
Energy Analysis Focus Report

A study of Hard to Treat Homes using the English House Condition Survey

Part I: Dwelling and Household Characteristics of Hard To Treat Homes



The English House Condition Survey is funded and provided courtesy of Communities and Local Government. More information about this survey can be found at www.communities.gov.uk/ehcs

This Energy Analysis Focus Report has been prepared by BRE Housing with the support of the 'Climate, Energy and Ozone: Science and Analysis' section of the Department for Environment, Food and Rural Affairs (Defra) through a contract managed by the Energy Saving Trust. For any further information please contact environment@bre.co.uk

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List of Acronyms

CERT	Carbon Emissions Reduction Target
CLG	Communities and Local Government
CWI	Cavity wall insulation
DH	Decent Homes Standard
EEC	Energy Efficiency Commitment
EHCS	English House Condition Survey
EST	Energy Saving Trust
HRP	Household Reference Person
HTT	Hard to Treat
CLG	Department of Communities and Local Government
ONS	Office of National Statistics
WF	Warm Front

Executive Summary

This report provides a detailed analysis of the numbers and characteristics of the 'Hard to Treat' (HTT) stock in England using data from the English House Condition Survey (EHCS).

A 'Hard to Treat' dwelling is defined as one that, for whatever reason, cannot accommodate 'staple' or cost-effective fabric energy efficiency measures. Four categories of dwellings have been considered HTT in this work; dwellings with solid walls, dwellings off the gas network, dwellings with no loft and high-rise flats.

The dwelling, heating and household characteristics of the HTT stock have been investigated and detailed tables are presented here. In England, 9.2 million dwellings can be considered HTT, accounting for 43% of the total stock. Solid wall and off gas network dwellings make up the largest component. Nearly 84% of this HTT stock is in the private sector; the private rented tenure comprises the greatest proportion of HTT dwellings with more than 50% of this sector being designated as HTT. Of all Government Office Regions, London has the highest percentage of HTT dwellings, due mainly to the large number of solid wall dwellings.

The second section of this report presents the results of a preliminary exploration of the HTT stock in relation to the potential for staple energy efficiency measures. Currently, 81% of the HTT stock has the potential to have some energy efficiency measures installed leaving 1.7 million dwellings which are not able to be cost-effectively addressed with staple energy efficiency measures.

Data collected from the interview survey of the EHCS provides a unique opportunity to assess householders' attitudes to various aspects of their homes, including how effective their heating is and their ability to keep warm. Those living in a HTT home are much less likely to find their heating and insulation systems 'very effective' compared to those living in a non-HTT home. A relatively large number of residents in high-rise flats find it hard to keep warm in their living rooms in winter.

Background

Improving the energy efficiency in the UK's domestic housing stock is a key priority to the success of several of the Government's current strategies including climate change, fuel poverty and the Decent Homes Standard. The UK's goal is to reduce its greenhouse gas emissions by 60% (from 1990 levels) by 2050. Homes are responsible for about 27% of the UK's total carbon dioxide (CO₂) emissions in 2004¹. Meeting the targets set out in the UK Fuel Poverty Strategy², a subsequent progress report³ and the Energy White Paper⁴ of eradicating fuel poverty in all vulnerable households in England by 2010 and all other households in England by 2016 requires the root causes of high energy costs (a function of energy inefficient houses and high fuel prices) and low incomes to be addressed. The Decent Homes Standard^a includes a criterion for thermal comfort, for which a property must have effective insulation and efficient heating.

The English housing stock comprises about 21 million dwellings. In the context of improving energy efficiency, one sector of this stock has proved to be particularly problematic. Known either as 'Hard to Treat'⁵ or 'Hard to Heat'⁶, these homes have been defined by the Energy Saving Trust (EST) as:

'homes that for a variety of reasons cannot accommodate 'staple' energy efficiency measures offered under schemes such as Warm Front in England. They may include: homes that are off the gas network; homes with solid walls; homes with no loft space; homes in a state of disrepair; high-rise blocks; and any other homes where for technical and practical reasons these staple energy efficiency measures cannot be fitted'⁷.

These 'staple' energy efficiency measures comprise the cost-effective fabric energy efficiency measures such as loft insulation and cavity wall insulation and improvements to a heating system such as installing gas central heating.

There have been several recent reports on 'Hard to Treat' (HTT) homes relating to: a) the potential for improvements in the HTT stock^{7,8,9} and b) fuel poverty in the HTT stock^{10,11,12}. Interestingly, only one of these studies¹¹ attempted to quantify the number and types of HTT dwellings in the housing stock but even this was limited to solid-walled dwellings and homes off the gas network. The primary aim of our work was to use data collected in the English House Condition Survey (EHCS) to provide a detailed analysis of the numbers and characteristics of the HTT stock in England.

Objectives

Our analysis of Hard to Treat homes comprised of two main stages:

Stage 1: Analysis of the characteristics of the Hard to Treat stock

Stage 1 involved creating the dataset with which to carry out the analysis of the HTT stock characteristics. This was done by combining 3 years of EHCS data. The next step was to

a The Decent Homes Standard is a government commitment to ensure that by 2010 all public sector homes meet the statutory minimum standard for housing, be in a reasonable state of repair, have reasonably modern facilities and services and provide a reasonable degree of thermal comfort.

more strictly define what constitutes a HTT dwelling in relation to the EHCS data. Using the EST description as a starting point, four categories of dwellings were considered Hard to Treat:

- § Dwellings with solid walls
- § Dwellings off the gas network
- § Dwellings with no loft
- § High-rise flats

The methodology used to derive these characteristics from the EHCS data is described in detail in the following section. In this analysis dwellings in a state of disrepair were not considered to be a separate category of HTT dwelling. Although these dwellings would require improvements to be made to one or more building components in order to pass the Decent Homes standard they would not necessarily be HTT in terms of installing the staple energy efficiency measures because once improved, these measures could be easily installed. Once the set of Hard to Treat dwellings had been defined, detailed tables describing the characteristics of this stock were produced for the following:

- § Dwelling characteristics
 - tenure
 - dwelling type
 - dwelling age
- § Geographical location
 - Government Office Region
 - urban/suburban/rural split
- § Heating characteristics
 - type of heating system
 - main fuel used
 - loft insulation thickness
 - type of hot water system
- § Household characteristics
 - household type
 - age of HRP
 - income distribution.

The initial process of producing these tables highlighted the need to more accurately define the HTT stock in the context of the EHCS data and the final core dataset of HTT dwellings was obtained after an iterative process.

Stage 2: The Hard to Treat Stock and staple energy efficiency measures

One of the key drivers for installing energy efficiency measures in domestic dwellings is the Energy Efficiency Commitment (EEC) obligation upon energy suppliers, and the forthcoming Carbon Emissions Reduction Target (CERT). Other drivers include the Government's fuel poverty programme, Warm Front and Local Authorities' Decent Homes activity. EEC and CERT require gas and electricity suppliers to achieve targets for the promotion of improvements in domestic energy efficiency. At least 50% of the energy

savings achieved under the EEC must be achieved from households in the 'Priority Group' which is defined in the EEC Order^b as those households receiving certain state benefits.

Stage 2 of this report focuses on analysing the HTT stock in terms of parameters that are relevant for energy efficiency policies, including the EEC programme. This investigated how much of the HTT stock was occupied by the EEC Priority and Non-Priority groups, and also considered the potential remaining in the stock for staple energy efficiency measures. Stage 2 will form the basis for further work in which the potential for applying more innovative energy efficiency measures and low carbon technologies to HTT homes will be investigated.

An additional piece of work in this section looked at the HTT stock in terms of the occupants' satisfaction and the desirability of these dwellings. Some recent research has suggested that one solution to the energy efficiency problems of this part of the housing stock would be to significantly increase the rate of demolition in this sector¹³. However, the human and social factors should also be considered within this context and the EHCS allows this to be explored through answers to questions asked in the Interview Survey on householders' attitudes to their homes.

Methodology

The EHCS dataset

The EHCS is a national survey of dwellings and their occupants managed by the Department for Communities and Local Government (CLG). It is undertaken on a continuous basis with a sample of approximately 8,000 records collected each survey year (April to March) and comprises three separate surveys: (i) the household interview survey, (ii) the dwelling physical survey and (iii) the market value survey. The physical survey is carried out by trained surveyors and provides detailed data relating to the physical nature of the dwelling including construction type, dimensions, physical condition, windows, heating systems, heating fuels and insulation. In order to have a sample size large enough to be statistically reliable in the analysis of the HTT stock, a dataset comprising three single years of EHCS data (2002 -2004) was created, the reference point for this being April 2003. Three-year dwelling and household grossing factors were provided by the Office of National Statistics (ONS). The dataset comprised 25,088 survey cases, which, when weighted, represented a total population of 21.5 million dwellings and 20.8 million households. The difference between the numbers of dwellings and households is due to vacant dwellings and some dwellings containing more than one household. Stage 1 of this work used the dwelling population predominantly, although the household population was used when analysing the household characteristics. Stage 2 used the household population as the analysis focussed on looking at priority and non-priority households.

Defining the Hard to Treat Stock in the EHCS dataset

As discussed in the Objectives section, four categories of dwellings were used as the starting point for defining the Hard to Treat stock in the EHCS dataset. A detailed description of how these definitions were applied to the data follows below and is summarised in Table 1. It should be noted that an iterative process was required to fully characterise the HTT stock and therefore the numbers of dwellings in each sub-type are specific to this work; for example, the number of dwellings reported as being 'off the gas network' will not be an accurate description of the total number of 'off gas' dwellings in

^b The Electricity and Gas (Energy Efficiency Obligations) Order 2004.

England, as dwellings with communal heating systems were not considered to be HTT, even if they were 'off gas'.

Solid wall dwellings

Data from the physical survey form was used to determine whether a dwelling had solid walls. Both traditional 9" masonry walls and other non-traditional construction types such as single leaf masonry, >9" walls (e.g. thick stone walls), concrete walls (either panel or in-situ), metal or timber panels and some mixed wall types (e.g. where the ground and first floors were constructed of different materials) were designated as solid walls. It is not possible to determine cavity wall dwellings that cannot be filled (for example, because they are situated in an area of driving rain) using the EHCS data. A recent estimate of the percentage of unfillable cavity walls is 7% of the unfilled cavity wall stock^c.

Off the gas network

A proxy for dwellings off of the gas network had to be derived for this work as the EHCS does not specifically collect information as to whether a dwelling is on the mains gas network. For this research dwellings have been defined as being off the gas network if: 1) there is no gas system present and 2) if there is a gas system present but it is not a mains supply. This necessitates some caution when evaluating this proxy. The data from the EHCS does not give an indication of how close a property is to the nearest gas mains i.e. there may be a gas supply running into a residential area but one particular dwelling has not yet been connected. This could result in an over-estimation of the numbers of off-gas dwellings, although the effect is likely to be small. Figures supplied by NG Transco and reported in Pett¹¹ show that there were 3.1 million households in England off the gas network in 2002. The number derived from the EHCS stock data is approximately 15% less than this. This is somewhat surprising as we would expect the survey data to overestimate the number of dwellings off of the gas network due to the proxy methodology used. It may be that there is a regional bias in the grossing which results in an underestimation of the number of households off of the gas network. For dwellings designated as being off the gas network but with a community heating system, the decision was made to re-assign these as non-HTT as they already had an energy efficient heating system installed.

No loft space

The EHCS survey form includes a variable about the type of loft present and also a variable describing the predominant roof structure and the determination of whether a dwelling had no loft was made using both of these variables. Dwellings with mansard, flat or chalet roofs were designated HTT (due to having no loft space in which to install insulation) if they were built pre-1990. Flat roofs, by definition, do not have a loft space; mansard roofs do have a roof space but it is usually very shallow and therefore difficult to access and chalet roofs may have some roof space which could be insulated but this level of detail is not reported in the EHCS survey. The age limit of pre-1990 was assigned as it was assumed that dwellings built after this date should adhere to building regulations and therefore have sufficient insulation. In addition to these criteria, it was also decided to assign dwellings with loft conversions as HTT if they had been converted pre-1990, for the same reasons that chalet roofs had been assigned.

^c Peter Iles, BRE. Pers. comm..

High rise flats

High rise flats are notoriously hard to treat, with tower blocks in particular being seen as the ‘pinnacle of the hard to treat pyramid’⁹. Developments built during the boom building years of 1953 to 1972 in particular have severe heating problems related to poor physical condition, maintenance and, for safety reasons, no gas. High rise flats in the EHCS data are defined as flats in a block at least 6 stories high.

Table 1 summarises the criteria used for defining HTT dwellings.

Category of Hard to Treat	Dwellings Included	Dwellings not included
Solid wall	Traditional 9" masonry Single leaf masonry Concrete walls Metal panelled walls Timber panelled walls	Cavity walls that cannot be filled for technical reasons
Off gas network	Dwellings with no mains gas system present	Dwellings with communal heating systems
No loft	Dwellings surveyed as having no loft Dwellings with mansard, chalet or flat roofs built pre-1990 Dwellings with loft conversions done pre-1990	Dwellings with mansard, chalet or flat roofs built post-1990 Dwellings with loft conversions done post-1990
High rise flats	Flats at least 6 storeys high	

Table 1: Summary of the Hard to Treat categories

Results

Characteristics of the Hard to Treat Stock in England

Table 2 and Figure 1 show the numbers of HTT dwellings in England as determined from the EHCS data. Results for categories with small sample sizes are statistically unreliable and are shown by an asterisk (*) in all of the following tables.

		Number of dwellings (000s)	% of all dwellings	% of Hard to Treat stock
Hard To Treat?	Yes	9,206	43	
	No	12,343	57	
	<i>Total</i>	<i>21,549</i>	<i>100</i>	
Solid wall	Yes	6,599	31	72
Off gas network	Yes	2,769	13	30
No loft space	Yes	1,475	7	16
High rise flat	Yes	326	2	4

Table 2: Numbers of Hard to Treat dwellings and breakdown by type

There are 9.2 million dwellings that can be considered hard to treat in England, comprising 43% of the total stock. Of these, solid wall dwellings make up the largest proportion with 6.6 million dwellings (31% of the total stock; 72% of the HTT stock). Off gas network dwellings make up the next biggest proportion with 2.8 million dwellings (13% of the total stock; 30% of the HTT stock). The overlap of the different HTT types is shown in Table 3. Note that this table shows the mutually exclusive combinations. It can be seen that ~1.8 million dwellings or ~19% of the stock can be considered particularly HTT as they have more than one HTT characteristic.

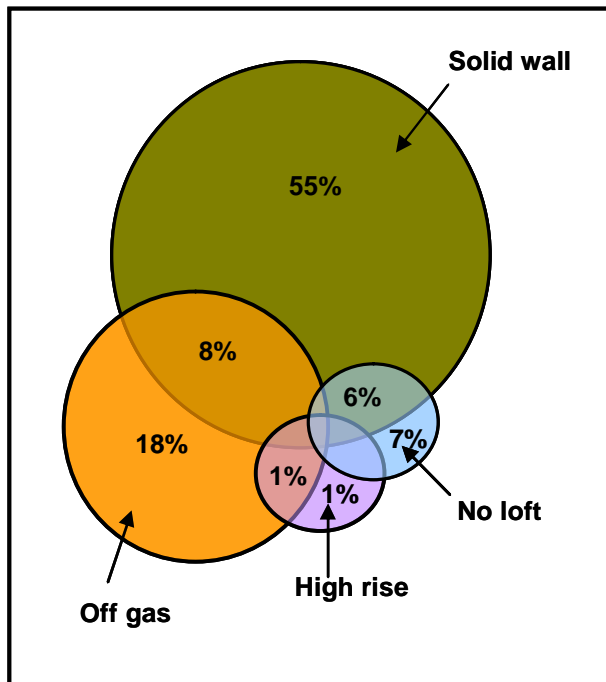


Figure 1: Venn diagram showing the relationship between the HTT types labelled with the percentage of the HTT stock *Sub-groups containing less than 1% of the HTT stock are not labelled. Percentages may not add to 100 due to rounding.*

Combination of Hard to Treat types (mutually exclusive)	No. of dwellings (000s)	% of all dwellings	% of Hard to Treat stock
Solid wall only (i.e. with gas connection and loft space)	5,035	23	55
Off gas network only (i.e. with loft space and without solid wall)	1,671	8	18
No loft only (i.e. with cavity walls and loft space)	644	3	7
High rise flat only (i.e. with cavity walls, loft space and gas connection)	91	0	1
Solid wall and off gas network	731	3	8
Solid wall and no loft	569	3	6
Solid wall and off gas and no loft	109	1	1
Off gas and no loft	122	1	1
High rise flat and solid wall	79	0	1
High rise flat and off gas network	64	0	1
High rise flat, solid wall and off gas network	60	0	1
High rise flat and no loft	*	*	*
High rise flat, no loft and solid wall	*	*	*
High rise flat, no loft and off gas network	*	*	*
High rise flat, solid wall, off gas and no loft	*	*	*
<i>Not HTT</i>	<i>12,342</i>	<i>57</i>	<i>0</i>

Table 3: Combinations of Hard to Treat types

The tables detailing the breakdown of the HTT stock by the characteristics of interest are presented below. These breakdowns have also been produced for each sub-type of the HTT stock (i.e. solid wall, off gas, no loft and high rise) and are presented in Appendix 1.

Dwelling characteristics

Table 4 shows that nearly 84% of the HTT stock is in the private sector, with the greatest proportion (68%) being in the owner-occupied tenure. Within tenures the private rented sector stands out as being of particular concern with 65% of its stock designated as HTT compared to a total stock average of 43%. Mid terraces and semi-detached dwellings are the predominant dwelling type within the HTT stock (Table 5), although it is the converted flats which are significantly over-represented by HTT dwellings (88% of converted flats are HTT compared to a total stock average of 43%), although these only comprise ~3% of the total stock. The main reason for converted flats being HTT is that they are of solid wall construction. Not surprisingly, older dwellings are more likely to be HTT with 65% of the HTT stock being dwellings built before 1945 and a further 22% of dwellings built between 1945 and 1975 (Table 6). Pre-1945 dwellings are of predominantly solid wall construction, with cavity wall construction becoming increasingly common after 1945. It may seem unexpected to find HTT dwellings in the post-1990 housing stock, but the primary reason for this is being off of the gas network.

	No. of HTT dwellings (000s)	% of tenure that is HTT	% of total HTT
Owner occupied	6,230	41	68
Private rented	1,484	65	16
Local Authority	869	36	9
RSL	623	38	7
<i>Total</i>	<i>9,206</i>	<i>43</i>	<i>100</i>

Table 4: Tenure distribution of Hard to Treat dwellings

	No. of HTT dwellings (000s)	% of dwelling type that is HTT	% of total HTT
End terrace	878	42	10
Mid terrace	2,408	55	26
Semi detached	2,146	33	23
Detached	1,574	33	17
Converted flat	626	88	7
Purpose built flat - low rise	1,249	46	14
Purpose built flat - high rise	326	100	4
<i>Total</i>	<i>9,206</i>	<i>43</i>	<i>100</i>

Table 5: Dwelling type distribution of Hard to Treat dwellings

	No. of HTT dwellings (000s)	% of dwelling age that is HTT	% of total HTT
pre 1850	717	96	8
1850 to 1899	1,848	92	20
1900 to 1918	1,534	83	17
1919 to 1944	1,812	47	20
1945 to 1964	1,151	26	12
1965 to 1974	961	29	10
1975 to 1980	360	24	4
1981 to 1990	460	24	5
post 1990	362	19	4
<i>Total</i>	<i>9,206</i>	<i>43</i>	<i>100</i>

Table 6: Dwelling age distribution of Hard to Treat dwelling

Geographical Region

There are nine Government Office Regions in England and the numbers of HTT dwellings within each are shown in Table 7 and Figure 2. It is clear from Figure 2 that London has the highest proportion of HTT dwellings for a GOR which is due to the large number of solid wall dwellings. Interestingly, it is the urban dwellings that are more likely to be HTT (Table 8), largely due to them being of solid wall construction. The main reason for dwellings in rural areas being HTT is due to them being off the gas network.

	No. of HTT dwellings (000s)	% of GOR that is HTT	% of total HTT
North East	288	26	3
Yorks & Humber	790	36	9
North West	966	32	10
East Midlands	751	41	8
West Midlands	937	42	10
South West	995	45	11
East England	1,040	44	11
South East	1,219	35	13
London	2,219	71	24
<i>Total</i>	<i>9,206</i>	<i>43</i>	<i>100</i>

Table 7: Geographical location (GOR) of Hard to Treat dwellings

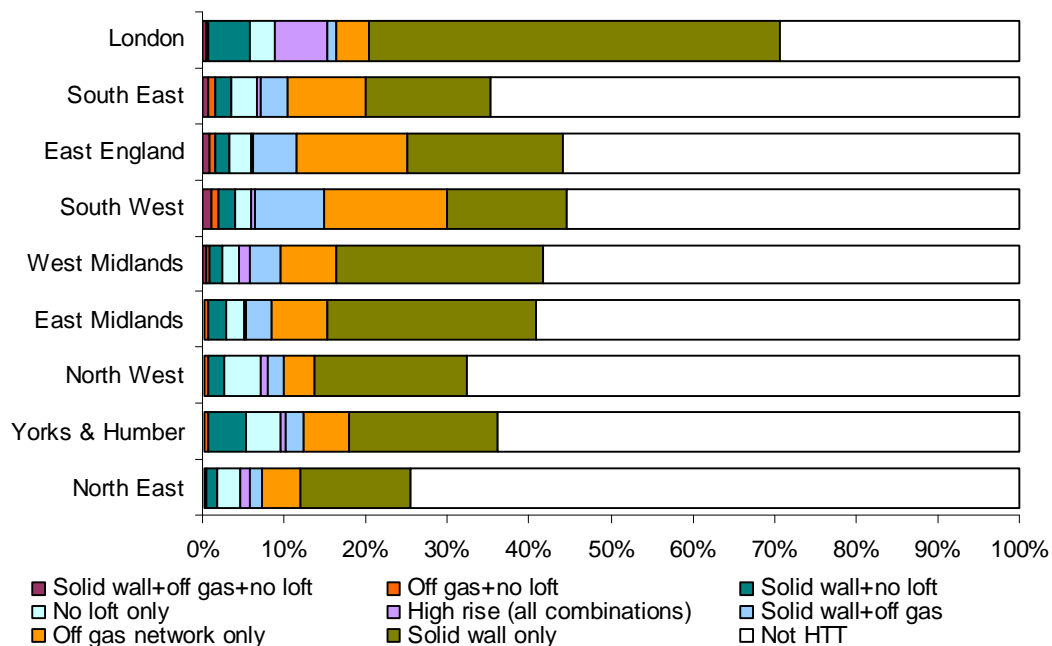


Figure 2: GOR by Hard to Treat type

	No. of HTT dwellings (000s)	% of area type that is HTT	% of total HTT
urban	3,239	62	35
suburban	3,637	31	40
rural	2,330	52	25
<i>Total</i>	<i>9,206</i>	<i>43</i>	<i>100</i>

Table 8: Urban/rural split of Hard to Treat dwellings

Heating Characteristics

The majority of the HTT group (i.e. solid wall dwellings) have a mains gas central heating system (Table 9; Table 10). The next most common is electric storage heaters which is the heating system most likely to be installed in properties off the gas network and in flats. There is a higher-than-average prevalence of HTT dwellings for certain heating systems, in particular electric storage radiators, portable heaters only and other systems (i.e. electric ceiling/underfloor heating) and, by definition, this is also true for all non-mains gas heating fuels. The majority of HTT dwellings have some amount of loft insulation, typically between 50 and 150mm (Table 11).

	No. of HTT dwellings (000s)	% heating system that is HTT	% of total HTT
Heating system with radiators	6,841	38	74
Storage radiator systems	1,411	88	15
Warm air systems	87	25	1
Room heater system	639	56	7
Other systems	33	90	0
Communal systems	149	42	2
Portable heaters only	45	95	0
<i>Total</i>	<i>9,206</i>	<i>43</i>	<i>100</i>

Table 9: Type of heating system in Hard to Treat dwellings

	No. of HTT dwellings (000s)	% main fuel that is HTT	% of total HTT
Mains gas	6,099	34	66
Non-mains gas	122	86	1
Heating oil	806	98	9
Solid fuel	343	86	4
Electricity	1,691	87	18
Community heating	144	41	2
<i>Total</i>	<i>9,206</i>	<i>43</i>	<i>100</i>

Table 10: Main fuel used in Hard to Treat dwellings

	No. of HTT dwellings (000s)	% loft insulation band that is HTT	% of total HTT
No Loft Space (as ground or mid floor flats)	1,322	58	14
0	553	68	6
1 - 50	1,096	40	12
51 - 100	3,783	41	41
101 - 150	1,690	39	18
151 - 200	595	34	6
> 200	166	31	2
<i>Total</i>	<i>9,206</i>	<i>43</i>	<i>100</i>

Table 11: Loft insulation thickness found in Hard to Treat dwellings

	No. of HTT dwellings (000s)	% of hot water system that is HTT	% of total HTT
With central heating	6,801	38	74
Dedicated boiler	238	59	3
Electric immersion heater	1,858	74	20
Instantaneous	309	58	3
Other	*	*	*
<i>Total</i>	<i>9,206</i>	<i>43</i>	<i>100</i>

Table 12: Type of hot water system found in Hard to Treat dwellings

Household Characteristics

The household groups which show a higher-than-average prevalence for living in a HTT dwelling are the ‘one person aged under 60’ and ‘other multi-person’ groups (Table 13). Additionally, young people (age group 16-29) were also more likely to live in a HTT home (Table 15) and it is likely that this group includes students living in private rented accommodation. Interestingly, the income of households did not seem to be a major factor in whether they lived in a HTT dwelling, remaining a fairly consistent ~40% of households in each income decile in HTT (Table 16).

	No. of HTT dwellings (000s)	% of household type living in HTT	% of total HTT
couple, no dependent child(ren)	3,008	41	34
couple with dependent child(ren)	1,931	39	22
lone parent with dependent child(ren)	642	42	7
other multi-person households	724	50	8
one person under 60	1,285	50	15
one person aged 60 or over	1,212	41	14
<i>Total</i>	<i>8,803</i>	<i>42</i>	<i>100</i>

Table 13: Household type living in Hard to Treat dwellings

	No. of HTT dwellings (000s)	% of household size living in HTT	% of total HTT
1	2,497	45	28
2	3,154	42	36
3	1,367	42	16
4	1,134	37	13
5	439	42	5
6	139	45	2
7	44	48	0
8	*	*	*
9	*	*	*
10	*	*	*
<i>Total</i>	<i>8,803</i>	<i>42</i>	<i>100</i>

Table 14: Number of household occupants in Hard to Treat dwellings

	No. of HTT dwellings (000s)	% of HRP age group living in HTT	% of total HTT
16 - 29	985	52	11
30 - 44	2,736	43	31
45 - 64	2,981	40	34
65 or over	2,102	40	24
Total	8,803	42	100

Table 15: Age of HRP living in Hard to Treat dwellings

	No. of HTT dwellings (000s)	% of income distribution group living in HTT	% of total HTT
Lowest 20%	1,868	45	21
21-40%	1,770	42	20
41-60%	1,691	41	19
61-80%	1,620	39	18
Highest 20%	1,854	44	21
Total	8,803	42	100

Table 16: Income distribution of household living in Hard to Treat dwellings

Hard to Treat Stock and staple energy efficiency measures

This section of the report presents the results of a preliminary exploration of the HTT stock in relation to the EEC programme. This analysis has been carried out at the household level (rather than dwelling level). Table 17 and Figure 3 show the numbers and percentages of households living in HTT homes in the EEC Priority and Non-Priority groups. Approximately one-quarter of the households living in HTT homes are in the EEC Priority group. However there is no significant difference between the Priority and Non-Priority groups in terms of the prevalence of HTT dwellings.

	Priority group			Not priority group		
	No. of HTT dwellings (000s)	% of priority group	% of dwelling stock	No. of HTT dwellings (000s)	% of non-priority group	% of dwelling stock
HTT	2,382	41	27	6,421	43	73
Not HTT	3,397	59	28	8,653	57	72
Total	5,779	100	28	15,074	100	72

Table 17: Proportion of EEC Priority group in Hard to Treat Dwellings

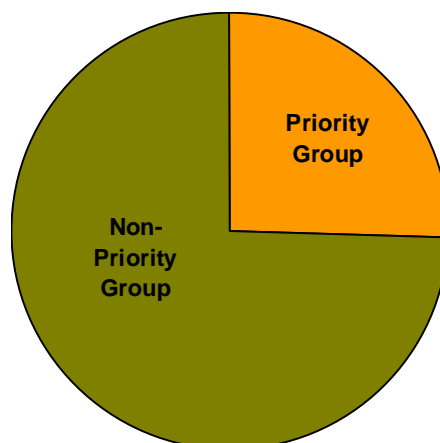


Figure 3: Proportion of Hard to Treat stock in the EEC groups

The types of dwelling that make up the HTT stock in both the Priority and Non-Priority groups are shown in Figure 4 and Figure 5 respectively. It can be seen that there is very little difference in the proportions of the types of HTT dwellings occurring in the two groups although high rise dwellings make up a slightly greater proportion of the HTT Priority group compared to the Non-Priority Group.

EEC Priority Group

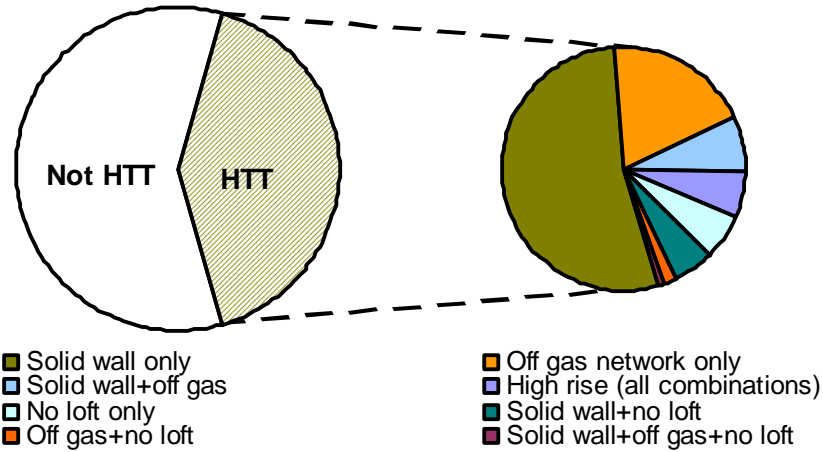


Figure 4: Type of Hard to Treat Dwelling in the EEC Priority Group

EEC Non-Priority Group

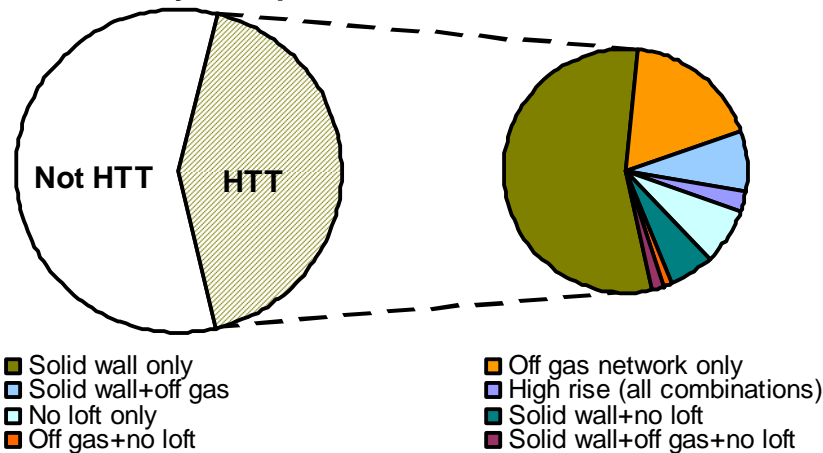


Figure 5: Type of Hard to Treat Dwelling in the EEC Non-Priority Group

The EHCS dataset has been used to determine the potential remaining in the HTT stock for installing staple energy efficiency measures under the EEC programme. For the purposes of this analysis, we have considered cavity wall insulation (CWI) and loft insulation (where less than 100mm is currently present) only as these provide the most cost-effective method of achieving the suppliers' energy saving target.

The potential remaining in the HTT stock with respect to installing loft insulation (to 270mm) and CWI is presented in Table 18. For loft insulation, the stock has been further broken down into those requiring a virgin installation (i.e. currently have no loft insulation) and those requiring a top-up, either from less than 50mm or from between 50-100mm. For CWI, only houses and flats with less than three storeys were considered eligible to have this installed, following current best practice guidelines.

	In the EEC Priority group?				Total stock	
	Yes		No			
	Number of HTT dwellings (000s)	% of PG stock	Number of HTT dwellings (000s)	% of non- PG stock	Number of HTT dwellings (000s)	% of total stock
Virgin loft insulation	90	2	292	2	382	2
Top-up loft insulation (from <50mm to 270mm)	178	3	627	4	805	4
Top-up loft insulation (from 51-100mm to 270mm)	607	11	2,028	13	2,635	13
Total with potential for some loft insulation	875	16	2,954	19	3,822	19
CWI	223	4	596	4	819	4
Total with potential for CWI	223	4	596	4	819	4
Virgin loft and CWI	*	*	*	*	*	*
Top up loft (from 1-49mm) and CWI	*	*	119	1	145	1
Top up loft (from 50-100mm) and CWI	85	1	260	2	345	2
Total with potential for loft insulation plus CWI	117	2	402	3	519	2
Current EEC potential already realised	609	11	1,401	9	2,010	10
No potential for current EEC improvements	558	10	1,075	7	1,633	8
<i>Not HTT</i>	<i>3,397</i>	<i>59</i>	<i>8,653</i>	<i>57</i>	<i>12,050</i>	<i>58</i>

Table 18: Potential for EEC measures in the HTT stock occupied by Priority and Non-Priority Group households

Approximately 4 million HTT dwellings have the scope to install additional loft insulation but are not suitable for CWI, either because they have solid walls or because they already have CWI. About 0.8 million HTT dwellings currently have cavity walls that are uninsulated but are not suitable for loft insulation, either because they have no loft (this includes ground or mid-floor flats) or because they currently have at least 100mm of loft insulation (which is currently not cost-effective to top up under EEC 2005-08). A further ~0.5 million could benefit from having both loft insulation and CWI installed.

Two million HTT dwellings already have at least 100mm of loft insulation (if they have a loft) and/or CWI (if they have cavity walls). Therefore, with regards to the measures being considered to be installed under EEC in this work, their potential has already been realised. However, these dwellings still have considerable potential for improvements in their energy efficiency. For example, 1.8 million of these have 100mm or more loft insulation and so would be relatively unattractive for further top-up under EEC at the moment but could benefit from having more loft insulation, and remain HTT due to being either solid wall, off gas or a combination of both. The remaining 0.2 million have insulated cavity walls but have no loft to insulate.

Table 19 provides additional information on the type of HTT dwellings that could have loft and cavity wall insulation. Also shown is a breakdown of the HTT sub-types that already have at least 100mm of loft insulation (if they have a loft) and insulated cavity walls (if they have cavity walls) and the potential for further upgrades in the amount of loft insulation (for those dwellings with a loft).

HTT category (mutually exclusive categories)	Install virgin/top-up loft insulation (000s)	Install CWI (000s)	Install virgin/top-up loft insulation and CWI (000s)	Current EEC potential already realised (000s)	Current insulation thickness (mm)		
					100-150	150-200	>200
Solid wall	3,128	-	-	1,157	743	334	80
Off gas network	254	376	519	415	164	82	27
Solid wall and off gas network	440	-	-	179	115	48	16
No loft	-	380	-	198			
Off gas and no loft	-	63	-	*			
High rise flat	-	-	-	*			
High rise flat and solid wall	*	-	-	*			
High rise flat and off gas network	-	-	-	*			
High rise flat, solid wall and off gas network	-	-	-	*			
High rise flat and no loft	-	-	-	*			
High rise flat, no loft and off gas network	-	-	-	*			
<i>Total</i>	<i>3,822</i>	<i>819</i>	<i>519</i>	<i>2,010</i>			

Table 19: Potential for EEC measures split by HTT sub-type

There remain just over 1.6 million HTT dwellings that cannot have loft insulation or CWI installed, either because they are solid walled dwellings with no lofts, or are flats above 3 storeys with no lofts. The possibilities for installing energy efficiency measures in these dwellings requires measures which are less cost-effective than CWI or loft insulation (e.g. solid wall insulation). The HTT types of these dwellings are shown in Table 20. The majority are solid wall and solid wall with no loft which represents ~66% of this group, which is particularly unattractive under EEC or any programme with a cost-effective approach.

HTT category (mutually exclusive categories)	Number of dwellings (000s)	% of total HTT
Solid wall low rise ground/mid-floor flat	542	33
Off gas network low rise ground/mid-floor flat	45	3
Solid wall and off gas network low rise ground/ mid-floor flat	77	5
No loft	42	3
Solid wall and no loft	537	33
Off gas and no loft	13	1
Solid wall and off gas and no loft	104	6
High rise flat	75	5
High rise flat and solid wall	71	4
High rise flat and off gas network	51	3
High rise flat, solid wall and off gas network	51	3
High rise flat and no loft	*	*
High rise flat, no loft and solid wall	*	*
High rise flat, no loft and off gas network	*	*
High rise flat, solid wall, off gas and no loft	*	*
<i>Total</i>	<i>1,633</i>	<i>100</i>

Table 20: Those with no potential for CWI or LI: Combination of HTT types

Householders' attitudes and desirability of Hard to Treat dwellings

The EHCS dataset provides the opportunity to gain a useful insight into the attitudes and level of satisfaction of occupants living in hard to treat dwellings. This is the first time, that we are aware of, that qualitative information of this nature has been analysed and it is particularly relevant to this study given the current debate regarding improvement versus demolition of the housing stock. Five questions related to general satisfaction, heating/insulation measures and running costs are asked of the household reference person (HRP) in the interview survey of the EHCS:

- § How satisfied or dissatisfied are you with your home?
- § How effective is the heating?
- § How effective is the insulation and draught proofing?
- § How easy or difficult is it for you to meet your heating/fuel costs?
- § During the cold winter weather, can you normally keep comfortably warm in your living room? If not, why?

Respondents are asked their opinions. For the first question above, the options are: very satisfied, fairly satisfied, neither satisfied or dissatisfied, slightly dissatisfied or very dissatisfied. The percentages of householders responding to each option for all of the questions are shown in Table 21. Five stars designate the highest satisfaction/effectiveness/ease, one star the least.

	How satisfied or dissatisfied are you with your home?		How effective is your heating?		How effective is your insulation and draught proofing?		How easy is it to meet the heating/fuel costs of your home?	
	HTT	Not HTT	HTT	Not HTT	HTT	Not HTT	HTT	Not HTT
*****	51	56	59	71	35	49	32	34
****	36	35	28	23	39	36	40	43
***	4	3					16	14
**	5	4	9	5	18	11	9	7
*	3	2	3	1	7	4	3	2

Table 21: Attitudes and occupants' satisfaction with aspects relating to the thermal comfort of their home. % response in each group.

The results in Table 21 are also presented in Figure 6. It can be clearly seen that a significantly smaller proportion of householders living in a HTT home find their heating and insulation systems very effective, compared to householders living in a non-HTT home. Attitudes are not so different between householders in HTT homes and non-HTT homes to the more general question of satisfaction with their homes nor to the question on ease of meeting heating/fuel costs. The latter is surprising as one would expect that households living in HTT homes would have higher fuel bills and therefore potentially find it more difficult to meet these costs. However, this result may have been affected by a change in the question between survey years in which originally householders were asked to consider other housing costs (e.g. mortgage/rent costs, council tax bills) as well as fuel costs.

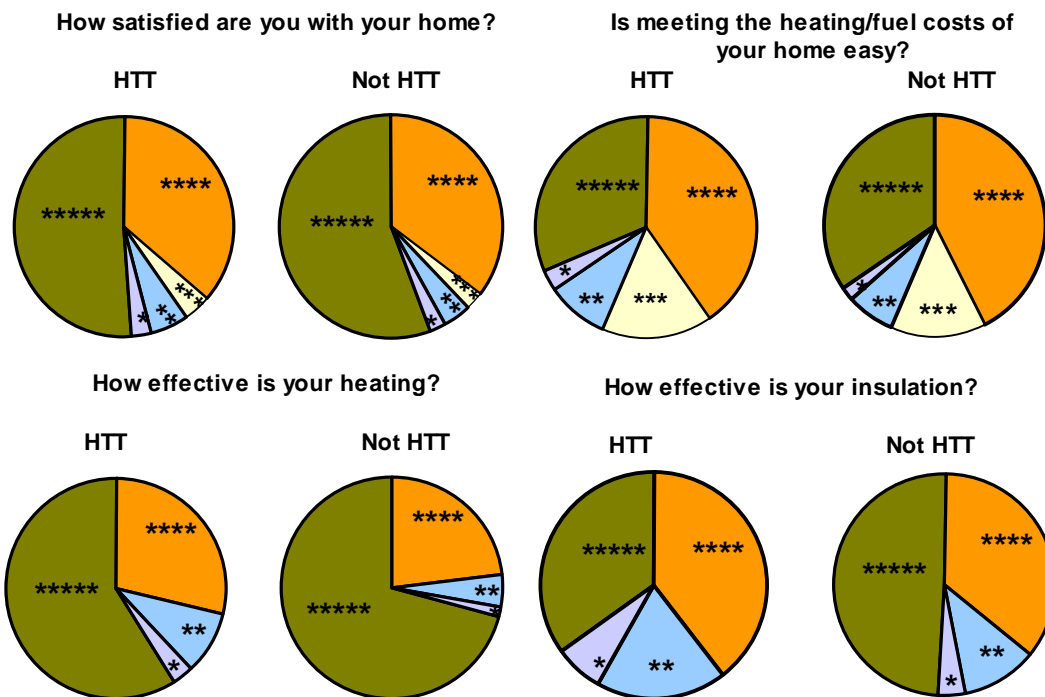


Figure 6: Occupants' satisfaction with aspects related to their homes for households living in HTT and Non-HTT stock

Somewhat unexpectedly, there is not a great difference between the two groups in answer to the question of whether they can keep comfortably warm in their living room (Table 22), with 5% of householders in non-HTT homes saying no, compared to 9% in HTT homes. The reasons for not being able to keep warm are also shown and it can be seen that there is little difference in the attitudes of householders in the HTT and non-HTT homes. Nearly 20% of those householders feel that it costs too much money to keep their living room sufficiently warm and a further ~60% say that it is not actually possible to heat their living room to a reasonable standard. The split by sub-type of the HTT stock shows that a higher proportion of households living in high-rise flats find it hard to keep comfortably warm in their living room; in particular, those in solid wall high-rise flats are significantly more likely to report the expense of keeping the heat on, rather than the ability to heat the room, as the reason for being unable to keep warm. As one would expect, dwellings which are particularly hard to treat (with more than one HTT type) are more likely not to be able to keep warm due to high heating costs, with the worst categories being 'high rise flat and solid wall' and 'solid wall and off gas and no loft'.

HTT category (mutually exclusive)	Not able to keep comfortably warm in living room in winter (%)	Why cannot keep warm (%)			
		Costs too much to keep heat on	Not possible to heat room to comfort standard	Both	Neither
Not HTT	5	18	62	13	6
Total HTT	9	19	60	15	5
<i>Solid wall</i>	8	19	59	15	6
<i>Off gas network</i>	7	15	66	15	4
<i>Solid wall and off gas network</i>	11	24	48	23	5
<i>No loft</i>	6	17	58	19	6
<i>Solid wall and no loft</i>	11	22	65	7	6
<i>Off gas and no loft</i>	10	5	88	8	0
<i>Solid wall and off gas and no loft</i>	8	36	57	6	0
<i>High rise flat</i>	11	15	71	13	0
<i>High rise flat and solid wall</i>	16	38	40	22	0
<i>High rise flat and off gas network</i>	16	19	63	13	6
<i>High rise flat, solid wall and off gas network</i>	22	24	59	13	4

Table 22: Percentage of householders in HTT (split by sub-type) and non-HTT homes not able to keep warm and the reasons why not

Summary

There are 9.2 million dwellings in England that can be considered HTT, accounting for 43% of the total stock. Solid wall and off gas network dwellings make up the largest component. Nearly 84% of this HTT stock is in the private sector; the private rented tenure includes the greatest proportion of HTT dwellings with more than 50% of this sector being designated as HTT. London has the highest percentage of HTT dwellings for a Government Office Region, due mainly to the large number of solid wall dwellings found in the city.

Currently, 81% of the HTT stock has the potential to have some ‘staple’ or cost-effective fabric energy efficiency measures installed leaving 1.6 million dwellings without such options.

An analysis of questions regarding the attitudes of householders’ to their homes suggests that, in general, those living in a HTT home are less satisfied with their heating system and insulation and find it slightly more difficult to keep their living room comfortably warm but overall, are as satisfied with their homes as those living in non-HTT dwellings. The analysis does show that households living in dwellings that are particularly hard to treat (more than one type) are more likely not to be able to keep their living room warm due to high heating costs, with the worst categories being ‘high rise flat and solid wall’ and ‘solid wall and off gas and no loft’.

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Appendices

Appendix 1: Tables of Characteristics of the Hard to Treat stock by sub-type (solid walls, off gas network, no loft, high rise). N.B groups are not mutually exclusive)

Solid walled dwellings

Tenure	No. of HTT dwellings (000s)	% of tenure that has solid walls	% of total solid wall
Owner occupied	4,549	30	69
Private rented	1,151	51	17
Local Authority	562	23	9
RSL	337	21	5
<i>Total</i>	<i>6,599</i>	<i>31</i>	<i>100</i>

Dwelling type	No. of HTT dwellings (000s)	% of dwelling type that has solid walls	% of total solid wall
End terrace	723	35	11
Mid terrace	2,187	50	33
Semi detached	1,562	24	24
Detached	838	18	13
Converted flat	590	83	9
Purpose built flat - low rise	544	20	8
Purpose built flat - high rise	155	48	2
<i>Total</i>	<i>6,599</i>	<i>31</i>	<i>100</i>

Dwelling age	No. of HTT dwellings (000s)	% of dwelling age that has solid walls	% of total solid wall
pre 1850	671	90	10
1850 to 1899	1,788	89	27
1900 to 1918	1,474	80	22
1919 to 1944	1,575	41	24
1945 to 1964	586	13	9
1965 to 1974	298	9	5
1975 to 1980	81	5	1
1981 to 1990	74	4	1
post 1990	51	3	1
<i>Total</i>	<i>6,599</i>	<i>31</i>	<i>100</i>

Government Office Region	No. of HTT dwellings (000s)	% of GOR that has solid walls	% of total solid wall
North East	192	17	3
Yorks & Humber	560	26	8
North West	694	23	11
East Midlands	581	32	9
West Midlands	715	32	11
South West	587	26	9
East England	639	27	10
South East	740	21	11
London	1,890	60	29
<i>Total</i>	<i>6,599</i>	<i>31</i>	<i>100</i>

Urban/rural	No. of HTT dwellings (000s)	% of area type that has solid walls	% of total solid wall
urban	2,682	51	41
suburban	2,647	22	40
rural	1,269	28	19
<i>Total</i>	<i>6,599</i>	<i>31</i>	<i>100</i>

Type of heating system	No. of HTT dwellings (000s)	% heating system that has solid walls	% of total solid wall
Heating system with radiators	5,486	30	83
Storage radiator systems	400	25	6
Warm air systems	49	14	1
Room heater system	537	47	8
Other systems	*	*	*
Communal systems	87	24	1
Portable heaters only	30	63	0
<i>Total</i>	<i>6,599</i>	<i>31</i>	<i>100</i>

Main heating fuel	No. of HTT dwellings (000s)	% main fuel that has solid walls	% of total solid wall
Mains gas	5,411	30	82
Non-mains gas	76	53	1
Heating oil	297	36	5
Solid fuel	177	44	3
Electricity	554	28	8
Community heating	84	24	1
<i>Total</i>	<i>6,599</i>	<i>31</i>	<i>100</i>

Thickness of loft insulation	No. of HTT dwellings (000s)	% loft insulation band that has solid walls	% of total solid wall
No Loft Space (as ground or mid floor flats)	797	35	12
0	493	61	7
1 - 50	836	30	13
51 - 100	2,878	32	44
101 - 150	1,072	25	16
151 - 200	415	24	6
> 200	108	20	2
<i>Total</i>	<i>6,599</i>	<i>31</i>	<i>100</i>

Type of hot water system	No. of HTT dwellings (000s)	% of hot water system that has solid walls	% of total solid wall
With central heating	5,418	30	82
Dedicated boiler	170	42	3
Electric immersion heater	727	29	11
Instantaneous (including kettles)	284	53	4
Other	*	*	*
<i>Total</i>	<i>6,599</i>	<i>31</i>	<i>100</i>

Household type	No. of HTT dwellings (000s)	% of household type living in solid wall homes	% of total solid wall
couple, no dependent child(ren)	2,084	28	33
couple with dependent child(ren)	1,512	30	24
lone parent with dependent child(ren)	509	34	8
other multi-person households	582	40	9
one person under 60	893	35	14
one person aged 60 or over	721	24	11
<i>Total</i>	<i>6,301</i>	<i>30</i>	<i>100</i>

Household size	No. of HTT dwellings (000s)	% of household size living in solid wall homes	% of total solid wall
1	1,614	29	26
2	2,217	30	35
3	1,063	32	17
4	878	28	14
5	358	34	6
6	108	35	2
7	40	43	1
8	*	*	*
9	*	*	*
10	*	*	*
Total	6,301	30	100

Age of HRP	No. of HTT dwellings (000s)	% of HRP age group living in solid wall homes	% of total solid wall
16 - 29	741	39	12
30 - 44	2,142	34	34
45 - 64	2,121	29	34
65 or over	1,297	25	21
Total	6,301	30	100

Income distribution	No. of HTT dwellings (000s)	% of income distribution group living in solid wall homes	% of total solid wall
Lowest 20%	1,305	31	21
21-40%	1,223	29	19
41-60%	1,169	28	19
61-80%	1,178	28	19
Highest 20%	1,425	34	23
Total	6,301	30	100

Off the gas network dwellings

Tenure	No. of HTT dwellings (000s)	% of tenure that is off gas network	% of total off gas network
Owner occupied	1,695	11	61
Private rented	523	23	19
Local Authority	270	11	10
RSL	282	17	10
<i>Total</i>	<i>2,769</i>	<i>13</i>	<i>100</i>

Dwelling type	No. of HTT dwellings (000s)	% of dwelling type that is off gas network	% of total off gas network
End terrace	168	8	6
Mid terrace	261	6	9
Semi detached	549	8	20
Detached	859	18	31
Converted flat	130	18	5
Purpose built flat - low rise	665	24	24
Purpose built flat - high rise	136	42	5
<i>Total</i>	<i>2,769</i>	<i>13</i>	<i>100</i>

Dwelling age	No. of HTT dwellings (000s)	% of dwelling age that is off gas network	% of total off gas network
pre 1850	333	45	12
1850 to 1899	282	14	10
1900 to 1918	121	7	4
1919 to 1944	232	6	8
1945 to 1964	425	10	15
1965 to 1974	471	14	17
1975 to 1980	221	15	8
1981 to 1990	377	19	14
post 1990	305	16	11
<i>Total</i>	<i>2,769</i>	<i>13</i>	<i>100</i>

Government Office Region	No. of HTT dwellings (000s)	% of GOR that is off gas network	% of total off gas network
North East	85	8	3
Yorks & Humber	199	9	7
North West	202	7	7
East Midlands	199	11	7
West Midlands	279	12	10
South West	570	26	21
East England	484	21	17
South East	508	15	18
London	244	8	9
<i>Total</i>	<i>2,769</i>	<i>13</i>	<i>100</i>

Urban/rural	No. of HTT dwellings (000s)	% of area type that is off gas network	% of total off gas network
urban	535	10	19
suburban	732	6	26
rural	1,502	33	54
<i>Total</i>	<i>2,769</i>	<i>13</i>	<i>100</i>

Type of heating system	No. of HTT dwellings (000s)	% heating system that is off gas network	% of total off gas network
Heating system with radiators	1,129	6	41
Storage radiator systems	1,288	80	47
Warm air systems	26	7	1
Room heater system	187	16	7
Other systems	29	78	1
Communal systems	82	23	3
Portable heaters only	29	61	1
<i>Total</i>	<i>2,769</i>	<i>13</i>	<i>100</i>

Main heating fuel	No. of HTT dwellings (000s)	% main fuel that is off gas network	% of total off gas network
Mains gas	n/a	n/a	n/a
Non-mains gas	112	78	4
Heating oil	782	95	28
Solid fuel	302	76	11
Electricity	1,495	77	54
Community heating	79	22	3
<i>Total</i>	<i>2,769</i>	<i>13</i>	<i>100</i>

Thickness of loft insulation	No. of HTT dwellings (000s)	% loft insulation band that is off gas network	% of total off gas network
No Loft Space (as ground or mid floor flats)	577	25	21
0	124	15	4
1 - 50	298	11	11
51 - 100	988	11	36
101 - 150	517	12	19
151 - 200	199	11	7
> 200	65	12	2
<i>Total</i>	<i>2,769</i>	<i>13</i>	<i>100</i>

Type of water heating	No. of HTT dwellings (000s)	% of hot water system that is off gas network	% of off gas network
With central heating	1,158	6	42
Dedicated boiler	106	26	4
Electric immersion heater	1,463	58	53
Instantaneous (including kettles)	42	8	2
Other	*	*	*
<i>Total</i>	<i>2,769</i>	<i>13</i>	<i>100</i>

Household type	No. of HTT dwellings (000s)	% of household type living in off gas network homes	% of total off gas network
couple, no dependent child(ren)	970	13	37
couple with dependent child(ren)	421	8	16
lone parent with dependent child(ren)	121	8	5
other multi-person households	143	10	5
one person under 60	465	18	18
one person aged 60 or over	522	18	20
<i>Total</i>	<i>2,643</i>	<i>13</i>	<i>100</i>

Household size	No. of HTT dwellings (000s)	% of household size living in off gas network homes	% of total off gas network
1	987	18	37
2	1,013	14	38
3	286	9	11
4	250	8	9
5	77	7	3
6	*	*	*
7	*	*	*
8	*	*	*
9	*	*	*
10	*	*	*
Total	2,643	13	100

Age of HRP	No. of HTT dwellings (000s)	% of HRP age group living in off gas network homes	% of total off gas network
16 - 29	271	14	10
30 - 44	626	10	24
45 - 64	877	12	33
65 or over	868	17	33
Total	2,643	13	100

Income distribution	No. of HTT dwellings (000s)	% of income distribution group living in off gas network homes	% of total off gas network
Lowest 20%	640	15	24
21-40%	570	14	22
41-60%	514	12	19
61-80%	455	11	17
Highest 20%	464	11	18
Total	2,643	13	100

Dwellings with no loft

Tenure	No. of HTT dwellings (000s)	% of tenure that has no loft	% of total with no loft
Owner occupied	1,059	7	72
Private rented	193	8	13
Local Authority	136	6	9
RSL	87	5	6
<i>Total</i>	<i>1,475</i>	<i>7</i>	<i>100</i>

Dwelling type	No. of HTT dwellings (000s)	% of dwelling type that has no loft	% of total with no loft
End terrace	120	6	8
Mid terrace	343	8	23
Semi detached	326	5	22
Detached	375	8	25
Converted flat	67	9	5
Purpose built flat - low rise	212	8	14
Purpose built flat - high rise	31	10	2
<i>Total</i>	<i>1,475</i>	<i>7</i>	<i>100</i>

Dwelling age	No. of HTT dwellings (000s)	% of dwelling age that has no loft	% of total with no loft
pre 1850	88	12	6
1850 to 1899	247	12	17
1900 to 1918	171	9	12
1919 to 1944	190	5	13
1945 to 1964	240	5	16
1965 to 1974	324	10	22
1975 to 1980	109	7	7
1981 to 1990	70	4	5
post 1990	37	2	3
<i>Total</i>	<i>1,475</i>	<i>7</i>	<i>100</i>

Government Office Region	No. of HTT dwellings (000s)	% of GOR that has no loft	% of total with no loft
North East	52	5	4
Yorks & Humber	209	10	14
North West	216	7	15
East Midlands	93	5	6
West Midlands	100	4	7
South West	135	6	9
East England	140	6	9
South East	232	7	16
London	298	9	20
<i>Total</i>	<i>1,475</i>	<i>7</i>	<i>100</i>

Urban/rural	No. of HTT dwellings (000s)	% of area type that has no loft	% of total with no loft
urban	478	9	32
suburban	675	6	46
rural	321	7	22
<i>Total</i>	<i>1,475</i>	<i>7</i>	<i>100</i>

Type of heating system	No. of HTT dwellings (000s)	% heating system that has no loft	% of total with no loft
Heating system with radiators	1,212	7	82
Storage radiator systems	117	7	8
Warm air systems	19	6	1
Room heater system	81	7	6
Other systems	*	*	*
Communal systems	38	10	3
Portable heaters only	*	*	*
<i>Total</i>	<i>1,475</i>	<i>7</i>	<i>100</i>

Main heating fuel	No. of HTT dwellings (000s)	% main fuel that has no loft	% of total with no loft
Mains gas	1,173	7	80
Non-mains gas	*	*	*
Heating oil	64	8	4
Solid fuel	*	*	*
Electricity	151	8	10
Community heating	37	11	3
<i>Total</i>	<i>1,475</i>	<i>7</i>	<i>100</i>

Type of water heating	No. of HTT dwellings (000s)	% of hot water system that has no loft	% of total with no loft
With central heating	1,212	7	82
Dedicated boiler	33	8	2
Electric immersion heater	186	7	13
Instantaneous (including kettles)	43	8	3
Other	*	*	*
<i>Total</i>	<i>1,475</i>	<i>7</i>	<i>100</i>

Household type	No. of HTT dwellings (000s)	% of household type living in homes that have no loft	% of total with no loft
couple, no dependent child(ren)	512	7	37
couple with dependent child(ren)	320	6	23
lone parent with dependent child(ren)	112	7	8
other multi-person households	106	7	7
one person under 60	182	7	13
one person aged 60 or over	169	6	12
<i>Total</i>	<i>1,401</i>	<i>7</i>	<i>100</i>

Household size	No. of HTT dwellings (000s)	% of household size living in homes that have no loft	% of total with no loft
1	350	6	25
2	502	7	36
3	226	7	16
4	194	6	14
5	84	8	6
6	*	*	*
7	*	*	*
8	*	*	*
9	*	*	*
10	*	*	*
Total	1,401	*	100

Age of HRP	No. of HTT dwellings (000s)	% of HRP age group living in homes that have no loft	% of total with no loft
16 - 29	141	7	10
30 - 44	402	6	29
45 - 64	522	7	37
65 or over	335	6	24
Total	1,401	7	100

Income distribution	No. of HTT dwellings (000s)	% of income distribution group living in homes that have no loft	% of total with no loft
Lowest 20%	255	6	18
21-40%	279	7	20
41-60%	270	6	19
61-80%	270	6	19
Highest 20%	327	8	23
Total	1,401	7	100

High Rise Dwellings

Tenure	No. of HTT dwellings (000s)	% of tenure that is high-rise	% of total high-rise
Owner occupied	64	0	20
Private rented	42	2	13
Local Authority	174	7	54
RSL	45	3	14
<i>Total</i>	<i>326</i>	<i>2</i>	<i>100</i>

Age of dwelling	No. of HTT dwellings (000s)	% of dwelling age that is high-rise	% of total high-rise
pre 1850	*	*	*
1850 to 1899	*	*	*
1900 to 1918	*	*	*
1919 to 1944	*	*	*
1945 to 1964	93	2	29
1965 to 1974	159	5	49
1975 to 1980	23	2	7
1981 to 1990	*	*	*
post 1990	*	*	*
<i>Total</i>	<i>326</i>	<i>2</i>	<i>100</i>

Government Office Region	No. of HTT dwellings (000s)	% of GOR that is high-rise	% of total high-rise
North East	*	*	*
Yorks & Humber	17	1	5
North West	25	1	8
East Midlands	*	*	*
West Midlands	29	1	9
South West	*	*	*
East England	*	*	*
South East	*	*	*
London	205	7	63
<i>Total</i>	<i>326</i>	<i>2</i>	<i>100</i>

Urban/rural	No. of HTT dwellings (000s)	% of area type that is high-rise	% of total high-rise
urban	246	5	76
suburban	79	1	24
rural	*	*	*
<i>Total</i>	<i>326</i>	<i>2</i>	<i>100</i>

Type of heating system	No. of HTT dwellings (000s)	% of heating system that is high-rise	% of total high-rise
Heating system with radiators	132	1	40
Storage radiator systems	89	6	27
Warm air systems	*	*	*
Room heater system	*	*	*
Other systems	*	*	*
Communal systems	73	20	22
Portable heaters only		*	*
<i>Total</i>	<i>326</i>	<i>2</i>	<i>100</i>

Main fuel used	No. of HTT dwellings (000s)	% of main fuel that is high-rise	% of total high-rise
Mains gas	141	1	43
Non-mains gas	*	*	*
Heating oil	*	*	*
Solid fuel	*	*	*
Electricity	111	6	34
Community heating	73	21	22
<i>Total</i>	<i>326</i>	<i>2</i>	<i>100</i>

Thickness of loft insulation	No. of HTT dwellings (000s)	% of loft insulation band that is high-rise	% of total high-rise
No Loft Space (as ground or mid floor flats)	292	13	90
0	*	*	*
1 - 50	*	*	*
51 - 100	*	*	*
101 - 150	25	1	8
151 - 200	*	*	*
> 200	*	*	*
<i>Total</i>	<i>326</i>	<i>2</i>	<i>100</i>

Type of water heating	No. of HTT dwellings (000s)	% of hot water system that is high-rise	% of total high-rise
With central heating	186	1	57
Dedicated boiler	*	*	*
Electric immersion heater	122	5	38
Instantaneous (including kettles)	*	*	*
Other	*	*	*
<i>Total</i>	<i>326</i>	<i>2</i>	<i>100</i>

Household type	No. of HTT dwellings (000s)	% of household type living in high-rise dwellings	% of total high-rise
couple, no dependent child(ren)	53	1	18
couple with dependent child(ren)	35	1	12
lone parent with dependent child(ren)	36	2	12
other multi-person households	33	2	11
one person under 60	79	3	26
one person aged 60 or over	62	2	21
<i>Total</i>	<i>298</i>	<i>1</i>	<i>100</i>

Household size	No. of HTT dwellings (000s)	% of household size living in high-rise dwellings	% of total high-rise
1	141	3	47
2	86	1	29
3	42	1	14
4	*	*	*
5	*	*	*
6	*	*	*
7	*	*	*
8	*	*	*
9	*	*	*
10	*	*	*
Total	298	1	100

Age of HRP	No. of HTT dwellings (000s)	% of HRP age group living in high-rise dwellings	% of total high-rise
16 - 29	55	3	18
30 - 44	94	1	32
45 - 64	79	1	26
65 or over	70	1	23
Total	298	1	100

Income distribution	No. of HTT dwellings (000s)	% of income distribution group living in high-rise dwellings	% of total high-rise
Lowest 20%	122	3	41
21-40%	79	2	27
41-60%	36	1	12
61-80%	26	1	9
Highest 20%	35	1	12
Total	298	1	100