

# **Energy Use in Homes**

**A series of reports on domestic energy use in  
England**

## **Thermal Insulation**



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### Thermal Insulation

This is one of a series of five reports on the energy characteristics of the stock as observed by the 2001 English House Condition Survey.

The reports in this series are:

1. Energy Summary Report
2. Space and Water Heating
3. Thermal Insulation
4. Fuel Consumption
5. Energy Efficiency

*The English House Condition Survey is funded and provided courtesy of the Office of the Deputy Prime Minister. More information about this survey can be found at [www.odpm.gov.uk/ehcs](http://www.odpm.gov.uk/ehcs)*

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# **Thermal Insulation**

## *Executive Summary*

Over two-thirds of dwellings in England (70%) have cavity walls. The majority of the remainder have solid walls.

35% of dwellings with cavity walls have some level of cavity wall insulation. Compared to 1996, when it was present in only 22% of dwellings, the level of cavity wall insulation has increased considerably - corresponding to around 1–1.5 million installations of cavity wall insulation during the period 1996-2001. There is considerable variation in the presence of cavity wall insulation by tenure - private rented dwellings are least likely to have cavity wall insulation (28%), and RSL dwellings most likely (44%).

There has also been a substantial increase in loft insulation levels. 26% of houses and bungalows in 2001 have 150mm or more of loft insulation – an increase from 16% in 1996. This corresponds to an increase of around 1.7 million dwellings, and represents a significant loft insulation installation and replacement programme. Once more it is the private rented sector which shows the lowest level of insulation - only 17% have 150mm or more of loft insulation, and 12% have no insulation whatsoever. The highest levels of loft insulation are seen in the social rented (local authority and RSL) sectors.

Dwellings with solid walls can be insulated by the application of an external and internal lining. These methods of insulation are fairly rare and are found in around 2% of all dwellings with solid walls.

Levels of double glazing have increased since the previous EHCS. Only 60% of dwellings had double glazed windows in 1996 – this has increased to 76% in 2001. Owner occupied dwellings are the most likely to have double glazing (83%) and private rented dwellings the least likely (52%). There has also been an increase in the amount of dwellings in which all the windows in the dwelling are double glazed. The proportion of dwellings in which double glazing extends to all windows has increased from 31% in 1996 to 51% in 2001. RSL dwellings in particular show high levels of double glazing to all windows (66%).

The vast majority of hot water cylinders (98%) are insulated. This insulation takes the form of either a flexible cylinder jacket or a foam coating (a foam coating is the more efficient method). In 2001, 57% of insulated cylinders have a foam coating and 43% a flexible jacket. This is an improvement on 1996 when only 45% of cylinders had a foam coating and 55% a flexible jacket.

# Thermal Insulation

## INTRODUCTION

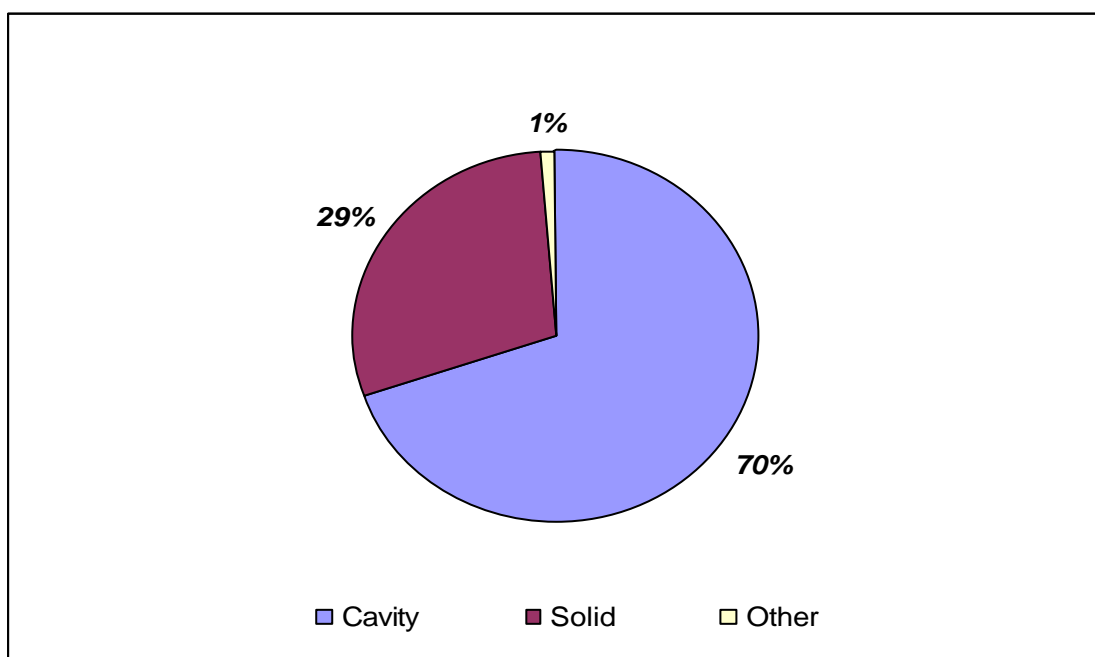
*This report considers thermal insulation measures within the housing stock as observed by the 2001 English House Condition Survey (EHCS). It covers the main methods of insulation, which are cavity wall insulation, loft insulation, internal and external wall insulation, double glazing and hot water cylinder insulation, and looks at variation by dwelling tenure, age, type and geographical location. Where relevant and possible, comparisons are drawn with data from the 1996 EHCS.*

*The EHCS is a five yearly survey undertaken in order to assess the condition of the housing stock in England. The results presented here are from the section of the survey that provides information on dwelling characteristics and a professional assessment of dwelling condition. The survey results are based upon a sample of approximately 17,500 dwellings.*

## Wall Construction

*The analysis in this section only considers external walls.*

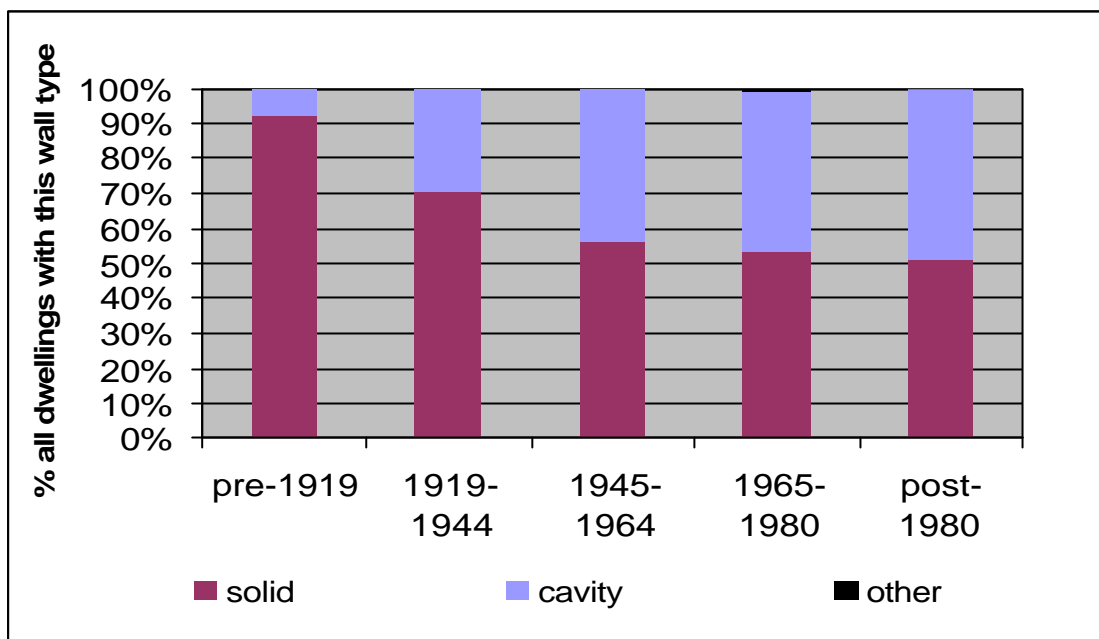
- 1.1 Of the 21.1 million dwellings in the housing stock, 70% of the housing stock (14.7 million dwellings) have predominantly cavity walls and 29% (5.6 million dwellings) have predominantly solid walls<sup>1</sup>. This data is shown in table 1.1, and figure 1.1 below



**Figure 1.1 – Predominant external wall construction (all dwellings).**

- 1.2 The type of wall construction is closely related to dwelling age. This can be explained by the change in preferred construction practices over time: the popularity of solid wall construction has decreased in favour of cavity walls. This is shown in table 1.2 and figure 1.2 below.

<sup>1</sup> Predominant wall type is defined as the wall type which makes up greater than or equal to 50% of the external wall area.



**Figure 1.2 – Predominant external wall construction by dwelling age (all dwellings).**

85% of pre-1919 homes were built with solid walls, decreasing to 7% of post-1965 dwellings.

As the occurrence of solid walls declines, there is a corresponding rise in the proportion of dwellings with cavity walls. Only 15% of pre-1919 dwellings were built with cavity walls, compared to 94% of post-1965 dwellings.

- 1.3 The distribution of wall construction within each dwelling type is shown below in figure 1.3 and in table 1.3. The variation shown is closely related to the proportion of older stock within each type.

Converted flats tend to be considerably older than other dwelling types (82% are pre-1919) and this is reflected by a high incidence of solid walls (84% of converted flats have predominantly solid walls).

Typically younger purpose built flats, detached houses and bungalows are most likely to have cavity walls (78%, 81% and 87% respectively).

- 1.4 Variations in wall construction by tenure reflect the age and type of stock within each tenure (see table 1.4).

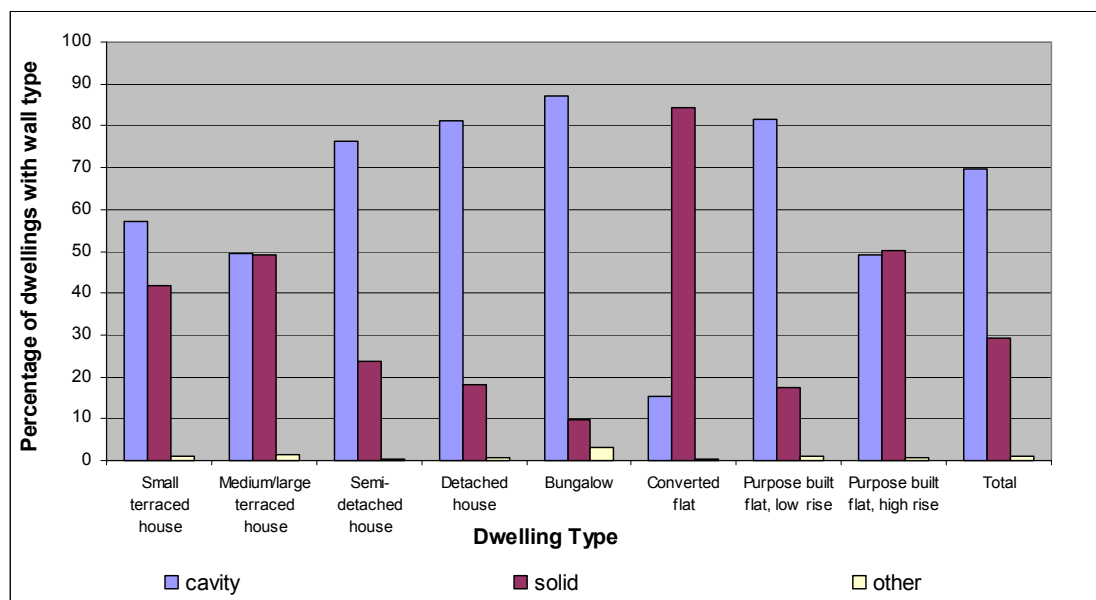
The survey shows that private rented stock has the highest proportion of older dwellings. As such, private rented dwellings are the most likely to have solid walls (50% of tenure). This compares to 28% of owner occupied dwellings, 18% of registered social landlord (RSL) dwellings and 22% of local authority dwellings.

The RSL tenure has the highest proportion of modern stock and this is reflected in the 81% of dwellings with predominantly cavity walls – the highest proportion of all tenures.

- 1.5 There are large regional variations in wall construction as shown in table 1.5. This can partly be explained by the age distribution of the stock across England.

Solid walls are rarest in the more modern stock of the North East (14%) and most common in the older stock found in London (56%). The other regions have between 19% and 31% of dwellings with solid walls.

Cavity walls show the reverse pattern. Just 43% of dwellings in London have predominantly cavity walls, compared to 86% in the North East.



**Figure 1.3 – Predominant external wall construction by dwelling type (all dwellings).**

*CHANGE IN PREDOMINANT WALL TYPE SINCE 1996:*

- 1.7 New stock added since 1996 has been of cavity wall construction. In 2001 70% of dwellings are of predominantly cavity wall construction, compared to 64% in 1996. This represents a net increase of around 1.7 million households living in dwellings with predominantly cavity walls. Around 850,000 of these are the result of new-build and change of use. The remainder are likely to be the result of extensions and alterations to existing dwellings and of counting discrepancies between 1996 and 2001<sup>1</sup>.

## Cavity Wall Insulation

*The analysis in this section considers just the 70% (14.7 million dwellings) of the total stock with predominantly cavity walls<sup>2</sup>*

- 2.1 Cavity wall insulation refers to the presence of an insulating layer in the internal cavity of an external wall, built with two or more leaves. When fitted retrospectively it describes the process of injecting an insulating material (usually fibres, beads or a foam) in-between the inner and outer leaves of masonry that make up an external cavity wall.
- 2.2 There are 5.2 million dwellings with cavity wall insulation (see table 2.1). This represents 35% of the 14.7 million dwellings with predominantly cavity walls.

<sup>1</sup> These discrepancies are likely to be in both the specification of wall type and the measurement of the proportion of each wall type.

<sup>2</sup> This analysis uses a revised definition of cavity wall insulation which is more wall type and area specific to that used within the original 2001 EHCS analysis.

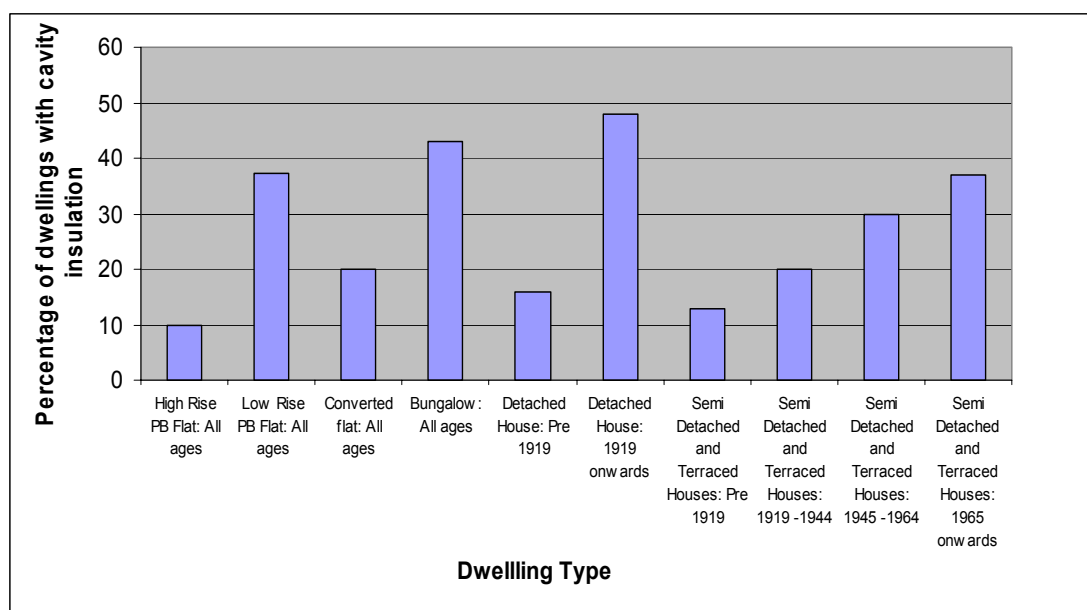
## Thermal Insulation

- 2.3 There are variations in the levels of cavity wall insulation by tenure. Private rented stock is least likely to have cavity wall insulation (only 28% of this tenure) and RSL stock most likely (44%) (see table 2.2).
- 2.4 Changing building practices mean modern housing is more likely to have cavity wall insulation and the 2001 EHCS shows post-1980 houses are the most likely of all to have cavity wall insulation. Only 13% of pre-1919 houses have insulation, compared to 57% of post-1980 houses (see table 2.3).
- 2.5 There are significant variations in the amount of cavity wall insulation by dwelling type, as shown below in figure 2.1 and in table 2.4. This is related to both dwelling age and the difficulties of adding cavity wall insulation to some dwelling types.

Bungalows (43%) and post-1919 detached houses (48%) are most likely to have cavity wall insulation. figure 2.1 shows that among semi-detached and terraced houses there is a clear relationship between the age of the dwellings and the levels of cavity wall insulation – older properties are less likely to have insulation.

Low levels of cavity wall insulation are seen in pre-1919 houses and high rise purpose built flats. Within these dwelling types between 10% and 16% have cavity wall insulation.

The dwelling type with the lowest incidence of cavity wall insulation is purpose built high-rise flats, with only 10% of dwellings having cavity wall insulation. This is a result of the difficulty in installing cavity wall insulation in properties of this type (it is usually impossible to install cavity wall insulation above 25m from the ground, and difficult up to this height).



**Figure 2.1 – Cavity Wall Insulation by dwelling type (dwellings with cavity walls).**

- 2.6 There are some regional variations in the prevalence of cavity wall insulation but it is difficult to determine any particular pattern (see table 2.5). It seems reasonable to assume that regional differences will be due to a large number of factors including dwelling age, type, household income, tenure and climatic differences.

Dwellings in the West Midlands have the lowest percentage of cavity wall insulation (27%) whilst those in the Eastern region have the highest percentage (47%).

*CHANGE IN LEVELS OF CAVITY WALL INSULATION SINCE 1996:*

- 2.7 When considering the change in cavity wall insulation it is important to take into account that there are around 1.7 million more households living in dwellings with predominantly cavity walls in 2001 than in 1996. New-build and change of use can account for around 850,000 of these dwellings. The remainder are likely to be the result of extensions and alterations to existing dwellings as well as any counting discrepancies between 1996 and 2001.

There has been a significant increase in the prevalence of cavity wall insulation since 1996. Of those households living in dwellings with cavity walls, 35% have cavity wall insulation. This compares to 22% in 1996, and represents a net increase in cavity wall insulation of around 2.4 million dwellings. Taking into account the increase in dwellings with predominantly cavity walls noted above, and discounting the new-build properties, we can estimate that there have been 1-1.5 million installations of cavity wall insulation to existing dwellings since 1996.

This increase spans all tenures, but is particularly marked in the private rented and RSL sectors. In the private rented sector the cavity wall insulation levels increased from 11% in 1996 to 28% in 2001 – this corresponds to around 200,000 dwellings.

Within the RSL sector the proportion of households with cavity wall insulation increased from 25% in 1996 to 44% in 2001, an increase of around 300,000 dwellings.

The remaining two tenures have also shown large increases. The proportion of local authority dwellings with cavity wall insulation increased from 22% in 1996 to 35% in 2001 (200,000 dwellings). The owner occupied sector (the vast majority of the stock) increased by a similar proportion (23% in 1996 increasing to 35% in 2001 – an increase of 1.7 million dwellings).

The oldest (pre-1919) stock has the lowest levels of cavity wall insulation. The 2001 data shows 13% of households in pre-1919 dwellings have cavity wall insulation – an increase from 7% in 1996. However, this age band contains a relatively low number of dwellings (only 4% of all those with predominantly cavity walls). A more considerable increase in terms of actual numbers of dwellings can be seen in the most modern stock (post-1980). In 1996, 32% of households in these dwellings had cavity wall insulation - this increases to 57% in 2001. This is equivalent to an increase of around 1.3 million dwellings with cavity wall insulation in this age band.

## Loft Insulation

*The analysis in this section is limited to houses and bungalows with pitched roofs which have not been converted into loft rooms.*

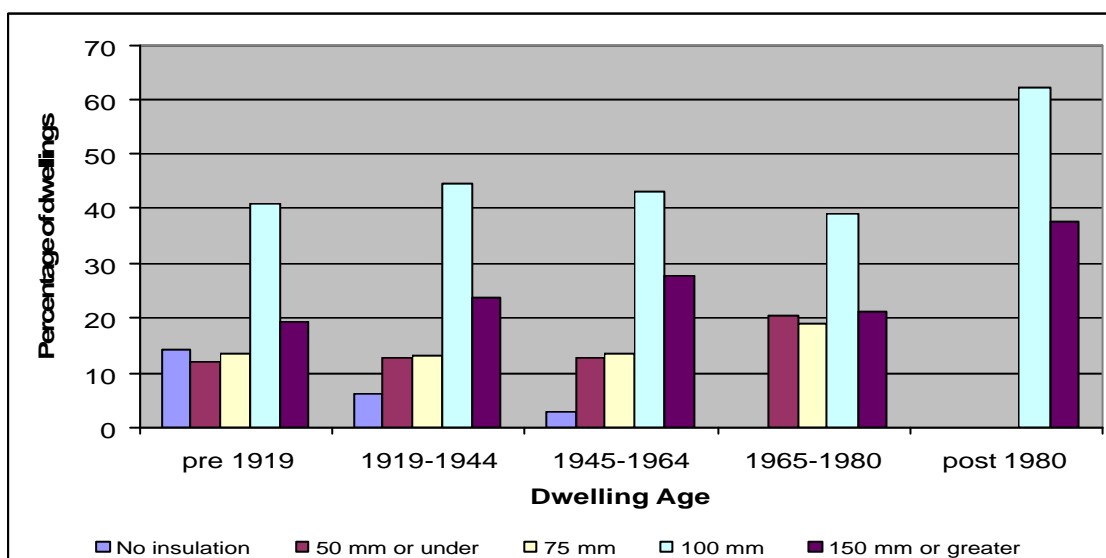
- 3.1 The thickness of loft insulation was only measured for pre-1980 houses. For post-1980 houses it is assumed to conform to the Building Regulation requirements at the date of construction. The analysis in this section is limited to houses and bungalows with pitched roofs, which have not been converted into loft rooms. Flats are not considered.
- 3.2 The 2001 survey shows that 98% of all dwellings with a pitched roof (16.8 million dwellings) have an unconverted loft (see table 3.1). Of these, 5% have no insulation at all, and 26% have 150mm or more (see table 3.2).



3.3 The incidence and thickness of loft insulation varies by dwelling age, as shown in figure 3.1 below and table 3.3. The graph shows younger houses are more likely to have loft insulation present, and to have insulation of a greater thickness. It should be noted that, in the 2001 EHCS, dwellings in the 1980 – 1990 age band are deemed to have 100mm loft insulation by default and post-1990 dwellings are deemed to have 150mm loft insulation by default except where the actual survey showed greater thicknesses.

Changing building practices over time have resulted in variations in the incidence and thickness of loft insulation, with loft insulation being added to older dwellings retrospectively. The oldest dwellings (pre-1919) are much more likely to have no insulation in their loft at all (14% of age band) and least likely to have insulation 150mm thick or more (19%).

There are some small variations in the incidence and thickness of loft insulation with dwelling type, but age seems to be a dominant factor (see table 3.4). Post-1919 detached houses show marginally higher levels of insulation than post-1965 semis, terraced houses and bungalows (only 1% with no insulation and 30% with 150mm or more).

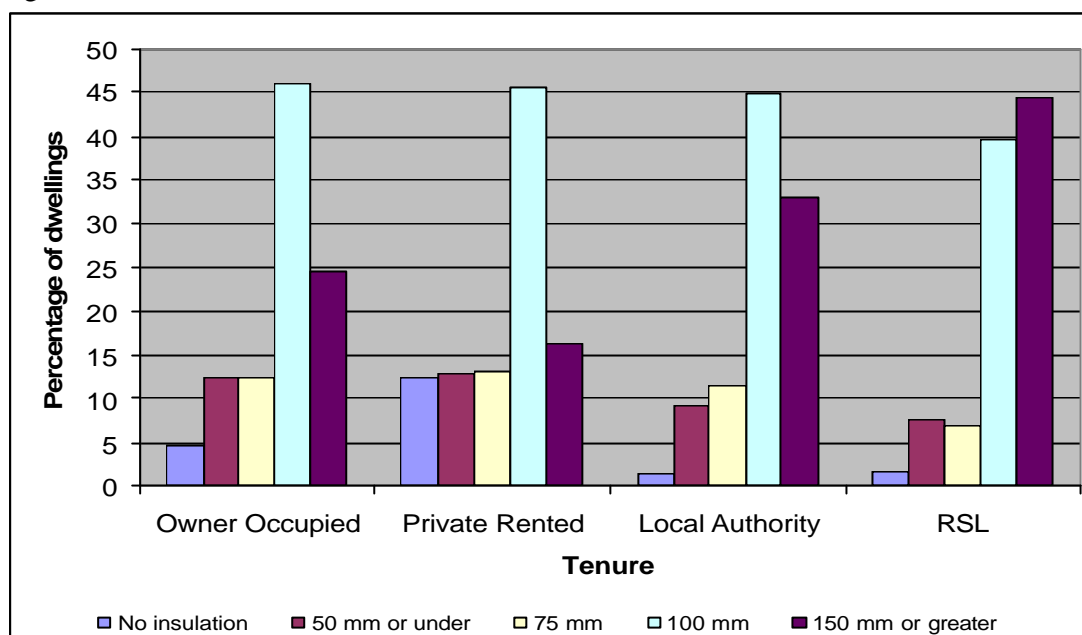


**Figure 3.1 – Levels of loft insulation by dwelling age (all houses with an unconverted loft).**

3.4 There are significant variations in both the incidence and thickness of loft insulation by tenure as shown in figure 3.2 below and table 3.5. Private rented stock has the lowest levels of loft insulation with 12% having no insulation whatsoever. These dwellings are also the least likely to have 150mm or more of insulation (17% of tenure). Social rented stock is most likely to have loft insulation and most likely to have loft insulation of greater thickness. Only 1.5% of the local authority and RSL stock has no insulation at all, with 45% and 33% of these two groups respectively having loft insulation 150mm thick or greater. The owner occupied sector lies in between private and social tenants, with 5% of dwellings having no loft insulation, and 25% having 150mm or more. These differences are closely associated with the age of properties within each tenure. The private rented stock consists of older properties, which are less likely to have loft insulation (as described above and shown in figure 3.1), and the social stock vice-versa. Different maintenance strategies between the tenures are also likely to play a part.

3.5 Loft insulation is reasonably uniform across all Government Office regions, as can be seen in table 3.6. Houses in the North East are most likely to have loft insulation (98% of those with an unconverted loft), whilst houses in London are least likely (94%). In terms of the thickness of insulation, dwellings in the West Midlands are the most likely to have 150mm or more of

insulation (32%) and dwellings in London and the South East the least likely (21%). These small regional variations are probably due to the tenure and age variations between the regions.



**Figure 3.2 – Levels of loft insulation by tenure (all houses with an unconverted loft).**

*CHANGE IN LEVELS OF LOFT INSULATION SINCE 1996:*

3.6 Levels of loft insulation have increased significantly since 1996. In 1996, 7% of households had no insulation whatsoever and 16% had 150mm or more. In 2001 these figures are 5% with no insulation and 26% with more than 150mm. This corresponds to a decrease of around 300,000 households with no insulation and an increase of 1.7 million households with 150mm or more of loft insulation, and represents a considerable shift towards greater levels of loft insulation in the housing stock.

The change in the number of dwellings with no insulation is approximately equal for all tenures. The lack of any loft insulation whatsoever is approximately two thirds of the levels observed in 1996 across all tenures. There is more variation when considering the thickest insulation category (150mm of insulation or more). In the private rented sector the proportion of houses with this thickest insulation has more than doubled (increasing from 8% in 1996 to 16% in 2001), the owner occupied sector has increased from 15% to 24%, the local authority sector from 20% to 33% and the RSL sector from 34% to 45%.

The oldest dwellings have the lowest levels of loft insulation in the dwelling stock. However, these dwellings have also shown improvements since 1996. 20% of households living in pre-1919 dwellings had no insulation whatsoever in 1996. In 2001, this figure has decreased to 14% - although it is still considerably higher than the 5% average for dwellings of all ages. The proportion of dwellings with the thickest (150mm or more) insulation within this age band has increased from 11% in 1996 to 19% in 2001.

## Solid Wall Insulation

*The analysis in this section is limited to those dwellings with predominantly solid walls.*

4.1 There are 6.2 million dwellings with solid walls. Two main types of insulation can be applied to such walls: various methods of external wall insulation, and the application of an internal dry-lining.

- 4.2 Only 2% of all solid walled dwellings are insulated (see table 4.1). The very low incidence of this wall insulation means that large errors are possible within this sub-sample. Therefore, the analysis which is possible of this data is very limited.
- 4.3 Dwellings in the social tenures are more likely to have solid wall insulation than dwellings in the private sector (see table 4.2). Around 10% of solid walled dwellings in the social sector are insulated, compared to just 1% of dwellings in the private sector.

## Double Glazing

- 5.1 Double glazing is measured by counting the total number of different types of windows in each dwelling. The survey only considers actual windows – and does not take any account of external doors other than patio doors.
- 5.2 Approximately 76% (16 million) of dwellings have some level of double glazing (see table 5.1 and figure 5.1 below). 51% (10 million) of dwellings have the entire dwelling double glazed, whilst 34% have none or less than half of the windows double glazed.

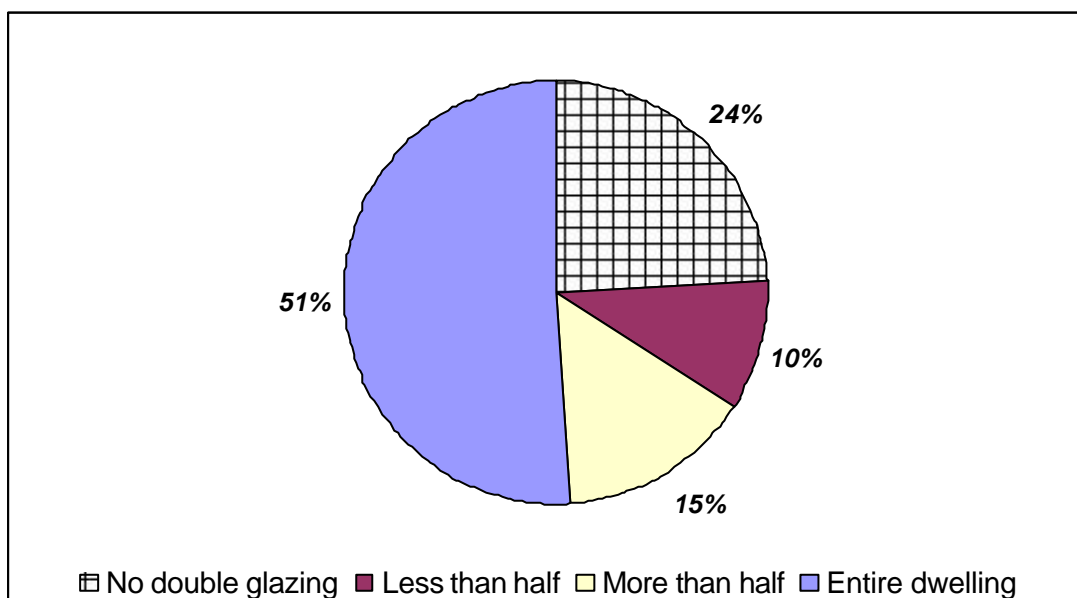


Figure 5.1 – Extent of double glazing (all dwellings).

- 5.3 When considering how double glazing varies by dwelling age it is useful to consider the pre-1919 stock separately to the stock built after 1919. Pre-1919 homes have a significantly lower incidence of double glazing than the rest of the stock. Only 59% of pre-1919 dwellings having any amount of double glazing (see table 5.2), compared to around 80% of for all age bands post-1919.

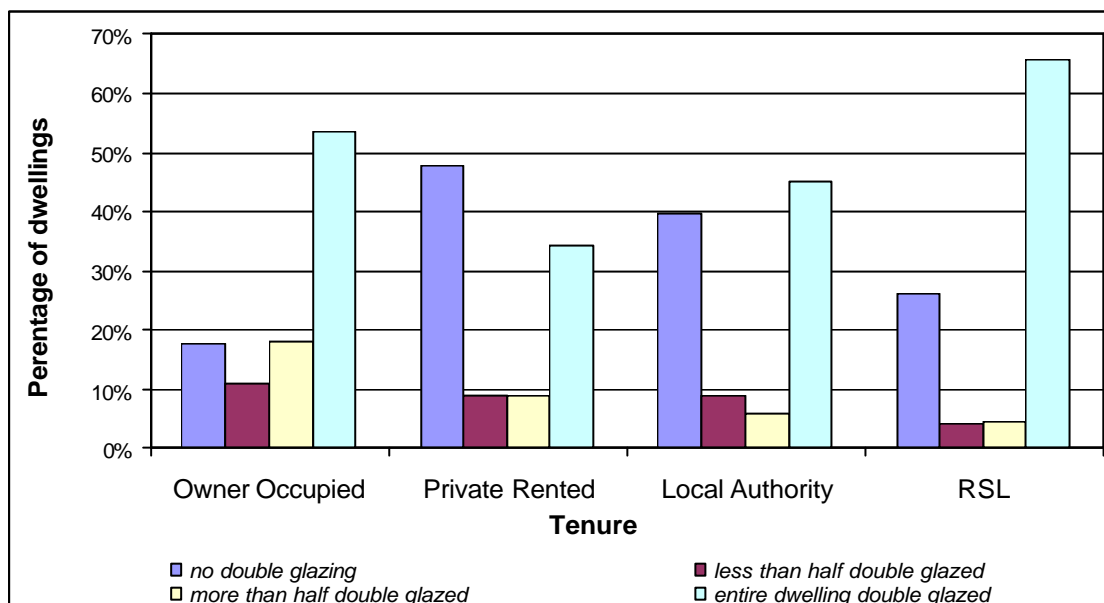
When considering the proportion of glazing within a dwelling, it is clear that the more modern a dwelling, the more likely it is that the entire dwelling will be double glazed. Only 28% of dwellings built before 1919 are entirely double glazed, compared to 43% of the 1919-1945 stock, and 70% of the post-1980 stock.

The changing incidence of double glazing within the stock is partly a result of modern regulations which, since 1990, have obliged all new and refurbished dwellings to be fitted

with double glazed windows. It is also likely to be related to the distribution of different aged dwellings by tenure as described below.

- 5.4 As shown in table 5.3 the incidence of double glazing varies greatly by tenure. The dwellings most likely to have double glazing are in the owner occupied sector, with 83% having some level of double glazing. This compares with 52% of private rented, 74% of RSL and 60% of local authority dwellings.

Differences are also noticeable when comparing the proportion of windows that are double glazed with the tenure of the dwellings. This is shown in figure 5.2 below.



**Figure 5.2 – Extent of double glazing by tenure (all dwellings with some double glazing).**

66% of all RSL dwellings are entirely double glazed. This compares to 45% of local authority dwellings, 34% of private rented dwellings and 54% of owner occupied dwellings.

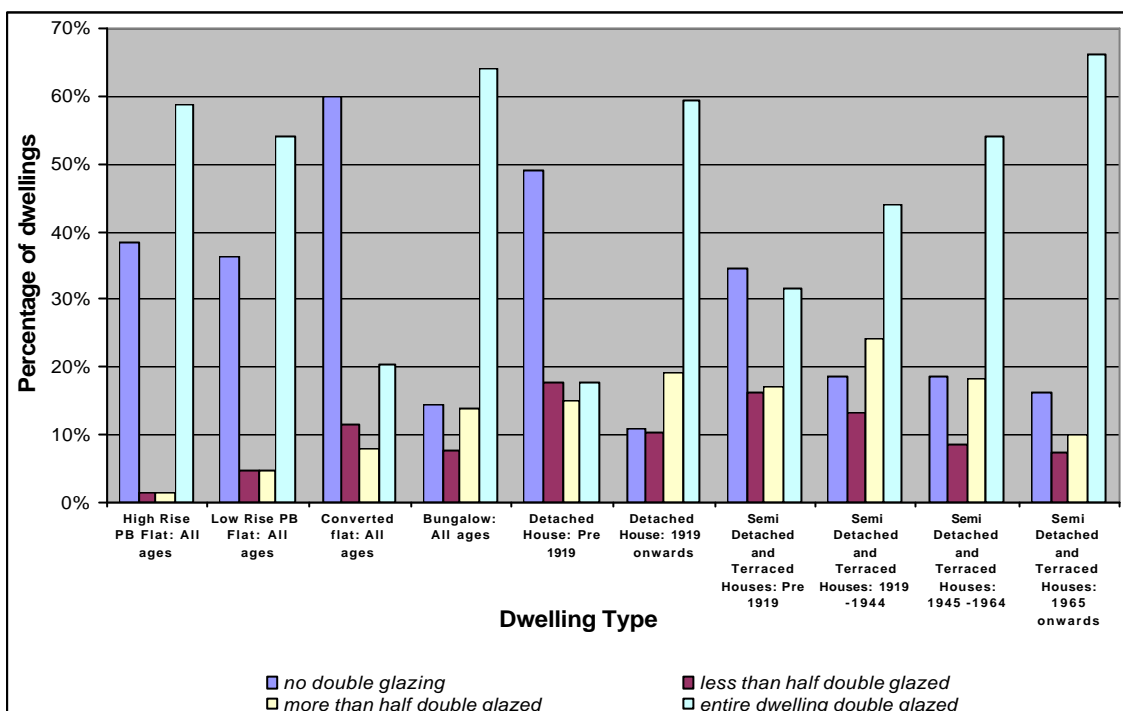
The differing proportions of double glazing which have been installed across tenures are likely to be due to a combination of factors. Firstly, building maintenance strategies are different in each sector. The size, age and type of dwelling will also affect the extent to which double glazing is installed in each sector, and these dwelling characteristics vary greatly between tenures. For example, the RSL stock is the most modern among the tenures – and this is partially reflected in the high proportion of dwellings with double glazing throughout the whole dwelling.

- 5.5 Table 5.4 shows how the incidence of double glazing varies with dwelling type. Post-1919 detached houses are most likely to have some double glazing (90%), whereas converted flats are the least likely (40%).

This reflects the age distribution of each dwelling type. Over 80% of converted flats are in buildings originally built before 1919, whereas the majority of detached houses have been built since 1965. Other factors are also likely to play a large part, including tenure of each dwelling type, as well as the physical differences between each type that can make double glazing more difficult or more expensive to install.

Similarly, the extent of double glazing within each type of dwelling reflects both dwelling age and tenure. For example, 60% of converted flats have no double glazing whatsoever (this

compares to 24% for all dwelling types). This reflects the amount of dwellings of this type which are old and the high proportion which are within the private rented tenure. The extent of double glazing by dwelling type is shown in figure 5.3 below.



**Figure 5.3 – Extent of double glazing by dwelling type (all dwellings with some double glazing).**

5.6 Double glazing also shows an amount of variation by region. Most government regions have just under 80% of dwellings with some double glazing except the North East with 70% and London with 63%. There is little discernible difference when comparing dwellings with all windows double glazed by region. Most regions fall into the 48% – 55% band except the Eastern Region, the highest at 58% and London, the lowest at 42%. (see table 5.5).

5.7 The material used to construct double glazed window frames affects the window’s standard of insulation. uPVC and wooden frames provide the most insulation, whereas aluminium frames are less efficient. The 2001 data shows the vast majority (93%) of double glazed windows have uPVC or wooden frames, with only 7% made from aluminium (see table 5.6).

*CHANGE IN LEVELS OF DOUBLE GLAZING SINCE 1996:*

5.8 The 2001 results show a continuing trend of increased incidence of double glazing, as well as an increasing proportion of double glazing within each dwelling.

76% of households have some level of double glazing in 2001, compared to 60% in 1996. There has been a corresponding rise in the extent of double glazing in each dwelling. In 2001, 51% of households live in dwellings with all of the windows double glazed. This compares to 31% of households in 1996.

The past five years continue the pattern of rapidly increasing amounts of double glazing across all tenures, as shown in figure 5.4 below.

The lowest levels of double glazing are found within households living in pre-1919 dwellings, however, the incidence of double glazing within this age band has increased significantly since 1996 from 43% in 1996 to 59% in 2001.

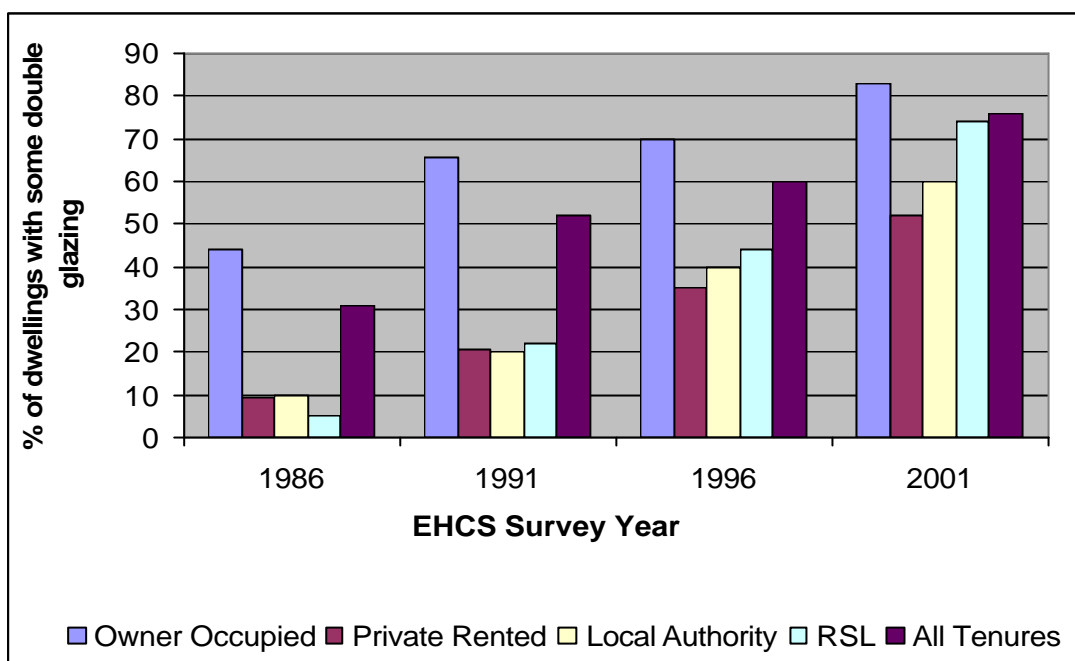


Figure 5.4 – Presence of double glazing by tenure 1986 to 2001 (all dwellings with some double glazing).

In 2001, considerably more double glazed window frames were made of the more efficient uPVC or wood (93%) than in 1996 (79%).

### Secondary glazing

- 5.9 In contrast to the 1996 survey, the 2001 EHCS only recorded secondary glazing installed specifically for sound insulation purposes. Therefore secondary glazing is not discussed further in this document.

## Hot Water Cylinder Insulation

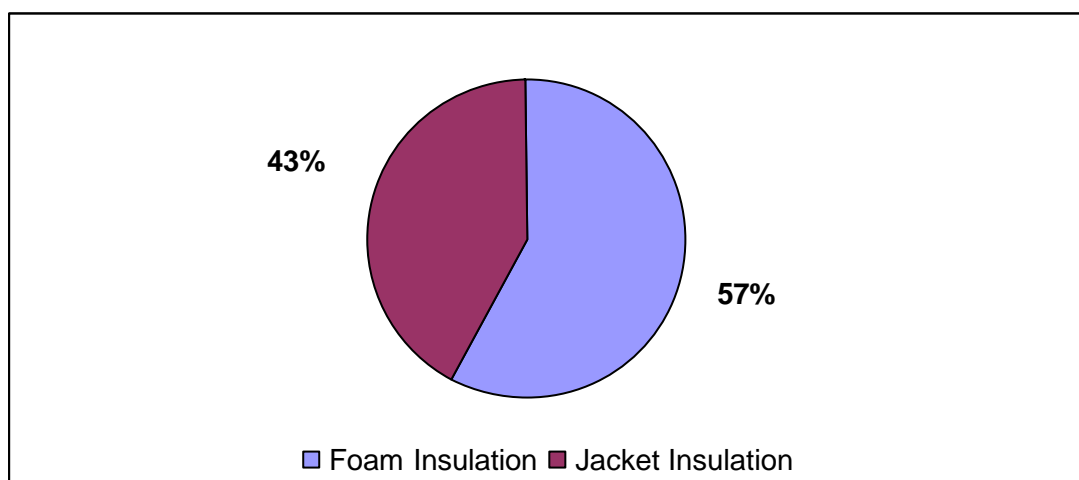
*The analysis in this section considers just those dwellings with a hot water cylinder.*

- 6.1 The 2001 data shows 75% of dwellings (15.9 million) have a hot water cylinder (see table 6.1). Nearly 98% (15.5 million) of these cylinders are insulated (see table 6.2).

Figure 6.1 below shows that approximately 43% of insulated cylinders have flexible cylinder jackets, while 57% have the more efficient foam coated cylinders (see table 6.2).

- 6.2 Only relatively recently has foam insulation become widely available and fitted as standard. Just over 50% of all insulated cylinders in dwellings built before 1980 have foam insulation. In post-1980 dwellings the proportion rises dramatically to 79% (see table 6.3).
- 6.3 The highest proportion of dwellings with foam insulated cylinders are post 1919 detached houses (68%) and the lowest high-rise flats (44%) (see table 6.4). The distribution of foam insulation by dwelling type is likely to be related to the relative proportion of dwellings within each dwelling type built after 1980 (e.g. there are relatively high numbers of detached houses, and very few high rise flats, built after 1980).

- 6.4 As table 6.5 show, the more efficient foam coating is more popular across all tenures than the flexible jackets. It is most popular of all within the RSL sector, with 68% of insulated cylinders using this form of insulation, and least popular in the local authority sector with 54% of insulated cylinders employing a foam coating.



**Figure 6.1 – Type of hot water cylinder insulation (all insulated hot-water cylinders).**

This reflects the age distribution within each of the tenures, in particular the proportion of dwellings in each tenure built post-1980. 41% of RSL dwellings were built post-1980 (the largest proportion of all tenures), compared to 10% of local authority dwellings (the smallest proportion of all tenures).

- 6.5 There is some variation in the different insulation types between regions. This variation shows a general North-South split, with foam coating being more prevalent in the South. The lowest incidence of foam coating is in the North West & Merseyside, where only 39% of insulated hot water cylinders have a foam coating. In the North East, Yorkshire & Humberside and the West Midlands there is a relatively equal balance between the numbers of cylinder jackets and foam insulation. In the East Midlands, South West, Eastern Region, South East and London, the majority have foam insulation (see table 6.6).

*CHANGES IN HOT WATER CYLINDER INSULATION SINCE 1996:*

- 6.6 There has been a small increase in the proportion of cylinders with insulation since 1996. In 2001, 98% of cylinders have some level of insulation compared to 96% in 1996. It should be noted that there has been a net decrease in the number of cylinders in use in England since 1996 as a result of the installation of new space and water heating facilities that do not require a hot water cylinder. It is likely that these newly installed systems will have replaced older type heating systems, which are more likely to have had jacket insulation, leading to a net increase in the amount of cylinders with foam insulation.

The principal change in insulation is from cylinder jacket insulation to foam coated insulation. The use of foam coating has increased substantially to 57% of all insulated cylinders since 1996 (when only 45% of all households had foam coated cylinders). This indicates a significant replacement programme (equivalent to 2 million cylinders). This is a continuation of a longer term trend revealed by the EHCS as shown in figure 6.2 below.

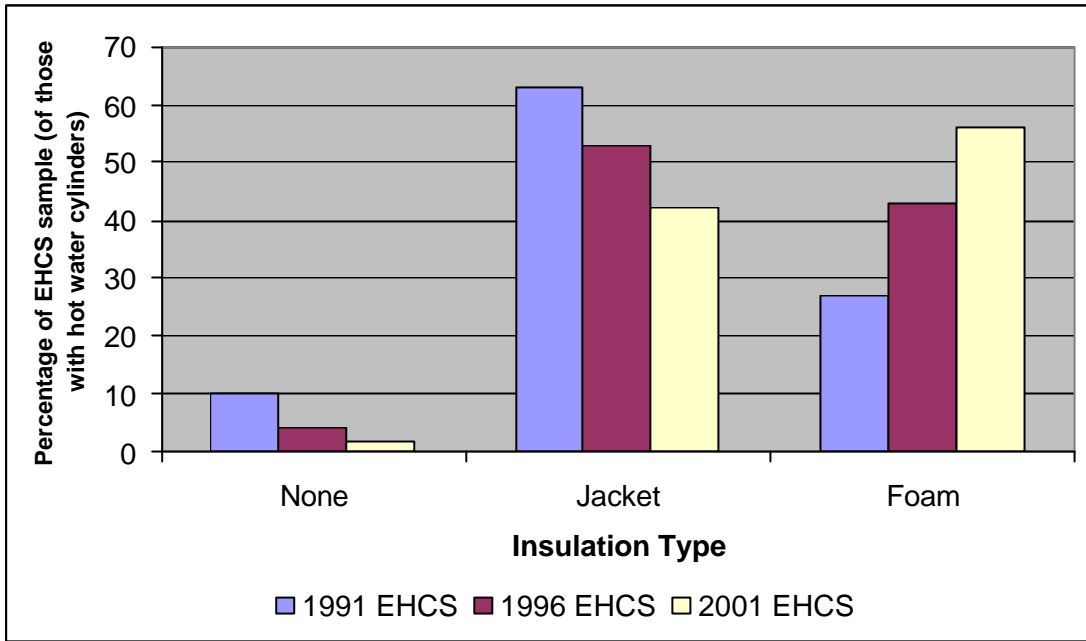


Figure 6.2 – Type of cylinder insulation by EHCS date (all hot water cylinders).



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**Table 1.1 Wall Construction - Predominant external wall type**

count (000s), (column%)	
<b>predominant wall type</b>	<b>no dwellings</b>
cavity	14,740 ( 69.7 )
solid	6,188 ( 29.3 )
other	212 ( 1.0 )
<b>total</b>	<b>21,140</b> <b>( 100.0 )</b>

base: all dwellings  
(grossed by dwellings)

**Table 1.2 Wall Construction - Predominant external wall type by dwelling age**

	count(000s), (row%), (column%)					
<b>predominant wall type</b>	<b>pre 1919</b>	<b>1919-1944</b>	<b>1945-1964</b>	<b>1965-1980</b>	<b>post 1980</b>	<b>Total</b>
cavity	656 ( 4.4)	2,186 ( 14.8)	3,857 ( 26.2)	4,232 ( 28.7)	3,810 ( 25.8)	14,740 ( 100.0)
solid	3732 ( 60.3)	1538 ( 24.9)	597 ( 9.6)	273 ( 4.4)	48 ( 0.8)	6188 ( 100.0)
other	19 ( 8.8)	15 ( 7.0)	23 ( 10.7)	99 ( 46.6)	57 ( 26.9)	212 ( 100.0)
total	4,406 ( 20.8)	3,739 ( 17.7)	4,476 ( 21.2)	4,604 ( 21.8)	3,915 ( 18.5)	21,140 ( 100.0)
	( 100.0)	( 100.0)	( 100.0)	( 100.0)	( 100.0)	( 100.0)

base: all dwellings  
(grossed by dwellings)

**Table 1.3 Wall Construction - Predominant external wall type by dwelling type**

predominant wall type	Small terraced house	Medium/large terraced house	Semi-detached house	Detached house	Bungalow	Converted flat	Purpose built flat, low rise	Purpose built flat, high rise	Total
cavity	1,517 ( 10.3)	1,656 ( 11.2)	4,460 ( 30.3)	2,654 ( 18.0)	1,793 ( 12.2)	106 ( 0.7)	2,389 ( 16.2)	165 ( 1.1)	14,740 ( 100.0)
solid	1,116 ( 18.0)	1,643 ( 26.5)	1,377 ( 22.2)	592 ( 9.6)	198 ( 3.2)	582 ( 9.4)	514 ( 8.3)	168 ( 2.7)	6,188 ( 100.0)
other	28 ( 13.3)	45 ( 21.4)	15 ( 7.3)	27 ( 12.8)	65 ( 30.5)	3 ( 1.2)	26 ( 12.3)	2 ( 1.1)	212 ( 100.0)
	( 1.1)	( 1.4)	( 0.3)	( 0.8)	( 3.1)	( 0.4)	( 0.9)	( 0.7)	( 1.0)
Total	2,660 ( 12.6)	3,344 ( 15.8)	5,853 ( 27.7)	3,273 ( 15.5)	2,055 ( 9.7)	691 ( 3.3)	2,929 ( 13.9)	335 ( 1.6)	21,140 ( 100.0)
	( 100.0)	( 100.0)	( 100.0)	( 100.0)	( 100.0)	( 100.0)	( 100.0)	( 100.0)	( 100.0)

base: all dwellings  
(grossed by dwellings)

**Table 1.4 Wall Construction - Predominant external wall type by dwelling tenure**

	count(000s), (row%), (column%)				
<b>predominant wall type</b>	<b>Owner Occupied</b>	<b>Private Rented</b>	<b>Local Authority</b>	<b>RSL</b>	<b>Total</b>
cavity	10,398 ( 70.5)	1,067 ( 7.2)	2,146 ( 14.6)	1,129 ( 7.7)	14,740 ( 100.0)
solid	4,233 ( 68.4)	1,101 ( 17.8)	609 ( 9.8)	245 ( 4.0)	6,188 ( 100.0)
other	140 ( 28.7)	23 ( 50.2)	36 ( 21.8)	13 ( 17.7)	212 ( 29.3)
Total	14,771 ( 66.1)	2,191 ( 10.9)	2,790 ( 16.8)	1,388 ( 6.3)	21,140 ( 100.0)
	( 0.9)	( 1.1)	( 1.3)	( 1.0)	( 1.0)
	( 69.9)	( 10.4)	( 13.2)	( 6.6)	( 100.0)
	( 100.0)	( 100.0)	( 100.0)	( 100.0)	( 100.0)

base: all dwellings  
(grossed by dwellings)

**Table 1.5 Wall Construction - Predominant external wall type by government region**

count(000s), (row%), (column%)

predominant wall type	North East	Yorkshire & Humberside	North West & Merseyside	East Midlands	West Midlands	South West	Eastern	South East	London	Total
cavity	920 ( 6.2) ( 85.6)	1,576 ( 10.7) ( 71.4)	2,191 ( 14.9) ( 75.0)	1,301 ( 8.8) ( 70.7)	1,469 ( 10.0) ( 68.3)	1,496 ( 10.2) ( 70.6)	1,753 ( 11.9) ( 75.3)	2,714 ( 18.4) ( 79.2)	1,319 ( 9.0) ( 42.9)	14,740 ( 100.0) ( 69.7)
solid	151 ( 2.4) ( 14.0)	618 ( 10.0) ( 28.0)	707 ( 11.4) ( 24.2)	530 ( 8.6) ( 28.8)	672 ( 10.9) ( 31.2)	591 ( 9.5) ( 27.9)	530 ( 8.6) ( 22.8)	654 ( 10.6) ( 19.1)	1,736 ( 28.1) ( 56.4)	6,188 ( 100.0) ( 29.3)
other	4 ( 1.9) ( 0.4)	12 ( 5.8) ( 0.6)	21 ( 10.1) ( 0.7)	9 ( 4.4) ( 0.5)	10 ( 4.8) ( 0.5)	32 ( 14.9) ( 1.5)	44 ( 20.6) ( 1.9)	59 ( 28.0) ( 1.7)	20 ( 9.6) ( 0.7)	212 ( 100.0) ( 1.0)
Total	1,074 ( 5.1) ( 100.0)	2,207 ( 10.4) ( 100.0)	2,919 ( 13.8) ( 100.0)	1,841 ( 8.7) ( 100.0)	2,151 ( 10.2) ( 100.0)	2,119 ( 10.0) ( 100.0)	2,327 ( 11.0) ( 100.0)	3,428 ( 16.2) ( 100.0)	3,076 ( 14.5) ( 100.0)	21,140 ( 100.0) ( 100.0)

base: all dwellings  
(grossed by dwellings)

**Table 2.1 Cavity Wall Insulation - Frequency of cavity wall insulation**

	count(000s), (column%)
<b>Cavity wall insulation present?</b>	<b>Dwellings</b>
No	9,538 ( 64.7)
Yes	5,202 ( 35.3)
Total	14,740 ( 100.0)

base: all dwellings with predominantly cavity external walls  
(grossed by dwellings)

**Table 2.2 Cavity Wall Insulation - Frequency of cavity wall insulation by tenure**

count(000s), (row%), (column%)					
<b>Cavity wall insulation present?</b>	<b>Owner Occupied</b>	<b>Private Rented</b>	<b>Local Authority</b>	<b>RSL</b>	<b>Total</b>
No	6,741 ( 70.7)	769 ( 8.1)	1,397 ( 14.6)	632 ( 6.6)	9,538 ( 100.0)
Yes	3,657 ( 70.3)	298 ( 5.7)	749 ( 14.4)	498 ( 9.6)	5,202 ( 100.0)
Total	10,398 ( 70.5)	1,067 ( 7.2)	2,146 ( 14.6)	1,129 ( 7.7)	14,740 ( 100.0)
	( 100.0)	( 100.0)	( 100.0)	( 100.0)	( 100.0)

base: all dwellings with predominantly cavity external walls  
(grossed by dwellings)



**Table 2.3 Cavity Wall Insulation - Frequency of cavity wall insulation by dwelling age**

	count(000s), (row%), (column%)					
<b>Cavity wall insulation present?</b>	<b>pre 1919</b>	<b>1919-1944</b>	<b>1945-1964</b>	<b>1965-1980</b>	<b>post 1980</b>	<b>Total</b>
No	569 ( 6.0)	1,733 ( 18.2)	2,694 ( 28.2)	2,902 ( 30.4)	1,639 ( 17.2)	9,538 ( 100.0)
Yes	86 ( 1.7)	453 ( 8.7)	1,164 ( 22.4)	1,329 ( 25.6)	2,170 ( 41.7)	5,202 ( 100.0)
Total	656 ( 4.4)	2,186 ( 14.8)	3,857 ( 26.2)	4,232 ( 28.7)	3,810 ( 25.8)	14,740 ( 100.0)
	( 100.0)	( 100.0)	( 100.0)	( 100.0)	( 100.0)	( 100.0)

base: all dwellings with predominantly cavity external walls  
(grossed by dwellings)

Table 2.4 Cavity Wall Insulation - Frequency of cavity wall insulation by combined dwelling age & type

count(000s), (row%), (column%)

Cavity wall insulation present?	High Rise PB Flat: All ages	Low Rise PB Flat: All ages	Converted flat: All ages	Bungalow: All ages	Detached House: Pre 1919	Detached House: 1919 onwards	Semi Detached and Terraced Houses: Pre 1919	Semi Detached and Terraced Houses: 1919 - 1944	Semi Detached and Terraced Houses: 1945 - 1964	Semi Detached and Terraced Houses: 1965 onwards	Total
No	148 ( 1.6) ( 89.7)	1,516 ( 15.9) ( 63.4)	85 ( 0.9) ( 80.0)	1,021 ( 10.7) ( 57.0)	76 ( 0.8) ( 84.2)	1,333 ( 14.0) ( 52.0)	428 ( 4.5) ( 87.2)	1,305 ( 13.7) ( 79.6)	1,610 ( 16.9) ( 70.2)	2,016 ( 21.1) ( 62.8)	9,538 ( 100.0) ( 64.7)
Yes	17 ( 0.3) ( 10.3)	873 ( 16.8) ( 36.6)	21 ( 0.4) ( 20.0)	772 ( 14.8) ( 43.0)	14 ( 0.3) ( 15.8)	1,231 ( 23.7) ( 48.0)	63 ( 1.2) ( 12.8)	335 ( 6.4) ( 20.4)	683 ( 13.1) ( 29.8)	1,193 ( 22.9) ( 37.2)	5,202 ( 100.0) ( 35.3)
Total	165 ( 1.1) ( 100.0)	2,389 ( 16.2) ( 100.0)	106 ( 0.7) ( 100.0)	1,793 ( 12.2) ( 100.0)	91 ( 0.6) ( 100.0)	2,564 ( 17.4) ( 100.0)	491 ( 3.3) ( 100.0)	1,639 ( 11.1) ( 100.0)	2,293 ( 15.6) ( 100.0)	3,209 ( 21.8) ( 100.0)	14,740 ( 100.0) ( 100.0)

base: all dwellings with predominantly cavity external walls  
(grossed by dwellings)

Table 2.5 Cavity Wall Insulation - Frequency of cavity wall insulation by government region

count(000s), (row%), (column%)										
Cavity wall insulation present?	North East	Yorkshire & Humberside	North West & Merseyside	East Midlands	West Midlands	South West	Eastern	South East	London	Total
No	586 ( 6.1)	1,083 ( 11.4)	1,501 ( 15.7)	788 ( 8.3)	1,077 ( 11.3)	935 ( 9.8)	936 ( 9.8)	1,691 ( 17.7)	940 ( 9.9)	9,538 ( 100.0)
Yes	333 ( 6.4)	493 ( 9.5)	690 ( 13.3)	513 ( 9.9)	392 ( 7.5)	562 ( 10.8)	816 ( 15.7)	1,023 ( 19.7)	380 ( 7.3)	5,202 ( 100.0)
Total	920 ( 36.3)	1,576 ( 31.3)	2,191 ( 31.5)	1,301 ( 39.4)	1,469 ( 26.7)	1,496 ( 37.5)	1,753 ( 46.6)	2,714 ( 37.7)	1,319 ( 28.8)	14,740 ( 35.3)
	( 6.2)	( 10.7)	( 14.9)	( 8.8)	( 10.0)	( 10.2)	( 11.9)	( 18.4)	( 9.0)	( 100.0)
	( 100.0)	( 100.0)	( 100.0)	( 100.0)	( 100.0)	( 100.0)	( 100.0)	( 100.0)	( 100.0)	( 100.0)

base: all dwellings with predominantly cavity external walls  
(grossed by dwellings)

**Table 3.1 Loft Insulation - Houses and bungalows with unconverted lofts**

	count (000s), (column%)
<b>unconverted loft?</b>	<b> dwellings</b>
No	354 ( 2.1)
Yes	16,831 ( 97.9)
total	17,185 ( 100.0)

base: all houses and bungalows  
(grossed by dwellings)

**Table 3.2 Loft insulation - Thickness of insulation**

	count (000s), (column%)
<b>loft insulation thickness</b>	<b> dwellings</b>
No insulation	816 ( 4.8 )
50 mm or under	1,989 ( 11.8 )
75 mm	2,042 ( 12.1 )
100 mm	7,667 ( 45.5 )
150 mm	3,050 ( 18.1 )
> 150 mm	1,267 ( 7.5 )
total	16,831 ( 100.0 )

base: houses and bungalows with unconverted lofts  
(grossed by dwellings)

**Table 3.3 Loft Insulation - Frequency analysis of thickness by dwelling age**

	count(000s), (row%), (column%)					
<b>loft insulation thickness</b>	<b>pre 1919</b>	<b>1919-1944</b>	<b>1945-1964</b>	<b>1965-1980</b>	<b>post 1980</b>	<b>Total</b>
No insulation	517 ( 63.4)	199 ( 24.4)	100 ( 12.3)	0 ( 0.0)	0 ( 0.0)	816 (100.0)
50 mm or under	427 ( 21.5)	422 ( 21.2)	455 ( 22.9)	686 ( 34.5)	0 ( 0.0)	1989 (100.0)
75 mm	485 ( 23.8)	438 ( 21.5)	485 ( 23.7)	634 ( 31.0)	0 ( 0.0)	2,042 (100.0)
100 mm	1,459 ( 19.0)	1,495 ( 19.5)	1,545 ( 20.2)	1,311 ( 17.1)	1,857 ( 24.2)	7,667 (100.0)
150 mm	432 ( 14.2)	502 ( 16.5)	600 ( 19.7)	454 ( 14.9)	1,063 ( 34.8)	3,050 (100.0)
> 150 mm	262 ( 20.7)	291 ( 23.0)	389 ( 30.7)	262 ( 20.7)	63 ( 5.0)	1,267 (100.0)
<b>Total</b>	3,583 ( 21.3)	3,346 ( 19.9)	3,573 ( 21.2)	3,346 ( 19.9)	2,982 ( 17.7)	16,831 (100.0)
	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)

base: houses and bungalows with unconverted lofts  
(grossed by dwellings)

Table 3.4 Loft Insulation - Frequency analysis of thickness by combined dwelling age and type

count(000s), (row%), (column%)

loft insulation thickness	Bungalow: All ages	Detached House: Pre 1919	Detached House: 1919 onwards	Semi Detached and Terraced Houses: Pre 1919	Semi Detached and Terraced Houses: 1919 -1944	Semi Detached and Terraced Houses: 1945 -1964	Semi Detached and Terraced Houses: 1965 onwards	Total
No insulation	35 ( 4.3)	65 ( 7.9)	57 ( 7.0)	443 ( 54.3)	149 ( 18.3)	67 ( 8.2)	0 ( 0.0)	816 ( 100.0)
50 mm or under	229 ( 11.5)	61 ( 3.1)	254 ( 12.8)	354 ( 17.8)	337 ( 16.9)	323 ( 16.3)	432 ( 21.7)	1,989 ( 100.0)
75 mm	200 ( 11.4)	73 ( 12.2)	245 ( 9.4)	408 ( 11.7)	349 ( 12.5)	368 ( 12.4)	399 ( 13.1)	2,042 ( 11.8)
100 mm	988 ( 9.8)	178 ( 3.6)	1,355 ( 12.0)	1,257 ( 20.0)	1,218 ( 17.1)	1,130 ( 18.0)	1,540 ( 19.6)	7,667 ( 100.0)
150 mm	381 ( 12.9)	75 ( 2.3)	658 ( 17.7)	344 ( 16.4)	413 ( 15.9)	443 ( 14.7)	735 ( 20.1)	3,050 ( 100.0)
> 150 mm	175 ( 49.2)	51 ( 35.3)	139 ( 50.0)	209 ( 41.7)	226 ( 45.2)	271 ( 43.4)	196 ( 46.6)	1,267 ( 45.5)
Total	2,009 ( 11.9)	503 ( 3.0)	2,708 ( 16.1)	3,014 ( 17.9)	2,692 ( 16.0)	2,602 ( 15.5)	3,302 ( 19.6)	16,831 ( 100.0)

base: houses and bungalows with unconverted lofts  
(grossed by dwellings)

**Table 3.5 Loft Insulation - Frequency analysis of thickness by tenure**

	count(000s), (row%), (column%)				
<b>loft insulation thickness</b>	<b>Owner Occupied</b>	<b>Private Rented</b>	<b>Local Authority</b>	<b>RSL</b>	<b>Total</b>
No insulation	618 ( 75.7)	164 ( 20.1)	23 ( 2.8)	11 ( 1.4)	816 ( 100.0)
50 mm or under	4.7 ( 81.5)	12.2 ( 8.6)	1.5 ( 7.2)	1.6 ( 2.7)	4.8 ( 100.0)
75 mm	12.3 ( 80.1)	12.8 ( 8.7)	9.2 ( 8.8)	7.6 ( 2.4)	11.8 ( 100.0)
100 mm	16.36 ( 12.4)	178 ( 13.3)	180 ( 11.5)	49 ( 6.9)	2,042 ( 12.1)
150 mm	79.2 ( 46.0)	8.0 ( 45.5)	9.2 ( 44.8)	3.7 ( 39.6)	100.0 ( 45.5)
> 150 mm	17.7 ( 76.7)	11.7 ( 5.1)	19.9 ( 10.3)	33.8 ( 7.9)	18.1 ( 100.0)
Total	925 ( 73.0)	60 ( 4.7)	207 ( 16.3)	76 ( 6.0)	1,267 ( 100.0)
	7.0 ( 78.5)	4.5 ( 8.0)	13.1 ( 9.3)	10.7 ( 4.2)	7.5 ( 100.0)
	100.0 ( 100.0)	100.0 ( 100.0)	100.0 ( 100.0)	100.0 ( 100.0)	100.0 ( 100.0)

base: houses and bungalows with unconverted lofts  
(grossed by dwellings)



**Table 3.6 Loft Insulation - Frequency analysis of thickness by government region**

count(000s), (row%), (column%)

loft insulation thickness	North East	Yorkshire & Humberside	North West & Merseyside	East Midlands	West Midlands	South West	Eastern	South East	London	Total
No insulation	20 ( 2.4) ( 2.2)	166 ( 20.3) ( 8.8)	121 ( 14.8) ( 4.8)	57 ( 7.0) ( 3.4)	84 ( 10.3) ( 4.6)	91 ( 11.2) ( 5.1)	65 ( 8.0) ( 3.4)	112 ( 13.7) ( 4.1)	100 ( 12.3) ( 6.2)	816 ( 100.0) ( 4.8)
50 mm or under	83 ( 4.2) ( 9.1)	175 ( 8.8) ( 9.3)	364 ( 18.3) ( 14.5)	207 ( 10.4) ( 12.5)	222 ( 11.2) ( 12.2)	183 ( 9.2) ( 10.3)	256 ( 12.8) ( 13.2)	328 ( 16.5) ( 12.0)	170 ( 8.6) ( 10.7)	1,989 ( 100.0) ( 11.8)
75 mm	106 ( 5.2) ( 11.6)	244 ( 12.0) ( 13.0)	325 ( 15.9) ( 13.0)	214 ( 10.5) ( 12.9)	213 ( 10.4) ( 11.7)	198 ( 9.7) ( 11.2)	284 ( 13.9) ( 14.7)	284 ( 13.9) ( 10.3)	174 ( 8.5) ( 10.9)	2,042 ( 100.0) ( 12.1)
100 mm	427 ( 5.6) ( 46.7)	838 ( 10.9) ( 44.5)	1,072 ( 14.0) ( 42.8)	688 ( 9.0) ( 41.5)	720 ( 9.4) ( 39.6)	816 ( 10.6) ( 46.1)	852 ( 11.1) ( 44.0)	1,442 ( 18.8) ( 52.5)	813 ( 10.6) ( 50.8)	7,667 ( 100.0) ( 45.5)
150 mm	205 ( 6.7) ( 22.4)	298 ( 9.8) ( 15.8)	443 ( 14.5) ( 17.7)	310 ( 10.2) ( 18.7)	349 ( 11.4) ( 19.2)	351 ( 11.5) ( 19.8)	364 ( 11.9) ( 18.8)	452 ( 14.8) ( 16.4)	279 ( 9.2) ( 17.5)	3,050 ( 100.0) ( 18.1)
> 150 mm	73 ( 5.8) ( 8.0)	161 ( 12.7) ( 8.6)	182 ( 14.3) ( 7.2)	183 ( 14.4) ( 11.0)	229 ( 18.1) ( 12.6)	132 ( 10.4) ( 7.5)	116 ( 9.1) ( 6.0)	128 ( 10.1) ( 4.7)	63 ( 5.0) ( 4.0)	1,267 ( 100.0) ( 7.5)
<b>Total</b>	915 ( 5.4) ( 100.0)	1,882 ( 11.2) ( 100.0)	2,507 ( 14.9) ( 100.0)	1,658 ( 9.9) ( 100.0)	1,818 ( 10.8) ( 100.0)	1,771 ( 10.5) ( 100.0)	1,936 ( 11.5) ( 100.0)	2,746 ( 16.3) ( 100.0)	1,599 ( 9.5) ( 100.0)	16,831 ( 100.0) ( 100.0)

base: houses and bungalows with unconverted lofts  
(grossed by dwellings)

**Table 4.1 Solid Wall Insulation - Frequency of solid wall insulation**

	count(000s), (row%)
<b>solid wall insulation present?</b>	<b>Total</b>
No	6,059 ( 97.9 )
Yes	129 ( 2.1 )
Total	6,188 ( 100.0 )

base: dwellings with predominantly solid walls  
(grossed by dwellings)

**Table 4.1 Solid Wall Insulation - Frequency of solid wall insulation by private / social**

	count(000s), (row%), (column%)		
<b>solid wall insulation present?</b>	<b>Private</b>	<b>Social</b>	<b>Total</b>
No	5,287 ( 87.3 )	772 ( 12.7 )	6,059 ( 100.0 )
Yes	47 ( 0.9 )	83 ( 9.7 )	129 ( 8.0 )
Total	5,334 ( 86.2 ) ( 100.0 )	854 ( 13.8 ) ( 100.0 )	6,188 ( 100.0 )

base: dwellings with predominantly solid walls  
(grossed by dwellings)

**Table 5.1 Double Glazing - Proportion of dwelling double glazed**

	count (000s), (column%)
<b>extent of double glazing</b>	<b>no. dwellings</b>
No double glazing	5,099 ( 24.1 )
Less than half	2,113 ( 10.0 )
More than half	3,097 ( 14.6 )
Entire dwelling	10,831 ( 51.2 )
<b>total</b>	<b>21,140</b> <b>( 100.0 )</b>

base: all dwellings  
(grossed by dwellings)

**Table 5.2 Double Glazing - Proportion of dwelling double glazed by dwelling age**

	count(000s), (row%), (column%)					
<b>extent of double glazing</b>	<b>pre 1919</b>	<b>1919-1944</b>	<b>1945-1964</b>	<b>1965-1980</b>	<b>post 1980</b>	<b>Total</b>
no double glazing	1,812 ( 35.5 )	786 ( 15.4 )	914 ( 17.9 )	831 ( 16.3 )	755 ( 14.8 )	5,099 ( 100.0 )
less than half double glazed	692 ( 32.7 )	478 ( 22.6 )	346 ( 16.4 )	355 ( 16.8 )	241 ( 11.4 )	2,113 ( 100.0 )
more than half double glazed	679 ( 15.7 )	868 ( 12.8 )	753 ( 7.7 )	622 ( 7.7 )	176 ( 6.2 )	3,097 ( 10.0 )
entire dwelling double glazed	1,223 ( 21.9 )	1,607 ( 28.0 )	2,463 ( 24.3 )	2,796 ( 20.1 )	2,742 ( 5.7 )	10,831 ( 100.0 )
	( 11.3 )	( 14.8 )	( 22.7 )	( 25.8 )	( 25.3 )	( 100.0 )
	( 27.8 )	( 43.0 )	( 55.0 )	( 60.7 )	( 70.0 )	( 51.2 )
total	4,406 ( 20.8 )	3,739 ( 17.7 )	4,476 ( 21.2 )	4,604 ( 21.8 )	3,915 ( 18.5 )	21,140 ( 100.0 )
	( 100.0 )	( 100.0 )	( 100.0 )	( 100.0 )	( 100.0 )	( 100.0 )

base: all dwellings  
(grossed by dwellings)

**Table 5.3 Double Glazing - Proportion of dwelling double glazed by tenure**

	count(000s), (row%), (column%)				
<b>extent of double glazing</b>	<b>Owner Occupied</b>	<b>Private Rented</b>	<b>Local Authority</b>	<b>RSL</b>	<b>Total</b>
no double glazing	2,577 ( 50.5)	1,048 ( 20.6)	1,112 ( 21.8)	361 ( 7.1)	5,099 ( 100.0)
	( 17.4)	( 47.8)	( 39.9)	( 26.0)	( 24.1)
less than half double glazed	1609 ( 76.2)	200 ( 9.5)	247 ( 11.7)	56 ( 2.6)	2113 ( 100.0)
	( 10.9)	( 9.1)	( 8.8)	( 4.0)	( 10.0)
more than half double glazed	2679 ( 86.5)	191 ( 6.2)	166 ( 5.4)	62 ( 2.0)	3097 ( 100.0)
	( 18.1)	( 8.7)	( 6.0)	( 4.4)	( 14.7)
entire dwelling double glazed	7,906 ( 73.0)	751 ( 6.9)	1,265 ( 11.7)	909 ( 8.4)	10,831 ( 100.0)
	( 53.5)	( 34.3)	( 45.3)	( 65.5)	( 51.2)
total	14,771 ( 69.9)	2,191 ( 10.4)	2,790 ( 13.2)	1,388 ( 6.6)	21,140 ( 100.0)
	( 100.0)	( 100.0)	( 100.0)	( 100.0)	( 100.0)

base: all dwellings  
(grossed by dwellings)

Table 5.4 Double Glazing - proportion of dwelling double glazed by combined dwelling age and type

count(000s), (row%), (column%)

extent of double glazing	High Rise PB Flat: All ages	Low Rise PB Flat: All ages	Converted flat: All ages	Bungalow: All ages	Detached House: Pre 1919	Detached House: 1919 onwards	Semi Detached and Terraced Houses: Pre 1919	Semi Detached and Terraced Houses: 1919 - 1944	Semi Detached and Terraced Houses: 1945 - 1964	Semi Detached and Terraced Houses: 1965 onwards	Total
No double glazing	129 ( 2.5) ( 38.5)	1,062 ( 20.8) ( 36.3)	414 ( 8.1) ( 59.9)	297 ( 5.8) ( 14.4)	261 ( 5.1) ( 49.4)	300 ( 5.9) ( 10.9)	1,082 ( 21.2) ( 34.7)	508 ( 10.0) ( 18.7)	492 ( 9.7) ( 18.7)	554 ( 10.9) ( 16.3)	5,099 ( 100.0) ( 24.1)
Less than half	5 ( 0.2) ( 1.4)	139 ( 6.6) ( 4.8)	80 ( 3.8) ( 11.6)	157 ( 7.4) ( 7.7)	94 ( 4.5) ( 17.8)	287 ( 13.6) ( 10.4)	512 ( 24.3) ( 16.4)	358 ( 17.0) ( 13.2)	227 ( 10.7) ( 8.6)	253 ( 12.0) ( 7.4)	2,113 ( 100.0) ( 10.0)
More than half	4 ( 0.1) ( 1.3)	139 ( 4.5) ( 4.7)	55 ( 1.8) ( 7.9)	284 ( 9.2) ( 13.8)	80 ( 2.6) ( 15.1)	526 ( 17.0) ( 19.2)	536 ( 17.3) ( 17.2)	655 ( 21.1) ( 24.1)	480 ( 15.5) ( 18.3)	339 ( 10.9) ( 10.0)	3,097 ( 100.0) ( 14.7)
Entire dwelling	197 ( 1.8) ( 58.9)	1,589 ( 14.7) ( 54.2)	142 ( 1.3) ( 20.6)	1,317 ( 12.2) ( 64.1)	94 ( 0.9) ( 17.7)	1,631 ( 15.1) ( 59.4)	986 ( 9.1) ( 31.6)	1,195 ( 11.0) ( 44.0)	1,429 ( 13.2) ( 54.4)	2,251 ( 20.8) ( 66.3)	10,831 ( 100.0) ( 51.2)
Total	335 ( 1.8) ( 100.0)	2,929 ( 14.7) ( 100.0)	691 ( 1.3) ( 100.0)	2,055 ( 12.2) ( 100.0)	529 ( 0.9) ( 100.0)	2,744 ( 15.1) ( 100.0)	3,117 ( 9.1) ( 100.0)	2,716 ( 11.0) ( 100.0)	2,628 ( 13.2) ( 100.0)	3,396 ( 20.8) ( 100.0)	21,140 ( 100.0) ( 100.0)

base: all dwellings  
(grossed by dwellings)

Table 5.5 Double Glazing - Proportion of dwelling double glazed by government region

count(000s), (row%), (column%)

extent of double glazing	North East	Yorkshire & Humberside	North West & Merseyside	East Midlands	West Midlands	South West	Eastern	South East	London	Total
No double glazing	313 ( 6.1) ( 29.1)	510 ( 10.0) ( 23.1)	650 ( 12.7) ( 22.3)	380 ( 7.5) ( 20.7)	455 ( 8.9) ( 21.2)	437 ( 8.6) ( 20.6)	465 ( 9.1) ( 20.0)	752 ( 14.7) ( 21.9)	1,137 ( 22.3) ( 37.0)	5,099 ( 100.0) ( 24.1)
Less than half	91 ( 4.3) ( 8.5)	258 ( 12.2) ( 11.7)	368 ( 17.4) ( 12.6)	196 ( 9.3) ( 10.6)	236 ( 11.2) ( 11.0)	175 ( 8.3) ( 8.3)	201 ( 9.5) ( 8.6)	315 ( 14.9) ( 9.2)	272 ( 12.9) ( 8.8)	2,113 ( 100.0) ( 10.0)
More than half	144 ( 4.7) ( 13.4)	288 ( 9.3) ( 13.1)	495 ( 16.0) ( 17.0)	296 ( 9.5) ( 16.1)	385 ( 12.4) ( 17.9)	343 ( 11.1) ( 16.2)	310 ( 10.0) ( 13.3)	474 ( 15.3) ( 13.8)	362 ( 11.7) ( 11.8)	3,097 ( 100.0) ( 14.7)
Entire dwelling	526 ( 4.9) ( 48.9)	1,150 ( 10.6) ( 52.1)	1,405 ( 13.0) ( 48.1)	969 ( 8.9) ( 52.7)	1,074 ( 9.9) ( 49.9)	1,163 ( 10.7) ( 54.9)	1,352 ( 12.5) ( 58.1)	1,887 ( 17.4) ( 55.1)	1,305 ( 12.0) ( 42.4)	10,831 ( 100.0) ( 51.2)
Total	1,074 ( 5.1) ( 100.0)	2,207 ( 10.4) ( 100.0)	2,919 ( 13.8) ( 100.0)	1,841 ( 8.7) ( 100.0)	2,151 ( 10.2) ( 100.0)	2,119 ( 10.0) ( 100.0)	2,327 ( 11.0) ( 100.0)	3,428 ( 16.2) ( 100.0)	3,076 ( 14.5) ( 100.0)	21,140 ( 100.0) ( 100.0)

base: all dwellings  
(grossed by dwellings)



**Table 5.6 Double Glazing - Predominant frame type**

<b>type of window</b>	<b>count (000s), (column%)</b> <b>no dwellings</b>
Timber	2,313 ( 14.4 )
UPVC	12,577 ( 78.4 )
Aluminium	1,151 ( 7.2 )
<b>total</b>	<b>16,041</b> <b>( 100.0 )</b>

base: all dwellings with some double glazing  
(grossed by dwellings)

**Table 6.1 Hot Water Cylinder Insulation - Proportion of dwellings with hot water cylinder**

	count(000s), (column%)
<b>Hot Water Cylinder present?</b>	<b>Dwellings</b>
No	5,281 ( 25.0)
Yes	15,859 ( 75.0)
Total	21,140

base: all dwellings  
(grossed by dwellings)

**Table 6.2 Hot Water Cylinder Insulation - Type of insulation**

	count (000s), (column%)
<b>hot water cylinder insulation</b>	<b>no dwellings</b>
foam	8,907 ( 56.2 )
jacket	6,590 ( 41.6 )
none	362 ( 2.3 )
total	15,859 ( 100.0 )

base: all dwellings with hot water cylinder  
(grossed by dwellings)

**Table 6.3 Hot Water Cylinder Insulation - Hot water cylinder insulation by dwelling age**

	count(000s), (row%), (column%)					
<b>hot water cylinder insulation</b>	<b>pre 1919</b>	<b>1919-1944</b>	<b>1945-1964</b>	<b>1965-1980</b>	<b>post 1980</b>	<b>Total</b>
foam	1,367 ( 15.3)	1,289 ( 14.5)	1,817 ( 20.4)	1,905 ( 21.4)	2,528 ( 28.4)	8,906 ( 100.0)
jacket	( 52.1)	( 50.5)	( 52.8)	( 52.1)	( 78.5)	( 57.5)
	1,256 ( 19.1)	1,263 ( 19.2)	1,625 ( 24.7)	1,752 ( 26.6)	693 ( 10.5)	6,590 ( 100.0)
Total	( 47.9)	( 49.5)	( 47.2)	( 47.9)	( 21.5)	( 42.5)
	2,623 ( 16.9)	2,553 ( 16.5)	3,441 ( 22.2)	3,658 ( 23.6)	3,222 ( 20.8)	15,497 ( 100.0)
	( 100.0)	( 100.0)	( 100.0)	( 100.0)	( 100.0)	( 100.0)

base: all dwellings with insulated hot water cylinders  
(grossed by dwellings)

Table 6.4 Hot Water Cylinder Insulation - Hot water cylinder insulation by combined dwelling age and type

count(000s), (row%), (column%)

hot water cylinder insulation	High Rise PB Flat: All ages	Low Rise PB Flat: All ages	Converted flat: All ages	Bungalow: All ages	Detached House: Pre 1919	Detached House: 1919 onwards	Semi Detached and Terraced Houses: Pre 1919	Semi Detached and Terraced Houses: 1919 - 1944	Semi Detached and Terraced Houses: 1945 - 1964	Semi Detached and Terraced Houses: 1965 onwards	Total
foam	102 ( 1.1) ( 43.9)	1,190 ( 13.4) ( 57.9)	180 ( 2.0) ( 53.4)	966 ( 10.8) ( 58.9)	278 ( 3.1) ( 63.9)	1,637 ( 18.4) ( 68.1)	893 ( 10.0) ( 49.2)	932 ( 10.5) ( 50.0)	1,037 ( 11.6) ( 50.7)	1,692 ( 19.0) ( 63.4)	8,906 ( 100.0) ( 57.5)
jacket	130 ( 2.0) ( 56.1)	866 ( 13.1) ( 42.1)	157 ( 2.4) ( 46.6)	674 ( 10.2) ( 41.1)	157 ( 2.4) ( 36.1)	765 ( 11.6) ( 31.9)	921 ( 14.0) ( 50.8)	933 ( 14.2) ( 50.0)	1,007 ( 15.3) ( 49.3)	979 ( 14.8) ( 36.6)	6,590 ( 100.0) ( 42.5)
Total	232 ( 1.5) ( 100.0)	2,055 ( 13.3) ( 100.0)	337 ( 2.2) ( 100.0)	1,640 ( 10.6) ( 100.0)	435 ( 2.8) ( 100.0)	2,402 ( 15.5) ( 100.0)	1,814 ( 11.7) ( 100.0)	1,866 ( 12.0) ( 100.0)	2,044 ( 13.2) ( 100.0)	2,671 ( 17.2) ( 100.0)	15,497 ( 100.0) ( 100.0)

base: all dwellings with insulated hot water cylinder  
(grossed by dwellings)

**Table 6.5 Hot Water Cylinder Insulation - Hot water cylinder insulation by tenure**

count(000s), (row%), (column%)					
<b>hot water cylinder insulation</b>	<b>Owner Occupied</b>	<b>Private Rented</b>	<b>Local Authority</b>	<b>RSL</b>	<b>Total</b>
foam	6,186	832	1,184	705	8,906
	( 69.5)	( 9.3)	( 13.3)	( 7.9)	( 100.0)
	( 57.1)	( 57.7)	( 53.9)	( 68.3)	( 57.5)
jacket	4641	610	1012	328	6590
	( 70.4)	( 9.3)	( 15.4)	( 5.0)	( 100.0)
	( 42.9)	( 42.3)	( 46.1)	( 31.7)	( 42.5)
Total	10,826	1,441	2,197	1,032	15,497
	( 69.9)	( 9.3)	( 14.2)	( 6.7)	( 100.0)
	( 100.0)	( 100.0)	( 100.0)	( 100.0)	( 100.0)

base: all dwellings with insulated hot water cylinders  
(grossed by dwellings)

**Table 6.6 Hot Water Cylinder Insulation - Hot water cylinder insulation by government region**

count(000s), (row%), (column%)

hot water cylinder insulation	North East	Yorkshire & Humberside	North West & Merseyside	East Midlands	West Midlands	South West	Eastern	South East	London	Total
foam	352 ( 3.9)	705 ( 7.9)	740 ( 8.3)	881 ( 9.9)	770 ( 8.6)	1,005 ( 11.3)	1,302 ( 14.6)	1,978 ( 22.2)	1,174 ( 13.2)	8,906 ( 100.0)
jacket	405 ( 6.1)	772 ( 11.7)	1,165 ( 17.7)	625 ( 9.5)	777 ( 11.8)	526 ( 8.0)	696 ( 10.6)	777 ( 11.8)	847 ( 12.8)	6,590 ( 100.0)
Total	756 ( 4.9)	1,477 ( 9.5)	1,905 ( 12.3)	1,506 ( 9.7)	1,547 ( 10.0)	1,531 ( 9.9)	1,999 ( 12.9)	2,755 ( 17.8)	2,021 ( 13.0)	15,497 ( 100.0)

base: all dwellings with insulated hot water cylinder  
(grossed by dwellings)