Programme Area: Buildings

Project: Building Supply Chain for Mass Refurbishment of Houses

Title: Stock archetypes in the UK. Tabulations for the specification of refurbishement solutions.

Abstract:

Please note this report was produced in 2011/2012 and its contents may be out of date. This deliverable is number 1b of 7 in Work Package 2 and presents the final results of a segmentation of the English housing stock, providing incremental detail to that contained within the earlier D2.1a deliverable. The U.K. housing stock has been split into 40 different archetypes based on the date of construction of the property and the dwelling configuration. Approximately 12 of these types represent almost 60% of the dwelling stock, and are described in the tabulations in detail. The breakdowns of characteristics within the document have been identified by the consortium partners as being of primary
interest in assessing the cost and technical feasibility of refurbishment solutions. The parameters listed for the 40 property archetypes will be used as inputs into the UK housing stock model developed in later deliverables in this work package.

Context:

This project looked at designing a supply chain solution to improve the energy efficiency of the vast majority of the 26 million UK homes which will still be in use by 2050.It looked to identify ways in which the refurbishment and retrofitting of existing residential properties can be accelerated by industrialising the processes of design, supply and implementation, while stimulating demand from householders by exploiting additional opportunities that come with extensive building refurbishment.The project developed a top-to-bottom process, using a method of analysing the most cost-effective package of measures suitable for a particular property, through to how these will be installed with the minimum disruption to the householder. This includes identifying the skills required of the people on the ground as well as the optimum material distribution networks to supply them with exactly what is required and when.

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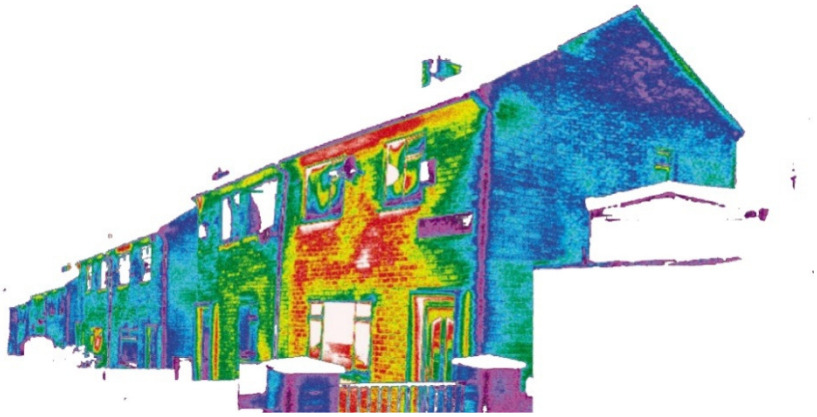


Optimising Thermal Efficiency of Existing Housing

Stock archetypes in the UK.

Tabulations for the specification of refurbishment solutions. (WP2.1b)

FINAL REPORT

Submitted by BRE on behalf of the
ENERGY ZONE CONSORTIUM

June 30, 2011

EXECUTIVE SUMMARY:

The objective of this workpackage is to describe the UK housing stock in terms which assist in the assessment of the potential for thermal efficiency retrofit solutions. The description of the housing stock is principally based on the *physical characteristics* of the dwelling, although key householder breakdowns to allow linkages with the customer segmentation (workpackage 5 of the project) are also included. The dwelling archetypes outlined in this document will also be used in the stock modelling component of the project.

The description of the stock is based upon the analysis of data from the national House Condition Surveys (HCSs) undertaken in each of England, Scotland, Wales and Northern Ireland. Based on this data, the dwelling stock has been subdivided into forty types of dwelling based on built form and age. For each of the twelve most common types, multiple other characteristics of specific relevance to a refurbishment programme have also been described.

Characteristics have been chosen to be of particular relevance to the dwelling's thermal efficiency properties or the costs of improvement. The characteristics described include a range of factors including insulation levels, householder characteristics (such as household type and income), additional dwelling complexity (such as bay windows and presence of additions), as well as averages and ranges for floor areas, wall areas and roof areas for each dwelling type.

This compilation of statistics is able to act as a handbook for specifiers of refurbishment solutions, and, together with the other outputs of the project, allows the comparison of potential for refurbishment across the stock.

With reference to these statistics, specifiers are able to tailor refurbishment options and packages of measures to particular dwelling types. It is also possible to assess which and how many of each type of home will be suitable for a specific refurbishment option. For example, using these tables the number and type of home suitable for a solid wall insulation solution, or for a solution tailored to a certain type of household can be identified. Furthermore, it is possible to ascertain the linkages between these characteristics, and how a particular solution will impact on different sorts of households, or aspects of dwellings, across the stock as a whole.

Stock archetypes in the UK

Tabulations for the specification of refurbishment solutions:

SUMMARY OF TABULATIONS AND USE OF THE DATA

Presented below are detailed sets of tabulations which outline the key characteristics of the dwelling stock of particular relevance to refurbishment. These tables have been produced using House Condition Survey (HCS) data from England, Scotland, Wales and Northern Ireland.

The U.K. housing stock has been split into **40** different archetypes based on the date of construction of the property and the dwelling configuration. Approximately 12 of these types represent almost 60% of the dwelling stock, and are described in the tabulations in detail.

The breakdowns of characteristics within the tables have been identified by the consortium partners as being of primary interest in assessing the cost and technical feasibility of refurbishment solutions.

The characteristics described are:

- Frequency
- Current notional CO_2 emissions
- Predominant wall type
- Presence of wall insulation & thickness of wall insulation
- Roof type
- Percentage of glazing
- Type of glazing
- Presence of bay windows[1]
- Floor area
- Wall area

[1] Data on the number of bay windows was not available for Scottish data. Values have therefore been imputed using data from England, Wales and Northern Ireland.

- Roof area
- Existing loft insulation thickness
- Presence of 'additional part'
- Wall finish
- Tenure type
- Household composition & age
- Income level
- Vulnerable household

A simple assessment of the potential for thermal efficiency improvements is also provided. Although the most prevalent dwelling types have been described, it will be noted that some of the less prevalent types (e.g. pre-1919 detached houses) are currently responsible for a greater proportion of the (SAP based notional) CO_2 emissions than some of the more common types. The 12 most prevalent types, however, do encompass a good cross section of the stock (in terms of age and type).

The dwelling archetypes described in this document will also form the basis of the data used to populate the stock model (item WP2.3). Information on the characteristics of all forty types will be used to ensure that the stock is represented appropriately, and that the results from the modelling can be linked back to these tables.

The most common type of dwelling in the UK is the pre-1919 mid terrace. There are approximately 2 million homes of this type in the UK, which have notional (SAP based) CO_2 emissions of around 13.5 million tonnes. Over 80% of these homes have un-insulated solid walls with around 40% having less than 100mm of loft insulation present. 60% of homes of this type have a 'masonry pointing' finish. Almost 50% of these homes have bay windows, and approximately 70% have an addition (as built or extension) of some sort. Approximately 50% of dwellings of this type have floor areas between 67 square metres and 100 square metres. Approximately 20% of dwellings of this type are occupied by couples with children, a further 20% are occupied by couples under 60 without children, and a further 20% by elderly groups (couples or single elderly).

An example of a very different archetype, both in terms of physical and household characteristics, is the post-1980 purpose built low rise flat. There are around 1 million homes of this type in the UK, which is the eighth most common type of dwelling. These homes have total notional (SAP based) CO_2 emissions of only around 3 million tonnes (compare this to the 13.5 million tonnes from the pre-1919 terraces described above). Approximately 98% of dwellings of this type are of cavity wall construction, of which more than half

are insulated with cavity wall insulation. Only around 5% of dwellings of this type have less than 100mm of loft insulation. Approximately 50% of dwellings of this type have floor areas between 40 and 61 square metres. The types of households living in these homes are very different to those in pre-1919 terraces. Over 60% of post-1980 low rise purpose built flats are occupied by single people. Around 30% of these are aged under 60, and 30% are aged over 60.

Comparing the archetypes in this way allows the applicability of refurbishment options and policies to be considered for different sections of the stock. In the two examples above it is clear that a solution for pre-1919 terraces will need to account for bay windows and additions in at least half of all properties of this type, and that this solution should be attractive to a wide range of householder types due to the diverse occupancy of this type of home. A solution for post-1980 purpose built flats may not need to pay much attention to loft insulation (as only 5% of homes of this type have < 100mm), but is likely to need to be attractive to single person household types.

Similarly, using the tables it is possible to assess and refine the type of solutions that might be most suitable for particular household types. For example, inspection of the tables suggests that a solution for elderly households needs to be suitable for use in bungalows and pre-1980 houses, but suitability for use in post-1980 homes is less important (as there are relatively few elderly households in these dwellings).

The **40** archetypes are shown in Table A below, with the 12 most prevalent types described in detail below this.

Frequency Rank		Frequency	Percent	Cumulative Percent	Proportion of whole stock (notional SAP) CO_2 emissions	Page
1	Pre-1919, mid terrace	2,090,000	8.0	8.0	7.9	*7*
2	1945-1964,semi detached	2,040,000	7.8	15.9	7.6	*12*
3	1919-1944, semi detached	1,920,000	7.4	23.2	8.1	*17*
4	Post 1980, detached	1,840,000	7.1	30.3	7.5	*22*
5	1965-1980, semi detached	1,200,000	4.6	34.9	4.1	*27*
6	1965-1980, detached	1,050,000	4.0	38.9	5.5	*32*
7	1965-1980, purpose built flat, low rise	1,050,000	4.0	43.0	2.1	*37*
8	Post 1980, purpose built flat, low rise	1,040,000	4.0	47.0	1.7	*42*
9	Pre-1919, semi detached	830,000	3.2	50.1	5.4	*47*
10	1965-1980, mid terrace	810,000	3.1	53.3	2.1	*52*
11	Post 1980, semi detached	800,000	3.1	56.3	2.0	*57*
12	1965-1980, bungalow	780,000	3.0	59.3	2.9	*62*
13	Pre-1919, detached	780,000	3.0	62.3	8.2	-
14	1945-1964, purpose built flat, low rise	720,000	2.8	65.1	1.6	-
15	1919-1944, mid terrace	690,000	2.6	67.7	2.1	-
16	Pre-1919, converted flat	690,000	2.6	70.4	2.5	-
17	Pre-1919, end terrace	670,000	2.6	73.0	3.6	-
18	1945-1964, mid terrace	670,000	2.6	75.5	1.9	-
19	1945-1964, bungalow	640,000	2.5	78.0	2.4	-
20	Post-1980, Bungalow	560,000	2.2	80.1	1.7	-
21	Post 1980, mid terrace	540,000	2.1	82.2	1.0	-
22	1945-1964, detached	520,000	2.0	84.2	3.1	-
23	1945-1964, end terrace	510,000	2.0	86.2	1.8	-
24	1965-1980, end terrace	510,000	2.0	88.2	1.7	-
25	1919-1944, detached	500,000	1.9	90.1	3.5	-
26	Post 1980, end terrace	420,000	1.6	91.7	1.0	-
27	1919-1944, end terrace	400,000	1.5	93.2	1.5	-
28	Pre-1919, purpose built flat, low rise	400,000	1.5	94.7	1.2	-
29	1919-1944, purpose built flat, low rise	390,000	1.5	96.2	1.0	-
30	1919-1944, Bungalow	240,000	0.9	97.1	1.0	-
31	1965-1980, purpose built flat, high rise	190,000	0.7	97.9	0.4	-
32	1945-1964, purpose built flat, high rise	130,000	0.5	98.3	0.3	-
33	Pre 1919, bungalow	110,000	0.4	98.8	0.6	-
34	1919-1944, converted flat	70,000	0.3	99.1	0.2	-
35	1945-1964, converted flat	60,000	0.2	99.3	0.2	-
36	Post-1980, converted flat	50,000	0.2	99.5	0.1	-
37	1965-1980,converted flat	50,000	0.2	99.7	0.1	-
38	Post 1980, purpose built flat, high rise	40,000	0.2	99.8	0.1	-
39	Pre 1944, purpose built flat, high rise	30,000	0.1	100	0.1	-
40	All temporary dwellings & All non residential flats	< 10,000	< 0.1	100	0.03	-
	Total	*26,030,000*	*100*	*100*	*100*	-

Table A: The 40 archetypes identified in U.K.

PRE - 1919 MID TERRACE

Rank: 1ST

1.1. Background information

Approx ***2,090,000*** properties of this type, which is around ***8.0%*** of the whole stock.

50% of the properties of this type have a floor area between 67 and 100sqm.

Total CO_2 emissions at present (under SAP assumptions) are 13 million tonnes/yr CO_2, which represents around 7.9% of total stock CO_2 emissions.

1.2. Detailed description

1.2.1 Table 1.2.1 shows total number properties of this type in U.K., and the proportion that this represents of the total dwelling stock. It also shows total CO_2 emissions of this type and the percentage of total stock CO_2 emissions.

Table 1.2.1 Total number of pre-1919 mid terrace and total CO_2 emissions

	Frequency	Percent (%)	Total CO_2 current emissions (tonnes/yr)	% of total stock CO_2 emissions
Pre-1919,mid terrace	2,090,000	8.0	13,450,000	7.9

1.2.2 The predominant wall type of this type of dwelling is shown in Table 1.2.2 below.

Table 1.2.2 Pre- 1919 mid terrace predominant wall types

		Frequency	Percent (%)	Cumulative Percent
Pre-1919,mid terrace	Cavity uninsulated	270,000	12.8	12.8
	Solid uninsulated	1,750,000	83.8	96.6
	Others	70,000	3.4	100
	Total	2,090,000	100	

1.2.3 Table 1.2.3 lists the number dwellings of this type with pitched roofs; the 'Others' roof type includes mansard roofs, flat roofs and chalet roofs.

Table 1.2.3 Pre- 1919 mid terrace predominant roof type

		Frequency	Percent (%)	Cumulative Percent
Pre-1919,mid terrace	Pitched roof	2,070,000	98.8	98.8
	Others	20,000	1.2	100
	Total	2,090,000	100	

1.2.4 The percentage of glazing as a proportion of total exposed wall area (including the glazing area) for this dwelling type is shown in Table 1.2.4

Table 1.2.4 Pre- 1919 mid terrace glazing extent

		Frequency	Percent (%)	Cumulative Percent
Pre-1919,mid terrace	0%-15%	120,000	5.9	5.9
	15%-20%	360,000	17.4	23.3
	20%-25%	650,000	31.0	54.3
	25%-30%	460,000	22.2	76.5
	30%-35%	320,000	15.4	91.9
	Over 35%	170,000	8.1	100
	Total	2,090,000	100	

1.2.5 The predominant type of glazing of this dwelling type is shown in Table 1.2.5 below.

Table 1.2.5 Pre- 1919 mid terrace predominant glazing type

		Frequency	Percent (%)	Cumulative Percent
Pre-1919,mid terrace	Single glazing	550,000	27.3	27.3
	Double glazing	1,460,000	68.9	96.2
	No predominant type	80,000	3.8	100
	Total	2,090,000	100	

1.2.6 Table 1.2.6 shows the presence of bay windows in this dwelling type. Bays can be either single or multi- storey.

Table 1.2.6 Pre- 1919 mid terrace dwellings bay types (English stock)

		Frequency	Percent (%)	Cumulative Percent
Pre-1919,mid terrace	No bays	1,160,000	55.5	55.5
	Bays	930,000	44.5	100
	Total	2,090,000	100	

1.2.7 The tenure breakdown of dwellings of this type is shown in Table 1.2.7 below.

Table 1.2.7 Pre- 1919 mid terrace dwellings tenure

		Frequency	Percent (%)	Cumulative Percent
Pre-1919,mid terrace	Owner Occupied	1,500,000	71.6	71.6
	Local Authority & Housing Association(RSL)	100,000	4.9	76.5
	Private Rented	490,000	23.5	100
	Total	2,090,000	100	

1.2.8 Mean and median floor area and the interquartile range (IQR) of this dwelling type is shown below in Table 1.2.8. 50% of this type of dwelling has a floor area between 67sqm and 100sqm.

Table 1.2.8 Pre- 1919 mid terrace mean, median usable floor area and IQR

			Useable floor area (sqm)
Pre-1919,mid terrace	Mean		88.6
	Median		80.4
	Percentiles	25	67.0
		50	80.4
		75	99.8

1.2.9 Mean and median external wall area and interquartile range (IQR) of this dwelling type are listed in Table 1.2.9. 50% of this type of dwelling has a wall area between 47sqm and 77sqm.

Table 1.2.9 Pre- 1919 mid terrace mean, median external exposed wall area and IQR

			Total unattached dwelling wall area {exc. windows/doors and parts adjacent to heated spaces} (m2)
Pre-1919,mid terrace	Mean		65.5
	Median		60.6
	Percentiles	25	47.2
		50	60.6
		75	77.3

1.2.10 Mean and median roof area and interquartile range (IQR) of this dwelling type is shown in Table 1.2.10. 50% of this type of dwelling has a roof area between 33sqm and 49sqm.

Table 1.2.10 Pre- 1919 mid terrace mean, median roof area and IQR

			Total dwelling roof area
Pre-1919,mid terrace	Mean		42.3
	Median		40.5
	Percentiles	25	32.9
		50	40.5
		75	49.1

1.2.11 Table 1.2.11 shows the range of existing loft insulation thicknesses in this dwelling type.

Table 1.2.11 Pre- 1919 mid terrace thickness of loft insulation

		Frequency	Percent (%)	Cumulative Percent
Pre-1919,mid terrace	None or no loft	180,000	8.7	8.7
	less than 50mm	80,000	3.8	12.5
	50 up to 99mm	570,000	27.0	39.6
	100 up to 149mm	680,000	32.7	72.2
	150 up to 199mm	190,000	8.8	81.1
	200mm or more	400,000	18.9	100
	Total	2,900,000	100	

1.2.12 Table 1.2.12 shows the proportion of this dwelling type with an 'additional part'. An 'additional part' is a part of the dwelling which 'sticks out' and results in a non-rectangular dwelling shape. This part is often at the rear of the property and can be an extension or 'as built'. Around 70% of the dwellings of this type have additional parts.

Table 1.2.12 Presence of additional parts in pre-1919 mid terrace

		Frequency	Percent (%)	Cumulative Percent
Pre-1919,mid terrace	No additional parts	660,000	30.0	30.0
	Additional parts	1,460,000	70.0	100
	Total	2,900,000	100	

1.2.13 Table 1.2.13 shows the proportion of this dwelling type with a predominantly 'masonry pointing' wall finish.

Table 1.2.13 Predominant wall finish in pre-1919 mid terrace

		Frequency	Percent (%)	Cumulative Percent
Pre-1919,mid terrace	masonry pointing	1,280,000	61.1	61.1
	non masonry pointing	810,000	38.9	100
	Total	2,900,000	100	

1.2.14 Table 1.2.14 shows the household composition of pre-1919 mid terraces (grossed by household).

Table 1.2.14 Household composition in pre-1919 mid terrace

		Frequency	Percent (%)	Cumulative Percent
Pre-1919,mid terrace	couple, child(ren)	470,000	23.9	23.9
	couple, no child(ren) under 60	360,000	18.2	42.1
	couple, no child(ren) aged 60 or over	190,000	9.6	51.7
	lone parent with child(ren)	190,000	9.4	61.1
	one person under 60	300,000	15.1	76.2
	one person aged 60 or over	250,000	12.7	88.9
	other multi-person household	220,000	11.1	100
	Total	1,970,000	100	

1.2.15 Table 1.2.15 shows the age of the Household Reference Person range in pre-1919 mid terraces (grossed by household).

Table 1.2.15 Pre-1919 mid terrace Household age range

		Frequency	Percent (%)	Cumulative Percent
Pre-1919,mid terrace	16 - 24	120,000	6.1	6.1
	25 - 34	400,000	20.2	26.3
	35 - 44	440,000	22.4	48.7
	45 - 54	360,000	18.2	66.9
	55 - 64	290,000	14.9	81.8
	65 or over	360,000	18.2	100
	Total	1,970,000	100	

1.2.16 Table 1.2.16 shows the weekly net household income of households in pre-1919 mid terraces (grossed by household)**.**

Table 1.2.16 Pre-1919 mid terrace weekly net household income - all households				
		Frequency	Percent (%)	Cumulative Percent
Pre-1919,mid terrace	< £100 p.w.	60,000	3.0	3.0
	£100 -199.99 p.w.	360,000	17.0	20.0
	£200 -299.99 p.w.	370,000	17.6	37.6
	£300 -399.99 p.w.	290,000	13.9	51.5
	>£400 p.w.	820,000	39.3	90.8
	Unknown	60,000	9.2	100
	Total	1,970,000	100	

1.2.17 Table 1.2.17 shows the vulnerable household composition in pre-1919 mid terraces (grossed by household). Vulnerable household is a household in receipt of a least one of principal means tested or disability related benefits.

Table 1.2.17 Pre-1919 mid terrace vulnerable household (in receipt of means tested or disability related benefits)				
		Frequency	Percent (%)	Cumulative Percent
Pre-1919,mid terrace	Not vulnerable	1,340,000	68.1	68.1
	Vulnerable	630,000	31.9	100
	Total	1,970,000	100	

1.3. Potential for basic thermal efficiency improvements

For this dwelling type, almost 97% can be improved by adding wall insulation; over 28% of the dwelling of this type can have roof insulation added to achieve better thermal performance; and at least 26% can have the existing single glazing replaced by double glazing.

	Improvement measures	Percent (%)
1	Add wall insulation (cavity and solid wall)	96.6
2	Add roof insulation (existing insulation less or equal to 99mm thick)	28.3
3	Add double glazing (predominant glazing type not double glazed)	26.2

1945-1964, SEMI-DETACHED

Rank: 2nd

2.1. Background information

Approx ***2,040,000*** properties of this type, which is around ***8%*** of the whole stock.

50% of the properties of this type have a floor area between *74* and *96*sqm.

Total CO_2 emissions at present (under SAP assumptions): 12.9 million tonnes/yr CO_2, which is around 7.6% of total stock CO_2 emissions.

2.2. Detailed description

2.2.1 Table 2.2.1 shows total number properties of this type, and the proportion that this represents of the total dwelling stock. It also shows total CO_2 emissions of this type and the percentage of total stock CO_2 emissions.

Table 2.2.1 Total number of 1945-1964 semi-detached and total CO_2 emissions

	Frequency	Percent (%)	Total CO_2 current emissions (tonnes/yr)	% of total stock emissions
1945-1964,semi-detached	2,040,000	7.8	12,850,000	7.6

2.2.2 The predominant wall types of this type of dwelling are shown in Table 2.2.2 below.

Table 2.2.2 1945-1964 semi-detached dwelling wall types

		Frequency	Percent (%)	Cumulative Percent
1945-1964,semi-detached	Cavity uninsulated	830,000	40.8	40.8
	Solid uninsulated	200,000	9.6	50.4
	Cavity with insulation	980,000	47.9	98.3
	Others	30,000	1.7	100
	Total	2,040,000	100	

2.2.3 Table 2.2.3 lists the number dwellings of this type with pitched roofs; the 'Others' roof type includes mansard roofs, flat roofs and chalet roofs.

Table 2.2.3 1945-1964 semi-detached predominant roof type

		Frequency	Percent (%)	Cumulative Percent
1945-1964,semi-detached	Pitched	1,960,000	96.0	96.0
	Others	80,000	4.0	100
	Total	2,040,000	100	

2.2.4 The percentage of glazing as a proportion of total exposed wall area (including the glazing area) for this dwelling type is shown in Table 2.2.4.

Table 2.2.4 1945-1964 semi-detached dwellings glazing extent

		Frequency	Percent (%)	Cumulative Percent
1945-1964,semi-detached	0%-15%	250,000	12.5	12.5
	15%-20%	690,000	34.0	46.5
	20%-25%	640,000	31.4	77.9
	25%-30%	310,000	15.0	92.9
	30%-35%	100,000	4.8	97.7
	Over 35%	50,000	2.3	100
	Total	2,040,000	100	

2.2.5 The predominant type of glazing of this dwelling type is shown in Table 2.2.5 below.

Table 2.2.5 1945-1964 semi-detached dwellings glazing type

		Frequency	Percent (%)	Cumulative Percent
1945-1964,semi-detached	Single glazing	160,000	7.7	7.7
	Double glazing	1,850,000	90.7	98.4
	No predominant type	30,000	1.6	100
	Total	2,040,000	100	

2.2.6 Table 2.2.6 shows the presence of bay windows in this dwelling type. Bays can be either single or multi- storey.

Table 2.2.6 1945-1964 semi-detached dwellings bays (English stock)

		Frequency	Percent (%)	Cumulative Percent
1945-1964,semi-detached	No bays	1,460,000	71.6	71.6
	Bays	580,000	28.4	100
	Total	2,040,000	100	

2.2.7 The tenure breakdown of dwellings of this type is shown in Table 2.2.7.

Table 2.2.7 1945-1964 semi-detached dwellings tenure

		Frequency	Percent (%)	Cumulative Percent
1945-1964,semi-detached	Owner Occupied	1,460,000	71.7	71.7
	Local Authority	320,000	15.7	87.4
	Housing Association(RSL)	130,000	6.5	93.9
	Private Rented	130,000	6.1	100
	Total	2,040,000	100	

2.2.8 Mean and median floor area and the interquartile range (IQR) of this dwelling type are shown below in Table 2.2.8. 50% of this type of dwelling has a floor area between 74sqm and 96sqm.

Table 2.2.8 1945-1964 semi-detached dwellings mean, median usable floor area and IQR

			Useable floor area (sqm)
1945-1964,semi-detached	Mean		88.1
	Median		83.2
	Percentiles	25	74.4
		50	83.2
		75	96.1

2.2.9 Mean and median external wall area and interquartile range (IQR) of this dwelling type are listed in Table 2.2.9. 50% of this type of dwelling has a wall area between 84sqm and 105sqm.

Table 2.2.9 1945-1964 semi-detached dwellings mid terrace mean, median external exposed wall area and IQR

			Total unattached dwelling wall area {exc. windows/doors and parts adjacent to heated spaces} (m2)
1945-1964,semi-detached	Mean		94.8
	Median		93.8
	Percentiles	25	84.2
		50	93.8
		75	105.2

2.2.10 Mean and median roof area and interquartile range (IQR) of this dwelling type is shown in Table 2.2.10. 50% of this type of dwelling has a roof area ranged from 40sqm and 56sqm.

Table 2.2.10 1945-1964 semi-detached dwellings mid terrace mean, median roof area and IQR

			Total dwelling roof area
1945-1964,semi-detached	Mean		49.7
	Median		44.7
	Percentiles	25	39.7
		50	44.7
		75	55.8

2.2.11 Table 2.2.11 shows the range of existing loft insulation thicknesses in this dwelling type.

Table 2.2.11 1945-1964 semi-detached dwellings thickness of loft insulation

		Frequency	Percent (%)	Cumulative Percent
1945-1964,semi-detached	None or no loft	50,000	2.6	2.6
	less than 50mm	100,000	4.7	7.2
	50 up to 99mm	430,000	21.0	28.3
	100 up to 149mm	680,000	33.6	61.9
	150 up to 199mm	290,000	14.1	76.0
	200mm or more	490,000	24.0	100
	Total	2,040,000	100	

2.2.12 Table 2.2.12 shows the proportion of this dwelling type with an 'additional part'. An 'additional part' is any part of the dwelling which 'sticks out' from the usual rectangular dwelling shape. This part is often at the rear of the property and can be an extension or an 'as built' part. Almost 38% of the dwellings of this type have additional parts.

Table 2.2.12 Presence of additional parts in 1945-1964 semi-detached dwellings

		Frequency	Percent (%)	Cumulative Percent
1945-1964,semi-detached	No additional parts	1,300,000	62.2	62.2
	Additional parts	740,000	37.8	100
	Total	2,040,000	100	

2.2.13 Table 2.2.13 shows the proportion of this dwelling type with a predominantly 'masonry pointing' wall finish.

Table 2.2.13 Predominant wall finish in 1945-1964 semi-detached dwellings

		Frequency	Percent (%)	Cumulative Percent
1945-1964,semi-detached	masonry pointing	1,300,000	63.8	63.8
	non masonry pointing	740,000	36.2	100
	Total	2,040,000	100	

2.2.14 Table 2.2.14 shows the household composition of this dwelling type (grossed by household).

Table 2.2.14 1945-1964 semi-detached dwellings household composition

		Frequency	Percent (%)	Cumulative Percent
1945-1964,semi detached	couple, child(ren)	480,000	24.6	24.6
	couple, no child(ren) under 60	340,000	17.4	42.0
	couple, no child(ren) aged 60 or over	410,000	20.6	62.5
	lone parent with child(ren)	170,000	8.6	71.2
	one person under 60	140,000	6.9	78.1
	one person aged 60 or over	260,000	13.1	91.2
	other multi-person household	170,000	8.8	100
	Total	1,980,000	100	

2.2.15 Table 2.2.15 shows the age of the Household Reference Person in these types of dwelling (grossed by household).

Table 2.2.15 1945-1964 semi-detached dwellings Household Reference Person age range

		Frequency	Percent (%)	Cumulative Percent
1945-1964,semi detached	16 - 24	30,000	1.4	1.4
	25 - 34	230,000	11.4	12.9
	35 - 44	420,000	21.4	34.3
	45 - 54	380,000	19.2	53.6
	55 - 64	360,000	18.2	71.7
	65 or over	560,000	28.3	100
	Total	1,980,000	100	

2.2.16 Table 2.2.16 shows the weekly net household income of households in this dwelling type (grossed by household).

Table 2.2.16 1945-1964 semi-detached dwellings weekly net household income - all households

		Frequency	Percent (%)	Cumulative Percent
1945-1964,semi detached	< £199.99 p.w.	370,000	18.3	18.3
	£200 -299.99 p.w.	370,000	18.8	37.0
	£300 -399.99 p.w.	320,000	16.2	53.3
	>£400 p.w.	860,000	43.7	97.0
	Unknown	60,000	3.0	100
	Total	1,980,000	100	

2.2.17 Table 2.2.17 shows the vulnerable household composition of this dwelling type (grossed by household). Vulnerable household is a household in receipt of a least one of principal means tested or disability related benefits.

Table 2.2.17 1945-1964 semi-detached dwellings vulnerable household (in receipt of means tested or disability related benefits)

		Frequency	Percent (%)	Cumulative Percent
1945-1964,semi detached	Not vulnerable	1,290,000	65.3	65.3
	Vulnerable	690,000	34.7	100
	Total	1,980,000	100	

2.3. Potential for basic thermal efficiency improvements

For this dwelling type, about 50% can be improved by adding wall insulation; over 28% of the dwelling of this type can have roof insulation added to achieve better thermal performance; and almost 8% can have the existing single glazing replaced by double glazing.

	Improvement measures	**Percent**
1	Add wall insulation (cavity and solid wall)	50.4
2	Add roof insulation (existing insulation less or equal to 99mm thick)	28.3
3	Add double glazing (predominant glazing type not double glazed)	7.7

1919-1944, SEMI-DETACHED

Rank: 3rd

3.1. Background information

Approx ***1,920,000*** properties of this type, which is around ***7%*** of the whole stock.

50% of the properties of 1919-1944 semi-detached dwellings have a floor area between 73 and 103sqm.

Total CO_2 emissions at present (under SAP assumptions): 13.8 million tonnes/yr CO_2, which represents 8.1% of total stock CO_2 emissions.

3.2. Detailed description

3.2.1 Table 3.2.1 shows total number properties of this type, and the proportion that this represents of the total dwelling stock. It also shows total CO_2 emissions of this type and the percentage of total stock CO_2 emissions.

Table 3.2.1 Total number of 1919-1944, semi-detached and total CO_2 emissions

	Frequency	Percent (%)	Total CO2 current emissions (tonnes/yr)	% of total stock emissions
1919-1944, semi detached	1,920,000	7.4	13,820,000	8.1

3.2.2 The predominant wall types of this type of dwelling are shown in Table 3.2.2below.

Table 3.2.2 1919-1944 semi-detached dwelling wall types

		Frequency	Percent (%)	Cumulative Percent
1919-1944,semi-detached	Cavity uninsulated	730,000	38.0	38.0
	Solid uninsulated	670,000	34.7	72.7
	Others	520,000	27.3	100
	Total	1,920,000	100	

3.2.3 Table 3.2.3 lists the number dwellings of this type with pitched roofs; the 'Others' roof type includes mansard roofs, flat roofs and chalet roofs.

Table 3.2.3 1919-1944 semi-detached predominant roof type

		Frequency	Percent (%)	Cumulative Percent
1919-1944,semi-detached	Pitched	1,880,000	98.2	98.2
	Others	40,000	1.8	100
	Total	1,920,000	100	

3.2.4 The percentage of glazing as a proportion of total exposed wall area (including the glazing area) for this dwelling type is shown in Table 3.2.4.

Table 3.2.4 1919-1944 semi-detached glazing extent

		Frequency	Percent (%)	Cumulative Percent
1919-1944,semi-detached	0%-15%	170,000	8.8	8.8
	15%-20%	530,000	27.5	36.3
	20%-25%	650,000	34.1	70.4
	25%-30%	400,000	20.6	91.0
	Over 30%	170,000	9.0	100
	Total	1,920,000	100	

3.2.5 The predominant type of glazing of this dwelling type is shown Table 3.2.5.

Table 3.2.5 1919-1944 semi-detached dwellings glazing type

		Frequency	Percent (%)	Cumulative Percent
1919-1944,semi-detached	Single glazing	230,000	11.8	11.8
	Double glazing	1,670,000	87.2	99.0
	No predominant type	20,000	1.0	100
	Total	1,920,000	100	

3.2.6 Table 3.2.6 shows the presence of bay windows in this dwelling type. Bays can be either single or multi- storey.

Table 3.2.6 1919-1944 semi-detached dwellings bays (English stock)

		Frequency	Percent (%)	Cumulative Percent
1919-1944,semi-detached	No bay	640,000	33.3	33.3
	Bays	1,280,000	66.7	100
	Total	1,920,000	100	

3.2.7 The tenure breakdown of dwellings of this type is shown in Table 3.2.7.

Table 3.2.7 1919-1944 semi-detached tenure types

		Frequency	Percent (%)	Cumulative Percent
1919-1944,semi-detached	Owner Occupied	1,560,000	81.4	81.4
	Local Authority	150,000	7.9	89.3
	Housing Association(RSL)	70,000	3.4	92.7
	Private Rented	140,000	7.3	100
	Total	1,920,000	100	

3.2.8 Mean and median floor area and the interquartile range (IQR) of this dwelling type are shown below in Table 3.2.8. 50% of this type of dwelling has a floor area between 73sqm and 103sqm.

Table 3.2.8 1919-1944 semi-detached mean, median usable floor area and IQR

			Useable floor area (sqm)
1919-1944,semi-detached	Mean		93.1
	Median		85.8
	Percentiles	25	73.3
		50	85.8
		75	103.2

3.2.9 Mean and median external wall area and interquartile range (IQR) of this dwelling type are listed in Table 3.2.9. 50% of this type of dwelling has a wall area between 84sqm and 108sqm.

Table 3.2.9 1919-1944 semi-detached mean, median external exposed wall area and IQR

			Total unattached dwelling wall area {exc. windows/doors and parts adjacent to heated spaces} (m2)
1919-1944,semi-detached	Mean		98.3
	Median		94.4
	Percentiles	25	84.2
		50	94.4
		75	108.2

3.2.10 Mean and median roof area and interquartile range (IQR) of this dwelling type is shown in Table 3.2.10. 50% of this type of dwelling has a roof area between 39sqm and 57sqm.

Table 3.2.10 1919-1944 semi-detached mean, median roof area and IQR

			Total dwelling roof area
1919-1944,semi-detached	Mean		50.9
	Median		46.8
	Percentiles	25	39.1
		50	46.8
		75	57.3

3.2.11 Table 3.2.11 shows the range of existing loft insulation thicknesses in this dwelling type.

Table 3.2.11 1919-1944 semi-detached dwellings thickness of loft insulation

		Frequency	Percent (%)	Cumulative Percent
Pre-1919,mid terrace	None or no loft	80,000	4.0	4.0
	less than 50mm	90,000	4.6	8.6
	50 up to 99mm	490,000	25.4	34.0
	100 up to 149mm	620,000	32.5	66.5
	150 up to 199mm	240,000	12.7	79.2
	200mm or more	400,000	20.8	100
	Total	1,920,000	100	

3.2.12 Table 3.2.12 shows the proportion of this dwelling type with an 'additional part'. An 'additional part' is any part of the dwelling which 'sticks out' from the usual rectangular dwelling shape. This part is often at the rear of the property and can be an extension or an 'as built' part. Approximately 48% of the dwellings of this type have additional parts.

Table 3.2.12 Presence of additional parts in 1919-1944 semi-detached

		Frequency	Percent (%)	Cumulative Percent
1919-1944,semi-detached	No additional parts	1,010,000	52.0	52.0
	Additional parts	910,000	48.0	100
	Total	1,920,000	100	

3.2.13 Table 3.2.13 shows the proportion of this dwelling type with a predominantly 'masonry pointing' wall finish.

Table 3.2.13 Predominant wall finish of 1919-1944 semi-detached dwellings

		Frequency	Percent (%)	Cumulative Percent
1919-1944,semi-detached	masonry pointing	990,000	51.7	51.7
	Other types	930,000	48.3	100
	Total	1,920,000	100	

3.2.14 Table 3.2.14 shows the household composition of this dwelling type (grossed by household).

Table 3.2.14 1919-1944 semi-detached dwellings household composition

		Frequency	Percent (%)	Cumulative Percent
1919-1944,semi-detached	couple, child(ren)	540,000	28.8	28.8
	couple, no child(ren) under 60	330,000	17.6	46.4
	couple, no child(ren) aged 60 or over	370,000	19.8	66.2
	lone parent with child(ren)	120,000	6.4	72.7
	one person under 60	140,000	7.6	80.2
	one person aged 60 or over	210,000	11.0	91.2
	other multi-person household	160,000	8.8	100
	Total	1,860,000	100	

3.2.15 Table 3.2.15 shows the age of the Household Reference Person in these types of dwelling (grossed by household).

Table 3.2.15 1919-1944 semi-detached dwellings Household Reference Person age range

		Frequency	Percent (%)	Cumulative Percent
1919-1944,semi detached	16 - 34	220,000	11.6	11.6
	35 - 44	440,000	23.4	35.1
	45 - 54	400,000	21.6	56.7
	55 - 64	350,000	18.6	75.3
	65 or over	460,000	24.7	100
	Total	1,860,000	100	

3.2.16 Table 3.2.16 shows the weekly net household income of households in this dwelling type (grossed by household).

Table 3.2.16 1919-1944 semi-detached dwellings weekly net household income - all households

		Frequency	Percent (%)	Cumulative Percent
1919-1944,semi detached	< £199.99 p.w.	270,000	14.5	14.5
	£200 -299.99 p.w.	300,000	16.1	30.6
	£300 -399.99 p.w.	260,000	14.2	44.8
	>£400 p.w.	990,000	53.0	97.9
	Unknown	40,000	2.1	100
	Total	1,860,000	100	

3.2.17 Table 3.2.17 shows the vulnerable household composition of this dwelling type (grossed by household). Vulnerable household is a household in receipt of a least one of principal means tested or disability related benefits.

Table 3.2.17 1919-1944 semi-detached dwellings vulnerable household (in receipt of means tested or disability related benefits)

		Frequency	Percent (%)	Cumulative Percent
1919-1944,semi detached	Not vulnerable	1,380,000	73.8	73.8
	Vulnerable	480,000	26.2	100
	Total	1,860,000	100	

3.3. Potential for basic thermal efficiency improvements

For this dwelling type, almost, almost 73% can be improved by adding wall insulation; 34% of the dwelling of this type can have roof insulation added to achieve better thermal performance; and almost 12% can have the existing single glazing replaced by double glazing.

	Improvement measures	**Percent (%)**
1	Add wall insulation (cavity and solid wall)	72.7
2	Add roof insulation (existing insulation less or equal to 99mm thick)	34.0
3	Add double glazing (predominant glazing type not double glazed)	11.6

POST-1980, DETACHED

Rank: 4th

4.1. Background information

Approx ***1,840,000*** properties of this type, which is around ***7%*** of the whole stock.

50% of the properties of this type have a floor area between *100* and *159*sqm.

Total CO_2 emissions at present (under SAP assumptions): *12.7* million tonnes/yr CO_2, which is about *7.5* % of the total stock CO_2 emission.

4.2. Detailed description

4.2.1 Table 4.2.1 shows total number properties of this type, and the proportion that this represents of the total dwelling stock. It also shows total CO_2 emissions of this type and the percentage of total stock CO_2 emissions.

Table 4.2.1 Total number of post-1980 detached dwellings and total CO_2 emissions

	Frequency	Percent (%)	Total CO2 current emissions (tonnes/yr)	% of total stock emissions
Post 1980, detached	1,840,000	7.1	12,720,000	7.5

4.2.2 The predominant wall types of this type of dwelling are shown in Table 4.2.2 below.

Table 4.2.1 Post-1980 detached dwellings wall types

		Frequency	Percent (%)	Cumulative Percent
Post-1980, detached	Cavity uninsulated	820,000	44.7	44.7
	Cavity with insulation	990,000	53.8	98.5
	Solid uninsulated (0.8%) & Others	30,000	1.5	100
	Total	1,840,100	100	

4.2.3 Table 4.2.3 lists the number dwellings of this type with pitched roofs; the 'Others' roof type includes mansard roofs, flat roofs and chalet roofs.

Table 4.2.3 Post-1980 detached dwellings predominant roof type

		Frequency	Percent (%)	Cumulative Percent
Post-1980, detached	Pitched	1,780,000	96.7	96.7
	Others	60,000	3.3	100
	Total	1,840,000	100	

4.2.4 The percentage of glazing as a proportion of total exposed wall area (including the glazing area) for this dwelling type is shown in Table 4.2.4.

Table 4.2.4 Post-1980 detached dwellings glazing extent

		Frequency	Percent (%)	Cumulative Percent
Post-1980, detached	0%-15%	750,000	41.0	41.0
	15%-20%	690,000	37.6	78.6
	20%-25%	300,000	16.2	94.8
	25%-30%	60,000	3.5	98.3
	Over 30%	40,000	1.7	100
	Total	1,840,000	100	

4.2.5 The predominant type of glazing of this dwelling type is shown in Table 4.2.5 below.

Table 4.2.5 Post-1980 detached dwellings glazing type

		Frequency	Percent (%)	Cumulative Percent
Post-1980, detached	Single glazing	60,000	3.7	3.7
	Double glazing	1,770,000	96.0	99.7
	No predominant type	10,000	0.3	100
	Total	1,840,000	100	

4.2.6 Table 4.2.6 shows the presence of bay windows in this dwelling type. Bays can be either single or multi- storey.

Table 4.2.6 Post-1980 detached dwellings bays (English stock)

		Frequency	Percent (%)	Cumulative Percent
Post-1980, detached	No bays	1,170,000	63.6	63.6
	Bays	670,000	36.4	100
	Total	1,840,000	100	

4.2.7 The tenure breakdown of dwellings of this type is shown in Table 4.2.7. “Others” includes ‘Local Authority’, ‘Housing Association (RSL)’ and ‘Private Rented’.

Table 4.2.7 Post-1980 detached dwellings tenure

		Frequency	Percent (%)	Cumulative Percent
Post-1980, detached	Owner Occupied	1,750,000	94.9	94.9
	Others	90,000	5.1	100
	Total	1,840,000	100	

4.2.8 Mean and median floor area and the interquartile range (IQR) of this dwelling type is shown below in Table 4.2.8 above. 50% of this type of dwelling has a floor area between 100sqm and 159sqm

Table 4.2.8 Post-1980 detached dwellings mean, median usable floor area and IQR

			Useable floor area (sqm)
Post-1980, detached	Mean		138.1
	Median		123.5
	Percentiles	25	100.4
		50	123.5
		75	159.2

4.2.9 Mean and median external wall area and interquartile range (IQR) of this dwelling type are listed in Table 4.2.9. 50% of this type of dwelling has a external wall area between 145sqm and 189sqm.

Table 4.2.9 Post-1980 detached dwellings mean, median external exposed wall area and IQR			
			Total unattached dwelling wall area {exc. windows/doors and parts adjacent to heated spaces} (m2)
Post-1980, detached	Mean		170.2
	Median		164.5
	Percentiles	25	144.6
		50	164.5
		75	189.2

4.2.10 Mean and median roof area and interquartile range (IQR) of this dwelling type is shown in Table 4.2.10. 50% of this type of dwelling have a roof area between 55sqm and 91sqm.

Table 4.2.10 Post-1980 detached dwellings mean, median roof area and IQR			
			Total dwelling roof area
Post-1980, detached	Mean		77.2
	Median		67.9
	Percentiles	25	54.6
		50	67.9
		75	91

4.2.11 Table 4.2.11 shows the range of existing loft insulation thicknesses in this dwelling type.

Table 4.2.11 Post-1980 detached dwellings thickness of loft insulation				
		Frequency	Percent (%)	Cumulative Percent
Post-1980, detached	No loft or less than 99mm	290,000	15.9	15.9
	100 up to 149mm	660,000	35.6	51.5
	150 up to 199mm	400,000	21.9	73.4
	200mm or more	490,000	26.6	100
	Total	1,840,000	100	

4.2.12 Table 4.2.12 shows the proportion of this dwelling type with an 'additional part'. An 'additional part' is any part of the dwelling which 'sticks out' from the usual rectangular dwelling shape. This part is often at the rear of the property and can be an extension or an 'as built' part. Almost 54% of the dwellings of this type have additional parts.

Table 4.2.12 Presence of additional parts in post-1980 detached dwellings				
		Frequency	Percent (%)	Cumulative Percent
Post-1980, detached	No additional parts	870,000	46.5	46.5
	Additional parts	970,000	53.5	100
	Total	1,840,000	100	

4.2.13 Table 4.2.13 shows the proportion of this dwelling type with a predominantly 'masonry pointing' wall finish. Over 75% of post-1980 detached dwellings have 'masonry pointing' predominant wall finish.

Table 4.2.13 Predominant wall finish in post-1980 detached dwellings

		Frequency	Percent (%)	Cumulative Percent
Post-1980, detached	masonry pointing	1,380,000	75.1	75.1
	non masonry pointing	460,000	24.9	100
	Total	1,840,000	100	

4.2.14 Table 4.2.14 shows the household composition of this dwelling type (grossed by household).

Table 4.2.14 Post-1980 detached dwellings household composition

		Frequency	Percent (%)	Cumulative Percent
Post-1980,detached	couple, child(ren)	750,000	41.9	41.9
	couple, no child(ren) under 60	400,000	22.6	64.4
	couple, no child(ren) aged 60 or over	290,000	16.2	80.6
	lone parent with child(ren)	60,000	3.3	83.9
	one person under 60	100,000	5.5	89.4
	one person aged 60 or over	80,000	4.3	93.7
	other multi-person household	110,000	6.3	100
	Total	1,790,000	100	

4.2.15 Table 4.2.15 shows the age of the Household Reference Person in these types of dwelling (grossed by household).

Table 4.2.15 Post-1980 detached dwellings Household Reference Person age range

		Frequency	Percent (%)	Cumulative Percent
Post-1980,detached	16 - 34	180,000	10.1	10.1
	35 - 44	530,000	29.7	39.8
	45 - 54	480,000	26.7	66.5
	55 - 64	350,000	19.6	86.1
	65 or over	250,000	13.9	100
	Total	1,790,000	100	

4.2.16 Table 4.2.16 shows the weekly net household income of households in this dwelling type (grossed by household).

Table 4.2.16 Post-1980 detached dwellings weekly net household income - all households

		Frequency	Percent (%)	Cumulative Percent
Post-1980,detached	< £199.99 p.w.	100,000	5.5	5.5
	£200 -299.99 p.w.	110,000	6.0	11.5
	£300 -399.99 p.w.	170,000	9.7	21.3
	>£400 p.w.	1,340,000	74.9	96.2
	Unknown	70,000	3.8	100
	Total	1,790,000	100	

4.2.17 Table 4.2.17 shows the vulnerable household composition of this dwelling type (grossed by household). Vulnerable household is a household in receipt of a least one of principal means tested or disability related benefits.

Table 4.2.17 Vulnerable household (in receipt of means tested or disability related benefits) of post-1980 detached dwellings

		Frequency	Percent (%)	Cumulative Percent
Post-1980,detached	Not vulnerable	1,560,000	87.0	87.0
	Vulnerable	230,000	13.0	100
	Total	1,790,000	100	

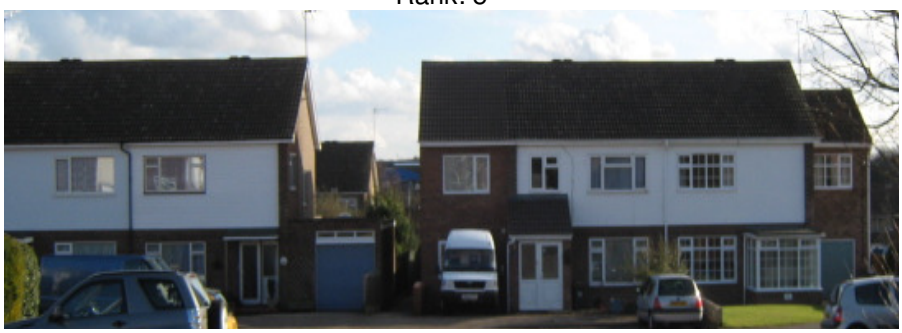
4.3. Potential for basic thermal efficiency improvements

For this dwelling type, over 45% can be improved by adding wall insulation; about 16% of the dwelling of this type can have roof insulation added to achieve better thermal performance; almost 4% can have the existing single glazing replaced by double glazing.

	Improvement measures	**Percent (%)**
1	Add wall insulation (cavity and solid wall)	45.5
2	Add roof insulation (existing insulation less or equal to 99mm)	15.9
3	Add double glazing (predominant glazing type not double glazed)	3.8

1965-1980, SEMI-DETACHED

Rank: 5th



5.1. Background information

Approx *1,200,000* properties of this type, which is around *4.6* % of the whole stock.

50% of the properties of this type have a floor area between *72* and *97*sqm.

Total CO_2 emissions at present (under SAP assumptions): *7* million tonnes/yr CO_2, which represents *4.1* % of total stock CO_2 emissions.

5.2. Detailed description

5.2.1 Table 5.2.1 shows total number properties of this type, and the proportion that this represents of the total dwelling stock. It also shows total CO_2 emissions of this type and the percentage of total stock CO_2 emissions.

Table 5.2.1 Total number of 1965-1980 semi-detached and total CO_2 emissions

	Frequency	Percent (%)	Total CO2 current emissions (tonnes/yr)	% of total stock emissions
1965-1980, semi detached	1,200,000	4.6	7,010,000	4.1

5.2.2 The predominant wall types of this type of dwelling are shown in Table 6.2.2 below..

Table 5.2.2 1965-1980 semi-detached dwelling wall types

		Frequency	Percent (%)	Cumulative Percent
1965-1980, semi-detached	Cavity uninsulated	620,000	51.7	51.7
	Cavity with insulation	560,000	46.6	98.3
	Solid uninsulated (1%) & Others	20,000	1.7	100
	Total	1,200,000	100	

5.2.3 Table 5.2.3 lists the number dwellings of this type with pitched roofs; the 'Others' roof type includes mansard roofs, flat roofs and chalet roofs.

Table 5.2.3 1965-1980 semi-detached dwellings predominant roof type

		Frequency	Percent (%)	Cumulative Percent
1965-1980, semi-detached	Pitched	1,090,000	90.8	90.8
	Others	110,000	9.2	100
	Total	1,200,000	100	

5.2.4 The percentage of glazing as a proportion of total exposed wall area (including the glazing area) for this dwelling type is shown in Table 5.2.4.

Table 5.2.4 1965-1980 semi-detached dwellings glazing extent

		Frequency	Percent (%)	Cumulative Percent
1965-1980, semi-detached	0%-15%	180,000	14.9	14.9
	15%-20%	380,000	31.4	46.3
	20%-25%	380,000	31.7	78.0
	25%-30%	180,000	15.2	93.2
	30%-35%	60,000	4.8	98.0
	Over 35%	20,000	2.0	100
	Total	1,200,000	100	

5.2.5 The predominant type of glazing of this dwelling type is shown in Table 4.2.5 below.

Table 5.2.5 Post-1980 detached dwellings glazing type

		Frequency	Percent (%)	Cumulative Percent
1965-1980, semi-detached	Single glazing	60,000	4.7	4.7
	Double glazing	1,120,000	93.7	98.4
	No predominant type	20,000	1.6	100
	Total	1,200,000	100	

5.2.6 Table 5.2.6 shows the number of bays in the dwelling type of 1965-1980 semi-detached. Bays can be either single or multi- storey.

Table 5.2.6 1965-1980 semi-detached dwellings bays

		Frequency	Percent (%)	Cumulative Percent
1965-1980, semi-detached	No bays	1,100,000	90.9	90.9
	Bays	100,000	9.1	100
	Total	1,200,000	100	

5.2.7 The tenure breakdown of dwellings of this type is shown in Table 5.2.7.

Table 5.2.7 1965-1980 semi-detached dwellings tenure

		Frequency	Percent (%)	Cumulative Percent
1965-1980, semi-detached	Owner Occupied	1,050,000	87.5	87.5
	Local Authority & Housing Association(RSL)	80,000	6.6	94.1
	Private Rented	70,000	5.9	100
	Total	1,200,000	100	

5.2.8 Mean and median floor area and the interquartile range (IQR) of this dwelling type is shown below in Table 5.2.8. 50% of this type of dwelling has a floor area between 72sqm and 97sqm.

Table 5.2.8 1965-1980 semi-detached dwellings mean, median usable floor area and IQR

			Useable floor area (sqm)
1965-1980, semi-detached	Mean		87.2
	Median		83.2
	Percentiles	25	72.4
		50	83.2
		75	97.1

5.2.9 Mean and median external wall area and interquartile range (IQR) of this dwelling type are listed in Table 5.2.9. 50% of this type of dwelling has a wall area between 81sqm and 103sqm.

Table 5.2.9 1965-1980 semi-detached dwellings mean, median external exposed wall area and IQR

			Total unattached dwelling wall area {exc. windows/doors and parts adjacent to heated spaces} (m2)
1965-1980, semi-detached	Mean		91.1
	Median		91.6
	Percentiles	25	80.9
		50	91.6
		75	102.7

5.2.10 Mean and median roof area and interquartile range (IQR) of this dwelling type is shown in Table 5.2.10. 50% of this type of dwelling has a roof area ranged from 39sqm and 58sqm.

Table 5.2.10 1965-1980 semi-detached mean, median roof area and IQR

			Total dwelling roof area
1965-1980, semi-detached	Mean		51
	Median		46.2
	Percentiles	25	39.4
		50	46.2
		75	58.3

5.2.11 Table 5.2.11 shows the range of existing loft insulation thicknesses in this dwelling type.

Table 5.2.11 1965-1980 semi-detached dwellings thickness of loft insulation

		Frequency	Percent (%)	Cumulative Percent
1965-1980, semi-detached	None or less than 50mm	100,000	8.6	8.7
	50 up to 99mm	320,000	26.5	35.2
	100 up to 149mm	420,000	34.8	70.0
	150 up to 199mm	150,000	12.2	82.2
	200mm or more	210,000	17.8	100
	Total	1,200,000	100	

5.2.12 Table 5.2.12 shows the proportion of this dwelling type with an 'additional part'. An 'additional part' is any part of the dwelling which 'sticks out' from the usual rectangular dwelling shape. This part is often at the rear of the property and can be an extension or an 'as built' part. Almost 41% of the dwellings of this type have additional parts.

Table 5.2.12 Presence of additional parts in 1965-1980 semi-detached dwellings

		Frequency	Percent (%)	Cumulative Percent
1965-1980, semi-detached	No additional parts	730,000	59.1	59.1
	Additional parts	470,000	40.9	100
	Total	1,200,000	100	

5.2.13 Table 5.2.13 shows the proportion of this dwelling type with a predominantly 'masonry pointing' wall finish.

Table 5.2.13 Predominant wall finish in 1965-1980 semi-detached dwellings				
		Frequency	Percent (%)	Cumulative Percent
1965-1980, semi-detached	Masonry pointing	920,000	76.3	76.3
	non masonry pointing	280,000	23.7	100
	Total	1,200,000	100	

5.2.14 Table 5.2.14 shows the household composition of this dwelling type (grossed by household).

Table 5.2.14 1965-1980 semi-detached dwellings household composition				
		Frequency	Percent (%)	Cumulative Percent
1965-1980,semi detached	couple, child(ren)	290,000	24.9	24.9
	couple, no child(ren) under 60	240,000	21.0	45.9
	couple, no child(ren) aged 60 or over	260,000	22.7	68.6
	lone parent with child(ren)	70,000	5.9	74.5
	one person under 60	100,000	8.7	83.2
	one person aged 60 or over	120,000	9.9	93.1
	other multi-person household	70,000	6.9	100
	Total	1,160,000	100	

5.2.15 Table 5.2.15 shows the age of the Household Reference Person in these types of dwelling (grossed by household).

Table 5.2.15 1965-1980 semi-detached dwellings Household Reference Person age range				
		Frequency	Percent (%)	Cumulative Percent
1965-1980,semi detached	16 - 34	130,000	11.4	11.4
	35 - 44	230,000	19.5	30.9
	45 - 54	270,000	22.9	53.9
	55 - 64	260,000	22.7	76.6
	65 or over	270,000	23.4	100
	Total	1,160,000	100	

5.2.16 Table 5.2.16 shows the weekly net household income of households in this dwelling type (grossed by household).

Table 5.2.16 1965-1980 semi-detached dwellings weekly net household income - all households				
		Frequency	Percent (%)	Cumulative Percent
1965-1980,semi detached	< £100 p.w.	10,000	3.0	3.0
	£100 -199.99 p.w.	130,000	17.0	20.0
	£200 -299.99 p.w.	180,000	17.6	37.6
	£300 -399.99 p.w.	190,000	13.9	51.5
	>£400 p.w.	630,000	39.3	90.8
	Unknown	40,000	9.2	100
	Total	1,160,000	100	

5.2.17 Table 5.2.17 shows the vulnerable household composition of this dwelling type (grossed by household). Vulnerable household is a household in receipt of a least one of principal means tested or disability related benefits.

Table 5.2.17 1965-1980 semi-detached dwellings Vulnerable household (in receipt of means tested or disability related benefits)

		Frequency	Percent (%)	Cumulative Percent
1965-1980,semi detached	Not vulnerable	890,000	76.8	76.8
	Vulnerable	270,000	23.2	100
	Total	1,160,000	100	

5.3. Potential for basic thermal efficiency improvements

For this dwelling type, almost 53% can be improved by adding wall insulation; over 35% of the dwelling of this type can have roof insulation added to achieve better thermal performance; and almost 5% can have the existing single glazing replaced by double glazing.

	Improvement measures	Percent (%)
1	Add wall insulation (cavity and solid wall)	52.7
2	Add roof insulation (existing insulation less or equal to 99mm thick)	35.2
3	Add double glazing (predominant glazing type not double glazed)	4.6

1965-1980, DETACHED HOUSE

Rank: 6th

6.1. Background information

Approx ***1,050,000*** properties of this type, which is around *4* % of the whole stock.

50% of the properties of this type have a floor area between *96* and *153sqm*.

Total CO_2 emissions at present (under SAP assumptions): *9.4* million tonnes/yr CO_2, which represents *5.5* % of total stock CO_2 emissions.

6.2. Detailed description

6.2.1 Table 6.2.1 shows total number properties of this type, and the proportion that this represents of the total dwelling stock. It also shows total CO_2 emissions of this type and the percentage of total stock CO_2 emissions.

Table 6.2.1 Total number of 1965-1980 detached dwellings and total CO_2 emissions

	Frequency	Percent (%)	Total CO2 current emissions (tonnes/yr)	% of total stock emissions
1965-1980, detached	1,050,000	4.0	9,360,000	5.5

6.2.2 The predominant wall types of this type of dwelling are shown in Table 6.2.2.

Table 6.2.2 1965-1980 detached dwellings wall types

		Frequency	Percent (%)	Cumulative Percent
1965-1980 detached	Cavity uninsulated	520,000	49.7	49.7
	Cavity with insulation	520,000	49.6	99.3
	Solid uninsulated (0.3 %) & Others	10,000	0.7	100
	Total	1,050,000	100	

6.2.3 Table 6.2.3 lists the number dwellings of this type with pitched roofs; the 'Others' roof type includes mansard roofs, flat roofs and chalet roofs.

Table 6.2.3 1965-1980 detached dwellings predominant roof type

		Frequency	Percent (%)	Cumulative Percent
1965-1980, detached	Pitched	960,000	91.8	91.8
	Others	90,000	8.2	100
	Total	1,050,000	100	

6.2.4 The percentage of glazing as a proportion of total exposed wall area (including the glazing area) for this dwelling type is shown in Table 6.2.4.

Table 6.2.4 1965-1980 detached dwellings glazing extent

		Frequency	Percent (%)	Cumulative Percent
1965-1980, detached	0%-15%	280,000	26.5	26.5
	15%-20%	380,000	36.0	62.6
	20%-25%	270,000	25.6	88.1
	25%-30%	90,000	8.7	96.8
	30%-35%	30,000	3.2	100
	Total	1,050,000	100	

6.2.5 The predominant type of glazing of this dwelling type is shown in Table **6.2.5**.

Table 6.2.5 1965-1980 detached dwellings glazing type

		Frequency	Percent (%)	Cumulative Percent
1965-1980, detached	Single glazing	80,000	7.0	7.0
	Double glazing	960,000	91.7	98.7
	No predominant type	10,000	1.3	100
	Total	1,050,000	100	

6.2.6 Table **6.2.6** shows the presence of bay windows in this dwelling type. Bays can be either single or multi- storey.

Table 6.2.6 1965-1980 detached dwellings bays

		Frequency	Percent (%)	Cumulative Percent
1965-1980, detached	No bays	940,000	89.5	89.5
	Bays	110,000	10.5	100
	Total	1,050,000	100	

6.2.7 The tenure breakdown of dwellings of this type is shown in Table 6.2.7.

Table 6.2.7 1965-1980 detached dwellings tenure

		Frequency	Percent (%)	Cumulative Percent
1965-1980, detached	Owner Occupied	1,000,000	94.9	94.9
	Local Authority & Housing Association(RSL)	5,000	0.5	95.4
	Private Rented	49,000	4.6	100
	Total	1,050,000	100	

6.2.8 Mean and median floor area and the interquartile range (IQR) of this dwelling type is shown below in Table 6.2.8. 50% of this type of dwelling has a floor area between 96sqm and 153sqm.

Table 6.2.8 1965-1980 detached dwellings mean, median usable floor area and IQR

			Useable floor area (sqm)
1965-1980, detached	Mean		131.6
	Median		120
	Percentiles	25	96.3
		50	120
		75	153.4

6.2.9 Mean and median external wall area and interquartile range (IQR) of this dwelling type are listed in Table 6.2.9. 50% of this type of dwelling has a wall area between 130sqm and 180sqm.

Table 6.2.9 1965-1980 detached dwellings mean, median external exposed wall area and IQR

			Total unattached dwelling wall area {exc. windows/doors and parts adjacent to heated spaces} (m2)
1965-1980, detached	Mean		155.2
	Median		155.3
	Percentiles	25	130.0
		50	155.3
		75	179.7

6.2.10 Mean and median roof area and interquartile range (IQR) of this dwelling type is shown in Table 6.2.10. 50% of this type of dwelling has a roof area ranged from 54sqm and 92sqm.

Table 6.2.10 1965-1980 detached dwellings mean, median roof area and IQR

			Total dwelling roof area
1965-1980, detached	Mean		77.3
	Median		69.7
	Percentiles	25	54.0
		50	69.7
		75	92.0

6.2.11 Table 6.2.11 shows the range of existing loft insulation thicknesses in this dwelling type.

Table 6.2.11 1965-1980 detached dwellings thickness of loft insulation

		Frequency	Percent (%)	Cumulative Percent
1965-1980, detached	None or less than 50mm	80,000	6.6	6.6
	50 up to 99mm	310,000	29.7	36.2
	100 up to 149mm	350,000	32.9	69.1
	150 up to 199mm	120,000	11.9	81.1
	200mm or more	190,000	18.2	100
	Total	1,050,000	100	

6.2.12 Table 6.2.12 shows the proportion of this dwelling type with an 'additional part'. An 'additional part' is any part of the dwelling which 'sticks out' from the usual rectangular dwelling shape. This part is often at the rear of the property and can be an extension or an 'as built' part. Almost 62% of the dwellings of this type have additional parts.

Table 6.2.12 Presence of additional parts in 1965-1980 detached dwellings

		Frequency	Percent (%)	Cumulative Percent
1965-1980, detached	No additional parts	410,000	38.1	38.1
	Additional parts	640,000	61.9	100
	Total	1,050,000	100	

6.2.13 Table 6.2.13 shows the proportion of this dwelling type with a predominantly 'masonry pointing' wall finish.

Table 6.2.13 Predominant wall finish in 1965-1980 detached dwellings

		Frequency	Percent (%)	Cumulative Percent
1965-1980, detached	Masonry pointing	760,000	72.0	72.0
	non masonry pointing	290,000	28.0	100
	Total	1,050,000	100	

6.2.14 Table 6.2.14 shows the household composition of this dwelling type (grossed by household).

Table 6.2.14 1965-1980 detached dwellings household composition

		Frequency	Percent (%)	Cumulative Percent
1965-1980, detached	couple, child(ren)	260,000	24.7	24.7
	couple, no child(ren) under 60	200,000	19.9	44.6
	couple, no child(ren) aged 60 or over	340,000	33.0	77.6
	lone parent with child(ren)	30,000	2.5	80.1
	one person under 60	30,000	3.3	83.4
	one person aged 60 or over	110,000	10.3	93.7
	other multi-person household	70,000	6.3	100
	Total	1,030,000	100	

6.2.15 Table 6.2.15 shows the age of the Household Reference Person in these types of dwelling (grossed by household).

Table 6.2.15 1965-1980 detached dwellings Household Reference Person age range

		Frequency	Percent (%)	Cumulative Percent
1965-1980, detached	16 - 34	40,000	3.7	3.7
	35 - 44	150,000	15.1	18.8
	45 - 54	220,000	21.1	40.0
	55 - 64	310,000	30.0	69.9
	65 or over	310,000	30.1	100
	Total	1,030,000	100	

6.2.16 Table 6.2.16 shows the weekly net household income of households in this dwelling type (grossed by household).

Table 6.2.16 1965-1980 detached dwellings weekly net household income - all households

		Frequency	Percent (%)	Cumulative Percent
1965-1980, detached	< £199.99 p.w.	70,000	6.7	6.7
	£200 -299.99 p.w.	100,000	10.2	16.8
	£300 -399.99 p.w.	120,000	11.7	28.6
	>£400 p.w.	700,000	68.0	96.5
	Unknown	40,000	3.5	100
	Total	1,030,000	100	

6.2.17 Table 6.2.17 shows the vulnerable household composition of this dwelling type (grossed by household). Vulnerable household is a household in receipt of a least one of principal means tested or disability related benefits.

Table 6.2.17 1965-1980 detached dwellings vulnerable household (in receipt of means tested or disability related benefits)

		Frequency	Percent (%)	Cumulative Percent
1965-1980, detached	Not vulnerable	850,000	82.4	82.4
	Vulnerable	180,000	17.5	100
	Total	1,030,000	100	

6.3. Potential for basic thermal efficiency improvements

For this dwelling type, almost 50% can be improved by adding wall insulation; over 36% of the dwelling of this type can have roof insulation added to achieve better thermal performance; and 7% can have the existing single glazing replaced by double glazing.

	Improvement measures	Percent
1	Add wall insulation (cavity and solid wall)	50.0
2	Add roof insulation (existing insulation less or equal to 99mm thick)	36.2
3	Add double glazing (predominant glazing type not double glazed)	7.0

1965-1980, PURPOSE BUILT FLAT, LOW RISE

Rank: 7th

7.1. Background information

Approx ***1,050,000*** properties of this type, which is around ***4%*** of the whole stock.

50% of the properties of this type have a floor area between *43* and *66*sqm.

Total CO_2 emissions at present (under SAP assumptions): 3.6 million tonnes/yr CO_2, which represents about *2.1*% of total stock CO_2 emissions.

7.2. Detailed description

7.2.1 Table 7.2.1 shows total number properties of this type, and the proportion that this represents of the total dwelling stock. It also shows total CO_2 emissions of this type and the percentage of total stock CO_2 emissions.

Table 7.2.1 Total number of 1965-1980 purpose built low rise flat and total CO_2 emissions

	Frequency	Percent (%)	Total CO2 current emissions (tonnes/yr)	% of total stock emissions
1965-1980, purpose built flat	1,050,000	4.0	3,580,000	2.1

7.2.2 The predominant wall types of this type of dwelling are shown in Table 7.2.2 below.

Table 7.2.2 1965-1980 purpose built low rise flat dwelling wall types

		Frequency	Percent (%)	Cumulative Percent
1965-1980 purpose built flat	Cavity uninsulated	610,000	58.2	58.2
	Cavity with insulation	340,000	32.8	91.0
	Solid uninsulated	70,000	6.6	97.6
	Others	30,000	2.4	100
	Total	1,050,000	100	

7.2.3 Table 7.2.3 lists the number dwellings of this type with pitched roofs; the 'Others' roof type includes mansard roofs, flat roofs and chalet roofs. Note that this refers to the roof of the block, not necessarily the dwelling itself.

Table 7.2.3 1965-1980 purpose built low rise flat predominant roof type

		Frequency	Percent (%)	Cumulative Percent
1965-1980 purpose built flat	Pitched	790,000	99.1	99.1
	Others	260,000	0.9	100
	Total	1,050,000	100	

7.2.4 The percentage of glazing as a proportion of total exposed wall area (including the glazing area) for this dwelling type is shown in Table 7.2.4.

Table 7.2.4 1965-1980 purpose built low rise flat glazing extent

		Frequency	Percent (%)	Cumulative Percent
1965-1980 purpose built flat, low rise	0%-15%	20,000	1.9	1.9
	15%-20%	80,000	7.4	9.3
	20%-25%	240,000	23.1	32.3
	25%-30%	240,000	23.3	55.6
	30%-35%	310,000	29.4	85.1
	Over 35%	160,000	14.9	100
	Total	1,050,000	100	

7.2.5 The predominant type of glazing of this dwelling type is shown in Table 7.2.5.

Table 7.2.5 1965-1980 purpose built low rise flat glazing type

		Frequency	Percent (%)	Cumulative Percent
1965-1980 purpose built flat, low rise	Single glazing	210,000	18.9	18.9
	Double glazing	760,000	73.2	92.2
	No predominant type	80,000	7.8	100
	Total	1,050,000	100	

7.2.6 Table 7.2.6 shows the number of the bay types in the dwelling type of 1965-1980 purpose built low rise flat. Bays can be either single or multi-storey.

Table 7.2.6 1965-1980 purpose built low rise flat bay types

		Frequency	Percent (%)	Cumulative Percent
1965-1980 purpose built flat, low rise	No bays	970,000	92.4	92.4
	Bays	80,000	7.6	100
	Total	1,050,000	100	

7.2.7 The tenure breakdown of dwellings of this type is shown in Table 7.2.7.

Table 7.2.7 1965-1980 purpose built low rise flat tenure

		Frequency	Percent (%)	Cumulative Percent
1965-1980 purpose built flat, low rise	Owner Occupied	270,000	25.8	25.8
	Local Authority	390,000	37.1	62.9
	Housing Association(RSL)	210,000	20.0	82.9
	Private Rented	180,000	17.1	100
	Total	1,050,000	100	

7.2.8 Mean and median floor area and the interquartile range (IQR) of this dwelling type are shown below in Table 7.2.8. 50% of this type of dwelling has a floor area between 43sqm and 66sqm.

Table 7.2.8 1965-1980 purpose built low rise flat mean, median usable floor area and IQR

			Useable floor area (sqm)
1965-1980 purpose built flat, low rise	Mean		55.8
	Median		52.2
	Percentiles	25	42.9
		50	52.2
		75	66.2

7.2.9 Mean and median external wall area and interquartile range (IQR) of this dwelling type are listed in Table 7.2.9. 50% of this type of dwelling have a wall area between 22sqm and 40sqm.

Table 7.2.9 1965-1980 purpose built low rise flat mean, median external wall area and IQR

			Total unattached dwelling wall area {exc. windows/doors and parts adjacent to heated spaces} (m2)
1965-1980 purpose built flat, low rise	Mean		32.9
	Median		29.8
	Percentiles	25	22.1
		50	29.8
		75	40.0

7.2.10 Mean and median roof area and interquartile range (IQR) of this dwelling type is shown in Table 7.2.10. 50% of this type of dwelling has a roof area ranged from 40sqm and 63sqm. Note that this refers to the roof of the block, not necessarily the dwelling itself.

Table 7.2.10 1965-1980 purpose built low rise flat mean, median roof area and IQR

			Total dwelling roof area
1965-1980 purpose built flat, low rise	Mean		52.4
	Median		49.0
	Percentiles	25	39.5
		50	49.0
		75	63.2

7.2.11 Table 7.2.11 shows the range of existing loft insulation thicknesses in this dwelling type.

Table 7.2.11 1965-1980 purpose built low rise flat thickness of loft insulation

		Frequency	Percent (%)	Cumulative Percent
1965-1980 purpose built flat, low rise	None or less than 50mm	20,000	2.0	2.0
	50 up to 99mm	110,000	10.9	12.9
	100 up to 149mm	170,000	15.7	28.7
	150 up to 199mm	100,000	9.8	38.4
	200mm or more	90,000	9.0	47.4
	no loft	550,000	52.6	100
	Total	1,050,000	100	

7.2.12 Table 7.2.12 shows the proportion of this dwelling type with an 'additional part'. An 'additional part' is any part of the dwelling which 'sticks out' from the usual rectangular dwelling shape. This part is often at the rear of the property and can be an extension or an 'as built' part. Over 35% of the dwellings of this type have additional parts.

Table 7.2.12 Presence of additional parts in 1965-1980 purpose built low rise flats

		Frequency	Percent (%)	Cumulative Percent
1965-1980 purpose built flat, low rise	No additional parts	710,000	64.8	64.8
	Additional parts	340,000	35.2	100
	Total	1,050,000	100	

7.2.13 Table 7.2.13 shows the proportion of this dwelling type with a predominantly 'masonry pointing' wall finish.

Table 7.2.13 Predominant wall finish in 1965-1980 purpose built low rise flats

		Frequency	Percent (%)	Cumulative Percent
1965-1980 purpose built flat, low rise	masonry pointing	820,000	78.5	78.5
	others	230,000	21.5	100
	Total	1,050,000	100	

7.2.14 Table 7.2.14 shows the type of households living in this dwelling type (grossed by household).

Table 7.2.14 1965-1980 purpose built low rise flats household composition

		Frequency	Percent (%)	Cumulative Percent
1965-1980, purpose built flat, low rise	couple, child(ren)	90,000	8.9	8.9
	couple, no child(ren) under 60	110,000	11.8	20.7
	couple, no child(ren) aged 60 or over	80,000	8.3	28.9
	lone parent with child(ren)	90,000	9.1	38.0
	one person under 60	260,000	26.8	64.9
	one person aged 60 or over	270,000	28.2	93.0
	other multi-person household	70,000	7.0	100
	Total	980,000	100	

7.2.15 Table 7.2.15 shows the age of the Household Reference Person in these types of dwelling (grossed by household).

Table 7.2.15 1965-1980 purpose built low rise flats Household Reference Person age range

		Frequency	Percent (%)	Cumulative Percent
1965-1980, purpose built flat, low rise	16 - 24	70,000	7.3	7.3
	25 - 34	170,000	17.7	25.0
	35 - 44	140,000	14.9	39.9
	45 - 54	150,000	15.7	55.6
	55 - 64	140,000	14.8	70.4
	65 or over	290,000	29.6	100
	Total	980,000	100	

7.2.16 Table 7.2.16 shows the weekly net household income of households in this dwelling type (grossed by household).

Table 7.2.16 1965-1980 purpose built low rise flats weekly net household income - all households

		Frequency	Percent (%)	Cumulative Percent
1965-1980, purpose built flat, low rise	< £100 p.w.	60,000	5.7	5.7
	£100 -199.99 p.w.	350,000	35.7	41.4
	£200 -299.99 p.w.	230,000	23.6	65.0
	£300 -399.99 p.w.	130,000	13.2	78.2
	>£400 p.w.	210,000	21.8	100
	Total	980,000	100	

7.2.17 Table 7.2.17 shows the vulnerable type of households living in this dwelling type (grossed by household). Vulnerable household is a household in receipt of a least one of principal means tested or disability related benefits.

Table 7.2.17 1965-1980 purpose built low rise flats vulnerable household (in receipt of means tested or disability related benefits)

		Frequency	Percent (%)	Cumulative Percent
1965-1980, purpose built flat, low rise	Not vulnerable	510,000	52.8	52.8
	Vulnerable	470,000	47.2	47.2
	Total	980,000	100	100

7.3. Potential for basic thermal efficiency improvements

For this dwelling type, almost, almost 65% can be improved by adding wall insulation; nearly 13% of the dwelling of this type can have roof insulation added to achieve better thermal performance; and almost 19% can have the existing single glazing replaced by double glazing.

	Improvement measures	Percent (%)
1	Add wall insulation (cavity and solid wall)	64.8
2	Add roof insulation (existing insulation less or equal to 99mm thick)	12.9
3	Add double glazing (predominant glazing type not double glazed)	18.9

POST-1980, PURPOSE BUILT FLAT, LOW RISE

Rank: 8th

8.1. Background information

Approx ***1,040,000*** properties of this type, which is around ***4%*** of the whole stock.

50% of the properties of this type have a floor area between *41* and *60*sqm.

Total CO_2 emissions at present (under SAP assumptions): *2.9* million tonnes/yr CO_2, which represents almost *1.7*% of total stock CO_2 emissions.

8.2. Detailed description

8.2.1 Table 8.2.1 shows total number properties of this type, and the proportion that this represents of the total dwelling stock. It also shows total CO_2 emissions of this type and the percentage of total stock CO_2 emissions.

Table 8.2.1 Total number of Post -1980 purpose built low rise flat and total CO_2 emissions

	Frequency	Percent (%)	Total CO2 current emissions (tonnes/yr)	% of total stock emissions
Post -1980, purpose built flat, low rise	1,040,000	4.0	2,860,000	1.7

8.2.2 The predominant wall types of this type of dwelling are shown in Table 8.2.2 below.

Table 8.2.2 Post -1980 purpose built low rise flat dwelling wall types

		Frequency	Percent (%)	Cumulative Percent
Post -1980, purpose built flat, low rise	Cavity uninsulated	570,000	55.4	55.4
	Cavity with insulation	440,000	42.5	97.9
	Solid uninsulated (1.3%) & Others	30,000	2.1	100
	Total	1,040,000	100	

8.2.3 Table 8.2.3 lists the number dwellings of this type with pitched roofs; the 'Others' roof type includes mansard roofs, flat roofs and chalet roofs. Note that this refers to the roof of the block, not necessarily the dwelling itself.

Table 8.2.3 Post -1980, purpose built flat, low rise predominant roof type

		Frequency	Percent (%)	Cumulative Percent
Post-1980 purpose built flats, low rise	Pitched	950,000	99.1	99.1
	Others	90,000	0.9	100
	Total	1,040,000	100	

8.2.4 The percentage of glazing as a proportion of total exposed wall area (including the glazing area) for this dwelling type is shown in Table 8.2.4.

Table 8.2.4 Post -1980 purpose built low rise flat glazing extent

		Frequency	Percent (%)	Cumulative Percent
Post -1980, purpose built flat, low rise	0%-15%	20,000	1.8	1.8
	15%-20%	90,000	8.7	10.5
	20%-25%	130,000	13.0	23.5
	25%-30%	130,000	12.4	35.9
	30%-35%	230,000	22.1	58.0
	Over 35%	440,000	42.0	100
	Total	1,040,000	100	

8.2.5 The predominant type of glazing of this dwelling type is shown in Table 8.2.5.

Table 8.2.5 Post -1980 purpose built low rise flat glazing type

		Frequency	Percent (%)	Cumulative Percent
Post -1980, purpose built flat, low rise	Single glazing	150,000	14.4	14.4
	Double glazing	730,000	69.9	84.3
	No predominant type	160,000	15.7	100
	Total	1,040,000	100	

8.2.6 Table 8.2.6 shows the presence of bay windows in this dwelling type. Bays can be either single or multi- storey.

Table 8.2.6 Post -1980 purpose built low rise flat bays

		Frequency	Percent (%)	Cumulative Percent
Post -1980, purpose built flat, low rise	No bays	800,000	76.9	76.9
	Bays	240,000	23.1	100
	Total	1,040,000	100	

8.2.7 The tenure breakdown of dwellings of this type is shown in Table 8.2.7 below.

Table 8.2.7 Post -1980 purpose built low rise flat tenure

		Frequency	Percent (%)	Cumulative Percent
Post -1980, purpose built flat, low rise	Owner Occupied	420,000	40.7	40.7
	Local Authority	90,000	8.3	48.9
	Housing Association(RSL)	290,000	27.7	76.7
	Private Rented	240,000	23.3	100
	Total	1,040,000	100	

8.2.8 Mean and median floor area and the interquartile range (IQR) of this dwelling type is shown below in Table 8.2.8. 50% of this type of dwelling has a floor area between 41sqm and 60sqm.

Table 8.2.8 Post -1980 purpose built low rise flat mean, median usable floor area and IQR

			Useable floor area (sqm)
Post -1980, purpose built flat, low rise	Mean		54.8
	Median		48.8
	Percentiles	25	40.6
		50	48.8
		75	60.3

8.2.9 Mean and median external wall area and interquartile range (IQR) of this dwelling type are listed in Table 8.2.9. 50% of this type of dwelling has a wall area between 16sqm and 32sqm.

Table 8.2.9 Post -1980 purpose built low rise flat mean, median external exposed wall area and IQR

			Total unattached dwelling wall area {exc. windows/doors and parts adjacent to heated spaces} (m2)
Post -1980, purpose built flat, low rise	Mean		26.8
	Median		23.0
	Percentiles	25	15.5
		50	23.0
		75	31.5

8.2.10 Mean and median roof area and interquartile range (IQR) of this dwelling type is shown in Table 8.2.10. 50% of this type of dwelling has a roof area ranged from 40sqm and 61sqm. Note that this refers to the roof of the block, not necessarily the dwelling itself.

Table 8.2.10 Post -1980 purpose built low rise flat mean, median roof area and IQR

			Total dwelling roof area
Post -1980, purpose built flat, low rise	Mean		51.6
	Median		49.0
	Percentiles	25	39.7
		50	49.0
		75	61.1

8.2.11 Table 8.2.11 shows the range of existing loft insulation thicknesses in this dwelling type.

Table 8.2.11 Post 1980 purpose built low rise flat thickness of loft insulation

		Frequency	Percent (%)	Cumulative Percent
Post -1980, purpose built flat, low rise	None or less than 99mm	60,000	5.3	5.3
	100 up to 149mm	160,000	15.1	20.5
	150 up to 199mm	160,000	15.3	35.8
	200mm or more	110,000	10.3	46.1
	no loft	560,000	53.9	100
	Total	1,040,000	100	

8.2.12 Table 8.2.12 shows the proportion of this dwelling type with an ‘additional part’. An ‘additional part’ is any part of the dwelling which ‘sticks out’ from the usual rectangular dwelling shape. This part is often at the rear of the property and can be an extension or an ‘as built’ part. Almost 47% of the dwellings of this type have additional parts.

Table 8.2.12 Presence of additional parts in post -1980 purpose built low rise flat

		Frequency	Percent (%)	Cumulative Percent
Post -1980, purpose built flat, low rise	No additional parts	580,000	53.4	53.4
	Additional parts	460,000	46.6	100
	Total	1,040,000	100	

8.2.13 Table 8.2.13 shows the proportion of this dwelling type with a predominantly 'masonry pointing' wall finish.

Table 8.2.13 Predominant wall finish in post 1980 purpose built low rise flat

		Frequency	Percent (%)	Cumulative Percent
Post -1980, purpose built flat, low rise	masonry pointing	820,000	79.1	79.1
	others	220,000	20.9	100
	Total	1,040,000	100	

8.2.14 Table 8.2.14 shows the type of households living in this dwelling type (grossed by household).

Table 8.2.14 Post 1980 purpose built low rise flat household composition

		Frequency	Percent (%)	Cumulative Percent
Post-1980, purpose built flat, low rise	couple, child(ren) under 60	50,000	5.5	5.5
	couple, no child(ren) under 60	140,000	14.6	20.1
	couple, no child(ren) aged 60 or over	90,000	9.6	29.7
	lone parent with child(ren)	40,000	4.7	34.4
	one person under 60	310,000	32.4	66.8
	one person aged 60 or over	280,000	29.4	96.2
	other multi-person household	40,000	3.8	100
	Total	950,000	100	

8.2.15 Table 8.2.15 shows the age of the Household Reference Person in these types of dwelling (grossed by household).

Table 8.2.15 Post -1980 purpose built low rise flat Household Reference Person age range

		Frequency	Percent (%)	Cumulative Percent
Post-1980, purpose built flat, low rise	16 - 24	70,000	7.2	7.2
	25 - 34	210,000	22.8	29.9
	35 - 44	140,000	14.4	44.4
	45 - 54	100,000	10.2	54.6
	55 - 64	100,000	10.5	65.1
	65 or over	330,000	34.9	100
	Total	950,000	100	

8.2.16 Table 8.2.16 shows the weekly net household income of households in this dwelling type (grossed by household).

Table 8.2.16 Post -1980 purpose built low rise flat weekly net household income - all households

		Frequency	Percent (%)	Cumulative Percent
Post-1980, purpose built flat, low rise	< £100 p.w.	40,000	4.6	4.6
	£100 -199.99 p.w.	270,000	27.9	32.4
	£200 -299.99 p.w.	210,000	22.2	54.6
	£300 -399.99 p.w.	130,000	13.5	68.1
	>£400 p.w.	300,000	31.9	100
	Total	950,000	100	

8.2.17 Table 8.2.17 shows the vulnerable type of households living in this dwelling type (grossed by household). Vulnerable household is a household in receipt of a least one of principal means tested or disability related benefits.

Table 8.2.17 Post -1980 purpose built low rise flat vulnerable household (in receipt of means tested or disability related benefits)

		Frequency	Percent (%)	Cumulative Percent
Post-1980, purpose built flat, low rise	Not vulnerable	600,000	63.3	63.3
	Vulnerable	350,000	36.7	100
	Total	950,000	100	

8.3. Potential for basic thermal efficiency improvements

For this dwelling type, 57% can be improved by adding wall insulation; over 5% of the dwelling of this type can have roof insulation added to achieve better thermal performance; and at least 14% can have the existing single glazing replaced by double glazing.

	Improvement measures	**Percent (%)**
1	Add wall insulation (cavity and solid wall)	56.7
2	Add roof insulation (existing insulation less or equal to 99mm thick)	5.3
3	Add double glazing (predominant glazing type not double glazed)	14.4

PRE-1919, SEMI-DETACHED

Rank: 9th

9.1. Background information

Approx ***830,000*** properties of this type, which is around ***3%*** of the whole stock.

50% of the properties of this type have a floor area between *86* and *148sqm*.

Total CO_2 emissions at present (under SAP assumptions) is *9.2* million tonnes/yr CO_2, which represents nearly *5.4* % of total stock CO_2 emissions.

9.2. Detailed description

9.2.1 Table 9.2.1 shows total number properties of this type, and the proportion that this represents of the total dwelling stock. It also shows total CO_2 emissions of this type and the percentage of total stock CO_2 emissions.

Table 9.2.1 Total number of pre-1919 semi-detached dwellings and total CO_2 emissions

	Frequency	Percent (%)	Total CO2 current emissions (tonnes/yr)	% of total stock emissions
Pre-1919, semi detached	830,000	3.2	9,170,000	5.4

9.2.2 The predominant wall types of this type of dwelling are shown in Table 9.2.2 below.

Table 9.2.2 Pre-1919 semi-detached dwellings wall types

		Frequency	Percent (%)	Cumulative Percent
Pre-1919, semi-detached	Cavity uninsulated	110,000	13.5	13.5
	Solid uninsulated	660,000	80.0	93.5
	Others	60,000	6.5	100
	Total	830,000	100	

9.2.3 Table 9.2.3 lists the number dwellings of this type with pitched roofs; the 'Others' roof type includes mansard roofs, flat roofs and chalet roofs.

Table 9.2.3 Pre-1919 semi-detached dwellings predominant roof type

		Frequency	Percent (%)	Cumulative Percent
Pre-1919, semi-detached	Pitched	810,000	98.0	98.0
	Others	20,000	2.0	100
	Total	830,000	100	

9.2.4 The percentage of glazing as a proportion of total exposed wall area (including the glazing area) for this dwelling type is shown in Table 9.2.4.

Table 9.2.4 Pre-1919 semi-detached dwellings glazing extent

		Frequency	Percent (%)	Cumulative Percent
Pre-1919, semi-detached	0%-15%	200,000	24.6	24.6
	15%-20%	280,000	34.2	58.7
	20%-25%	230,000	27.2	85.9
	25%-30%	80,000	9.6	95.4
	Over 30%	40,000	4.6	100
	Total	830,000	100	

9.2.5 The predominant type of glazing of this dwelling type is shown Table 9.2.5.

Table 9.2.5 Pre-1919 semi-detached dwellings glazing type

		Frequency	Percent (%)	Cumulative Percent
Pre-1919, semi-detached	Single glazing	310,000	37.1	37.1
	Double glazing	490,000	59.6	96.7
	No predominant type	30,000	3.3	100
	Total	830,000	100	

9.2.6 Table 9.2.6 shows the presence of bay windows in this dwelling type. Bays can be either single or multi-storey.

Table 9.2.6 Pre-1919 semi-detached dwellings bays

		Frequency	Percent (%)	Cumulative Percent
Pre-1919, semi-detached	No bays	420,000	50.6	50.6
	bays	410,000	49.4	100
	Total	830,000	100	

9.2.7 The tenure breakdown of dwellings of this type is shown in Table 9.2.7.

Table 9.2.7 Pre-1919 semi-detached dwellings tenure

		Frequency	Percent (%)	Cumulative Percent
Pre-1919, semi-detached	Owner Occupied	690,000	82.9	82.9
	Local Authority & Housing Association(RSL) & Private Rented	140,000	17.1	100
	Total	830,000	100	

9.2.8 Mean and median floor area and the interquartile range (IQR) of this dwelling type are shown below in Table 9.2.8. 50% of this type of dwelling has a floor area between 86sqm and 148sqm.

Table 9.2.8 Pre-1919 semi-detached dwellings mean, median usable floor area and IQR

			Useable floor area (sqm)
Pre-1919, semi-detached	Mean		125.7
	Median		111
	Percentiles	25	86
		50	111
		75	148.2

9.2.9 Mean and median external wall area and interquartile range (IQR) of this dwelling type are listed in Table 9.2.9. 50% of this type of dwelling has a wall area between 104sqm and 154sqm.

Table 9.2.9 Pre-1919 semi-detached dwellings mean, median external exposed wall area and IQR

			Total unattached dwelling wall area {exc. windows/doors and parts adjacent to heated spaces} (m2)
Pre-1919, semi-detached	Mean		133.4
	Median		124.7
	Percentiles	25	103.7
		50	124.7
		75	153.8

9.2.10 Mean and median roof area and interquartile range (IQR) of this dwelling type is shown in Table 9.2.10. 50% of this type of dwelling has a roof area ranged from 42sqm and 72sqm.

Table 9.2.10 Pre-1919 semi-detached dwellings mean, median roof area and IQR

			Total dwelling roof area
Pre-1919 semi-detached	Mean		61.7
	Median		53.5
	Percentiles	25	42.2
		50	53.5
		75	72.0

9.2.11 Table 9.2.11 shows the range of existing loft insulation thicknesses in this dwelling type.

Table 9.2.11 Pre-1919 semi-detached dwellings thickness of loft insulation

		Frequency	Percent (%)	Cumulative Percent
Pre-1919 semi-detached	None or no loft	70,000	8.6	8.6
	less than 50mm	30,000	3.5	12.2
	50 up to 99mm	210,000	25.7	37.8
	100 up to 149mm	270,000	33.1	71.0
	150 up to 199mm	100,000	12.3	83.2
	200mm or more	140,000	16.8	100
	Total	830,000	100	

9.2.12 Table 9.2.12 shows the proportion of this dwelling type with an 'additional part'. An 'additional part' is any part of the dwelling which 'sticks out' from the usual rectangular dwelling shape. This part is often at the rear of the property and can be an extension or an 'as built' part. Over 71% of the dwellings of this type have additional parts.

Table 9.2.12 Presence of additional parts in pre-1919 semi-detached dwellings

		Frequency	Percent (%)	Cumulative Percent
Pre-1919, semi-detached	No additional parts	240,000	28.7	28.7
	Additional parts	590,000	71.3	100
	Total	830,000	100	

9.2.13 Table 9.2.13 shows the proportion of this dwelling type with a predominantly 'masonry pointing' wall finish.

Table 9.2.13 Predominant wall finish in pre-1919 semi-detached dwellings

		Frequency	Percent (%)	Cumulative Percent
Pre-1919, semi-detached	Masonry pointing	480,000	58.0	58.0
	non masonry pointing	350,000	42.0	100
	Total	830,000	100	

9.2.14 Table 9.2.14 shows the type of households living in this dwelling type (grossed by household).

Table 9.2.14 Pre-1919 semi-detached dwellings household composition

		Frequency	Percent (%)	Cumulative Percent
Pre-1919,semi detached	couple, child(ren)	230,000	29.4	29.4
	couple, no child(ren) under 60	160,000	20.9	50.3
	couple, no child(ren) aged 60 or over	150,000	18.9	69.2
	lone parent with child(ren)	40,000	4.6	73.8
	one person under 60	60,000	7.8	81.6
	one person aged 60 or over	80,000	10.9	92.5
	other multi-person household	60,000	7.5	100
	Total	780,000	100	

9.2.15 Table 9.2.15 shows the age of the Household Reference Person in these types of dwelling (grossed by household).

Table 9.2.15 Pre-1919 semi-detached dwellings Household Reference Person age range

		Frequency	Percent (%)	Cumulative Percent
Pre-1919,semi detached	16 - 24	10,000	1.6	1.6
	25 - 34	80,000	9.2	10.8
	35 - 44	180,000	23.5	34.3
	45 - 54	180,000	23.0	57.3
	55 - 64	160,000	20.4	77.8
	65 or over	170,000	22.2	100
	Total	780,000	100	

9.2.16 Table 9.2.16 shows the weekly net household income of households in this dwelling type (grossed by household).

Table 9.2.16 Pre-1919 semi-detached dwellings weekly net household income - all households

		Frequency	Percent (%)	Cumulative Percent
Post 1980, semi detached	< £199.99 p.w.	90,000	11.4	11.4
	£200 -299.99 p.w.	110,000	13.6	25.0
	£300 -399.99 p.w.	80,000	10.0	35.0
	>£400 p.w.	480,000	61.9	96.9
	Unknown	20,000	3.1	100
	Total	780,000	100	

9.2.17 Table 9.2.17 shows the vulnerable type of households living in this dwelling type (grossed by household). Vulnerable household is a household in receipt of a least one of principal means tested or disability related benefits.

Table 9.2.17 Pre-1919 semi-detached dwellings vulnerable household (in receipt of means tested or disability related benefits)

		Frequency	Percent (%)	Cumulative Percent
Post 1980, semi detached	Not vulnerable	610,000	77.7	77.7
	Vulnerable	170,000	22.3	100
	Total	780,000	100	

9.3. Potential for basic thermal efficiency improvements

For this dwelling type, 94% can be improved by adding wall insulation; nearly 38% of the dwelling of this type can have roof insulation added to achieve better thermal performance; and at least 26% can have the existing single glazing replaced by double glazing.

	Improvement measures	**Percent**
1	Add wall insulation (cavity and solid wall)	93.5
2	Add roof insulation (existing insulation less or equal to 99mm thick)	37.8
3	Add double glazing (predominant glazing type not double glazed)	26.2

1965-1980, MID TERRACE

Rank: 10th

10.1. Background information

Approx ***810,000*** properties of this type, which is around ***3%*** of the whole stock.

50% of the properties of this type have a floor area between *71* and *88sqm*.

Total CO_2 emissions at present (under SAP assumptions) is *3.6* million tonnes/yr CO_2, which represents almost *2.1*% of total stock CO_2 emissions.

10.2. Detailed description

10.2.1 Table 10.2.1 shows total number properties of this type, and the proportion that this represents of the total dwelling stock. It also shows total CO_2 emissions of this type and the percentage of total stock CO_2 emissions.

Table 10.2.1 Total number of 1965-1980 mid terrace and total CO_2 emissions

	Frequency	Percent (%)	Total CO2 current emissions (tonnes/yr)	% of total stock emissions
1965-1980, mid terrace	810,000	3.1	3,620,000	2.1

10.2.2 The predominant wall types of this type of dwelling are shown in Table 10.2.2 below.

Table 10.2.2 1965-1980 mid terrace dwelling wall types

		Frequency	Percent (%)	Cumulative Percent
1965-1980, mid terrace	Cavity uninsulated	430,000	53.1	53.1
	Cavity with insulation	280,000	33.6	86.7
	Solid uninsulated	50,000	6.6	93.4
	Others	50,000	6.6	100
	Total	810,000	100	

10.2.3 Table 10.2.3 lists the number dwellings of this type with pitched roofs; the 'Others' roof type includes mansard roofs, flat roofs and chalet roofs.

Table 10.2.3 1965-1980 mid terrace predominant roof type

		Frequency	Percent (%)	Cumulative Percent
1965-1980, mid terrace	Pitched	770,000	94.6	94.6
	Others	40,000	5.4	100
	Total	810,000	100	

10.2.4 The percentage of glazing as a proportion of total exposed wall area (including the glazing area) for this dwelling type is shown in Table 10.2.4.

Table 10.2.4 1965-1980 mid terrace glazing extent

		Frequency	Percent (%)	Cumulative Percent
1965-1980, mid terrace	0%-15%	50,000	6.1	6.1
	15%-20%	130,000	15.7	21.8
	20%-25%	170,000	21.4	43.2
	25%-30%	200,000	24.3	67.5
	30%-35%	120,000	15.2	82.7
	Over 35%	140,000	17.3	100
	Total	810,000	100	

10.2.5 The predominant type of glazing of this dwelling type is shown in Table 10.2.5.

Table 10.2.5 1965-1980 mid terrace glazing type

		Frequency	Percent (%)	Cumulative Percent
1965-1980, mid terrace	Single glazing	83,000	10.4	10.4
	Double glazing & No predominant type (0.5%)	727,000	89.6	100
	Total	810,000	100	

10.2.6 Table 10.2.6 shows the presence of bay windows in this dwelling type. Bays can be either single or multi- storey.

Table 10.2.6 1965-1980, mid terrace bays

		Frequency	Percent (%)	Cumulative Percent
1965-1980, mid terrace	No bays	780,000	96.3	96.3
	Bays	30,000	3.7	100
	Total	810,000	100	

10.2.7 The tenure breakdown of dwellings of this type is shown in Table 10.2.7.

Table 10.2.7 1965-1980 mid terrace tenure

		Frequency	Percent (%)	Cumulative Percent
1965-1980, mid terrace	Owner Occupied	500,000	61.5	61.5
	Local Authority	160,000	20.0	81.5
	Housing Association(RSL)	80,000	10.0	91.5
	Private Rented	70,000	8.5	100
	Total	810,000	100	

10.2.8 Mean and median floor area and the interquartile range (IQR) of this dwelling type is shown below in Table 10.2.8. 50% of this type of dwelling has a floor area between 71sqm and 88sqm.

Table 10.2.8 1965-1980 mid terrace mean, median usable floor area and IQR

			Useable floor area (sqm)
1965-1980, mid terrace	Mean		81.2
	Median		79.6
	Percentiles	25	70.7
		50	79.6
		75	88.0

10.2.9 Mean and median external wall area and interquartile range (IQR) of this dwelling type are listed in Table 10.2.9. 50% of this type of dwelling has a wall area between 40sqm and 64sqm.

Table 10.2.9 1965-1980 mid terrace mean, median external exposed wall area and IQR

			Total unattached dwelling wall area {exc. windows/doors and parts adjacent to heated spaces} (m2)
1965-1980, mid terrace	Mean		54.9
	Median		50.8
	Percentiles	25	40.1
		50	50.8
		75	64.4

10.2.10 Mean and median roof area and interquartile range (IQR) of this dwelling type is shown in Table 10.2.10. 50% of this type of dwelling have a roof area ranged from 37sqm and 49sqm.

Table 10.2.10 1965-1980 mid terrace mean, median roof area and IQR

			Total dwelling roof area
1965-1980, mid terrace	Mean		48.3
	Median		42.2
	Percentiles	25	37.3
		50	42.2
		75	49.2

10.2.11 Table 10.2.11 shows the range of existing loft insulation thicknesses in this dwelling type.

Table 10.2.11 1965-1980 mid terrace thickness of loft insulation

		Frequency	Percent (%)	Cumulative Percent
1965-1980, mid terrace	None or no loft	20,000	2.4	2.4
	less than 50mm	40,000	5.5	7.9
	50 up to 99mm	240,000	29.1	37.0
	100 up to 149mm	260,000	32.4	69.4
	150 up to 199mm	100,000	12.3	81.7
	200mm or more	150,000	18.3	100
	Total	810,000	100	

10.2.12 Table 10.2.12 shows the proportion of this dwelling type with an 'additional part'. An 'additional part' is any part of the dwelling which 'sticks out' from the usual rectangular dwelling shape. This part is often at the rear of the property and can be an extension or an 'as built' part. Approximately 27% of the dwellings of this type have additional parts.

Table 10.2.12 Presence of additional parts in 1965-1980 mid terrace

		Frequency	Percent (%)	Cumulative Percent
1965-1980, mid terrace	No additional parts	620,000	72.7	72.7
	Additional parts	190,000	27.3	100
	Total	810,000	100	

10.2.13 Table 10.2.13 shows the proportion of this dwelling type with a predominantly 'masonry pointing' wall finish.

Table 10.2.13 Predominant wall finish in 1965-1980 mid terrace

		Frequency	Percent (%)	Cumulative Percent
1965-1980, mid terrace	Masonry pointing	450,000	55.6	55.6
	non masonry pointing	360,000	44.4	100
	Total	810,000	100	

10.2.14 Table 10.2.14 shows the type of households living in this dwelling type (grossed by household).

Table 10.2.14 1965-1980 mid terrace household composition

		Frequency	Percent (%)	Cumulative Percent
1965-1980, mid terrace	couple, child(ren)	190,000	23.4	23.4
	couple, no child(ren) under 60	130,000	17.2	40.6
	couple, no child(ren) aged 60 or over	120,000	15.6	56.2
	lone parent with child(ren)	100,000	12.7	68.9
	one person under 60	60,000	8.2	77.1
	one person aged 60 or over	90,000	11.8	88.9
	other multi-person household	80,000	11.1	100
	Total	770,000	100	

10.2.15 Table 10.2.15 shows the age of the Household Reference Person in these types of dwelling (grossed by household).

Table 10.2.15 1965-1980 mid terrace Household Reference Person age range

		Frequency	Percent (%)	Cumulative Percent
1965-1980, mid terrace	16 - 34	140,000	18.0	18.0
	35 - 44	170,000	22.4	40.3
	45 - 54	150,000	19.2	59.6
	55 - 64	160,000	20.5	80.1
	65 or over	150,000	19.9	100
	Total	770,000	100	

10.2.16 Table 10.2.16 shows the weekly net household income of households in this dwelling type (grossed by household).

Table 10.2.16 1965-1980 mid terrace weekly net household income - all households				
		Frequency	Percent	Cumulative Percent
1965-1980, mid terrace	< £199.99 p.w.	170,000	22.4	22.4
	£200 -299.99 p.w.	150,000	19.8	42.3
	£300 -399.99 p.w.	120,000	15.9	58.1
	>£400 p.w.	310,000	39.1	97.3
	Unknown	20,000	2.7	100
	Total	770,000	100	

10.2.17 Table 10.2.17 shows the vulnerable type of households living in this dwelling type (grossed by household). Vulnerable household is a household in receipt of a least one of principal means tested or disability related benefits.

Table 10.2.17 1965-1980 mid terrace vulnerable household (in receipt of means tested or disability related benefits)				
		Frequency	Percent (%)	Cumulative Percent
1965-1980, mid terrace	Not vulnerable	500,000	64.7	64.7
	Vulnerable	270,000	35.3	100
	Total	770,000	100	

10.3. Potential for basic thermal efficiency improvements

For this dwelling type, 60% can be improved by adding wall insulation; nearly 37% of the dwelling of this type can have roof insulation added to achieve better thermal performance; and at least 10% can have the existing single glazing replaced by double glazing.

	Improvement measures	Percent
1	Add wall insulation (cavity and solid wall)	59.7
2	Add roof insulation (existing insulation less or equal to 99mm thick)	37.0
3	Add double glazing (predominant glazing type not double glazed)	10.4

POST 1980, SEMI DETACHED

Rank: 11th

11.1. Background information

Approx ***800,000*** properties of this type, which is around ***3%*** of the whole stock.

50% of the properties of this type have a floor area between *64* and *91sqm*.

Total CO_2 emissions at present (under SAP assumptions)*: 3.4* million tonnes/yr CO_2, which represents *2* % of total stock CO_2 emissions.

11.2. Detailed description

11.2.1 Table 11.2.1 shows total number properties of this type, and the proportion that this represents of the total dwelling stock. It also shows total CO_2 emissions of this type and the percentage of total stock CO_2 emissions.

Table 11.2.1 Total number of post 1980 semi-detached and total CO_2 emissions

	Frequency	Percent (%)	Total CO2 current emissions (tonnes/yr)	% of total stock emissions
Post 1980, semi detached	800,000	3.1	3,420,000	2.0

11.2.2 The predominant wall types of this type of dwelling are shown in Table 11.2.2.

Table 11.2.2 post 1980 semi-detached dwelling wall types

		Frequency	Percent (%)	Cumulative Percent
Post 1980, semi detached	Cavity uninsulated	420,000	53.2	53.2
	Cavity with insulation	370,000	45.8	99.0
	Solid uninsulated (0.7%) & Others	10,000	1.0	100
	Total	800,000	100	

11.2.3 Table 11.2.3 lists the number dwellings of this type with pitched roofs; the 'Others' roof type includes mansard roofs, flat roofs and chalet roofs.

Table 11.2.3 post 1980 semi-detached predominant roof type

		Frequency	Percent (%)	Cumulative Percent
Post 1980, semi detached	Pitched	770,000	96.9	96.9
	Others	30,000	3.1	100
	Total	800,000	100	

11.2.4 The percentage of glazing as a proportion of total exposed wall area (including the glazing area) for this dwelling type is shown in Table 11.2.4.

Table 11.2.4 post 1980 semi-detached glazing extent

		Frequency	Percent (%)	Cumulative Percent
Post 1980, semi detached	0%-15%	270,000	34.1	34.1
	15%-20%	300,000	37.5	71.6
	20%-25%	180,000	22.7	94.3
	Over 25%	50,000	5.7	100
	Total	800,000	100	

11.2.5 The predominant type of glazing of this dwelling type is shown in Table 11.2.5.

Table 11.2.5 Post 1980 semi-detached glazing types

		Frequency	Percent (%)	Cumulative Percent
Post 1980, semi detached	Single glazing	40,000	5.2	5.2
	Double glazing & No predominant type (0.3%)	760,000	94.7	99.7
	Total	800,000	100	

11.2.6 Table 11.2.6 shows the presence of bay windows in this dwelling type. Bays can be either single or multi- storey.

Table 11.2.6 Post 1980, semi detached bays

		Frequency	Percent (%)	Cumulative Percent
Post 1980, semi detached	No bays	740,000	92.5	92.5
	Bays	60,000	7.5	100
	Total	800,000	100	

11.2.7 The tenure breakdown of dwellings of this type is shown in Table 11.2.7.

Table 11.2.7Post 1980 semi-detached tenure

		Frequency	Percent (%)	Cumulative Percent
Post 1980, semi detached	Owner Occupied	580,000	71.7	71.7
	Local Authority	20,000	3.2	74.8
	Housing Association (RSL)	120,000	14.7	89.6
	Private Rented	80,000	10.4	100
	Total	800,000	100	

11.2.8 Mean and median floor area and the interquartile range (IQR) of this dwelling type is shown below in Table 11.2.8. 50% of this type of dwelling has floor areas between 64sqm and 91sqm.

Table 11.2.8 Post 1980 semi-detached mean, median usable floor area and IQR

			Useable floor area (sqm)
Post 1980, semi detached	Mean		80.8
	Median		73.4
	Percentiles	25	64.2
		50	73.4
		75	91.4

11.2.9 Mean and median external wall area and interquartile range (IQR) of this dwelling type are listed in Table 11.2.9. 50% of this type of dwelling has wall areas between 82sqm and 103sqm.

Table 11.2.9 Post 1980 semi-detached mean, median external exposed wall area and IQR

			Total unattached dwelling wall area {exc. windows/doors and parts adjacent to heated spaces} (m2)
Post 1980, semi detached	Mean		94.9
	Median		91.1
	Percentiles	25	82.4
		50	91.1
		75	103.2

11.2.10 Mean and median roof area and interquartile range (IQR) of this dwelling type are shown in Table 11.2.10. 50% of this type of dwelling has roof areas ranged from 34sqm and 52sqm.

Table 11.2.10 post 1980 semi-detached mean, median roof area and IQR

			Total dwelling roof area
Post 1980, semi detached	Mean		45.6
	Median		39.4
	Percentiles	25	34.2
		50	39.4
		75	52.4

11.2.11 Table 11.2.11 shows the range of existing loft insulation thicknesses in this dwelling type.

Table 11.2.11 Post 1980, semi detached thickness of loft insulation

		Frequency	Percent (%)	Cumulative Percent
Post 1980, semi detached	No loft or less than 99mm	150,000	18.8	18.8
	100 up to 149mm	270,000	33.6	52.3
	150 up to 199mm	160,000	20.4	72.7
	200mm or more	220,000	27.3	100
	Total	800,000	100	

11.2.12 Table 11.2.12 shows the proportion of this dwelling type with an 'additional part'. An 'additional part' is any part of the dwelling which 'sticks out' from the usual rectangular dwelling shape. This part is often at the rear of the property and can be an extension or an 'as built' part. Almost 30% of the dwellings of this type have additional parts.

Table 11.2.12 Presence of additional parts in post 1980 semi-detached

		Frequency	Percent (%)	Cumulative Percent
Post 1980, semi detached	No additional parts	580,000	70.1	70.1
	Additional parts	220,000	29.9	100
	Total	800,000	100	

11.2.13 Table 11.2.13 shows the proportion of this dwelling type with a predominantly 'masonry pointing' wall finish.

Table 11.2.13 Predominant wall finish in post 1980 semi-detached

		Frequency	Percent (%)	Cumulative Percent
Post 1980, semi detached	Masonry pointing	570,000	71.1	71.1
	non masonry pointing	230,000	28.9	100
	Total	800,000	100	

11.2.14 Table 11.2.14 shows the type of households living in this dwelling type (grossed by household).

Table 11.2.14 Household composition of post 1980 semi-detached

		Frequency	Percent (%)	Cumulative Percent
Post 1980, semi detached	couple, child(ren)	240,000	30.9	30.9
	couple, no child(ren) under 60	170,000	22.1	53.1
	couple, no child(ren) aged 60 or over	60,000	8.2	61.2
	lone parent with child(ren)	90,000	11.8	73.1
	one person under 60	100,000	13.0	86.1
	one person aged 60 or over	50,000	7.1	93.1
	other multi-person household	50,000	6.9	100
	Total	760,000	100	

11.2.15 Table 11.2.15 shows the age of the Household Reference Person in these types of dwelling (grossed by household).

Table 11.2.15 Household Reference Person age range of post 1980 semi-detached

		Frequency	Percent (%)	Cumulative Percent
Post 1980, semi detached	16 - 24	20,000	3.0	3.0
	25 - 34	190,000	25.0	28.0
	35 - 44	220,000	28.5	56.5
	45 - 54	150,000	19.9	76.4
	55 - 64	90,000	11.4	87.8
	65 or over	90,000	12.2	100
	Total	760,000	100	

11.2.16 Table 11.2.16 shows the weekly net household income of households in this dwelling type (grossed by household).

Table 11.2.16 Weekly net household income - all households of post 1980 semi-detached				
		Frequency	Percent (%)	Cumulative Percent
Post 1980, semi detached	< £100 p.w.	10,000	1.4	1.4
	£100 -199.99 p.w.	80,000	11.0	12.3
	£200 -299.99 p.w.	120,000	15.5	27.9
	£300 -399.99 p.w.	120,000	15.4	43.2
	>£400 p.w.	410,000	53.1	96.3
	Unknown	30,000	3.7	100
	Total	760,000	100	

11.2.17 Table 11.2.17 shows the vulnerable type of households living in this dwelling type (grossed by household). Vulnerable household is a household in receipt of a least one of principal means tested or disability related benefits.

Table 11.2.17 Vulnerable household (in receipt of means tested or disability related benefits) of post 1980 semi-detached				
		Frequency	Percent (%)	Cumulative Percent
Post 1980, semi detached	Not vulnerable	560,000	74.1	74.1
	Vulnerable	200,000	25.9	100
	Total	760,000	100	

11.3. Potential for basic thermal efficiency improvements

For this dwelling type, 54% can be improved by adding wall insulation; nearly 19% of the dwelling of this type can have roof insulation added to achieve better thermal performance; and at least 5% can have the existing single glazing replaced by double glazing.

	Improvement measures	Percent (%)
1	Add wall insulation (cavity and solid wall)	53.9
2	Add roof insulation (existing insulation less or equal to 99mm thick)	18.8
3	Add double glazing (predominant glazing type not double glazed)	5.2

1965-1980, BUNGALOW

Rank: 12th

12.1. Background information

Approx ***780,000*** properties of this type, which is around ***3%*** of the whole stock.

50% of the properties of this type have a floor area between *55* and *90sqm*.

Total CO_2 emissions at present (under SAP assumptions)*: 4.9* million tonnes/yr CO_2, which represents *2.9* % of total stock CO_2 emissions.

12.2. Detailed description

12.2.1 Table 11.2.1 shows total number properties of this type, and the proportion that this represents of the total dwelling stock. It also shows total CO_2 emissions of this type and the percentage of total stock CO_2 emissions.

Table 12.2.1 Total number of post 1980 semi-detached and total CO_2 emissions

	Frequency	Percent (%)	Total CO2 current emissions (tonnes/yr)	% of total stock emissions
1965-1980, bungalow	780,000	3.0	4,880,000	2.9

12.2.2 The predominant wall types of this type of dwelling are shown in Table 12.2.2.

Table 12.2.2 post 1980 semi-detached dwelling wall types

		Frequency	Percent (%)	Cumulative Percent
1965-1980, bungalow	Cavity uninsulated	310,000	39.4	39.4
	Cavity with insulation	440,000	56.6	96.1
	Solid uninsulated (1.7%) & Others	30,000	3.9	100
	Total	780,000	100	

12.2.3 Table 12.2.3 lists the number dwellings of this type with pitched roofs; the 'Others' roof type includes mansard roofs, flat roofs and chalet roofs.

Table 12.2.3 post 1980 semi-detached predominant roof type

		Frequency	Percent (%)	Cumulative Percent
1965-1980, bungalow	Pitched roof	760,000	99.1	99.1
	Other type roof	20,000	0.9	100
	Total	780,000	100	

12.2.4 The percentage of glazing as a proportion of total exposed wall area (including the glazing area) for this dwelling type is shown in Table 12.2.4.

Table 12.2.4 post 1980 semi-detached glazing extent

		Frequency	Percent (%)	Cumulative Percent
Post 1980, semi detached	0%-15%	110,000	13.9	13.9
	15%-20%	270,000	33.9	47.7
	20%-25%	210,000	27.1	74.8
	25%-30%	120,000	15.4	90.2
	30%-35%	50,000	6.2	96.4
	Over 35%	30,000	3.6	100
	Total	780,000	100	

12.2.5 The predominant type of glazing of this dwelling type is shown in Table 12.2.5.

Table 12.2.5 Post 1980 semi-detached glazing types

		Frequency	Percent (%)	Cumulative Percent
Post 1980, semi detached	Single glazing	70,000	8.3	8.3
	Double glazing	700,000	89.9	98.2
	No predominant type	10,000	1.8	100
	Total	780,000	100	

12.2.6 Table 12.2.6 shows the presence of bay windows in this dwelling type. Bays can be either single or multi- storey.

Table 12.2.6 Post 1980, semi detached bays

		Frequency	Percent (%)	Cumulative Percent
Post 1980, semi detached	No bays	750,000	96.2	96.2
	Bays	30,000	3.8	100
	Total	780,000	100	

12.2.7 The tenure breakdown of dwellings of this type is shown in Table 12.2.7.

Table 12.2.7Post 1980 semi-detached tenure

		Frequency	Percent (%)	Cumulative Percent
Post 1980, semi detached	Owner Occupied	580,000	73.9	73.9
	Local Authority	100,000	13.2	87.1
	Housing Association (RSL)	60,000	7.9	95.1
	Private Rented	40,000	4.9	100
	Total	780,000	100	

12.2.8 Mean and median floor area and the interquartile range (IQR) of this dwelling type are shown below in Table 12.2.8. 50% of this type of dwelling has floor areas between 55sqm and 90sqm.

Table 12.2.8 Post 1980 semi-detached mean, median usable floor area and IQR

			Useable floor area (sqm)
Post 1980, semi detached	Mean		76.7
	Median		69.1
	Percentiles	25	54.5
		50	69.1
		75	90.4

12.2.9 Mean and median external wall area and interquartile range (IQR) of this dwelling type are listed in Table 12.2.9. 50% of this type of dwelling has wall areas between 56sqm and 105sqm.

Table 12.2.9 Post 1980 semi-detached mean, median external exposed wall area and IQR

			Total unattached dwelling wall area {exc. windows/doors and parts adjacent to heated spaces} (m2)
Post 1980, semi detached	Mean		83.6
	Median		81.7
	Percentiles	25	56.2
		50	81.7
		75	105.2

12.2.10 Mean and median roof area and interquartile range (IQR) of this dwelling type are shown in Table 12.2.10. 50% of this type of dwelling has roof areas ranged from 58sqm and 100sqm.

Table 12.2.10 post 1980 semi-detached mean, median roof area and IQR

			Total dwelling roof area
Post 1980, semi detached	Mean		87.3
	Median		75.0
	Percentiles	25	58.2
		50	75.0
		75	100.2

12.2.11 Table 12.2.11 shows the range of existing loft insulation thicknesses in this dwelling type.

Table 12.2.11 Post 1980, semi detached thickness of loft insulation

		Frequency	Percent (%)	Cumulative Percent
1965-1980, bungalow	None or less than 50mm	40,000	5.8	5.8
	50 up to 99mm	160,000	20.3	26.1
	100 up to 149mm	250,000	31.4	57.5
	150 up to 199mm	110,000	14.2	71.7
	200mm or more	220,000	28.3	100
	Total	780,000	100	

12.2.12 Table 12.2.12 shows the proportion of this dwelling type with an ‘additional part’. An ‘additional part’ is any part of the dwelling which ‘sticks out’ from the usual rectangular dwelling shape. This part is often at the rear of the property and can be an extension or an ‘as built’ part. Over 29% of the dwellings of this type have additional parts.

Table 12.2.12 Presence of additional parts in post 1980 semi-detached

		Frequency	Percent (%)	Cumulative Percent
Post 1980, semi detached	No additional parts	470,000	57.8	57.8
	Additional parts	310,000	42.2	100
	Total	780,000	100	

12.2.13 Table 12.2.13 shows the proportion of this dwelling type with a predominantly 'masonry pointing' wall finish.

Table 12.2.13 Predominant wall finish in post 1980 semi-detached				
		Frequency	Percent (%)	Cumulative Percent
Post 1980, semi detached	masonry pointing	560,000	72.1	72.1
	others	220,000	27.9	100
	Total	780,000	100	

12.2.14 Table 12.2.14 shows the type of households living in this dwelling type (grossed by household).

Table 12.2.14 Household composition of post 1980 semi-detached				
		Frequency	Percent (%)	Cumulative Percent
Post 1980, semi detached	couple, child(ren)	30,000	3.9	3.9
	couple, no child(ren) under 60	100,000	13.2	17.1
	couple, no child(ren) aged 60 or over	270,000	36.7	53.8
	lone parent with child(ren)	10,000	1.2	55.0
	one person under 60	50,000	7.2	62.3
	one person aged 60 or over	250,000	33.7	95.9
	other multi-person household	30,000	4.1	100
	Total	740,000	100	

11.2.15 Table 12.2.15 shows the age of the Household Reference Person in these types of dwelling (grossed by household).

Table 12.2.15 Household Reference Person age range of post 1980 semi-detached				
		Frequency	Percent (%)	Cumulative Percent
Post 1980, semi detached	16 - 34	10,000	1.5	1.5
	35 - 44	40,000	5.5	6.9
	45 - 54	90,000	11.5	18.4
	55 - 64	160,000	22.2	40.7
	65 or over	440,000	59.3	100
	Total	740,000	100	

12.2.16 Table 12.2.16 shows the weekly net household income of households in this dwelling type (grossed by household).

Table 12.2.16 Weekly net household income - all households of post 1980 semi-detached				
		Frequency	Percent (%)	Cumulative Percent
1965-1980, bungalow	< £100 p.w.	10,000	1.0	1.0
	£100 -199.99 p.w.	200,000	26.9	27.9
	£200 -299.99 p.w.	180,000	24.0	51.9
	£300 -399.99 p.w.	130,000	17.7	69.6
	>£400 p.w.	220,000	30.4	100
	Total	740,000	100	

12.2.17 Table 12.2.17 shows the vulnerable type of households living in this dwelling type (grossed by household). Vulnerable household is a household in receipt of a least one of principal means tested or disability related benefits.

Table 12.2.17 Vulnerable household (in receipt of means tested or disability related benefits) of post 1980 semi-detached

		Frequency	Percent (%)	Cumulative Percent
Post 1980, semi detached	Not vulnerable	460,000	62.2	62.2
	Vulnerable	280,000	37.8	100
	Total	740,000	100	

12.3. Potential for basic thermal efficiency improvements

For this dwelling type, 41% can be improved by adding wall insulation; nearly 26% of the dwelling of this type can have roof insulation added to achieve better thermal performance; and at least 8% can have the existing single glazing replaced by double glazing.

	Improvement measures	**Percent (%)**
1	Add wall insulation (cavity and solid wall)	41.1
2	Add roof insulation (existing insulation less or equal to 99mm thick)	26.1
3	Add double glazing (predominant glazing type not double glazed)	8.3