefits: Disability Living Allowance (DLA), Personal Independence Payments (PIP) and Attendance Allowance (AA).

161. For statistics in this publication, a **satisfactory heating regime** is defined as follows:

- For “vulnerable” households (those where at least one member is aged 75 or over, or at least one member has a long-term sickness or disability), 23°C in the living room (zone 1) and 20°C in other rooms (zone 2), for 16 hours every day.
- For other households, 21°C in the living room (zone 1) and 18°C in other rooms (zone 2) for 9 hours a day during the week and 16 hours a day during the weekend.

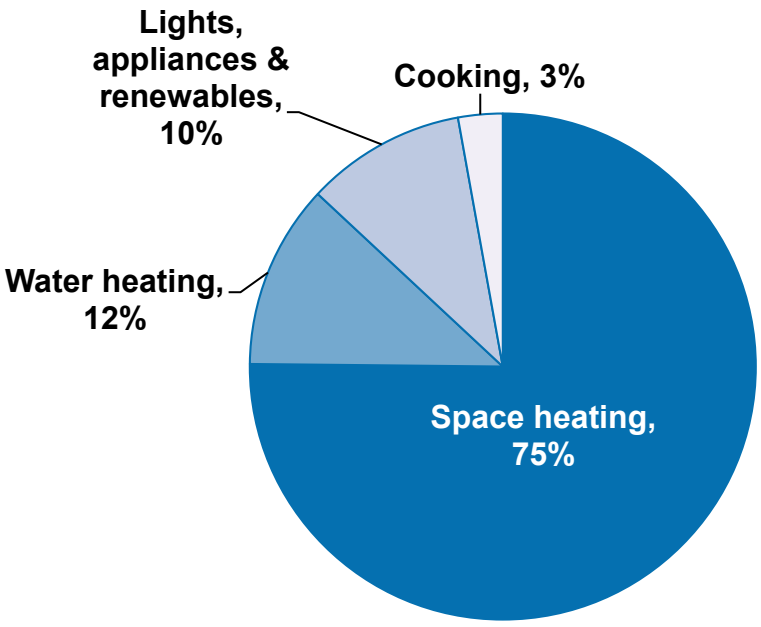
[50] https://www.gov.scot/publications/latest-estimates-fuel-poverty-extreme-fuel-poverty-under-proposed-new-definition-following-stage-2-fuel-poverty-targets-definition-strategy-scotland-bill/

[51] The uplifts that were applied to the MIS for households in RRRSTI areas were estimates, based on the approach taken by the 2017 Scottish Fuel Poverty Definition Review Panel which used average data from the MIS for remote rural Scotland published by Highlands and Island Enterprise in 2013. For working age single or couple households the uplift is 15%, for pensioner single or couple households it is 19% and for family households it is 27.5%.

162. Although space heating is the largest component of the energy spend which underpins the fuel poverty estimate, there are other types of energy use that are also taken into account, such as water heating, lighting and appliance use, and cooking. All types of energy expenditure are estimated on the basis of a standard set of behavioural assumptions and do not reflect the actual energy use of the household, which may vary considerably depending on personal preference and priorities relative to other types of household expenditure.

163. Figure 19 shows that in 2018, on average, around 75% of the modelled household energy demand was from space heating, 12% from water heating, 10% from lighting and appliance usage, and 3% was accounted for by cooking. These proportions are similar to 2017.

Figure 19: Mean Household Energy Consumption by End Use, 2018



Note: Figures do not add to 100% due to rounding

164. The **energy costs** of maintaining a satisfactory heating regime and other uses of energy are modelled using data from the physical inspection of dwellings and the household interview conducted as part of the SHCS, as well as information on consumer fuel prices. The methodology for modelling the cost of energy use was updated for the 2014 Key Findings report and details were provided in the accompanying Methodology Notes[52].

[52] SHCS - Methodology Notes 2014 available at www.gov.scot/Topics/Statistics/SHCS/Downloads/Methodology2014

165. The current report continues to use this improved method for setting the cost of the domestic energy requirement. A further small improvement introduced in the 2016 survey about **pre-payment meters** for energy supply is also continued, which has allowed us to improve the accuracy of fuel price information for pre-payment users, who are more common among lower income groups which are at higher risk of fuel poverty. In 2018, 19% of households in Scotland had a pre-payment meter (mains gas, electricity, or both).

166. The cost of the energy requirement includes an allowance for the bill rebate provided under the Warm Home Discount (WHD) scheme[53]. It no longer includes the £12 contribution of the Government Electricity Rebate (GER) as the scheme only ran for two years (2014 and 2015)[54].

[53] Eligible households receive a £140 discount on their electricity bills: https://www.gov.uk/the-warm-home-discount-scheme. Households qualify if they receive the guarantee credit element of pension credit (core group) or they are on a low income and meet their energy supplier's criteria (broader group).

[54] https://www.gov.uk/guidance/government-electricity-rebate

4.2 Fuel Poverty and Extreme Fuel Poverty

167. In 2018 an estimated 25.0% of all households were in fuel poverty, around 619,000 households (Table 29). This is not statistically different to the 2017 fuel poverty rate of 23.7% (around 583,000 households).

168. The fuel poverty rate is lower than that recorded in the survey between 2012 and 2015.

169. Around 11.3% (279,000 households) were living in extreme fuel poverty in 2018 which is similar to the 11.9% (293,000 households) in the previous year. The rate of extreme fuel poverty has been decreasing since 2013 (16.0%) and is the lowest rate recorded by the survey since 2012, the first year of data available under the new definition.

Table 29: Estimates of Fuel Poverty and Extreme Fuel Poverty since 2012

	Fuel Poverty		Extreme Fuel Poverty	
	000s	%	000s	%
2012	691	29.0%	361	15.1%
2013	761	31.7%	384	16.0%
2014	697	28.8%	368	15.2%
2015	675	27.7%	317	13.0%
2016	631	25.7%	308	12.6%
2017	583	23.7%	293	11.9%
2018	619	25.0%	279	11.3%

Note: There are some discontinuities in the underlying methods as follows: figures for 2012 allow for Warm Home Discount (WHD) adjustment only; 2013 include WHD and price source adjustment; figures from 2014 onwards include WHD and price source adjustment and an updated BREDEM model; from 2016 a further improvement is included by assigning pre-payment metered fuel prices to the relevant households.

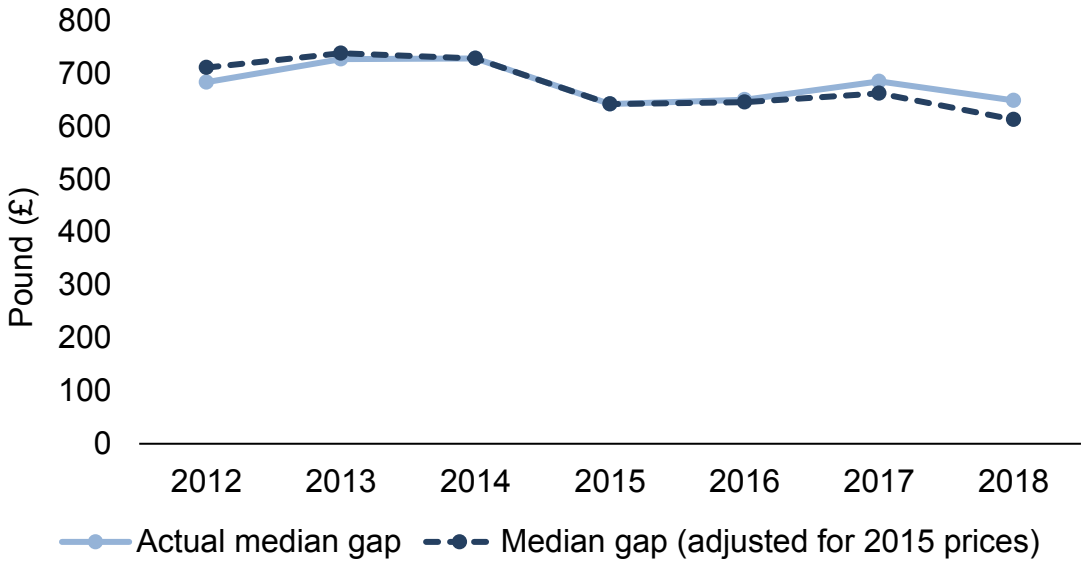
4.3 Fuel Poverty Gap

170. Time trends in the fuel poverty gap have been presented as the median gap before adjustment and the median gap adjusted to 2015 prices. The median gap before adjustment presents the actual amount that fuel poor households require to move out of fuel poverty. The adjusted median gap figures have been presented in order to assess progress against the 2040 fuel poverty gap target. The adjustment has been made in alignment with the increases or decreases in the annual average consumer prices index (CPI)[55] over the period from 2015 to the year which the figure relates to.

171. The median fuel poverty gap for fuel poor households is £650 in 2018 (Figure 20). There was little change in the median fuel poverty gap between 2012 and 2014 after which there was a fall in 2015. The gap has remained at a similar level since then.

172. The median fuel poverty gap (adjusted for 2015 prices) for fuel poor households has decreased from £710 in 2012 to £610 in 2018. There was little change in the gap between 2012 and 2014, followed by a fall in 2015. The gap was then similar until 2018 where there was a further fall compared to the previous year.

Figure 20: Median Fuel Poverty Gap of Fuel Poor Households, 2012-2018



[55] CPI Index, 2015 = 100: https://www.ons.gov.uk/economy/inflationandpriceindices/timeseries/d7bt/mm23

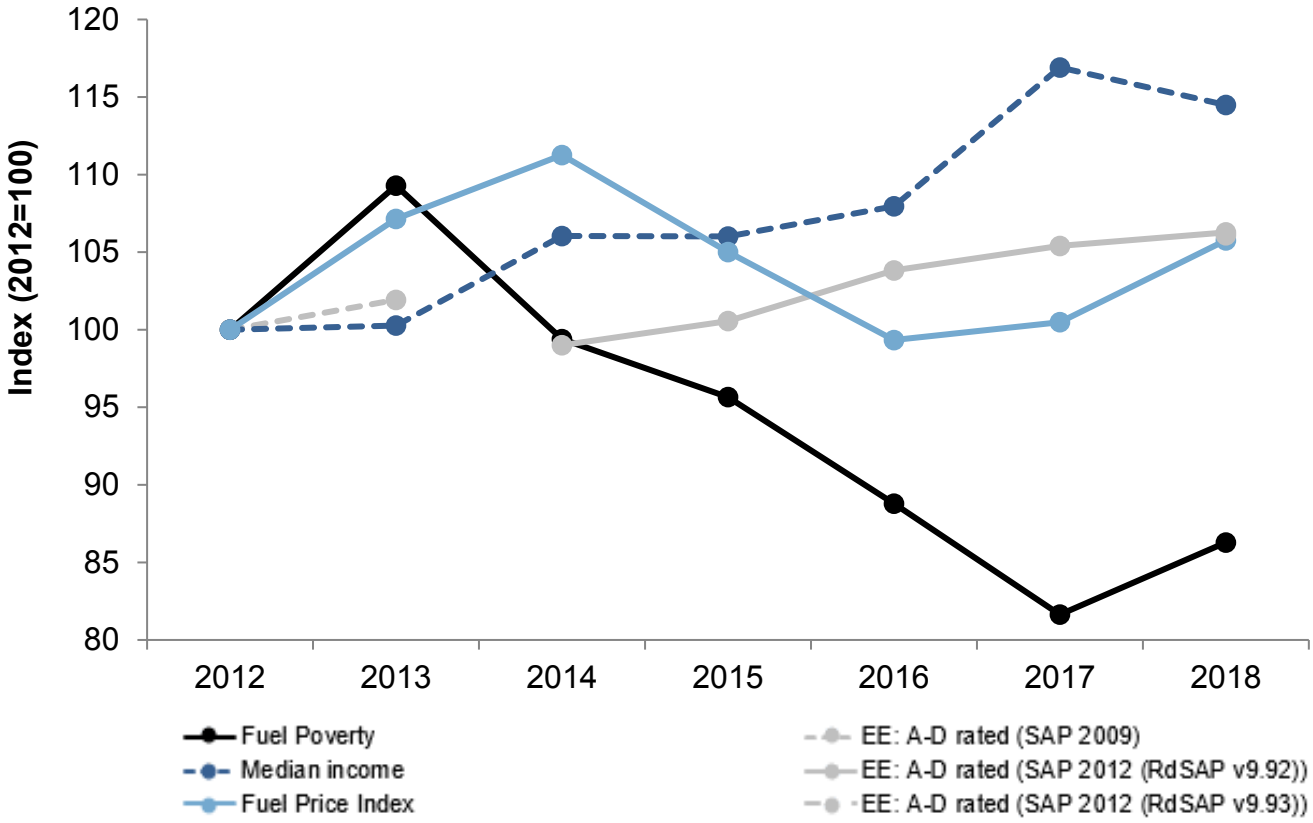
4.4 Drivers and Trends

173. Fuel poverty is affected by levels of household income, the price of fuel required for space and water heating, the energy efficiency of housing and the use of fuel in households. Fuel poverty is distinct from poverty in that, while low income is an important driver, it is not a prerequisite. As shown in Table 35, fuel poor households are found in all income bands. Around 7% of all fuel poor households had weekly income above £400 before housing costs, which places nearly all of these households in the top half of the income distribution.

174. Figure 21 and Table 30 show indexes constructed to compare trends in three key drivers of fuel poverty since 2012[56]. Measures of energy efficiency and household incomes are derived from SHCS data. The fuel price index is constructed from Department for Business, Energy and Industrial Strategy (BEIS) quarterly prices as described in section 4.4.1. Prices and incomes are presented in nominal (cash) terms.

[56] See the 2017 Key Findings publication for analysis of longer time trends between 2003/04-2017: https://www.gov.scot/publications/scottish-house-condition-survey-2017-key-findings/

Figure 21: Trends in Fuel Price, Energy Efficiency and Median Income, 2012 to 2018



Note: All values indexed to 100 in 2012. Data for this chart are provided in Table 30. Fuel Price index constructed as described in section 4.3.1. Fuel poverty energy requirement modelled on the following basis: 2010 – 2013: BREDEM 2012 v.1.0; 2014 onwards: BREDEM 2012 v.1.1. from 2018 onwards there was a small update in the version of RdSAP underlying the energy modelling as described in section 3.3.
Fuel poverty costs as follows: 2012 include WHD adjustment only; from 2013 onwards include WHD and price source adjustments; from 2016 a further improvement is included by assigning pre-payment metered fuel prices to the relevant households.

175. Between 2012 and 2013 the rate of fuel poverty increased in line with the rise in the average fuel price index. In 2014 the rate of fuel poverty did not increase in line with the rise in the average fuel price index and there was an increase in median income which likely offset the fuel price increase. Between 2014 and 2016, the decline in the price of fuel and improvements in energy efficiency was reflected in a reduction in the fuel poverty rate. In 2017 there was an increase in median income and some improvements to energy efficiency, although fuel poverty rates remained similar to the previous year.

176. The 2018 fuel poverty rate (25.0%) is not significantly higher than 2017 (23.7%). In 2018 there were increases in fuel prices whilst median income and energy efficiency remained similar to 2017.

Table 30: Fuel Price, Energy Efficiency and Income Indices

Key Drivers of Fuel Poverty: Indices 2003/4=100								
Survey year	Fuel poverty		Fuel Price Index		EE: A-D rated		Median income	
	%	Ix	Ix	Rebased	%	Ix	£	Ix
2012	29.0	100	122	100	80%	100	20,000	100
2013	31.7	109	130	107	81%	102	20,000	100
2014	28.8	99	135	111	79%	99	22,000	106
2015	27.7	96	128	105	80%	101	22,000	106
2016	25.7	89	121	99	83%	104	22,000	108
2017	23.7	82	122	100	84%	105	24,000	117
2018	25.0	86	129	106	85%	106	23,000	114

Sources: BEIS Quarterly Prices; SHCS.
Note: Fuel poverty rates shown on BREDEM 2012 basis (new energy model).
EE ratings shown on SAP 2009 basis up to 2013, SAP 2012 (RdSAP v9.92) basis between 2014 and 2017 and SAP 2012 (RdSAP v9.93) basis from 2018.

4.4.1 Fuel Costs

177. Data published by the Department for Business, Energy and Industrial Strategy (BEIS) on the price of key fuels enables us to construct time series for the price of fuels for the average Scottish household over the longer term.

178. Using information from the SHCS about the fuels used for space and water heating we can weight the national quarterly fuel price indices published by BEIS[57] and produce an average index value for the price of the heating fuel requirement for Scotland. The results are shown in Figure 22 and Table 31.

179. Since the majority of Scottish households heat their properties with gas (81%), the national average index follows the gas index closely. In 2015 and 2016 the average index fell by 5.6% and 5.4%, respectively, primarily due to the falling price of oil and gas. However, in 2017 the average index grew by 1.2%, mostly driven by electricity (up 6.7%) and liquid fuels (up 24%). The average index grew by a further 5.4% in 2018 with an increase in the price of all fuel types. The largest increases were in electricity (up 8.7%) and liquid fuels (25.3%).

[57] BEIS Quarterly Energy Prices, Table 2.1.3, https://www.gov.uk/government/statistical-data-sets/monthly-domestic-energy-price-stastics

Figure 22: BEIS Fuel Price Indices and a Weighted Average for Scotland: 2012 to September 2019

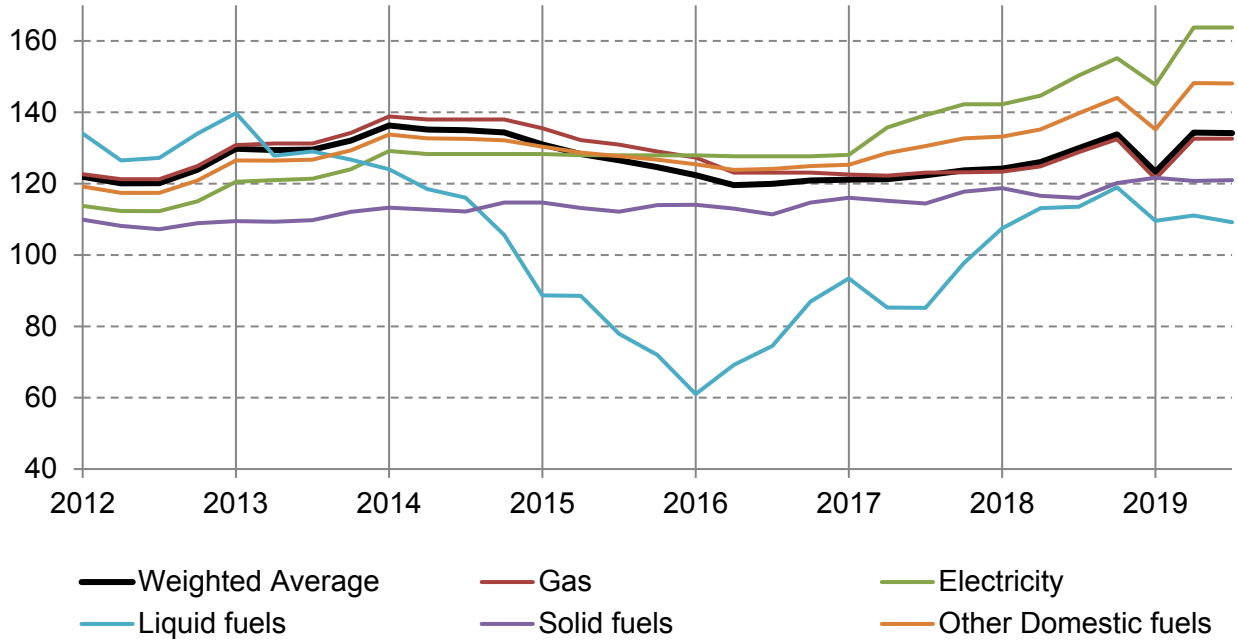


Table 31: BEIS Current Fuel Price Indices and a Weighted Average for Scotland: 2012 – September 2019

	Current fuel price indices					
Year	**Gas**	**Electricity**	**Liquid fuels**	**Solid fuels**	**Other fuels**	**Weighted Average**
2012	122.5	113.4	130.5	108.6	118.7	**121.5**
2013	131.9	121.7	130.8	110.2	127.2	**130.2**
2014	138.2	128.5	116.0	113.2	132.8	**135.2**
2015	131.9	128.0	81.8	113.5	128.4	**127.6**
2016	124.1	127.7	72.9	113.3	124.6	**120.7**
2017	122.8	136.3	90.4	115.9	129.3	**122.1**
2018	127.4	148.1	113.3	117.9	138.0	**128.5**
to Sept 2019	128.8	158.4	109.9	121.1	143.8	**130.6**

BEIS Quarterly Energy Prices, Table 2.1.3. Indices supplied with 2010 = 100
https://www.gov.uk/government/statistical-data-sets/monthly-domestic-energy-price-stastics
Weighted average based on SHCS heating fuel use proportions, 2012 to 2018. 2019 proportions assumed unchanged from 2018.

180. BEIS has published fuel price data up to September 2019. As fuel use changes slowly, we assume that the fuel mix in Scotland in 2019 was the same as captured by the 2018 SHCS in order to extend the weighted average for Scotland into 2019. Into the third quarter of 2019 the weighted average of heating fuels continues to rise, again driven by increases in prices for electricity (up 7.0%). This amounts to an approximately 1.6% increase in the composite price on average 2018 levels to September 2019.

4.4.2 Household Income

181. The SHCS is not designed to capture income as comprehensively as other formal surveys of income. From 2018, total household income has been collected in the survey on a self-reported basis. However, in order to provide a consistent time series of fuel poverty estimates for 2012 to 2018, we have only taken account of income from the highest income householder and their partner. We plan to introduce income from other household members, along with other developments under the new definition, in the 2020 Key Findings report. Income is reported in nominal terms and is not equivalised to take into account that households of different size and composition need different levels of income to sustain the same living standard. Figures in this section therefore may not align with official statistics on household income and inequality.

182. In 2018, 50% of households earned £23,300 or more after tax, similar to £23,800 in 2017 (Table 32). This median income has increased by 14% (around £3,000) in cash terms since 2012.

183. The mean income of the surveyed households were the same for 2017 and 2018. Percentage change in income across years varied across income deciles. Increases in income ranged between 1% in deciles 2 and 7 to 2% in deciles 8 and 9. Decreases in income ranged from -1% in deciles 3, 4 and 6 to -3% in decile 10. Median income decreased by 2%.

Table 32: Mean Annual Income in Each Decile Group, SHCS 2017 and 2018

Income Decile	Year 2017	2018	Percentage change
1	£7,200	£7,000	-2%
2	£11,900	£11,900	1%
3	£14,900	£14,700	-1%
4	£18,200	£17,900	-1%
5	£21,800	£21,300	-2%
6	£25,700	£25,400	-1%
7	£30,700	£31,000	1%
8	£37,300	£38,200	2%
9	£46,100	£47,300	2%
10	£73,400	£71,500	-3%
All	£28,700	£28,600	0%
Median	£23,800	£23,300	-2%

4.4.3 Housing Stock

184. As shown in Table 33, the mean modelled energy required to meet the fuel poverty heating regime for 2018 was: 27,795 kWh, compared to 28,257 kWh for 2017, a reduction of 1.6% which is not significant.

185. Over the same time period, mean running costs have increased by 2.7%, although not significantly, from £1,665 in 2017 to £1,710 in 2018, which reflects the overall increase in domestic fuel prices in 2018.

Table 33: Modelled Annual Energy Consumption and Running Costs, 2012-2018

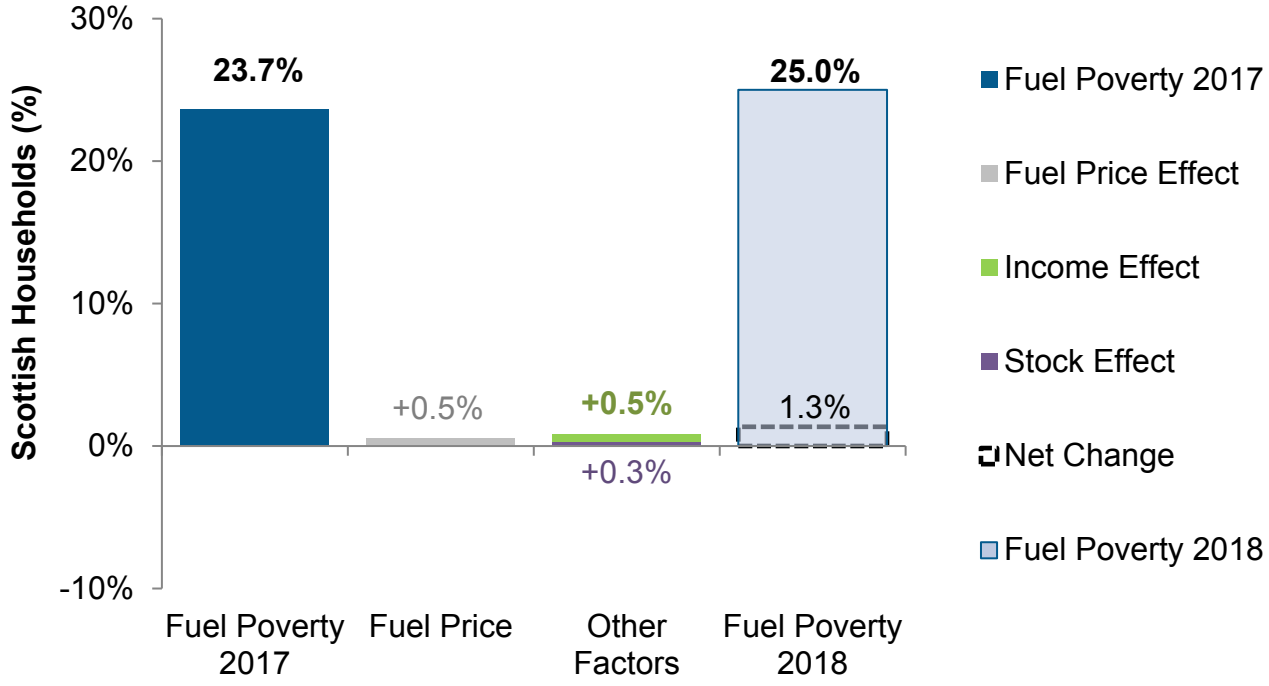
	Energy requirement		Running Costs	
Year	Mean (kWh)	Annual change	Mean (£)	Annual change
2012	29,621	-	1,727	-
2013	28,964	-2.2%	1,860	7.7%
2014	29,195	0.8%	1,898	2.1%
2015	29,068	-0.4%	1,745	-8.1%
2016	28,286	-2.7%	1,611	-7.7%
2017	28,257	-0.1%	1,665	3.4%
2018	27,795	-1.6%	1,710	2.7%

Fuel poverty energy requirement modelled on the following basis: 2012 – 2013: BREDEM 2012 v.1.0; 2014 -2018: BREDEM 2012 v.1.1. Fuel poverty costs as follows: 2012 include WHD adjustment only; from 2013 onwards include WHD and price source adjustments; from 2016 a further improvement is included by assigning pre-payment metered fuel prices to the relevant households.
Running costs reported for 2012-2017 will not match those previously published due to the change in the enhanced heating regime used for the best estimates of the new fuel poverty definition.

4.4.4 Impact on Fuel Poverty

186. To understand how the changes in the price of domestic fuels and the incomes of the households included in the SHCS sample interact with the performance of the housing stock, we carried out a micro-simulation which sought to isolate the impact of each set of factors on the level of fuel poverty recorded in 2018. The results are illustrated in Figure 23 and Table 34.

Figure 23. Contributions to Change in Fuel Poverty Rate between 2017 and 2018



187. The analysis which underpins these findings uses SHCS data from 2017 and 2018 to model hypothetical rates of fuel poverty under different scenarios, adding one change at a time. This included the following steps as shown in Table 34.

- First, 2018 fuel prices were applied to the 2017 survey sample to determine the effect of price change alone under 2017 levels of energy demand and household income. The 2018 survey is the third year fuel prices are applied by the presence of a prepayment meter, allowing a more detailed allocation of fuel price data to 2017.
- Next, the income of households in this sample was updated by the mean change observed for their decile group between 2017 and 2018. This demonstrated the additional effect of income changes on fuel poverty between 2017 and 2018.
- We then compare the fuel poverty rate modelled at the previous step with the estimate for 2018. The difference is therefore estimated to be the effect of the energy performance of the housing stock and other sampled housing stock changes between 2017 and 2018.[58]

[58] The sequence of steps in this method affects the size of the estimated impact. Where factors operate in the same direction any potential joined effect will be attributed to those assessed first.

Table 34: Steps in Attributing Change in the Fuel Poverty Rate between 2017 and 2018

	Fuel Poverty Rate	Step Difference
Fuel Poverty 2017	23.7%	
- Step 1: Fuel change	24.2%	+0.5 points
- Step 2: Income change	24.7%	+0.5 points
- Step 3: Attributed to energy efficiency change and other sampled housing stock changes	25.0%	+0.3 points
Fuel Poverty 2018	25.0%	

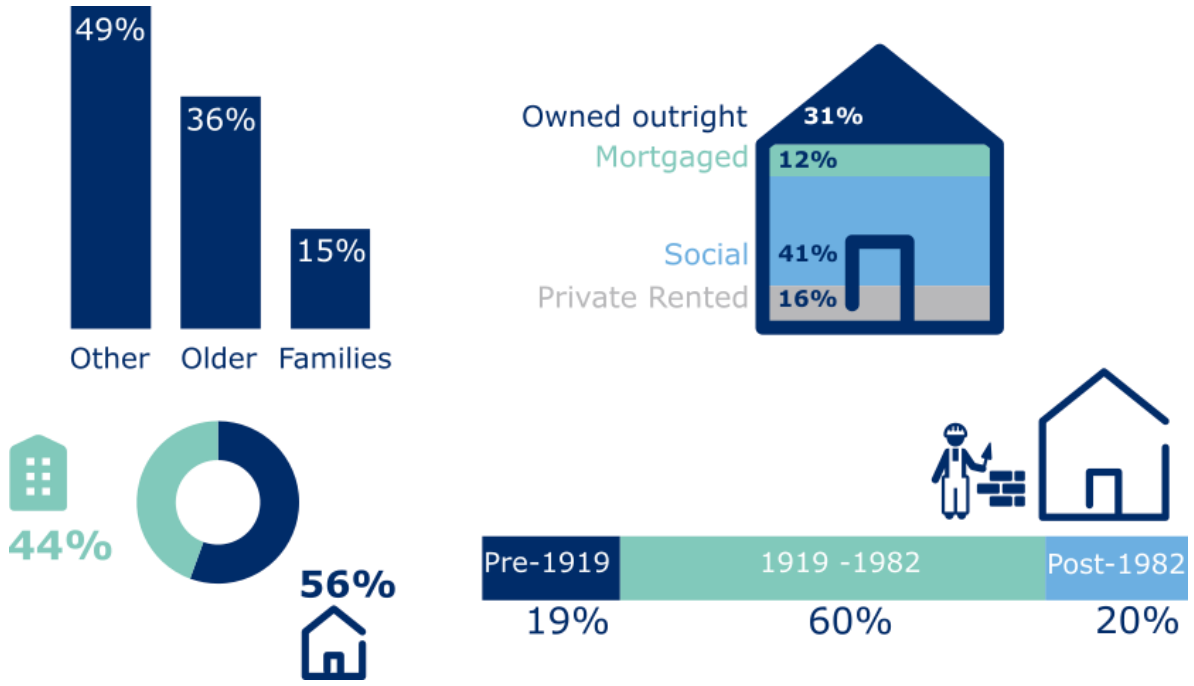
188. The net change of 1.3 percentage points in the fuel poverty rate between 2017 and 2018 was not statistically significant. The results from the micro-simulation analysis indicate that increases in fuel prices and income combined would not have been sufficient to significantly change the fuel poverty rate. Applying both fuel price and income changes increased the fuel poverty rate by 0.5 percentage points each.

189. The residual change is attributed to differences in the energy efficiency performance of the housing stock and other underlying changes to the sampled stock distribution, increasing the rate by 0.3 percentage points.

4.5 Characteristics of Fuel Poor Households

190. Figure 24 illustrates some of the key attributes of the fuel poor population in 2018. Approximately half (49%) of fuel poor households are other households without children. Around 15% of households living in fuel poverty are families with children, and 36% are older households.

Figure 24: Composition of Fuel Poor Households by Selected Household and Dwelling Characteristics, 2018



191. 43% of fuel poor households are owner occupiers, 41% are social housing residents and the remaining 16% rent in the private sector. 56% of fuel poor households live in houses – of which 15% are detached properties, 18% semi-detached, and 22% terraced – while the remaining 44% occupy flats.

192. Around one fifth (19%) of the dwellings of fuel poor households were built before 1919, and 20% were built since 1982. The remaining 60% were constructed in the intervening years.

4.5.1 Household Characteristics

193. Table 35 shows fuel poverty rates by a number of household characteristics for 2018 and in comparison to the previous year.

194. Overall rates of fuel poverty differed between the **social** (39%) and **private sector** (20%) in 2018. These are similar rates to those in 2017. The highest rates of fuel poverty by tenure are found in the social sector where 39% of local authority and housing association households are fuel poor. In comparison, only 10% of those with a mortgage are assessed to be fuel poor. The 2018 fuel poverty rate for outright owners (23%) is higher than the 2017 rate (18%).

195. As in 2017, **older households** (28%) and **other households** (27%) in 2018 have a higher fuel poverty rate than families (17%).

196. Fuel poverty has a strong association with income and households in the lower income bands have the highest rates of fuel poverty: 95% for the bottom income band and 55% for the 2nd bottom band. Fuel poverty rates across all income bands are similar to 2017 fuel poverty rates.

197. Fuel poverty rates decrease as council tax bands increase from A (33%) to G-H (12%). Fuel poverty rates across council tax bands are generally similar to 2017 although the fuel poverty rate for households in council tax band D (22%) have increased compared to 2017 (16%).

Table 35: Fuel Poverty Rates by Household Characteristics, 2018 and 2017

	2018			2017		
	000s	%	Sample	000s	%	Sample
Tenure						
Owned outright	193	23%	*1,065*	150	18%	*1,080*
Mortgaged	74	10%	*840*	56	8%	*792*
LA/ public	160	39%	*447*	146	39%	*431*
HA/co-op	97	39%	*266*	99	39%	*284*
PRS	97	36%	*287*	132	39%	*361*
Private	363	20%	*2,192*	338	18%	*2,233*
Social	256	39%	*713*	245	39%	*715*
Household type						
Older households	221	28%	*950*	211	26%	*1,004*
Families	94	17%	*664*	100	17%	*701*
Other households	304	27%	*1,291*	272	26%	*1,243*
Weekly Household Income						
< £200	242	95%	*281*	240	93%	*316*
£200-300	235	55%	*480*	222	55%	*479*
£300-400	98	24%	*464*	83	22%	*446*
£400-500	35	12%	*344*	23	7%	*375*
£500-700	8	2%	*506*	12	3%	*543*
£700+	1	0%	*830*	2	0%	*789*
Council Tax Band						
Band A	174	33%	*587*	173	34%	*593*
Band B	178	32%	*642*	172	31%	*653*
Band C	95	23%	*477*	90	24%	*456*
Band D	70	22%	*386*	50	16%	*374*
Band E	57	18%	*392*	52	15%	*420*
Band F	31	14%	*269*	26	12%	*264*
Band G – H	15	12%	*152*	20	13%	*186*
All Scotland	619	25.0%	*2,905*	583	23.7%	*2,948*

4.5.2 Dwelling Characteristics

198. Table 36 shows how the level of fuel poverty varies across dwelling characteristics.

199. The lowest rates of fuel poverty are associated with higher energy efficiency standards. Only 19% of households living in **post-1982** dwellings and 19% of households living in dwellings **rated C or better were fuel poor**. Both of these categories have similar rates to their respective 2017 levels. In contrast, an increase in the fuel poverty rate have taken place among those living in dwellings with an EPC rating D (up from 23% in 2017 to 29% in 2018).

200. Households using **gas** (23%) as **primary heating fuel** have similar fuel poverty levels to that in 2017 (21%). Consequently, the rates of fuel poverty for households **within coverage of the gas network** and for **urban** (25% for both) households have both remained similar to rates in 2017 (23% for both on grid and urban) although the **large urban area** household fuel poverty rate increased by 4 percentage points, from 21% to 25% in 2018.

201. Fuel poverty rates for all other dwelling characteristics have remained similar between 2017 and 2018.

202. Although the fuel poverty rates for overall **urban** (25%) and **rural** (27%) households were similar, levels of fuel poverty in large urban (25%), other urban (24%), accessible urban (24%) and accessible rural areas (23%) were lower than levels in remote rural areas (33%).

203. Fuel poverty rates are lowest for **detached** households (17%). Levels of fuel poverty among households using **electricity** as primary heating fuel have remained among the highest, at 43%.

204. A higher proportion of households in the 15% most deprived areas (based on **SIMD**) were in fuel poverty compared to other areas of Scotland; 33% compared to 22% respectively.

Table 36: Fuel Poverty by Dwelling Characteristics, 2018 and 2017

	2018			2017		
	000s	%	*Sample*	000s	%	*Sample*
Dwelling Type						
Detached	94	17%	*793*	96	17%	*818*
Semi	112	22%	*647*	98	20%	*648*
Terraced	138	26%	*626*	134	25%	*608*
Tenement	175	31%	*496*	167	29%	*503*
Other flats	100	32%	*343*	88	28%	*371*
Age of dwelling						
pre-1919	121	26%	*512*	115	25%	*502*
1919-1944	78	28%	*318*	85	29%	*364*
1945-1964	153	29%	*643*	144	27%	*670*
1965-1982	142	27%	*646*	120	23%	*634*
post-1982	125	19%	*786*	118	18%	*778*
Primary Heating Fuel						
Gas	468	23%	*2,189*	414	21%	*2,196*
Oil	33	22%	*257*	39	27%	*238*
Electric	106	43%	*386*	110	38%	*423*
Other	13	24%	*72*	20	32%	*91*
EPC Band (SAP 2012)						
B - C	213	19%	*1,157*	208	20%	*1,136*
D	283	29%	*1,198*	238	23%	*1,241*
E	87	31%	*395*	84	30%	*396*
F - G	36	35%	*155*	53	45%	*175*
Location						
Urban overall	508	25%	*2,242*	464	23%	*2,293*
Large urban areas	222	25%	*803*	182	21%	*804*
Other urban areas	205	24%	*981*	195	23%	*1,019*
Accessible urban areas	54	24%	*275*	55	24%	*298*
Remote small towns	27	31%	*183*	32	36%	*172*
Rural overall	111	27%	*663*	119	29%	*655*
Accessible rural	62	23%	*332*	62	23%	*332*
Remote rural	49	33%	*331*	57	39%	*323*
SIMD: Most deprived 15%						
Yes	136	33%	*384*	107	27%	*394*
No	483	23%	*2,521*	476	23%	*2,554*
Gas Grid						
On	515	25%	*2,190*	473	23%	*2,260*
Off	104	23%	*715*	109	25%	*688*
All Scotland	619	25.0%	*2,905*	583	24.0%	*2,948*

Note: Fuel poverty rates for the 15% most deprived areas use the most recent SIMD publication available for the time period; 2017 and 2018 figures are based on SIMD 2016 and the 2011 definition of Data Zones. Fuel poverty rates for urban and rural geographies are based on the 2013/14 classification, 2011 definition of Data Zones. For more information please refer to the Methodology notes. Fuel poverty rates for EPC Band are based on SAP 2012 (RdSAP v9.92) to allow cross-year comparisons on the same underlying energy model. There was one N/A response for Primary Heating Fuel which has been excluded from the table but included in the Scotland statistics.

4.6 Characteristics of Extreme Fuel Poor Households

205. Over half (52%) of extreme fuel poor households are adults without children households. Around 11% of households living in extreme fuel poverty are families with children, and 37% are older households.

206. Half (50%) of extreme fuel poor households are owner occupiers, 31% are social housing residents and the remaining 19% rent in the private sector. 61% of extreme fuel poor households live in houses – of which 23% are detached properties, 19% semi-detached, and 19% terraced – while the remaining 39% occupy flats.

207. Just under a third (29%) of the dwellings of extreme fuel poor households were built before 1919, and 16% were built since 1982. The remaining 55% were constructed in the intervening years.

4.6.1 Household Characteristics

208. Table 37 shows extreme fuel poverty rates by a number of household characteristics for 2018 and in comparison to the previous year.

209. Overall rates of extreme fuel poverty were similar between the **social** (13%) and **private sector** (10%) in 2018. These are similar rates to those in 2017. The highest rates of extreme fuel poverty by tenure are found in the private rented sector where 19% are extreme fuel poor. In comparison, only 4% of those with a mortgage are assessed to be extreme fuel poor. In general, the overall rates by tenure in 2018 were similar to that in 2017 with the exception of housing association households where rates of extreme fuel poverty have decreased from 18% in 2017 to 11% in 2018.

210. As in 2017, **older households** and **other households** (both 13%) in 2018 have a higher extreme fuel poverty rate than families (6%).

211. As with fuel poverty overall, extreme fuel poverty has a strong association with **income**. Households in the lower income bands have the highest rates of extreme fuel poverty: 68% for the bottom income band (<£200 a week) dropping to no cases in the highest income band (£700+ a week).

212. Extreme fuel poverty rates in the second lowest income band (£200-£299.99 a week) have dropped in 2018 (16%) compared to 2017 (22%). Extreme fuel poverty rates across all other income bands are similar to 2017 extreme fuel poverty rates.

213. Extreme fuel poverty rates were similar across **council tax bands** in 2018 (10-13%) and were similar to the rates in 2017 (8-15%).

Table 37: Extreme Fuel Poverty Rates by Household Characteristics, 2018 and 2017

	2018			2017		
	000s	%	Sample	000s	%	Sample
Tenure						
Owned outright	110	13%	*1,065*	88	11%	*1,080*
Mortgaged	29	4%	*840*	27	4%	*792*
LA/ public	61	15%	*447*	53	14%	*431*
HA/co-op	27	11%	*266*	45	18%	*284*
PRS	52	19%	*287*	80	24%	*361*
Private	191	10%	*2,192*	195	11%	*2,233*
Social	88	13%	*713*	98	16%	*715*
Household type						
Older households	102	13%	*950*	119	15%	*1,004*
Families	32	6%	*664*	36	6%	*701*
Other households	145	13%	*1,291*	138	13%	*1,243*
Weekly Household Income						
< £200	172	68%	*281*	172	67%	*316*
£200-300	67	16%	*480*	89	22%	*479*
£300-400	28	7%	*464*	23	6%	*446*
£400-500	*	*	*344*	6	2%	*375*
£500-700	*	*	*506*	*	*	*543*
£700+	-	-	*830*	*	*	*789*
Council Tax Band						
Band A	66	13%	*587*	75	15%	*593*
Band B	69	12%	*642*	72	13%	*653*
Band C	43	11%	*477*	56	15%	*456*
Band D	34	11%	*386*	31	10%	*374*
Band E	32	10%	*392*	30	9%	*420*
Band F	22	10%	*269*	17	8%	*264*
Band G – H	13	11%	*152*	13	9%	*186*
All Scotland	279	11%	*2,905*	293	12%	*2,948*

Note: A * indicates suppressed data due to low sample sizes.

4.6.2 Dwelling Characteristics

214. Table 38 shows how the level of extreme fuel poverty varies across dwelling characteristics. Extreme fuel poverty rates for all dwelling characteristics have remained similar between 2017 and 2018.

215. The lowest rates of extreme fuel poverty are associated with higher energy efficiency standards. Only 7% of households living in **post-1982** dwellings and 6% of households living in dwellings **rated C or better were extreme fuel poor**. Both of these categories have similar rates to their respective 2017 levels.

216. Extreme fuel poverty rates are similar across **dwelling type** (10-12%) and **SIMD status** (10-11%).

217. Households using **gas** (9%) as the **primary heating fuel** have the same extreme fuel poverty levels as in 2017 (9%). Consequently, the rates of extreme fuel poverty for households **within coverage of the gas network** and for **urban** (10% for both) households have both remained similar to rates in 2017 (11% and 10% for on grid and urban).

218. Levels of extreme fuel poverty among households using **electricity** as primary heating fuel have remained among the highest, at 27%. Households with an **EPC rating of E** (23%) or **F-G** (34%) or which are **remote rural (23%),** also have high levels of extreme fuel poverty.

219. Levels of extreme fuel poverty were higher in **rural areas** (17%) compared to **urban areas** (10%) in 2018. Fuel poverty rates were highest for remote rural households (23%) and lowest for other urban and accessible urban households (both 9%).

220. Although the fuel poverty rates for overall **urban** (25%) and **rural** (27%) households were similar, levels of fuel poverty in large urban (25%), other urban (24%), accessible urban (24%) and accessible rural areas (23%) were lower than levels in remote rural areas (33%).

Table 38: Extreme Fuel Poverty by Dwelling Characteristics, 2018 and 2017

	2018			2017		
	000s	%	*Sample*	000s	%	*Sample*
Dwelling Type						
Detached	63	11%	*793*	62	11%	*818*
Semi	53	11%	*647*	53	11%	*648*
Terraced	53	10%	*626*	55	10%	*608*
Tenement	71	12%	*496*	85	15%	*503*
Other flats	39	12%	*343*	38	12%	*371*
Age of dwelling						
pre-1919	81	17%	*512*	76	16%	*502*
1919-1944	37	13%	*318*	47	16%	*364*
1945-1964	60	11%	*643*	60	11%	*670*
1965-1982	56	11%	*646*	54	11%	*634*
post-1982	44	7%	*786*	55	8%	*778*
Primary Heating Fuel						
Gas	186	9%	*2,189*	178	9%	*2,196*
Oil	23	16%	*257*	27	18%	*238*
Electric	65	27%	*386*	77	26%	*423*
Other	5	10%	*72*	12	20%	*91*
EPC Band (SAP 2012)						
B - C	65	6%	*1,157*	73	7%	*1,136*
D	115	12%	*1,198*	117	11%	*1,241*
E	64	23%	*395*	58	21%	*396*
F - G	35	34%	*155*	44	38%	*175*
Location						
Urban overall	206	10%	*2,242*	215	10%	*2,293*
Large urban areas	90	10%	*803*	95	11%	*804*
Other urban areas	82	9%	*981*	79	9%	*1,019*
Accessible urban areas	21	9%	*275*	26	11%	*298*
Remote small towns	12	14%	*183*	16	18%	*172*
Rural overall	72	17%	*663*	78	19%	*655*
Accessible rural	39	14%	*332*	40	15%	*332*
Remote rural	34	23%	*331*	38	26%	*323*
SIMD: Most deprived 15%						
Yes	236	11%	*384*	258	12%	*394*
No	43	10%	*2,521*	35	9%	*2,554*
Gas Grid						
On	212	10%	*2,190*	221	11%	*2,260*
Off	67	15%	*715*	73	17%	*688*
All Scotland	279	11.0%	*2,905*	293	12.0%	*2,948*

Note: Extreme fuel poverty rates for the 15% most deprived areas use the most recent SIMD publication available for the time period; 2017 and 2018 figures are based on SIMD 2016 and the 2011 definition of Data Zones. Extreme fuel poverty rates for urban and rural geographies are based on the 2013/14 classification, 2011 definition of Data Zones. For more information please refer to the Methodology notes. Extreme fuel poverty rates for EPC Band are based on SAP 2012 (RdSAP v9.92) to allow cross-year comparisons on the same underlying energy model.

There was one N/A response for Primary Heating Fuel which has been excluded from the table but included in the Scotland statistics.

4.7 Fuel Poverty and Income Poverty

221. Although fuel poverty is correlated with low income, it is not equivalent to income poverty. This section updates previous analysis of how these two conditions relate in the household population under the current fuel poverty definition.

222. According to the official poverty definition, individuals are considered to be in relative (income) poverty if their equivalised net household income is below 60 per cent of the median income in the same year. Official poverty estimates are calculated using the Department for Work and Pensions' (DWP) Family Resources Survey (FRS). The latest estimates for Scotland were published on 28 March 2019 and relate to 2017/18[59].

223. It is possible to use the SHCS to determine how fuel poverty and income poverty relate, although there are some caveats to this approach. One of the main caveats is that the SHCS does not use the full range of household income data used to derive the official measure of poverty. For example, we have only taken account of income from the highest income householder and their spouse/partner[60]. As a result, the SHCS would underestimate the income of households with more than two earners, and therefore over-estimate levels of income poverty. To correct to some extent for this we make a corresponding adjustment to the equivalisation method used for producing official poverty statistics. It is therefore important to note that the results presented here do not reproduce exactly the official measure of fuel poverty and are only approximate.

224. In this report, the adjustment has been applied to household income after housing costs (AHC) to better align with the new definition of fuel poverty which is based on income after housing costs. Therefore figures presented for 2017 in this report will not match that in the 2017 Key Findings report. From 2017, an additional adjustment is made before equivalising, by deducting council tax to match the definition of income used to derive fuel poverty estimates. This treatment of council tax is consistent with the DWP's Household Below Average Income (HBAI) statistics income definition[61].

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[59] https://www.gov.scot/publications/poverty-income-inequality-scotland-2015-18/ Note, in this release the data were presented as a three year rolling average. However, single year data relating to 2017/18 were also provided.

[60] From 2018, total households income data is collected. However in order to produce comparable fuel poverty statistics for 2018 to those in the Fuel poverty and extreme fuel poverty: estimates report only the income of the HIH/spouse was used in this publication.

[61] HBAI Quality and Methodology Information Report.

225. A further caveat is that the latest published income poverty estimates relate to 2017/18. In order to derive a poverty threshold figure for 2018 we use the relationship between the SHCS and the FRS estimates of the median equivalised household income for the previous year, 2017. We adjust the 2018 SHCS median by the ratio between the two estimates observed in 2017 to obtain a 2018 poverty threshold. We estimate this as £266 per week AHC for a couple without children. The actual FRS 2017/18 poverty threshold of £262 is used for 2017 data.

226. As Table 39a shows, over two-thirds of fuel poor households would be considered poor in terms of their income (69% or 425,000) while the other third have incomes above the relative poverty threshold (31% or 194,000 households).This pattern is similar to 2017.

227. Table 39b shows the fuel poverty rate by income poverty status. 89% of income poor households were fuel poor in 2018, a higher rate than in 2017 (84%).

Table 39a: Estimated Number and Proportion of Households by Fuel Poverty and Income Poverty Status, SHCS 2017 and 2018

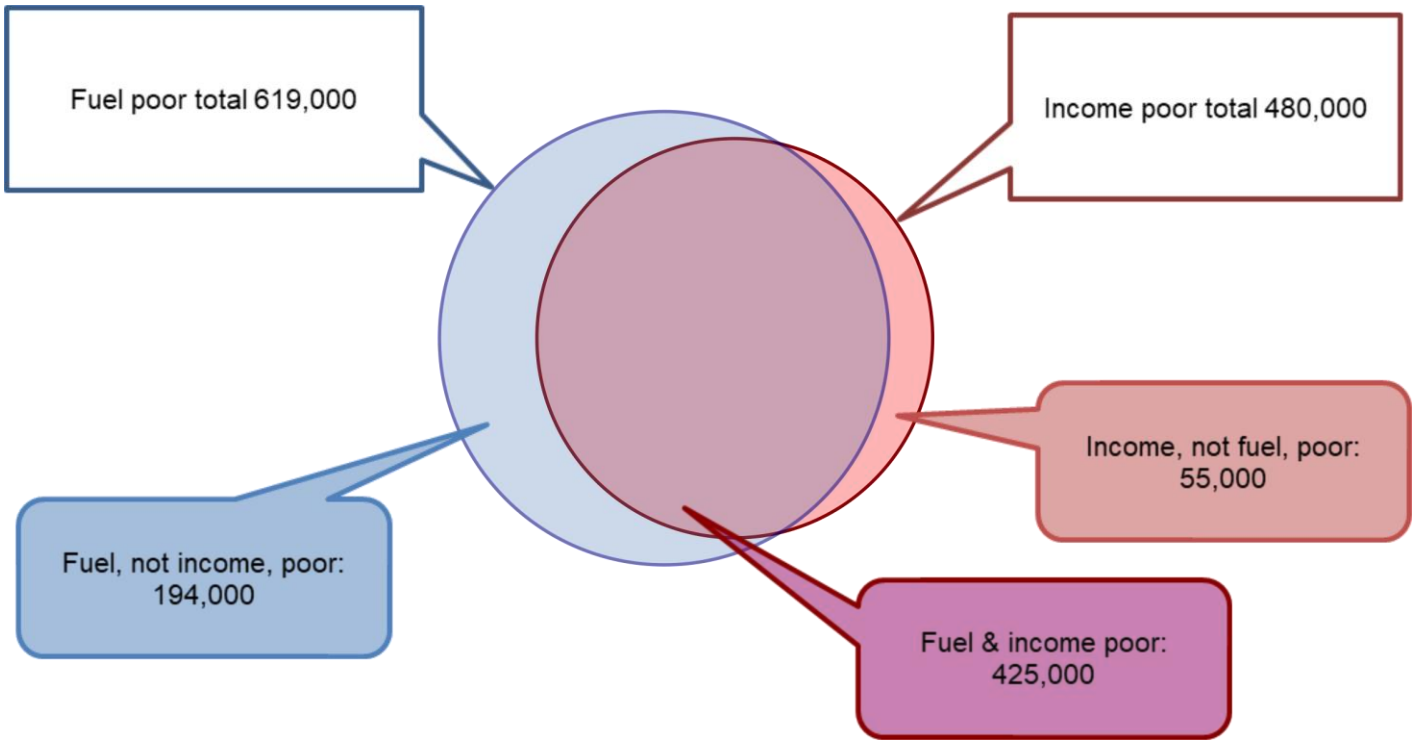
			Income Poor	Not Income Poor	All
2017	**Fuel Poor**	**000s**	416	167	583
		%	71%	29%	100%
	Not Fuel Poor	**000s**	80	1,801	1,881
		%	4%	96%	100%
	All	**000s**	496	1,968	2,464
2018	**Fuel Poor**	**000s**	425	194	619
		%	69%	31%	100%
	Not Fuel Poor	**000s**	55	1,803	1,858
		%	3%	97%	100%
	All	**000s**	480	1,997	2,477

Table 39b: Fuel Poverty Rate (%) by Income Poverty, SHCS 2017 and 2018

	2017	2018
Income Poor	83.9%	88.6%
Not Income Poor	8.5%	9.7%
All	23.7%	25.0%

228. Figure 25 sets out this information graphically. This chart demonstrates, that while low income is associated with fuel poverty, it is not equivalent. Almost a third of fuel poor households would not be considered income poor. Similarly, there are some income poor households who are unlikely to be struggling with their fuel bills with around 1 in 10 income poor households not being fuel poor.

Figure 25: Fuel Poor and Income Poor Households, SHCS 2018



229. Table 40 provides further information about the characteristics of the households who fall into the different sub-groups. Households that are both income poor and fuel poor tend to live in more energy efficient dwellings than other fuel poor households, potentially because of high energy efficiency standards in the social rented sector. They are more likely to use gas for heating, have a higher share of family households and live in urban locations compared to other fuel poor households. These characteristics point to low income as a key reason for their experience of fuel poverty.

230. On the other hand, those who are not income poor but experience fuel poverty have a high likelihood of living in low energy efficiency properties, more than other fuel poor households and the average for Scotland. Among these households the share of electricity use for heating is higher and the use of mains gas is lower. Such households are more likely to live in rural locations and include a higher share of older households compared to other fuel poor households and the rest of Scotland.

Table 40: Household and Dwelling Characteristics by Poverty and Fuel Poverty, 2018

		Fuel, not Income Poor	Fuel & Income Poor	All Fuel Poor	Income, not Fuel Poor	All Scotland
EPC Band (SAP 2012)						
B-C	000s	43	158	201	40	1,057
	col %	22%	37%	32%	73%	43%
D	000s	98	198	295	15	1,031
	col %	50%	47%	48%	27%	42%
E-G	000s	54	69	123	-	389
	col %	28%	16%	20%	-	16%
Household Type						
Older	000s	85	136	221	7	783
	col %	44%	32%	36%	13%	32%
Families	000s	17	78	94	40	569
	col %	9%	18%	15%	72%	23%
Other	000s	93	211	304	8	1,125
	col %	48%	50%	49%	14%	45%
Urban-Rural						
Urban	000s	150	358	508	51	2,059
	col %	77%	84%	82%	93%	83%
Rural	000s	44	67	111	4	419
	col %	23%	16%	18%	7%	17%
Primary Heating Fuel						
Gas	000s	131	337	468	47	2,032
	col %	67%	79%	76%	85%	82%
Oil	000s	13	19	33	*	147
	col %	7%	5%	5%	*	6%
Electric	000s	45	61	106	*	244
	col %	23%	14%	17%	*	10%
Other fuels	000s	4	8	13	5	54
	col %	2%	2%	2%	9%	2%
Gas Grid						
On grid	000s	153	362	515	50	2,032
	col %	79%	85%	83%	90%	82%
Off grid	000s	41	63	104	5	445
	col %	21%	15%	17%	10%	18%
Sample size		*248*	*484*	*732*	*58*	*2,905*

Note: There was one N/A response for Primary Heating Fuel which has been excluded from the table but included in the Scotland statistics. Breakdowns for EPC Band are based on SAP 2012 (RdSAP v9.93). A * indicates where data has been suppressed due to low sample numbers.

5 Energy Perceptions

Key Points

- Nearly a fifth of households find that their heating keeps them warm in winter only sometimes (14%) or never (4%). This is similar to 2017 rates.
- 5% of all households report that their homes were difficult to heat because they cannot afford to heat them, which is similar to the level in 2017.
- Fuel poor households and extreme fuel poor households are more likely to have difficulties staying warm in winter and to report affordability problems; 29% of fuel poor and 32% of extreme fuel poor say that their heating keeps them warm in winter “only sometimes” or “never”, compared to 15% of all other households. 8% of fuel poor and 11% of extreme fuel poor households report that they cannot afford to heat their home, higher than the 3% of non-fuel poor households.
- The extent to which home energy use is monitored by householders has increased since last year with 58% stating they monitor their energy use “very” or “fairly closely” compared to 54% in 2017. 28% of households report owning an energy monitoring device – a 9 percentage point increase on the previous year.
- Fuel poor and extreme fuel poor households are more likely to monitor their energy use than other households (62% and 65% respectively compared to 57% for non-fuel poor households) but they are less likely to own a monitoring device (23% for both compared to 29% for non-fuel poor households).

5.1 Heating Satisfaction

231. Respondents' views on their ability to keep warm in the winter and why this may be difficult is a useful context for understanding statistics on fuel poverty and energy efficiency in the home.

232. In 2018, 79% of householders reported that they were always able to stay warm at home during the winter (Figure 26), 14% said that their heating keeps them warm only sometimes, and 4% report that their heating systems never keep them warm in winter. These are similar levels to 2017.

233. Of those reporting that their heating system keeps them warm in winter "only sometimes" or "never", 21% report this to be "a serious problem", 49% "a bit of a problem", while 30% said it was "not very much" or "not a problem". This distribution is similar to the results from the 2017 survey.

234. Of all households, 4% reported their heating not keeping them warm in winter, and this to be "a serious problem", while 9% said it was "a bit of a problem", both which are at similar levels to 2017.

Figure 26: Staying Warm in Winter, 2018

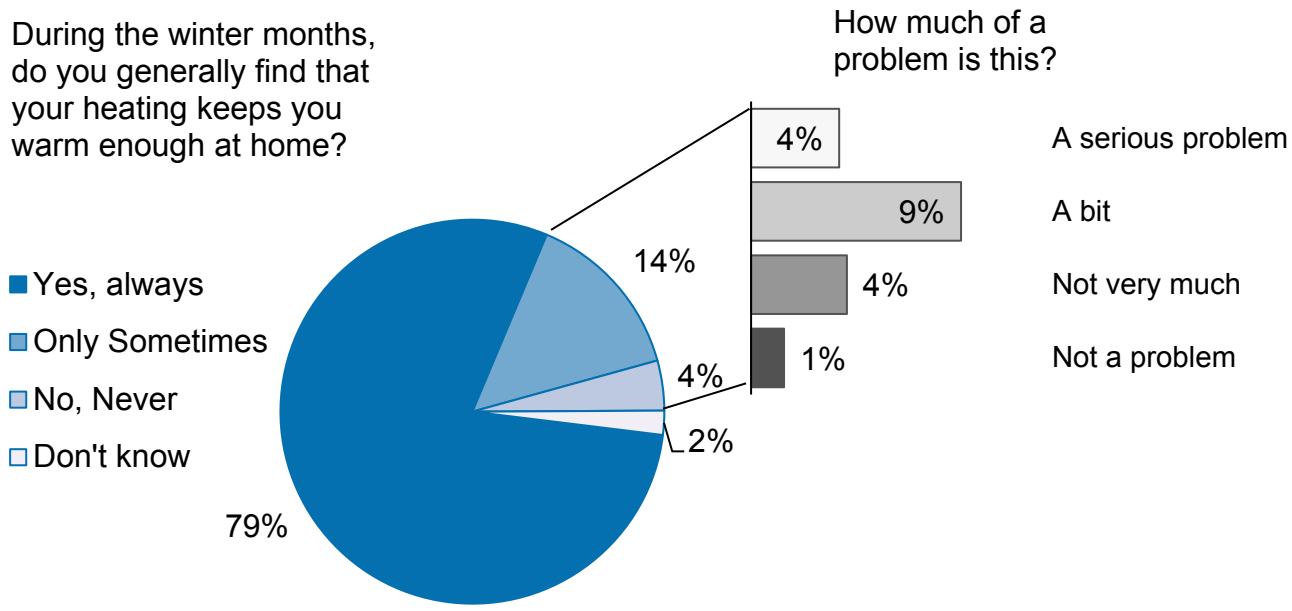
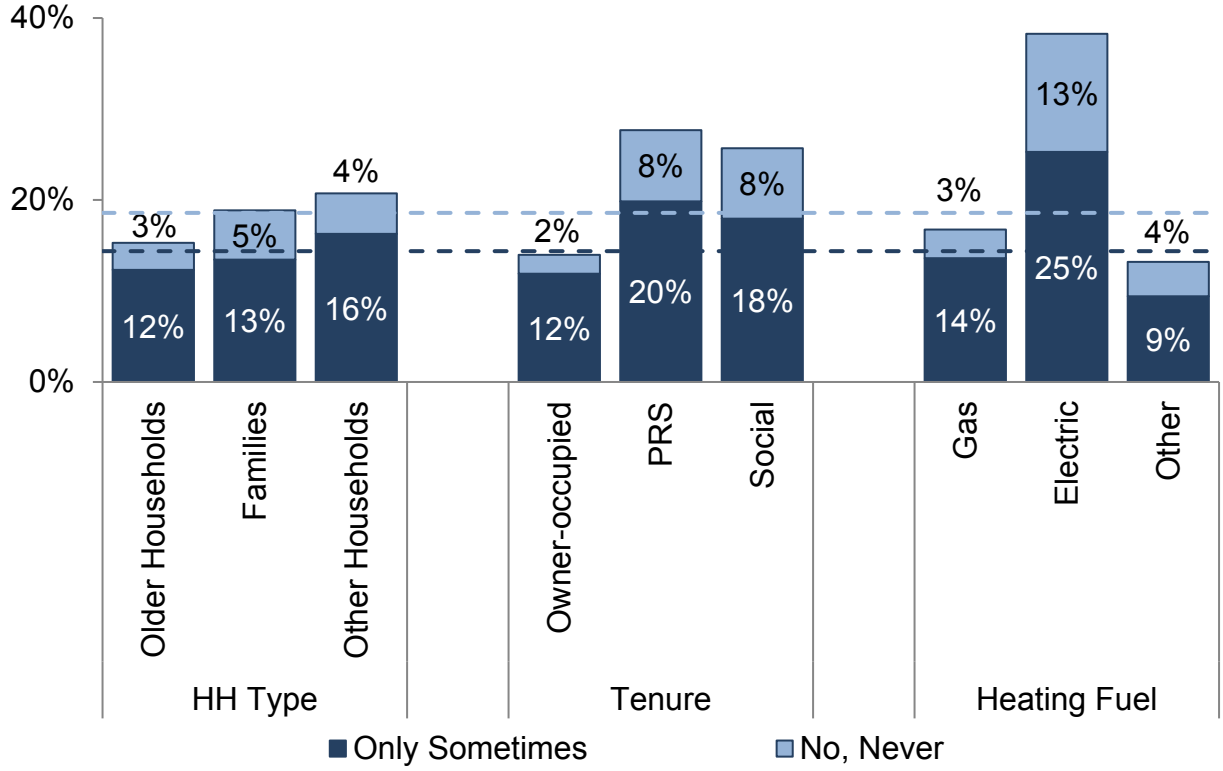


Figure 27: "Does Your Heating Keep You Warm Enough in the Winter?" by Household Type, Tenure and Primary Heating Fuel; SHCS 2018



Note: Dashed lines represent the Scotland levels shown in Figure 26.
Note: There was one N/A response for Primary Heating Fuel which has been excluded from the table but included in the Scotland statistics.

235. Figure 27 shows respondents' views on how well their heating systems keep them warm in winter vary depending on household (HH) type, tenure and the primary heating fuel they use.

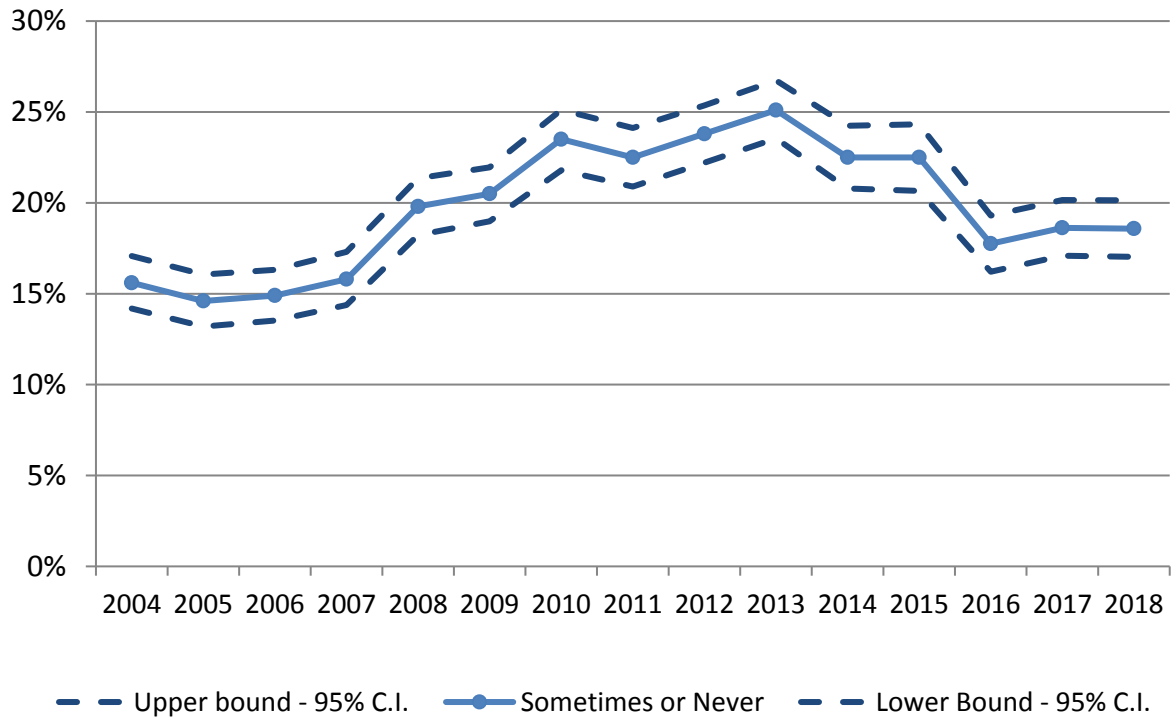
236. Older households are less likely than other household types to report that their heating system doesn't always keep them warm in the winter; 15%, compared 21% of other households.

237. Householders with electric heating have a high propensity to report that their heating systems does not keep them warm in the winter (38%).

238. Social and private renters also have increased likelihood to report that their heating does not always keep them warm compared to owner occupiers. For social sector tenants this is in contrast to the relatively better energy efficiency of the dwellings they occupy compared to the housing stock overall (as shown in Table 19).

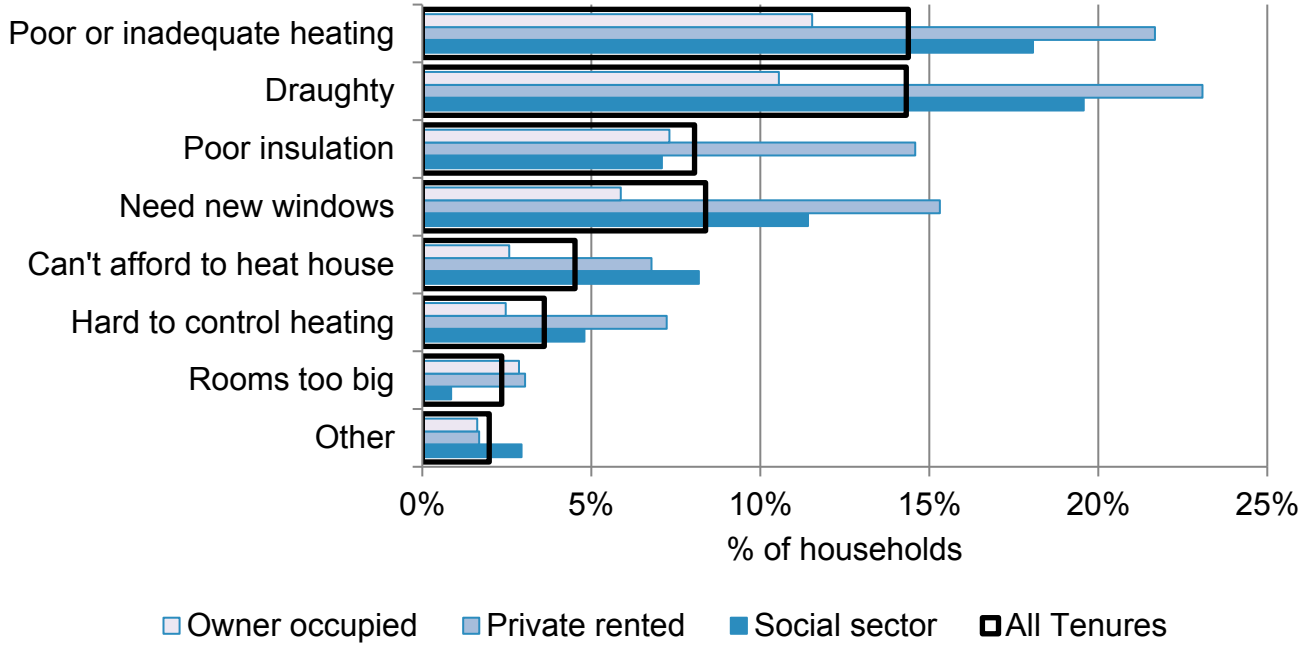
239. Figure 28 shows how the proportion of householders reporting that their heating does not always keep them warm has changed over time, allowing for the margin of error. Following the significant decrease in 2016, there was not a significant change in the proportion in 2017 or 2018.

Figure 28: "Does Your Heating Keep You Warm Enough in the Winter?", Proportion 'Sometimes' or 'Never Warm', 2004-2018



240. The reasons why people find their homes difficult to heat are shown in Figure 29 and Table 41. The most common reasons relate to poor energy performance of the dwellings: poor heating systems and draughts (14% each) followed by insulation and windows (8% each). About 5% of all surveyed householders consider it unaffordable to achieve the indoor temperatures they want. This is higher among private and social renters (7% and 8% respectively) compared to owner occupiers (3%). On the whole private rented and social sector tenants are more likely than owner occupiers to report difficulties. 65% of all interviewed households did not report any problems heating their homes, a lower percentage than in 2017 (68%).

Figure 29: Reasons Heating Home is Difficult by Tenure, 2018



Note: responses have been grouped by theme, as described in section 7.11.5. More than one answer is allowed so the sum of responses can exceed 100%.

Table 41: Reasons Heating Home is Difficult by Tenure, 2018

	Owner occupied	Private rented	Social sector	All Tenures
None reported	70%	52%	58%	65%
Poor or inadequate heating	12%	22%	18%	14%
Draughty	11%	23%	20%	14%
Poor insulation	7%	15%	7%	8%
Need new windows	6%	15%	11%	8%
Can't afford to heat house	3%	7%	8%	5%
Hard to control heating	2%	7%	5%	4%
Rooms too big	3%	3%	1%	2%
Other	2%	2%	3%	2%
Sample size	*1,937*	*294*	*733*	*2,964*

Note: Respondents are permitted to select more than one response. For this reason the sum down a column can exceed 100%

241. Table 42 shows how fuel poor and non-fuel poor households compare in their views on winter heating and heating affordability.

242. Fuel poor and extreme fuel poor households are more likely to report that their heating keeps them warm in winter "only sometimes" or "never", 29% and 32%, respectively, compared to 15% of non-fuel poor households. For 20% of fuel poor households and 24% of extreme fuel poor households this is "a serious" or "a bit of a problem", higher than 11% for households who are not fuel poor.

Table 42: Staying Warm and Fuel Poverty, 2018

	Not Fuel Poor	Fuel Poor	Extreme Fuel Poor
During the winter months, do you generally find that your heating keeps you warm enough at home, or not?			
Yes, always	83%	68%	63%
Only some of the time	12%	21%	24%
No, never	3%	8%	8%
Don't know	2%	3%	5%
How much of a problem is this, if at all, to you?			
A serious problem	2%	8%	9%
A bit of a problem	8%	12%	14%
Affordability			
Cannot afford to heat house	3%	8%	11%
Sample size	*2,173*	*732*	*347*

243. Fuel poor and extreme fuel poor households are also more likely to report affordability problems. When asked about the reasons why they find it difficult to keep their home warm, 8% of fuel poor households and 11% of extreme fuel poor households say “cannot afford to heat my home”, compared to 3% of non-fuel poor households who give this answer.

5.2 Monitoring Energy Use

244. Since 2008 the SHCS has asked respondents to what extent they monitor their energy use and whether or not they have energy monitoring devices.

245. The proportion of households who do not monitor their energy use has fallen from 31% in 2008 to 22% in 2012 and remained around that level (20-22%) until 2017, which saw an increase to 24% (Table 43) from 20% in 2016. In 2018, the proportion of households who do not monitor their energy use fell again to 19%.

246. The proportion of those who report monitoring their energy use “fairly” or “very closely” continues to follow a pattern of improvement. The proportion increased from 44% in 2008 to 54% in 2012 and remained around that level until 2017. In 2018 this increased again to 58%.

Table 43: Extent to which Energy Use is Monitored, 2008, 2011-2018

Extent Energy Use is Monitored…	Year								
	2018	2017	2016	2015	2014	2013	2012	2011	2008
Very closely	19%	17%	18%	16%	16%	17%	16%	14%	11%
Fairly closely	39%	37%	38%	41%	37%	38%	38%	33%	33%
Subtotal: Very or fairly closely	58%	54%	56%	57%	54%	56%	54%	47%	44%
Not very closely	22%	21%	23%	22%	24%	24%	24%	22%	24%
Not at all	19%	24%	20%	22%	22%	20%	22%	30%	31%
Don't know	1%	1%	1%	0%	1%	0%	0%	0%	1%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%
Sample size	*2,964*	*2,529*	*2,441*	*2,492*	*2,682*	*3,442*	*3,428*	*3,949*	*3,762*

247. In 2018 28% of households had energy monitoring devices, as shown in Table 44. This is the third consecutive statistically significant year on year increase and represents a 50% increase in the proportion of households with an energy monitoring device compared to 2017.

Table 44: Households with Energy Use Monitoring Devices, 2008-2018

	% of households	*Sample Size*
2018	28%	*2,964*
2017	18%	*2,529*
2016	10%	*2,441*
2015	8%	*2,492*
2014	7%	*2,682*
2013	8%	*3,442*
2012	8%	*3,428*
2011	7%	*3,949*
2010	4%	*3,853*
2009	2%	*4,153*
2008	2%	*3,762*

248. Table 45 shows that fuel poor and extreme fuel poor households are more likely to monitor their energy use than other households: 62% and 65% report monitoring “very” or “fairly closely” compared to 57% of households who are not fuel poor. However they are less likely to have monitoring devices at home - 23% of both fuel poor and extreme fuel poor households compared to 29% of all other households – despite the overall increase in energy monitoring devices recorded by the survey.

Table 45: Monitoring Energy Use and Fuel Poverty, 2018

	Not Fuel Poor	Fuel Poor	Extreme Fuel Poor
To what extent do you monitor your use of energy in your property?			
Very closely	18%	22%	22%
Fairly closely	38%	40%	44%
Not very closely	22%	20%	19%
Not at all	20%	17%	14%
Don't know	1%	1%	2%
Do you have an energy-use monitoring device in your home?			
Yes	29%	23%	23%
Sample Size	*2,173*	*732*	*347*

6 Housing Conditions

6.1 Disrepair

Key Points

- The level of disrepair increased 7 percentage points, with 75% of all dwellings having some degree of disrepair, however minor it may be.
- Disrepair to critical elements stood at 57%, an increase of 7 percentage points.
- 30% of dwellings had some instances of urgent disrepair, and in 6% of the housing stock some extensive disrepair was present. Neither of these represent a statistically significant difference from 2017 although there is a longer-term trend of improvement since 2012.
- Levels of damp and condensation were similar to that seen in 2017: 89% of properties were free from any damp or condensation.

249. The SHCS measures disrepair for a wide range of building elements. This is reported in four broad categories:

- **Any (or Basic) disrepair.** This is the minimum threshold of disrepair measured in the SHCS and relates to any damage where a building element requires some repair beyond routine maintenance. It is the most comprehensive category covering all types of disrepair, however minor, and encompasses all other types of disrepair (see Figure 29).
- **Extensive disrepair.** To be described as extensive, the damage must cover at least a fifth (20%) or more of the building element area. This category is different from the severity of damage as described by the next two categories, urgent and critical, and can be applied to any of the other 3 categories of disrepair.
- **Urgent disrepair.** This relates to cases requiring immediate repair to prevent further damage or health and safety risk to occupants. Urgency of disrepair is only assessed for external and common elements.
- **Critical element disrepair.** This refers to disrepair to building elements central to weather-tightness, structural stability and preventing deterioration of the property. These elements are listed in section 7.11.7.3. There is some overlap in the building elements assessed under this category and those assessed for urgent disrepair. Not all disrepair to critical elements is necessarily considered urgent by the surveyor.

250. More detailed description of the categories of disrepair is given in section 7.11.7. Rates for each category for the period 2012-2018 are shown in Table 46.

251. In 2018, 75% of Scottish dwellings had some disrepair, however minor it may be. This is an increase of 7 percentage points from 2017, but is still lower than 81% in 2012. Disrepair to critical elements stood at 57%, a 7 percentage point increase on 2017 levels.

252. 30% of dwellings had some urgent disrepair, and in 6% of the housing stock some extensive disrepair was present. Neither of these represent a statistically significant difference from 2017 but still, follow reductions from 39% and 9% respectively in 2012.

Table 46: Rates of Disrepair by Category, 2012-2018

Year	Any (Basic) Disrepair		Disrepair to Critical Elements	Urgent Disrepair	Extensive Disrepair
	No Disrepair[1]	Some Disrepair			
2018	25%	75%	57%	30%	6%
2017	32%	68%	50%	28%	5%
2016	31%	68%	48%	28%	6%
2015	27%	73%	52%	33%	8%
2014	27%	73%	53%	32%	7%
2013	22%	78%	57%	36%	7%
2012	19%	81%	61%	39%	9%

Notes

1. This category may contain very small number of cases where it was not possible to obtain the disrepair status of every element of the property. Figures in this time series will not match those in previous publications as a correction to the basic disrepair time series has been applied, resulting in a very small change of either one percentage point, or less. See the technical notes for further information.

253. It is fairly common for dwellings to display elements of disrepair in more than one category, as illustrated in Figure 30. For example, we imagine a house with several elements in disrepair of varying severity.

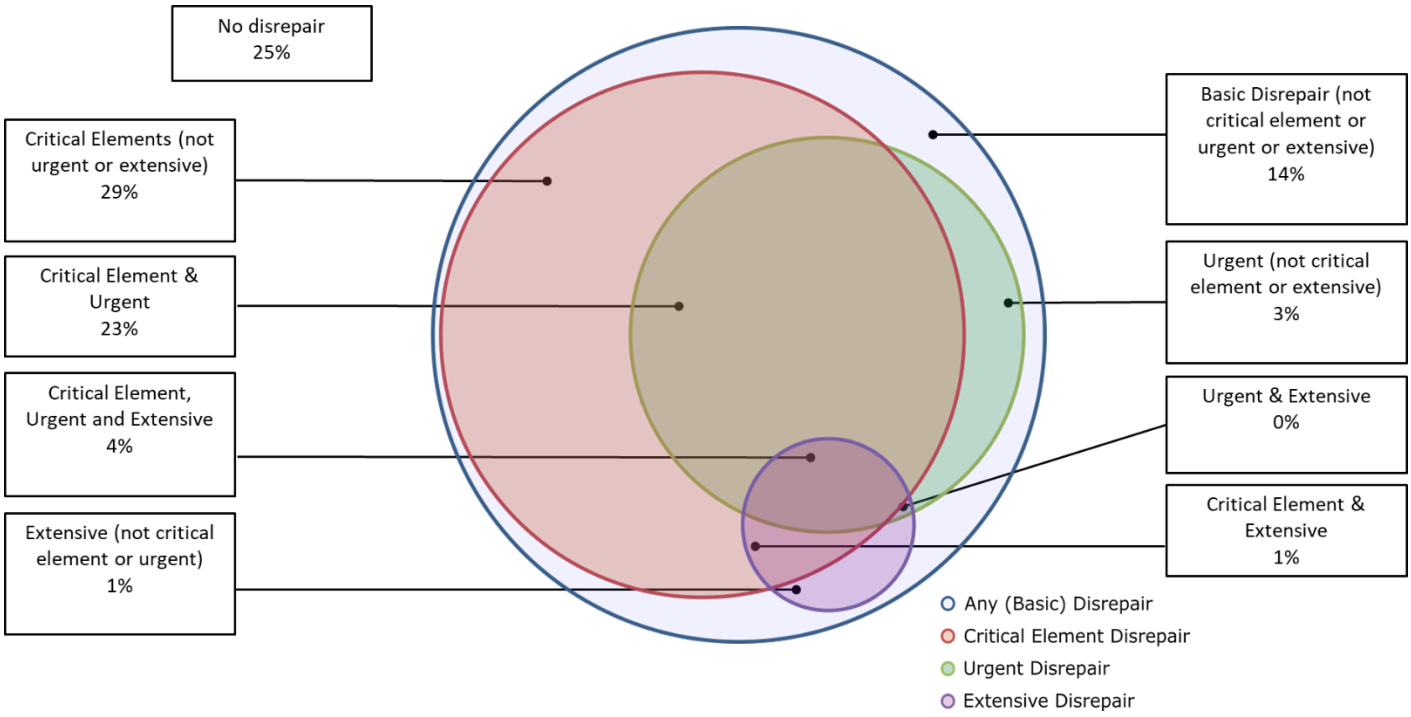
- There is a leaking tap in the bathroom.
- A large section of the render on an external wall has broken off.
- A small area of guttering is damaged, causing rain water to pour down an external wall surface.

254. Following the guidance in the SHCS surveyor handbook, the leaking tap is recorded in the survey as a minor repair. This alone is sufficient to place the house in the category **any (or basic) disrepair**.

255. The broken render on the external wall covers more than 20% of the wall area. The surveyor does not consider the repair urgent. However, the external wall finish is a critical element. This is therefore recorded as both an **extensive** disrepair and a disrepair to a **critical element**.

256. The surveyor has marked the guttering defect as requiring urgent repair, considering that the water pouring down the wall is likely to lead to further damage and compromise the weather-proofing of the building in the short term. Guttering is also one of the critical elements. As a result of this defect the dwelling has both **urgent** and **critical element** disrepair.

Figure 30: Disrepair Categories, Proportions of Scotland's Housing Stock, 2018



6.1.1 Disrepair to Critical Elements

257. This section examines in more detail disrepair to critical elements and its prevalence across tenure, dwelling age band and location.

258. As shown in Table 47, in 2018 the proportion of dwellings which had some disrepair to a critical element(s) was 57%, 7 percentage points higher than in 2017. In some of these dwellings, accounting for 26% of the stock overall, there was also some urgent disrepair. In 4% of the housing stock, in addition to critical and urgent disrepair, some disrepair was assessed as extensive, an increase of 1 percentage point from 2017.

6.1.1.1 Dwelling age and location

259. The prevalence of disrepair to critical elements is associated with age of construction, with dwellings built after 1964 less likely to fall within this category. Dwellings built in the period 1965 to 1982 have a critical disrepair rate of 52% while those built after 1982 have a rate two-thirds that level at 35%. This is also evident where instances of critical disrepair co-exist with urgent disrepair, a pattern which has remained unchanged in the last year.

260. Of the categories of disrepair shown, urban dwellings have a higher rate of dwellings with both critical and urgent disrepair than rural dwellings. There has been an increase in the rates of urban disrepair in all categories between 2017 and 2018; in comparison, only critical disrepair rates increased in rural areas between 2017 and 2018.

Table 47: Disrepair to Critical Elements, Urgent and Extensive Disrepair by Dwelling Age and Location, 2017 and 2018

	Age of dwelling					Location		
	pre-1919	1919-1944	1945-1964	1965-1982	post 1982	Urban	Rural	Scotland
Dwellings with any Critical Disrepair								
2018	73%	73%	67%	52%	35%	57%	54%	57%
2017	68%	63%	58%	48%	24%	50%	47%	50%
Dwellings with Critical and Urgent disrepair								
2018	40%	35%	34%	21%	12%	27%	23%	26%
2017	36%	32%	31%	21%	8%	24%	23%	24%
Dwellings with Critical, Urgent & Extensive disrepair								
2018	7%	2%	5%	3%	1%	4%	4%	4%
2017	5%	1%	4%	3%	*	2%	3%	2%

6.1.1.2 Tenure

261. Levels of critical disrepair are similar for the private and the social housing sector considered as a whole. In 2018, over half of all dwellings (57% in both the private and social sector) have some disrepair to critical elements. Over a quarter of dwellings have both critical and urgent disrepair (27% for the private sector and 26% for the social sector) and a small proportion (4% in the private and 3% in social sector) also have instances of extensive disrepair in addition to critical and urgent.

262. However, the sectors are not homogenous. Housing associations dwellings have the lowest levels of disrepair in all of the categories covered by Table 48 in 2018. They are followed by owner occupied dwellings and LA properties, while private rented properties have the highest levels of disrepair in these categories.

263. Between 2017 and 2018, there were increases in critical disrepair rates for owner-occupied and PRS dwellings. Correspondingly, the overall private critical disrepair rate increased. Housing association dwelling rates of critical and urgent disrepair increased by 4 percentage points. Rates of critical, urgent and extensive disrepair increased in the PRS, and hence the private sector overall, between 2017 and 2018.

Table 48: Disrepair to Critical Elements, Urgent and Extensive Disrepair by Tenure Group, 2017 and 2018

	Tenure						
	Owner occupied	LA/Other Public	HA/Co-op	Private rented	Private Sector	Social Sector	Scotland
Dwellings with any Critical Disrepair							
2018	54%	63%	46%	72%	57%	57%	57%
2017	46%	61%	40%	59%	49%	53%	50%
Dwellings with Critical and Urgent disrepair							
2018	24%	31%	17%	39%	27%	26%	26%
2017	22%	30%	13%	33%	24%	23%	24%
Dwellings with Critical, Urgent & Extensive disrepair							
2018	3%	3%	2%	9%	4%	3%	4%
2017	2%	5%	*	3%	2%	3%	2%

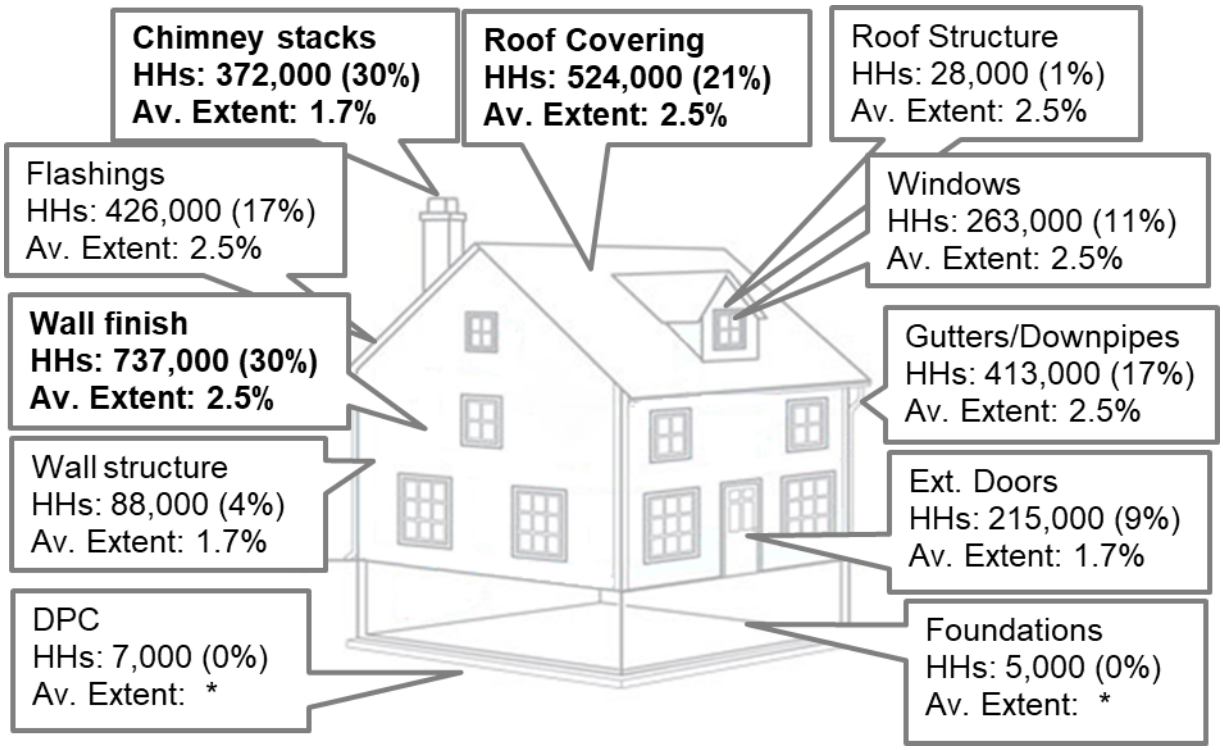
6.1.1.3 Type of Disrepair to Critical Elements

264. As shown in Figure 31, although some disrepair to critical elements is fairly common it tends to be at a relatively low level in each property, affecting on average no more than 2.5% of the relevant area. A full list of elements in this category is provided in section 7.11.7.3.

265. Wall finish and roof coverings are often affected. Around 30% of dwellings had some disrepair to wall finish and 21% had some disrepair to roof coverings; however, in both cases the disrepair covered no more than 2.5% of the area on average. Where stone pointing, render or harling on walls is damaged, moisture can seep into the structure of the walls and cause further damage. Similarly slipped roof tiles or slates can allow water to access the roof structure or the tops of internal walls.

266. Around 30% of dwellings with chimneys showed some signs of disrepair. Unchecked this can lead to water ingress and eventually falling masonry.

Figure 31: The Number of Households (HHs) Affected and Average (Median) Extent of Disrepair to External Critical Elements



** Av. Extent has been suppressed for some categories due to small sample sizes*

6.1.2 Damp and Condensation

267. The definitions of damp and condensation are provided in section 7.11.8.

268. Any condensation, rising or penetrating damp recorded in the SHCS can cover anything from a small damp patch or area of condensation on a single wall in one room (caused for example by ineffective ventilation whilst cooking) to prevalence throughout a dwelling, so does not indicate a serious housing quality issue in all cases.

269. The incidence of these defects in isolation and together is given in Table 49. Around 89% of all dwellings in 2018 were free from any form of condensation or damp. This is similar to 2017 (91%) and represents an overall improvement from 86% in 2012.

270. In 2018 2.8% of the housing stock (around 69,000 dwellings) suffered from some degree of penetrating damp, which is similar to 2017 levels. The presence of penetrating damp has fluctuated between 2.3% and 3.7% across the past 7 years of the survey. There were a very small number of properties with rising damp in the survey sample, suggesting that their share in the housing stock is less than 1%.

271. Condensation was observed in 8.9% of the surveyed stock (equivalent to around 220,000 dwellings) which is similar to 2017 and 2016 levels, although represents a reduction from 11.3% in 2012.

272. In 1% of dwellings (26,000) both condensation and some form of damp were recorded. This level has not changed significantly in the previous six years.

Table 49: Presence of Damp and/or Condensation in 2012-2018

	2018		2017		2016		2012	
Defect	000s	%	000s	%	000s	%	000s	%
No Damp or Condensation	2,209	89.2%	2,236	90.8%	2,171	88.6%	2,056	86.2%
Condensation	220	8.9%	185	7.5%	209	8.5%	270	11.3%
Penetrating damp	69	2.8%	58	2.3%	91	3.7%	86	3.6%
Rising damp	10	0.4%	6	0.2%	10	0.4%	7	0.3%
Condensation and any damp	26	1.0%	19	0.8%	26	1.0%	29	1.2%
Total	2,477		2,464		2,452		2,386	
Sample		2,964		3,002		2,850		*2,787*

6.2 Housing Quality Standards

Key Points

- Levels of compliance with the tolerable standard in 2018 decreased slightly to 2016 levels: 2% (or 50,000) of all dwellings fell below the Tolerable Standard. Longer term this represents an improvement of 2 percentage points since 2012.
- The Scottish Housing Quality Standard (SHQS) failure rate in the social sector was 36%, not allowing for abeyances and exemptions, representing no change from 2017. This has fallen from 60% in 2010. 26% of social sector properties did not meet the Energy Efficient criterion.
- SHCS surveyors may not always be able to identify the presence of cavity wall insulation. The overall SHQS failure rate in the social sector would be 23% if it is assumed that all social dwellings have insulated cavity walls where this is technically feasible.
- The failure rate in the private sector overall is similar to that seen in 2017 (44%, compared to 41%), although the PRS failure rate increased nine percentage points from 48% in 2017, to 57% in 2018. Nevertheless, whilst private owners and landlords are currently under no obligation to bring their properties up to this standard, long term improvement is being made in the private sector overall.
- The majority of dwellings falling below the SHQS failed on a single criterion; this accounted for more than 8 out of 10 failures in the social sector.
- For almost three quarters of social homes failing the SHQS this was due to falling short on a single one of the 55 elements which make up the standard. Most frequently these were cavity wall insulation, pipe and tank insulation, full and efficient central heating, effective loft insulation, at least six kitchen sockets, and safe common front and rear doors

273. Two quality standards are set by the Scottish Government and monitored through the Scottish House Condition Survey.

274. The **Tolerable Standard** is a "condemnatory" standard. In other words, it is not reasonable to expect people to continue to live in a house that falls below it. For more information on the Tolerable Standard see section 7.11.10.

275. The **Scottish Housing Quality Standard (SHQS)** was introduced in February 2004[62]. It means social landlords must make sure their tenants' homes are in a good state of repair, energy efficient, healthy, safe and secure. A target was agreed that all social landlords must ensure that all their dwellings pass the SHQS by April 2015. Private owners and private landlords are currently under no obligation to bring their properties up to this standard. However SHCS collects the same data for all dwellings to allow comparison across the housing stock. Since 2012 this target has been incorporated in the Scottish Social Housing Charter and the performance of landlords has been monitored by the independent Scottish Housing Regulator (SHR).

276. For more information on the SHQS see section 7.11.11.

6.2.1 Tolerable Standard

277. The overall level of compliance with the tolerable standard decreased slightly from 2017, returning to 2016 levels. As shown in Table 50, 2% of all dwellings (or 50,000 dwellings) fell below the tolerable standard in 2018. However there is a longer term trend of improvement and 2018 levels represent a drop of 2 percentage points since 2012.

278. The share of dwellings below tolerable standard in the private sectors was 2%, 1 percentage point higher than in 2017, but similar to 2016 levels. The proportion of social sector dwellings below tolerable standard increased one percentage point from 2017 levels, returning to the same proportion in 2016.

279. The rate for the PRS in 2018 was 4% and has remained broadly at the same level for the last seven years. While in the past, we have found that PRS dwellings were more likely to fall below tolerable standard than owner occupied dwellings or those in the social sector, this gap is no longer observed in the SHCS sample for 2016, 2017 and 2018 and there is no significant difference in levels of compliance.

280. The proportion of pre-1919 dwellings below tolerable standard increased by three percentage points from 3% in 2017, to 6% in 2018. This is similar to proportion below tolerable standard in 2016, but is three percentage points lower than in 2012. Relatively fewer recently built dwellings (post 1965) were below tolerable standard compared to pre-1919 dwellings, at 1% in 2018.

[62] For more information see letter and notes at: http://www.gov.scot/Publications/2004/02/18860/32772

Table 50: Dwellings Below Tolerable Standard (BTS) by Tenure and Age Band, 2018

		Below Tolerable Standard			
		%	000s	% of BTS Stock	*Sample*
Whole Stock		2%	50	100%	*2,964*
Tenure	Owner-occupied	2%	27	54%	*1,937*
	Private-rented	4%	10	21%	*294*
	Subtotal: Private	2%	37	75%	*2,231*
	Social	2%	12	25%	*733*
Age of Dwelling	Pre-1919	6%	26	53%	*521*
	1919-1944	2%	7	13%	*327*
	1945-1964	2%	11	22%	*654*
	Post-1965	1%	6	13%	*1,462*

281. The tolerable standard consists of 12 criteria (listed in section 7.11.10), failure on one of which leads to a failure overall. Dwellings which failed the tolerable standard in 2018 most commonly did so because they:

- were not free from rising/penetrating damp (13,000 or 27% of BTS dwellings);
- did not have safe electrical systems (11,000 or 22% of BTS dwellings);
- were not satisfactorily insulated (10,000, or 20% of BTS dwellings);
- had unsatisfactory provision for lighting, ventilation or heating (7,000 or 14% of BTS dwellings).

6.2.2 Scottish Housing Quality Standard (SHQS)

282. In this section we present the results of analysis of the SHCS with regards to compliance with the Scottish Housing Quality Standard (SHQS). The SHQS provides a common standard for assessing the condition of Scottish housing. For this reason, although the requirement to comply with SHQS applies only to social sector housing, we assess all tenures for comparison.

283. The SHQS is made up of 55 different elements grouped into 5 higher-level criteria: Tolerable Standard (A), Serious Disrepair (B), Energy Efficiency (C), Modern Facilities and Services (D) and Healthy, Safe and Secure (E)[63]. In the SHCS 54 of the 55 individual elements is assessed by surveyors trained to collect detailed information on housing characteristics. Only one element is not assessed using SHCS data: no information is collected on external noise insulation. This data collected is subsequently aggregated by Scottish Government analysts into higher level measures for each of the 5 criteria and the standard overall.

284. Table 51 shows the overall results for the Scottish housing stock, covering the period 2010 to 2018. In 2018, 41% of all dwellings failed to meet the SHQS, which is similar to 2017. However, it is down from 45% in 2016 and 61% in 2010. As in previous years, the highest failure rate was with respect to the Energy Efficient criterion (30%), followed by Healthy, Safe and Secure (12.6%) and Modern Facilities (6%). There were a small number of dwellings which did not meet the BTS criterion (2%) or the Serious Disrepair criterion (0.1%). The increase in the rate of dwellings failing the tolerable standard and healthy, safe and secure criteria between 2017 and 2018 are statistically significant whilst the changes for other criteria are within the margin of error for this survey.

Table 51: Proportion of Dwellings Failing SHQS and Individual Criteria 2010-2017

	2018	2017	2016	2015	2014	2013	2012	2011	2010
SHQS	41.5%	40.3%	44.7%	45.4%	47.5%	49.1%	54.0%	58.2%	61.0%
BTS	2.0%	1.0%	1.6%	1.7%	2.0%	3.0%	3.7%	3.0%	3.6%
Serious Disrepair	0.1%	0.1%	*	0.1%	0.1%	0.2%	0.1%	0.5%	0.8%
Energy Efficient	30.4%	29.7%	32.8%	33.7%	34.8%	36.3%	42.2%	46.0%	49.2%
Modern Facilities	6.0%	7.4%	8.6%	8.8%	11.1%	11.4%	11.9%	13.7%	15.6%
Healthy, Safe and Secure	12.6%	10.4%	12.4%	13.4%	13.8%	13.7%	16.1%	17.0%	16.6%

Notes: 1. Figures for 2014-2018 are not fully comparable to previous years. For details see Technical Notes and Definitions

6.2.2.1 Compliance with SHQS by Tenure, Dwelling Age and Location

285. Table 52 shows the number and proportion of properties failing the SHQS by selected characteristics.

[63] Full guidance available at http://www.gov.scot/Topics/Built-Environment/Housing/16342/shqs

286. The lowest failure rates are in the newest dwellings (post-1982, 17% fail) and in Housing Associations stock (26% fail). As previously shown (section 2.5.2), Housing Association dwellings are often newer than Local Authority stock and are built to a higher energy efficiency standard. The newest purpose-build social housing in Scotland is also likely to be designed to comply with SHQS.

287. The overall SHQS failure rate for social sector housing in 2018 stood at 36%, similar to 2017. If it is assumed that all social dwellings have insulated cavity walls where this is technically feasible, the overall SHQS failure rate in the social sector would be 23% (see section 6.2.2.4). SHCS based measures do not make an allowance for abeyances and exemptions.

288. The overall similarity in the SHQS failure rate in the past year is reflected across the dwelling types, tenures and locations detailed in Table 52. Only PRS dwellings had a statistically significant change in SHQS failure rate, increasing 9 percentage points from 48% in 2017, to 57% in 2018.

Table 52: Number and Proportion of Dwellings Failing SHQS, 2017 and 2018

	2018			2017		
	000s	% fail	*Sample*	000s	% fail	*Sample*
All Scotland	1,027	41%	*2,964*	993	40%	*3,002*
Tenure						
Owned outright	371	44%	*1,091*	338	41%	*1,104*
Mortgaged	268	38%	*846*	255	38%	*797*
LA	168	41%	*459*	159	42%	*439*
HA/co-op	64	26%	*274*	75	30%	*289*
PRS	155	57%	*294*	166	48%	*373*
Private	794	44%	*2,231*	759	41%	*2,274*
Social	233	36%	*733*	234	37%	*728*
Dwelling Age						
pre-1919	253	54%	*521*	226	48%	*512*
1919-1944	143	51%	*327*	142	49%	*369*
1945-1964	260	49%	*654*	272	50%	*684*
1965-1982	258	49%	*654*	238	46%	*647*
post-1982	114	17%	*808*	115	18%	*790*
Location						
Urban	823	40%	*2,292*	806	39%	*2,341*
Rural	205	49%	*672*	187	46%	*661*

6.2.2.2 Individual SHQS Criteria

289. Table 53 shows the failure rates for each criterion of the SHQS for private and social sector housing since 2010. It demonstrates that there has been a consistent trend of improvement in both the private and the social sector, although overall, the SHQS failure rates remain unchanged in the last year. The survey sample is not large enough to measure accurately year-on-year changes for each criterion. However, in 2018 we do see significant increases in the failure rates for dwellings failing the Below Tolerable Standard criterion for the private and social sectors, plus overall from 2017 to 2018. Furthermore, there is an increase in the proportion of private sector dwellings failing the Not Healthy, Safe or Secure criterion.

290. The SHCS estimates that 36% of social sector housing failed to meet the SHQS in 2018. This was predominantly due to the Energy Efficient criterion, 26% of properties failed on this measure. 9% failed the Healthy, Safe and Secure criterion and 5% failed the Modern Facilities criterion. A small number (2%) failed the Below Tolerable Standard criterion.

Table 53: SHQS Criteria Failure Rates by Tenure, 2010-2018

		2018	2017	2016	2015	2014	2013	2012	2011	2010
All tenures	**SHQS Overall**	41%	40%	45%	45%	47%	49%	54%	58%	61%
	Below Tolerable Standard	2%	1%	2%	2%	2%	3%	4%	3%	4%
	Serious Disrepair	*	0%	*	0%	0%	0%	0%	1%	1%
	Not Energy Efficient	30%	30%	33%	34%	35%	36%	42%	46%	49%
	Lacking Modern Facilities/Services	6%	7%	9%	9%	11%	11%	12%	14%	16%
	Not Healthy, Safe or Secure	13%	10%	12%	13%	14%	14%	16%	17%	17%
Private	**SHQS Overall**	44%	41%	47%	47%	48%	51%	55%	60%	61%
	Below Tolerable Standard	2%	1%	2%	2%	2%	3%	4%	4%	4%
	Serious Disrepair	*	0%	*	0%	0%	0%	*	1%	1%
	Not Energy Efficient	32%	31%	35%	36%	37%	39%	43%	49%	51%
	Lacking Modern Facilities/Services	7%	7%	9%	9%	11%	11%	11%	13%	13%
	Not Healthy, Safe or Secure	14%	11%	14%	14%	14%	14%	17%	17%	17%
Social	**SHQS Overall**	36%	37%	38%	39%	45%	43%	52%	52%	60%
	Below Tolerable Standard	2%	0%	1%	1%	1%	3%	3%	1%	2%
	Serious Disrepair	*	-	-	-	*	*	*	*	*
	Not Energy Efficient	26%	26%	26%	27%	30%	28%	39%	37%	44%
	Lacking Modern Facilities/Services	5%	7%	8%	8%	12%	12%	15%	15%	22%
	Not Healthy, Safe or Secure	9%	7%	9%	10%	14%	13%	13%	15%	16%

Notes: 1. Figures for 2014-2018 are not fully comparable to previous years.

6.2.2.3 Number of Criteria and Elements Failing

291. In the large majority of cases failure to meet the SHQS is due to a dwelling not passing one criterion or even a single element. As the standard incorporates 55 different elements, it is generally sufficient for a dwelling to fail on a single one of these in order to be considered not satisfying the higher level criterion requirement and the SHQS overall[64].

292. Table 54 and Table 55 present the distribution of dwellings for Scotland as a whole and social housing separately by number of criteria failed. The majority of failures in 2018 were due to a single criterion: 33% of dwellings in the whole stock and 30% of social sector dwellings failed the SHQS because of a single criterion.

293. This constitutes respectively 79% (for all housing) and 84% (for social sector) of all dwellings falling below the SHQS. In 2010 the corresponding figure for the percentage of dwellings failing the SHQS which do so on just one criterion was 68% for both the social sector and the whole housing stock. Therefore over time, alongside the reduction in the overall failure rate, there has also been a reduction in the reasons why a dwelling does not meet the standard.

Table 54: Number and Proportion of Dwellings by Numbers of SHQS Criteria Failures, All Housing, 2010, 2015-2018

Number of Criteria Failures	2018		2017		2016		2015		2010	
	000s	Col %	000s	Col %	000s	Col %	000s	Col %	000s	Col %
None	1,450	59%	1,470	60%	1,355	55%	1,328	55%	920	39%
1	816	33%	821	33%	867	35%	843	35%	980	42%
2	185	7%	143	6%	202	8%	226	9%	352	15%
3+	26	1%	29	1%	28	1%	37	2%	106	4%
Total Dwellings	2,477	100%	2,464	100%	2,452	100%	2,434	100%	2,357	100%
Criteria Fails as % of All assessed	10%		10%		11%		12%		17%	
Sample size		*2,964*		*3,002*		*2,850*		*2,754*		*3,115*

[64] There is an exception to this principle with respect to 14 secondary building elements where failure on at least two is required for a building to be considered not meeting the standard overall. The full guidance is available at http://www.gov.scot/Topics/Built-Environment/Housing/16342/shqs

Table 55: Number and Proportion of Dwellings by Numbers of SHQS Criteria Failures, Social Dwellings, 2010, 2015-2018

Number of Criteria Failures	2018		2017		2016		2015		2010	
	000s	Col %	000s	Col %	000s	Col %	000s	Col %	000s	Col %
None	423	64%	392	63%	385	62%	359	61%	252	40%
1	194	30%	217	35%	202	33%	191	32%	257	41%
2	34	5%	*	*	35	6%	35	6%	95	15%
3+	4	1%	*	*	-	-	4	1%	29	5%
Total Dwellings	656	100%	626	100%	622	100%	589	100%	633	100%
Criteria Fails as % of All Assessed	8%		8%		9%		9%		17%	
Sample size		*733*		*728*		*716*		*659*		*798*

Table 56: Number and Proportion of Social Sector Dwellings by Number of SHQS Element Failures, and Most Common Single-Element Failures, 2018

Number of Element Failures	000s	% of All Dwellings	% of Failing Dwellings
None	423	65%	
1 element	169	26%	73%
… of which			
Cavity wall insulation (C31)	84		
Pipe and tank insulation (C33)	17		
Full and efficient central heating (D34)	11		
Effective loft insulation (C32)	10		
At least six kitchen sockets (D39)	8		
Safe Common Front and Rear Doors (E55)	8		
2 elements	42	6%	18%
3 or more elements	21	3%	9%
Subtotal: dwellings failing the SHQS	232		100%
All social sector dwellings	656	100%	
Sample size		*733*	

294. Table 56 shows the distribution of social sector dwellings by the number of elements failed. Almost three quarters (73%) of dwellings failing the SHQS did so because of a single element. The elements most likely to cause failure (as there are no other reasons to fail the SHQS in these dwellings) are cavity wall insulation, pipe and tank insulation, full and efficient central heating, effective loft insulation, at least six kitchen sockets, and safe common front and rear doors.

6.2.2.4 SHQS Compliance and Cavity Wall Insulation

295. The SHQS target is incorporated into the Scottish Social Housing Charter and the independent Scottish Housing Regulator (SHR) is responsible for monitoring social landlords' progress towards the target. The latest SHQS progress update published by the SHR[65] reported that 94% of social homes met the SHQS in 2018/19.

296. There are some differences between the SHR and the SHCS survey in the way data for assessing the SHQS is collected and reported which make the headline compliance rates not immediately comparable. Abeyances and exemptions are not taken into account by the SHCS as it is not feasible to collect this kind of information in the survey.

297. One potential source of difference relates to the ability of the survey to detect the presence of cavity wall insulation (CWI) in all cases. According to feedback from social landlords, cavity wall insulation is installed as standard where there is a suitable cavity, and in most other cases external or internal insulation is considered (although this is not required for SHQS). This is because CWI is recognised throughout the sector as a relatively low cost measure with a high impact on energy efficiency.

298. However, the survey still records uninsulated cavity wall properties, and to allow for the possibility that SHCS surveyors may not always be able to identify the presence of CWI we provide an alternative estimate of SHQS compliance (Table 57). This estimate assumes that all social dwellings have insulated cavity walls where this is technically appropriate. Where it is not appropriate we assume an exemption. Therefore this alternative measure of compliance assumes that no dwelling fails the SHQS for lack of CWI. Although this is an unlikely scenario, it illustrates the maximum impact that undercounting CWI in the survey could potentially be making on the measurement of SHQS compliance in the social sector.

[65] https://www.housingregulator.gov.scot/landlord-performance/national-reports/national-reports-on-the-scottish-social-housing-charter/national-report-on-the-scottish-social-housing-charter-201819

Table 57: Number and Proportion of Dwellings in the Social Sector Failing the Energy Efficient Criterion and SHQS Overall, With and Without the Cavity Wall Insulation (CWI) Element, 2017 and 2018

		Dwellings Failing the Energy Efficient Criterion		Dwellings Failing the SHQS Overall	
		000s	%	000s	%
2018	inc. CWI element	172	26%	233	36%
	exc. CWI element	71	11%	149	23%
	Difference	-101	-15 pts	-84	-13 pts
2017	inc. CWI element	160	26%	234	37%
	exc. CWI element	70	11%	154	25%
	Difference	-90	-14 pts	-80	-13 pts

299. In 2018, around one sixth of social dwellings (17% or 113,000 dwellings) are recorded as failing the CWI element of the SHQS. Excluding this element from the compliance requirement leads to a 15 percentage point reduction in the energy efficiency element failure rate and a 13 percentage point reduction in overall SHQS failure. This amounts to around 84,000 fewer social sector dwellings failing the SHQS and an overall SHQS failure rate of 23%.

6.3 Overcrowding and Under-Occupancy

Key Points

- In 2018 around 53,000 households lived in overcrowded accommodation (2%) under the bedroom standard.
- Around 918,000 (37%) households had one bedroom in excess of the minimum requirement under the bedroom standard. A further 804,000 (32%) households had two or more bedrooms in excess.
- Social sector tenants are more likely to live in accommodation which is at the level meeting the minimum requirements of the bedroom standard (53% compared to 19% in the private sector). Social sector tenants are also slightly more likely (4%) to live in accommodation which is overcrowded according to the bedroom standard than those households living in the private sector (1%).

300. This section examines some key measures of whether households are living in overcrowded or under-occupied conditions. This is determined on the basis of the bedroom standard as defined in the Housing (Overcrowding) Bill 2003[66] taking into account the number of bedrooms available in the dwelling and the type of household that occupies it.

301. Minimum requirements for bedrooms under the bedroom standard should not be confused with criteria for the removal of the spare room subsidy. More information on the bedroom standard and the differences between the two is included in section 7.11.9.

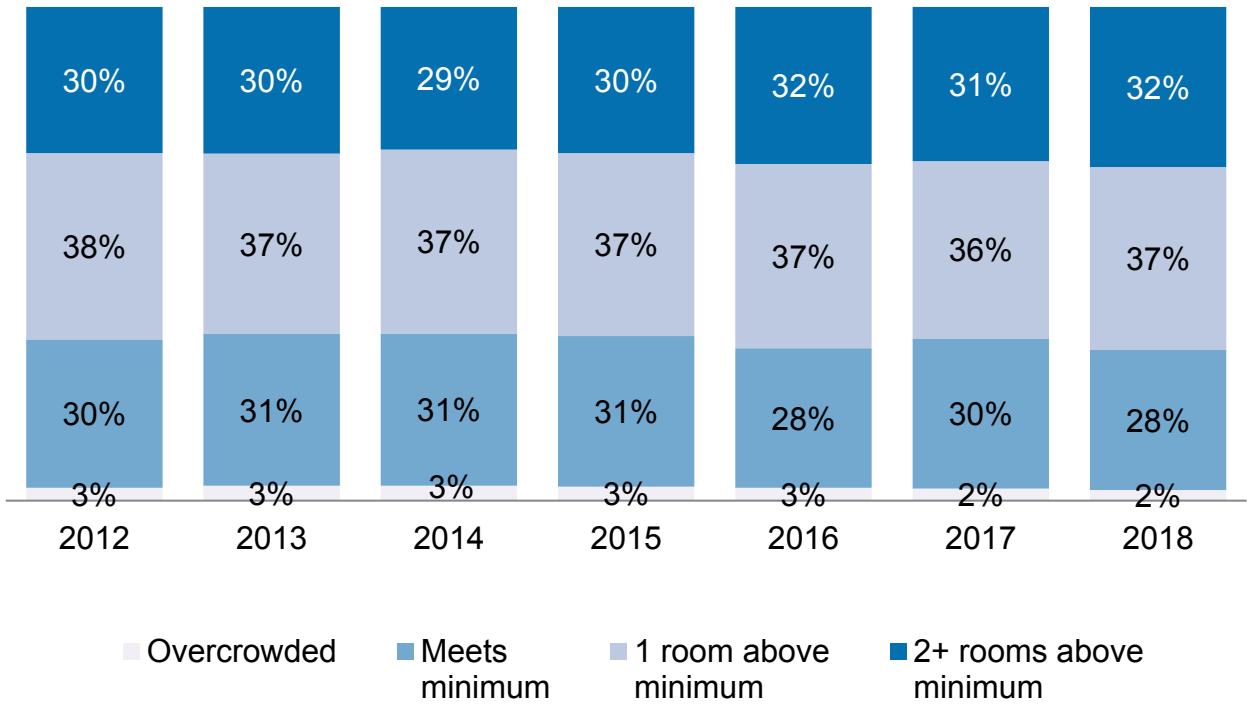
302. A minor error in how bedrooms were calculated in previous years is corrected here. The impact on headline rates is less than a percentage point change. Please see the technical notes section 7.11.9 for further information.

303. Figure 32 and Table 58 show how headline occupancy measures have changed over time. There was no significant change in these headline measures between 2017 and 2018. In 2018, the national rate of households with at least one bedroom above the minimum standard was 69%. The rate of overcrowding has stayed stable since 2012 (3%).

304. Subsequent sections examine in more detail differences across household and dwelling characteristics for 2018 and the preceding year.

[66] Housing (Overcrowding) Bill 2003, section 2: http://www.publications.parliament.uk/pa/cm200203/cmbills/046/2003046.pdf

Figure 32: Proportion of Dwellings which are Overcrowded, Meet the Minimum Standard, Exceed it by 1 Bedroom or Exceed by 2 or More Bedrooms, 2012-2018



Note: The SHS collects data on gender and not sex. Therefore the number of bedrooms required are allocated based on self-reported gender. In addition, from 2018 onwards the question on gender was non-binary and included two additional responses: 'Identified in another way' and 'Refused'. Please see Annex 2 of the Scottish Household Survey Annual Report 2018 for further details.

Table 58: Dwellings which are Below The Standard, Meet The Minimum Requirement, or Exceed it by 1, 2 or + Bedrooms, 2012, 2017, 2018

	2018		2017		2012	
Bedroom Standard	**000s**	**%**	**000s**	**%**	**000s**	**%**
Below Standard	53	2%	61	2%	62	3%
Compliance: minimum requirements	703	28%	749	30%	718	30%
Above Standard	1721	69%	1654	67%	1607	67%
1 bedroom above minimum	918	37%	885	36%	900	38%
2+ bedrooms above minimum	804	32%	769	31%	706	30%
2 bedrooms above minimum	*573*	*23%*	*520*	*21%*	*514*	*22%*
3 or more bedrooms above minimum	*230*	*9%*	*249*	*10%*	*192*	*8%*
Total	2,477	100%	2,464	100%	2,386	100%
Sample Size		*2,964*		*3,002*		*2,787*

6.3.1 Overcrowding

305. A dwelling is considered overcrowded if there are insufficient bedrooms to meet the occupants' requirements under the bedroom standard definition (see section 7.11.9).

306. Around 2%, or 53,000 households, lived in overcrowded accommodation in 2018 (Table 59). Social sector dwellings (4%) were more likely to be overcrowded than private sector dwellings (1%).

307. Households who own their properties outright, or mortgaged, and who live in rural areas had below average national overcrowding rates. There were also lower rates than the national average for households living in detached and semi-detached dwellings.

Table 59: Overcrowding by Tenure and Housing Type, Dwelling Age Band, Income Band and Location, and Weekly Household Income, 2017 and 2018

	Overcrowded under Bedroom Standard					
	2018			2017		
	000s	%	*Sample*	000s	%	*Sample*
Tenure						
Owned	2	0%	*1091*	5	1%	*1104*
Mortgaged	7	1%	*846*	15	2%	*797*
LA	14	3%	*459*	19	5%	*439*
HA	14	6%	*274*	7	3%	*289*
PRS	15	6%	*294*	15	4%	*373*
Private	25	1%	*2,231*	35	2%	*2,274*
Social	28	4%	*733*	26	4%	*728*
Age of dwelling						
pre-1919	10	2%	*521*	14	3%	*512*
1919-1944	8	3%	*327*	9	3%	*369*
1945-1964	13	3%	*654*	12	2%	*684*
1965-1982	9	2%	*654*	17	3%	*647*
post-1982	13	2%	*808*	8	1%	*790*
Dwelling Type						
Detached	4	1%	*807*	6	1%	*661*
Semi-detached	4	1%	*659*	12	2%	*619*
Terraced	13	2%	*633*	12	2%	*520*
Tenement	22	4%	*514*	20	3%	*378*
Other flats	10	3%	*351*	12	4%	*316*
Weekly Household Income						
< £200	3	1%	*281*	2	1%	*316*
£200-300	13	3%	*480*	7	2%	*479*
£300-400	8	2%	*464*	7	2%	*446*
£400-500	7	2%	*344*	13	4%	*375*
£500-700	8	2%	*506*	18	4%	*543*
£700+	12	2%	*830*	11	2%	*789*
Location						
urban	50	2%	*2,292*	55	3%	*2,341*
rural	3	1%	*672*	6	1%	*661*
Scotland	53	2%	*2,964*	61	2%	*3,002*

Note: A correction in how bedrooms are allocated is applied here, and the 2017 rates and household counts will not all match those in the 2017 Key Findings report. However, where differences are present, the midpoint changes by one percentage point or less.

6.3.2 Under-Occupancy

308. In 2018 around 918,000 (37%) had one additional bedroom above the minimum under the bedroom standard (Table 60). 804,000 (32%) households had two or more bedrooms in excess of the minimum standard.

309. Social sector tenants are more likely to live in accommodation which is at the level meeting the minimum requirements of the bedroom standard (Table 61; 53% compared to 19% in the private sector). In contrast, households in the social housing sector are less likely to have two or more bedrooms in excess of the minimum requirements: 9% have two or more additional rooms, compared to 41% of private sector households. This pattern is also true for just one bedroom in excess of minimum requirements (38% and 33% for private and social sectors respectively).

310. There are also differences within the private sector. Those dwellings which are owned outright (53%) or are mortgaged (38%) are more likely to have at least 2 additional rooms than those renting in the private sector (12%).

311. Higher income households (£700+ per week) are more likely to live in dwellings with additional bedrooms: 47% have two or more additional bedrooms.

312. Under-occupied dwellings are least common amongst dwellings built between 1919-1944 and 1945-1964, where 28% and 27% have two or more bedrooms in excess of the standard respectively, compared to post-1982 where the rate is 39%. Similarly, detached houses have the highest rates of under-occupancy compared to other building types: 71% with two or more additional bedrooms.

313. Under-occupation is more common in rural areas. 48% of rural dwellings have two or more bedrooms in excess of the minimum requirements under the bedroom standard, compared to 29% for urban properties.

314. Changes from 2017 on the measures shown in Table 60 and Table 61 are mostly within the margin of error for this survey. Changes include a 5 percentage point increase in the proportion of HA dwellings which have two or more bedrooms in excess of the minimum standards. This has likely driven the overall social sector under occupancy rate for two or more bedrooms by four percentage points. Semi-detached dwelling under occupancy (in excess of one bedroom) rates increased eight percentage points, with a corresponding two percentage drop in the below bedroom standard rate.

Table 60: Above Minimum Standard, by Tenure, Dwelling Age, Type and Location, and Weekly Household Income, 2017 and 2018

	2018					2017				
	2+ additional		1 additional		*Sample*	2+ additional		1 additional		*Sample*
	000s	%	000s	%		000s	%	000s	%	
Tenure										
Owned	446	53%	306	36%	*1091*	445	54%	287	35%	*1104*
Mortgaged	267	38%	289	41%	*846*	246	37%	246	37%	*797*
LA	39	10%	141	35%	*459*	27	7%	131	35%	*439*
HA/co-op	19	8%	79	32%	*274*	7	3%	89	35%	*289*
PRS	32	12%	103	38%	*294*	44	13%	133	38%	*373*
Private	745	41%	698	38%	*2,231*	735	40%	666	36%	*2,274*
Social	59	9%	220	33%	*733*	34	5%	219	35%	*728*
Age of dwelling										
pre-1919	142	30%	166	35%	*521*	154	33%	144	31%	*512*
1919-1944	79	28%	124	44%	*327*	70	24%	143	49%	*369*
1945-1964	143	27%	217	41%	*654*	130	24%	234	43%	*684*
1965-1982	183	35%	185	35%	*654*	178	35%	153	30%	*647*
post-1982	257	39%	226	34%	*808*	237	37%	212	33%	*790*
Dwelling Type										
Detached	391	71%	122	22%	*807*	397	72%	122	22%	*824*
Semi	175	35%	223	44%	*659*	183	38%	176	37%	*661*
Terraced	160	30%	210	39%	*633*	133	25%	222	41%	*619*
Tenement	36	6%	222	39%	*514*	25	4%	213	37%	*520*
Other flats	42	13%	140	45%	*351*	30	10%	153	49%	*378*
Weekly Household Income										
< £200	58	23%	103	41%	*281*	54	21%	94	37%	*316*
£200-300	100	24%	152	36%	*480*	83	21%	143	36%	*479*
£300-400	106	27%	134	34%	*464*	98	26%	139	37%	*446*
£400-500	80	27%	124	42%	*344*	77	24%	121	38%	*375*
£500-700	142	34%	150	37%	*506*	152	34%	169	38%	*543*
£700+	308	47%	231	35%	*830*	291	46%	205	33%	*789*
Urban-rural indicator										
urban	606	29%	771	37%	*2,292*	568	28%	757	37%	*2,341*
rural	197	48%	147	35%	*672*	201	49%	128	31%	*661*
Scotland	804	32%	918	37%	*2,964*	769	31%	885	36%	*3,002*

Note: A correction in how bedrooms are allocated is applied here, and the 2017 rates and household counts will not all match those in the 2017 Key Findings report. However, where differences are present, the midpoint changes by one percentage point or less

Table 61: Households Meeting the Minimum Bedroom Standard, by Tenure, Dwelling Age, Type and Location, and Weekly Household Income 2017 and 2018

	2018			2017		
	000s	%	*Sample*	000s	%	*Sample*
Tenure						
Owned	92	11%	*1,091*	90	11%	*1104*
Mortgaged	138	20%	*846*	157	24%	*797*
LA	213	52%	*459*	198	53%	*439*
HA	136	55%	*274*	149	59%	*289*
PRS	123	45%	*294*	155	45%	*373*
Private	353	19%	*2,231*	402	22%	*2,274*
Social	350	53%	*733*	347	55%	*728*
Age of dwelling						
pre-1919	153	32%	*521*	155	33%	*512*
1919-1944	70	25%	*327*	70	24%	*369*
1945-1964	157	30%	*654*	168	31%	*684*
1965-1982	152	29%	*654*	167	32%	*647*
post-1982	171	26%	*808*	189	29%	*790*
Dwelling Type						
Detached	35	6%	*807*	29	5%	*824*
Semi-detached	102	20%	*659*	111	23%	*661*
Terraced	149	28%	*633*	168	31%	*619*
Tenement	296	51%	*514*	326	56%	*520*
Other flats	121	39%	*351*	116	37%	*378*
Weekly Household Income						
< £200	86	34%	*281*	104	41%	*316*
£200-300	153	37%	*480*	164	41%	*479*
£300-400	143	36%	*464*	129	34%	*446*
£400-500	85	29%	*344*	107	34%	*375*
£500-700	111	27%	*506*	108	24%	*543*
£700+	109	16%	*830*	120	19%	*789*
Location						
urban	636	31%	*2,292*	675	33%	*2,341*
rural	67	16%	*672*	74	18%	*661*
Scotland	703	28%	*2,964*	749	30%	*3,002*

Note: A correction in how bedrooms are allocated is applied here, and the 2017 rates and household counts will not all match those in the 2017 Key Findings report. However, where differences are present, the midpoint changes by one percentage point or less

7 Technical Notes and Definitions

7.1 Survey Estimation

316. From 2012 onwards, the SHCS is a module of the Scottish Household Survey (SHS)[67]. In general, around one third of respondents to the SHS are invited to participate in a follow-up inspection by SHCS building surveyors. For 2018, this was increased to almost half of respondents to ensure that the required number of households for the physical survey sample was achieved.

7.1.1 Sample Sizes and Gross Dwelling Numbers

317. In Table 62 we provide the sample sizes in the social interview and physical dwelling inspection follow-up for all years of the annual SHCS to 2018.

Table 62: Achieved Samples for SHCS Streams of the Scottish Household Survey and Base Number of Occupied Dwellings by Survey Year, 2003/4-2018

Survey Year	Social Interview	Physical Survey	Households (000s)
2003/4	3,870	3,090	2,269
2004/5	3,783	3,093	2,301
2005/6	3,679	3,147	2,315
2007	3,867	3,033	2,314
2008	3,763	3,015	2,331
2009	4,153	3,346	2,344
2010	3,853	3,115	2,357
2011	3,949	3,219	2,368
2012	3,813	2,787	2,386
2013	3,780	2,725	2,402
2014	3,787	2,682	2,420
2015	4,083	2,754	2,434
2016	4,220	2,850	2,452
2017	5,049	3,002	2,464
2018	4,843	2,964	2,477

318. Table 62 also shows the total number of households in Scotland for each survey year which provides the basis for grossing up the estimates of households and dwellings in this report. These figures are produced annually by the National Records of Scotland[68] as part of their inter-censal household estimates publication.

[67] Scottish Household Survey Website: http://www.gov.scot/Topics/Statistics/16002

[68] NRS: Estimates of Households and Dwellings in Scotland, 2018, https://www.nrscotland.gov.uk/files//statistics/nrs-visual/he-18/house-est-18-info.pdf

319. The SHCS is a sample survey. All survey figures are estimates of the true prevalence within the population and will contain some error associated with sampling variability. The likely size of such variability can be identified, by taking account of the size and design of the sample, as described in sections 7.1.2 to 7.1.5.

320. In addition to sampling variability, there are other sources of uncertainty, such as those arising from incomplete responses or failure to secure participation in the survey from each sampled household. Where non-response is not random, i.e. some types of household are less likely to participate than others, bias is introduced into the survey data. Such errors have not been quantified in this report.

321. In general, the smaller the sample size, the greater the likelihood the estimate could be misleading, so more care must be taken when using smaller subsets of the survey sample for analysis. In this report estimates representing 2 or fewer cases, or where the base sample is below 30 have been suppressed.

322. Different types of estimates are subject to different levels of uncertainty associated with sampling and design. For example, estimates of change (i.e. figures relating to comparisons across survey years) are generally subject to greater sampling error than point-in-time estimates (i.e. figures relating to one survey year only) and such errors would be understated by figures in Table 63. There is more uncertainty associated with complex measures, such as the fuel poverty rate and this is not quantified in this report or reflected by stated confidence intervals in Table 63.

7.1.2 Confidence Intervals

323. By convention, a 95% confidence interval is used to quantify the variability of a sample estimate, under which there is a 1 in 20 chance that the true value will fall outside the given confidence interval.

324. Table 63 shows the 95% confidence limits for estimates of proportions based on sub-samples of various sizes before design effects are taken into account.

Table 63: Approximate 95% Confidence Limits for Estimates Based on SHCS Sub-Samples of Various Sizes (Excluding Design Effects)

Sub-sample size (corresponding to 100%)	Estimate (lookup to nearest multiple of 5%)											
	1% or 99%	2% or 98%	5% or 95%	10% or 90%	15% or 85%	20% or 80%	25% or 75%	30% or 70%	35% or 65%	40% or 60%	45% or 55%	50%
	percentage points (+ / -)											
100	2.0	2.7	4.3	5.9	7.0	7.8	8.5	9.0	9.3	9.6	9.8	9.8
150	1.6	2.2	3.5	4.8	5.7	6.4	6.9	7.3	7.6	7.8	8.0	8.0
200	1.4	1.9	3.0	4.2	4.9	5.5	6.0	6.4	6.6	6.8	6.9	6.9
250	1.2	1.7	2.7	3.7	4.4	5.0	5.4	5.7	5.9	6.1	6.2	6.2
300	1.1	1.6	2.5	3.4	4.0	4.5	4.9	5.2	5.4	5.5	5.6	5.7
350	1.0	1.5	2.3	3.1	3.7	4.2	4.5	4.8	5.0	5.1	5.2	5.2
400	1.0	1.4	2.1	2.9	3.5	3.9	4.2	4.5	4.7	4.8	4.9	4.9
450	0.9	1.3	2.0	2.8	3.3	3.7	4.0	4.2	4.4	4.5	4.6	4.6
500	0.9	1.2	1.9	2.6	3.1	3.5	3.8	4.0	4.2	4.3	4.4	4.4
600	0.8	1.1	1.7	2.4	2.9	3.2	3.5	3.7	3.8	3.9	4.0	4.0
700	0.7	1.0	1.6	2.2	2.6	3.0	3.2	3.4	3.5	3.6	3.7	3.7
800	0.7	1.0	1.5	2.1	2.5	2.8	3.0	3.2	3.3	3.4	3.4	3.5
900	0.7	0.9	1.4	2.0	2.3	2.6	2.8	3.0	3.1	3.2	3.3	3.3
1,000	0.6	0.9	1.4	1.9	2.2	2.5	2.7	2.8	3.0	3.0	3.1	3.1
1,100	0.6	0.8	1.3	1.8	2.1	2.4	2.6	2.7	2.8	2.9	2.9	3.0
1,200	0.6	0.8	1.2	1.7	2.0	2.3	2.5	2.6	2.7	2.8	2.8	2.8
1,300	0.5	0.8	1.2	1.6	1.9	2.2	2.4	2.5	2.6	2.7	2.7	2.7
1,400	0.5	0.7	1.1	1.6	1.9	2.1	2.3	2.4	2.5	2.6	2.6	2.6
1,500	0.5	0.7	1.1	1.5	1.8	2.0	2.2	2.3	2.4	2.5	2.5	2.5
1,600	0.5	0.7	1.1	1.5	1.7	2.0	2.1	2.2	2.3	2.4	2.4	2.5
1,700	0.5	0.7	1.0	1.4	1.7	1.9	2.1	2.2	2.3	2.3	2.4	2.4
1,800	0.5	0.6	1.0	1.4	1.6	1.8	2.0	2.1	2.2	2.3	2.3	2.3
1,900	0.4	0.6	1.0	1.3	1.6	1.8	1.9	2.1	2.1	2.2	2.2	2.2
2,000	0.4	0.6	1.0	1.3	1.6	1.8	1.9	2.0	2.1	2.1	2.2	2.2
2,200	0.4	0.6	0.9	1.3	1.5	1.7	1.8	1.9	2.0	2.0	2.1	2.1
2,400	0.4	0.6	0.9	1.2	1.4	1.6	1.7	1.8	1.9	2.0	2.0	2.0
2,600	0.4	0.5	0.8	1.2	1.4	1.5	1.7	1.8	1.8	1.9	1.9	1.9
2,800	0.4	0.5	0.8	1.1	1.3	1.5	1.6	1.7	1.8	1.8	1.8	1.9
3,000	0.4	0.5	0.8	1.1	1.3	1.4	1.5	1.6	1.7	1.8	1.8	1.8
3,200	0.3	0.5	0.8	1.0	1.2	1.4	1.5	1.6	1.7	1.7	1.7	1.7
3,400	0.3	0.5	0.7	1.0	1.2	1.3	1.5	1.5	1.6	1.6	1.7	1.7
3,600	0.3	0.5	0.7	1.0	1.2	1.3	1.4	1.5	1.6	1.6	1.6	1.6
3,800	0.3	0.4	0.7	1.0	1.1	1.3	1.4	1.5	1.5	1.6	1.6	1.6
4,000	0.3	0.4	0.7	0.9	1.1	1.2	1.3	1.4	1.5	1.5	1.5	1.5

7.1.3 Design Effects

325. The design effect is the ratio between the variance (average deviation of a set of data points from their mean value) of a variable under the sampling method used (actual) and the variance computed under the assumption of simple random sampling (standard). In short, a design effect of 2 would mean doubling the size of the sample used (actual) in order to obtain the same level of precision as with a simple random sample; a design effect of 0.5 implies the reverse. Design effect adjustments are necessary where standard errors are affected by the design and complexity of the survey.

326. Generally speaking, disproportionate stratification and sampling with non-equal probabilities tends to increase standard errors, giving a design effect greater than 1. However, this can be controlled by deliberately over-sampling in stratum where the item of interest is either very rare or variable. The impact of non-response weighting on standard errors tends to be, although with exceptions, comparatively limited. The sampling design of the SHCS meets the criteria above in that disproportionate stratification is applied across the 32 Local Authority areas with over-sampling of remote rural areas - for example in Shetland and Orkney. As a result, one would expect the design effect to be above 1 although only modestly so.

327. Table 64 shows the design effects for all the SHCS surveys since 2003/4. When using a mixture of the physical and social survey data, the physical survey design effect must be used. The design effects for the 2018 SHCS are 1.11 for the physical and 1.08 for the social surveys.

328. When producing estimates at Local Authority level, no design effect adjustment of standard errors is necessary because simple (actually equal interval) random sampling was carried out within each Local Authority.

Table 64: Design Effects for the Annual SHCS, 2003/4 to 2018

Survey Year	Design Effect: Physical Weight	Design Effect: Social Weight
2003/04	1.14	1.13
2004/05	1.18	1.17
2005/06	1.14	1.14
2007	1.13	1.11
2008	1.11	1.11
2009	1.09	1.08
2010	1.11	1.1
2011	1.12	1.11
2012	1.09	1.08
2013	1.09	1.08
2014	1.09	1.08
2015	1.10	1.08
2016	1.10	1.08
2017	1.10	1.08
2018	1.11	1.08

7.1.4 Example: Accounting for Sampling Variation

329. Both confidence intervals and the design effect must be accounted for when quoting confidence levels on a statistic. For example we may wish to find the confidence interval for the proportion of pre-1919 detached houses in Table 1.

330. The stated proportion is 4%. The sub-sample size for the group (the sample size of 100% of the group) is also provided in the table, which in this case is the full survey sample: n=2,964. Reading from Table 63 in the row labelled 3,000 (the closest value to our n value) in the column for 5% we find the confidence interval for this estimate is 0.8 percentage points.

331. To account for the design effect, we must multiply this value by the physical design effect value from Table 64 since this statistic relates to the physical properties of the dwelling. So the true confidence interval is 0.8 x 1.11 = 0.888 ≈ 0.9 percentage points. We can therefore be 95% confident that the true proportion of pre-1919 detached houses is between 3.1% and 4.9%.

7.1.5 Statistical Significance

332. Because the survey's estimates may be affected by sampling errors, apparent differences may not reflect real differences in the population. A difference is significant if it is so large that a difference of that size is unlikely to have occurred purely by chance.

333. Comparisons in this publication are tested at the 5 per cent level as described in section 7.1.2. Testing significance involves comparing the difference between two statistics (for example, the per cent of households rated as EPC band C or better in 2018 compared to 2017 or for the social sector compared to the private sector) with the 95 per cent confidence limits for each of the two estimates taken into account.

334. Our approach to testing statistical significance follows that described in Annex 3 of the Scottish Household Survey annual report[69].

7.1.6 Table Conventions

335. The following conventions are used in tables:

0 indicates value is rounded to 0.

- indicates no sample cases in this category

* indicates base sample too small to report (below 30 cases) or estimate representing 2 or fewer sampled households

336. Because of rounding, figures in tables and charts may not always add exactly.

7.2 Missing Tenure Information

337. Because of a routing error tenure information is not available for a small number of cases in the 2012 and 2013 surveys (46 in 2012, 42 in 2013). This was rectified for the 2014 fieldwork and the full sample has been used when reporting on tenure for subsequent years. This introduces some discontinuities in comparing statistics for the social (or the private) sector between 2014 and 2015, on the one hand, and previous years, on the other. For further details please refer to the respective earlier Key Findings reports.

7.3 Energy Models

338. Two different models are used to produce the energy efficiency outputs in this report. They are based on the same core methodology but have some different assumptions and calculations which affect the output values.

[69] http://www.gov.scot/Topics/Statistics/16002/PublicationAnnual

Table 65: Summary of Domestic Energy Models used on SHCS Data

Model	SAP	BREDEM 2012
Version	SAP 2009[70] SAP 2012[71] and RdSAP 9.92 for 2014 onwards. Additionally, RdSAP 9.93 for 2018.	Version 1.0 for data up to 2013 Version 1.1 for data from 2014 onwards
Outputs	Energy Efficiency Rating Environmental Impact Rating	• Fuel poverty energy use • Carbon emissions • Fuel poverty running costs
Fuel Prices	SAP standard	Based on a range of sources[72]
Occupancy	Number of occupants derived based on total floor area of the dwelling	Actual number of occupants in the dwelling
Heating regime	21°C in the main living area and 18°C elsewhere; 9 hours per weekday and 16 hours at the weekend	As SAP, except for vulnerable households for fuel poverty related statistics, where: 23°C in the main living area and 20°C elsewhere; 16 hours per day
Climate	East Pennines	Based on geographical location
Energy end-use included	• space heating • water heating • fixed lighting • gains from renewable energy technologies.	As SAP but also energy used for: • cooking • running appliances

339. Energy related statistics presented in this report are based on RdSAP 9.92 and additionally 9.93 for SAP derived variables for 2018 only, as version 9.93 was released in November 2017.

[70] BRE, "The Government's Standard Assessment Procedure for Energy Rating of Dwellings": http://www.bre.co.uk/filelibrary/SAP/2009/SAP-2009_9-90.pdf

[71] BRE, "The Government's Standard Assessment Procedure for Energy Rating of Dwellings, 2012 Edition", Table 12: http://www.bre.co.uk/filelibrary/SAP/2012/SAP-2012_9-92.pdf

[72] For more details see SHCS Methodology Notes 2014 www.gov.scot/Topics/Statistics/SHCS/Downloads/Methodology2014

340. Carbon emissions are calculated on the basis of the standard heating regime, applying carbon intensity values to each type of fuel used. Emissions factors for the BREDEM 2012 model come from SAP 2012 and are provided in Table 66.

Table 66: Carbon Intensity of Common Heating Fuels, SAP 2012

Fuel	kg CO2 per kWh
Mains gas	0.216
LPG	0.241
Oil	0.298
Coal	0.394
Anthracite	0.394
Smokeless fuel	0.433
Wood	
- logs	0.019
- pellets	0.039
- chips	0.016
Electricity	0.519

341. For 2018 data, SAP based energy variables under both RdSAP v9.92 and v9.93 are reported. Compared to v9.92, U-values for solid, insulated stone and uninsulated cavity walls have improved, whereas they have declined for insulated cavity walls. As a result, the mean SAP rating under v9.93 is 0.16 SAP points less than under v9.92.

7.4 Fuel prices for pre-payment meters

342. The 2016 SHCS collected information about the presence of pre-payment meters for energy supply. This allowed us to assign the appropriate fuel price which in 2016 was higher than the overall weighted average of all payment methods. In 2017 and 2018 this approach has continued, although prepayment electricity and gas prices have decreased in this time, while non-prepayment electricity prices increased compared to 2016.

7.5 Fuel Poverty Income

343. For the 2017 SHCS, an updated set of questions collecting council tax information were incorporated and accounted for in fuel poverty analysis. Previously respondents were only asked to provide what they paid in council tax whether or not they received any deductions or reductions. The survey now distinguishes between reported council tax after any deductions or reductions, and full council tax. This reduces the risk of double counting Council Tax Reduction in household income in the former case.

344. As described in section 4.5, income for fuel poverty analysis is total household income (a sum of the highest income householder and their spouse/partner's income), net of council tax and housing costs. For income poverty analysis, this income is equivalised, and compared against an adjusted FRS poverty threshold for a couple with no children, to account for the fact the latest published FRS data relate to 2017/18. 2017 income poverty results use the published FRS poverty threshold, rather than the adjusted threshold.

345. As figures presented in this report are a best estimate of fuel poverty and extreme fuel poverty rates under the proposed new definition of fuel poverty, following amendments agreed at Stage 2 of the Fuel Poverty (Targets, Definition and Strategy) Bill, income poverty and fuel poverty figures will not match those published in the 2017 Key Findings report.

7.6 Bedroom Standard Correction

346. A minor correction to how bedrooms are allocated to households as part of Bedroom Standard derivations was applied in the 2018 SHCS Key Findings report. The impact was small, with point estimates **changing** by one percentage point or less, where affected.

7.7 Basic Disrepair Correction

347. In the 2018 Key Findings report, a minor correction to the derivation of basic disrepair was applied to properly include disrepair to doors and frames. Affected statistics reported in Table 46 typically changed by less than a percentage point, although the 2016 no basic disrepair rate changed from 32% to 31%.

7.8 Extent of Disrepair Correction

348. The methodology for deriving two measures of disrepair were revised in the 2013 Key Findings report: "extensive disrepair" (see section 6.5 of SHCS 2013 Key Findings report) and "serious disrepair" under the Scottish Housing Quality Standard. These revisions affected statistics up to 2013. Further details are available in the Methodology Notes to the 2013 Key Findings report[73].

[73] SHCS - Methodology Notes 2013 available at http://www.gov.scot/Topics/Statistics/SHCS/Downloads/MethodologyNotes2013

7.9 Boilers

349. Testing compliance of boilers with current Scottish Building Standards for domestic properties is carried out by comparing the boiler efficiency to minimum requirements. Data on the efficiency of households' heating systems was first produced by BRE for the 2012 SHCS. However, there was a change to the methodology for the 2014 and 2015 SHCS which made an adjustment to the modelling to allow for the assumption that a poorly controlled system is in effect less efficient.

350. In the 2016 SHCS report, the full boiler efficiency dataset was revised to ensure it was on a consistent basis across years and represents the efficiency of the heating system before any adjustments for lack of controls. Efficiencies are taken directly from the Product Characteristics Database whenever possible and from the SAP default efficiencies for that system otherwise. This is therefore more representative of the actual boiler efficiency.

351. Furthermore, the thresholds used to test compliance for oil condensing boilers were also updated in 2016 to reflect current minimum standards. The full time series presented in the 2017 and 2018 report continues to reflect these changes.

7.10 Scottish Housing Quality Standard

352. 2015 data on compliance with the SHQS was revised in the 2016 publication. An error was identified in the method used to compile the data for the failure rate of the Energy Efficiency criterion in that year. This also affected the overall SHQS failure rate for 2015.

7.11 Definitions of Categories in the Key Findings Report

7.11.1 Dwelling Types

353. The SHCS uses the following definitions of dwelling types:

- **Detached house**: a house that is free standing with no party walls;
- **Semi-detached house**: a house that is only attached to one other dwelling, commercial premise etc. The two properties taken together should be detached from any other properties
- **Terraced house**: a house forming part of a row of three or more dwellings, commercial premises etc.

- **Tenement flat**: a dwelling within a common block of two or more floors (commonly up to five storeys but may be higher in certain circumstances) where some or all of the flats have a shared or common vertical access. The selected dwelling need not share the access, but may be situated within the block with shared/common access (own door flat)
- **4-in-a-block**: each flat in a block has its own independent access. Flats on the upper level have an internal or external stair
- **Tower/slab**: flats in a high rise (ten or more storeys) or flats where the common circulation is predominantly horizontal (maisonette, balcony or gallery access)
- **Flat from a conversion**: flats resulting from the conversion of a house only. A flat converted from a non-residential building (e.g. a warehouse) is classified according to the above flat types.

7.11.2 Household Types

354. This report uses the following classification of household types:

- **Families**: Households which contain at least one child aged under 16. Resident adults may be of any age.
- **Older households**: Small households made up of one or two residents, at least one of which is aged 65 or older.
- **Other households**. These are all other households with adult residents (of any age) and no children.

355. This classification is derived from the more detailed grouping used in the Scottish Household Survey[74] as set out in Table 67.

[74] https://www2.gov.scot/Topics/Statistics/16002/PublicationAnnual

Table 67: Household Types Classification Used in the SHCS and the SHS Reports

SHCS	SHS
Families	A **single parent** household – contains one adult of any age and one or more children. A **small family** household – contains two adults of any age and one or two children. A **large family** household – contains two adults of any age and three or more children, or three or more adults of any age and one or more children.
Older households	A **single older** household - contains one adult of pensionable age and no children. An **older smaller** household – contains one adult aged 16-64 and one of pensionable age and no children, or two adults of pensionable age and no children.
Other households	A **single adult** household – contains one adult aged 16-64 and no children. A **small adult** household – contains two adults aged 16-64 and no children. A **large adult** household – contains three or more adults and no children

356. The pensionable age threshold used for the 2015 to 2018 SHCS Key Findings reports is 65 years for both men and women. Previous publications used 65 for men and 60 for women. Therefore the categories 'Older households' and 'Other households' used from 2015 are not fully comparable with previous years.

7.11.3 Urban Rural Classifications

357. The urban/rural classification in this report is the Scottish Government 2 fold and 6 fold Urban Rural Classification[75]. Dwellings in settlements with over 3,000 people are considered urban by this definition. The Scottish Government published the 2016 Urban Rural Classification in 2017. However, to remain consistent with the classification underpinning survey weight derivations, the 2013/14 Urban Rural Classification (2011 datazone edition) is used for reporting 2016, 2017 and 2018 data. Prior to 2016, 2001 datazones are used.

[75] More details can be found at: http://www.gov.scot/Topics/Statistics/About/Methodology/UrbanRuralClassification

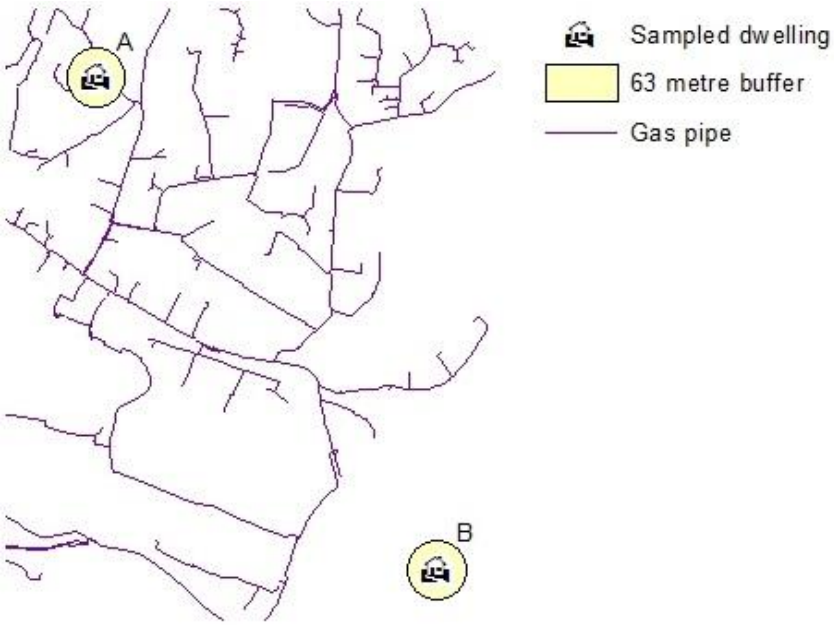
7.11.4 Gas Grid Coverage Derivation

358. Determining whether a dwelling is within the coverage of the gas grid is based on its proximity to gas distribution pipes. The current methodology for deriving gas grid coverage was first used for the 2013 Key Findings Report. A dwelling is considered to be “on the gas grid” if it is within 63m of a low/ medium/ intermediate pressure pipe, the usual maximum distance for a standard domestic connection.

359. Figure 33 shows how this is derived using GIS mapping. From the dwelling location information of surveyed properties, a 63m buffer is drawn. Where this buffer intersects a gas distribution pipe, the dwelling is said to be on the gas network. In the example, dwelling A is on the network, while dwelling B is not.

360. The gas grid information used for this mapping is provided by SGN. It includes both the national gas network and the Scottish Independent Undertakings (SIUs), where gas is provided in areas remote from the national gas grid. It does not however include information on pipes owned and operated by Independent Gas Transporters (IGTs). Therefore, dwellings classified as off-grid by the survey may be within 63m of an IGT operated gas distribution pipe and potentially have a connection to the gas grid and the methodology may therefore slightly undercount dwellings within the range of the gas grid.

Figure 33: Gas Grid Derivation with GIS



7.11.5 Reasons Why Home Heating is Difficult

361. The full text of this question is: "Which of these things, if any, make it difficult to heat your home"[76]. Response categories have been grouped for reporting, as described in Table 68. Respondents were able to choose any combination of reasons why heating their home was difficult.

Table 68: Potential Responses to Question ht14

Group	Response Number	Response
Poor or inadequate heating	ht14_01	No Central Heating
	ht14_02	Not enough heaters/radiators
	ht14_03	Position of heaters/radiators
	ht14_04	Poor/need new heating system
	ht14_05	Radiators not large enough
	ht14_06	Heating not working
	ht14_07	Dislike storage heaters
	ht14_08	Inadequate heating
	ht14_10	Heating in part of house
	ht14_17	Can't afford to replace system
Hard to control heating	ht14_09	Difficult to control/regulate
	ht14_11	Hard to control heat
Need new windows	ht14_12	Need new windows
Poor insulation	ht14_13	Poor insulation
Draughty	ht14_14	Draughty
Rooms too big	ht14_15	Rooms too big
Can't afford to heat house	ht14_16	Can't afford to heat house
Other	ht14_18	Other
No answer	ht14_19	No answer

7.11.6 Hard to Treat Cavity Walls

362. In this report we use the ECO definition of HTTCs[77] to provide a breakdown of the remaining insulation potential of cavity wall dwellings in the Scottish housing stock (see Table 13).

363. A cavity wall is considered hard to treat if:

- **The building has three or more storeys.** Dwelling spaces in lofts are not counted as storeys.

[76] http://www.gov.scot/Topics/Statistics/16002/PublicationQuestionnaire , question ht14

[77] Change Works: Guide to insulating Hard to Treat Cavities (HTTC) http://www.changeworks.org.uk/sites/default/files/Guide_to_Insulating_Hard_to_Treat_Cavities_2014.pdf

- **The building is severely exposed to wind-driven rain.** The SHCS is not able to collect this information, which will lead to an underestimation of hard to treat cavity walls.
- **Walls at risk of water penetration** i.e. walls requiring urgent repair to the wall finish and walls with penetrating damp[78].
- **Non-traditional building types** e.g. timber frame, metal-frame, prefabricated concrete.
- **Partially filled, narrow or uneven cavities** as well as cavities with failed CWI**.** The SHCS is not able to capture this information. As a result hard to treat cavity walls may be underestimated.
- Note that the presence of a conservatory alone does not cause a dwelling to be considered hard to treat under ECO.

7.11.7 Disrepair

364. This report uses our categories of disrepair to describe the state of disrepair of a dwelling.

365. A range of elements - both internal and external - are assessed for the extent of disrepair, the urgency of disrepair (for external and common elements only), and in some cases the residual life of the element.

366. Extent of disrepair is usually measured on a 5- or 10-point scale relating to the area of the element which is in disrepair.

7.11.7.1 Any (Basic) Disrepair

367. Any (Basic) disrepair is recorded where any element of the dwelling is found to have any level of disrepair, no matter how small.

7.11.7.2 Extensive Disrepair

368. Extensive disrepair is recorded where:

- Any building element has an overall disrepair score exceeding 20% by area
- Any building element assessed has a score of 'medium' or 'renew' on the 5-point repair scale (equivalent to an area of around 25% or more of the element) or
- Dry/wet rot is recorded in two or more rooms

369. Extensive disrepair is calculated in order to identify those dwellings where any disrepair present is of a relatively greater severity.

[78] DECC: Review of number of cavity walls in Great Britain https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/48433/5620-review-of-the-number-of-cavity-walls-in-great-brit.pdf ,

7.11.7.3 Disrepair to Critical Elements

370. Disrepair to critical elements is recorded where there is any disrepair, no matter how small, to the critical elements of the dwelling.

371. The critical elements are those whose condition is central to a dwelling being wind and weather proof, structurally stable and safeguarded against further rapid deterioration. They are as follows:

- Roof covering;
- Roof structure;
- Chimney stacks;
- Flashings;
- Roof gutters and downpipes;
- External walls - finish;
- External walls - structure;
- Access decks and balustrades (common areas - flats only);
- Foundations;
- Damp-proof course;
- External doors and windows (dwelling only);
- Doors, screens, windows and roof lights (common areas - flats only);
- Internal walls/partitions[79];
- Floor structure;
- Floor finish;
- Dry rot/wet rot.

7.11.7.4 Urgent Disrepair

372. Urgent disrepair is recorded where the SHCS surveyor deems that a dwelling has any disrepair which, if not rectified, would cause the fabric of the building to deteriorate further and/or place the health and safety of the occupier at risk.

373. Urgency of disrepair is only assessed for external and common elements.

7.11.8 Damp and Condensation

- **Penetrating damp** is usually the result of a defect in the building fabric, such as damage to the walls or roof, water ingress due to damaged seals on doors or windows or damp as a result of leaking plumbing.
- **Rising damp** is the result of defective or missing damp proof coursing, leading to water leaching into the building fabric.

[79] This element has been incorrectly described in all previous SHCS reports as ‘party walls’

- **Condensation** is the build-up of moisture inside a dwelling, which may be the result of insufficient or ineffective ventilation.

7.11.9 Bedroom Standard

374. The Bedroom Standard is defined in the Housing (Overcrowding) Bill 2003 based on the number of bedrooms in a dwelling and the people in a household who can share a bedroom[80].

375. Each of the following groups or individuals requires a separate bedroom:

- Any couple;
- a person aged 21 years or more;
- two people of the same sex[81] aged between 10 and 20;
- two children (whether of the same sex or not) under 10 years;
- two people of the same sex where one person is aged between 10 years and 20 years and the other is aged less than 10 years;
- any further person who cannot be paired appropriately.

376. This definition is distinct from the rules introduced by the UK Government in April 2013 for the size of accommodation that Housing Benefit will cover for working age tenants renting in the social sector, known as the 'spare room subsidy'[82]. Applying the rules of the spare room subsidy requires information not collected in the SHCS. Statistics in this report relate to the Bedroom Standard only.

[80] Housing (Overcrowding) Bill 2003, section 2: http://www.publications.parliament.uk/pa/cm200203/cmbills/046/2003046.pdf Retrieved: 19/11/15

[81] The SHS collects data on gender and not sex therefore the number of bedrooms required are allocated based on self-reported gender. In addition, from 2018 onwards the question on gender was non-binary and included two additional responses: 'Identified in another way' and 'Refused'. Please see Annex 2 of the Scottish Household Survey Annual Report 2018 for further details: https://www.gov.scot/publications/scotlands-people-annual-report-results-2018-scottish-household-survey/pages/15/

[82] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/229364/factsheet-hbsssc1.pdf Retrieved: 19/11/15

7.11.10 Tolerable Standard

377. The Tolerable Standard is a minimum standard for habitability introduced in the 1969 Housing (Scotland) Act, and updated by the 1987, 2001 and 2006 Acts[83].

378. Additional criteria for electrical installations and thermal insulation were added by the 2006 Act[84]. These requirements came into force in April 2009 and were first reported by the SHCS in 2010. The change in definition caused the fail rate for the standard to increase from 0.7% in 2009 to 3.9% in 2010 in the full time series tables[85].

379. A dwelling meets the tolerable standard if it:

- is structurally stable;
- is substantially free from rising or penetrating damp;
- has satisfactory provision for lighting, ventilation and heating;
- has an adequate piped supply of wholesome water available within the house;
- has a sink provided with a satisfactory supply of both hot and cold water within the house;
- has a water closet or waterless closet available for the exclusive use of the occupants of the house and suitably located within the house;
- has a fixed bath or shower and a wash-hand basin, each provided with a satisfactory supply of both hot and cold water and suitably located within the house;
- has an effective system for the drainage and disposal of foul and surface water;
- has satisfactory facilities for the cooking of food within the house;
- has satisfactory access to all external doors and outbuildings;
- has electrical installations that are adequate and safe to use. The "electrical installation" is the electrical wiring and associated components and fittings, but excludes equipment and appliances;
- has satisfactory thermal insulation.

[83] A full definition and description of Local Authority duties as regards the Tolerable Standard can be found at: http://www.gov.scot/Publications/2009/03/25154751/3 Retrieved: 19/11/15

[84] These amendments are published at: http://www.legislation.gov.uk/asp/2006/1/section/11 Retrieved: 19/11/15

[85] Full time series are provided at http://www.gov.scot/Resource/0044/00445920.xlsx Retrieved: 19/11/15

7.11.11 Scottish Housing Quality Standard

380. The Scottish Housing Quality Standard (SHQS) was announced by the Minister for Communities in February 2004[86]. A target was agreed that all social landlords must ensure that all their dwellings pass the SHQS by 2015. Private owners and private landlords are currently under no obligation to bring their properties up to a standard which meets the SHQS. However SHCS collects the same data for all dwellings to allow comparison across the housing stock.

381. The SHQS is an aggregation of the results from 55 different elements grouped into 5 higher-level criteria, which in turn provide a single pass/fail classification for all dwellings. The 5 higher-level criteria specify that the dwelling must be:

- above the statutory tolerable standard;
- free from serious disrepair;
- energy efficient;
- with modern facilities and services;
- healthy, safe and secure.

382. A full list of assessed elements is available on the Scottish Government website[87]. Only one element of the SHQS is not assessed using SHCS data: no information is collected on external noise insulation[88].

383. Figures on SHQS failure rates for 2014 and 2015 are not entirely comparable to previous years published in this report. Because of missing tenure information a small number of dwellings (see section 7.2 for more detail), are excluded from tenure breakdowns in figures relating to years prior to 2014.

384. In addition, small changes to data processing relating to failure thresholds for the energy efficiency criterion[89], as well as other minor data processing corrections were introduced in 2014. Although the effect of these corrections on the overall failure rates in the social sector was neutral, some discontinuities with previous years cannot be ruled out, especially when considering more detailed breakdowns.

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[86] For more information see letter and notes at: http://www.gov.scot/Publications/2004/02/18860/32772

[87] http://www.gov.scot /Topics/Built-Environment/Housing/16342/shqs

[88] A summary list of elements by higher level criteria is available here: http://www.gov.scot/Resource/Doc/1125/0114870.pdf Retrieved: 19/11/15

[89] This relates to the SAP and NHER thresholds for element 35 and the thickness of hot water tank insulation for element 33.

A National Statistics publication for Scotland

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. The designation of the Scottish House Condition Survey as National Statistics was confirmed on 30 March 2010 following an assessment by the UK Statistics Authority[90].

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.

National Statistics status means that our statistics meet the highest standards of trustworthiness, quality and public value, and it is our responsibility to maintain compliance with these standards.

Changes to these statistics

Since the latest review by the Office for Statistics Regulation, we have continued to comply with the Code of Practice for Statistics, and have:
- improved the accessibility of the statistics by introducing infographics to allow for easier communication
- introduced face-to-face briefings of our surveyors to improve the quality of the data collection
- added more value by produced a Local Authority summary report alongside the annual local authority table release
- engaged with users to increase use and value by running data use workshops and demonstrations at user events
- introduced additional quality assurance processes of the raw data

How to access background or source data

The data collected for this statistical publication:
☒ are available in more detail through statistics.gov.scot.
☐ are available via an alternative route

[90] https://www.statisticsauthority.gov.uk/publication/scottish-house-condition-survey/

☒ may be made available on request, subject to consideration of legal and ethical factors. Further information is available at http://www.gov.scot/Topics/Statistics/SHCS/DataAccess.

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