Contents

1 Introduction

Background

1.1 Private sector housing strategy and policy in recent years has seen continual advancement and revision. The Housing Grants, Construction and Regeneration Act 1996 and the accompanying DOE Circular Private Sector Renewal: A Strategic Approach were the cornerstone of how policy and action for private sector housing should be laid out. Furthermore, the Home Energy Conservation Act 1995 required local authorities to develop a strategy for energy conservation for the following 10 years.

1.2 More recently with the introduction of "best value" the local authority is obliged to collect information on specific aspects of private sector housing. There is also a new requirement to take action on fuel poverty as part of the local authority energy strategy. For the future, there is a need to consider the likely impact of the introduction of the Housing Health and Safety Rating which is due to replace the existing housing fitness standard within the next few years.

1.3 The circular advises local authorities to develop effective housing strategies. Amongst many other provisions, this circular severed the link between the fitness standard for housing and mandatory grant eligibility. It has been replaced by a discretionary approach to grant allocation, which means authorities must be clear about their aims when determining objectives and targets for dealing with identified private sector housing need and conditions.

1.4 The circular emphasises that information on the condition of the stock is essential for the development of effective private sector renewal strategies. It can be a basis for determining:

- The nature and extent of problems in the private sector stock
- The levels of investment required to tackle them
- Priorities for action, and
- The effectiveness of decisions already taken and the expenditure already committed

The Regulatory Reform Order

1.5 It seems likely that within the next two months the Regulatory Reform Order will be passed. This measure will alter the way in which Local Authorities will have to deal with private sector housing. It will, in future, be the responsibility of the Authority to determine how private sector housing will be dealt with and how any works or improvements will be funded.

1.6 All Authorities will be expected to have produced a strategy and policy statement within 12 months of the order being passed. Without such a strategy no works (except DFGs) will be able to go ahead.

1.7 The strategy statement will, however, be able to be as flexible as the Authority wishes and specifically cover those areas of greatest priority for the Authority. Future funding is expected to rely more heavily on partnerships with private establishments to offer loans to homeowners and landlords rather than grants. It will be up to the Authority to investigate what schemes are possible and which it chooses to use.

DTLR Guidance on house condition surveys

1.8 The publication of comprehensive guidance on local authority house condition surveys, which dates from 1993, includes a methodology that comprises a detailed form in a modular format and what is close to a step-by-step guide to implementing a survey (Local House Condition Survey Guidance Manual 1993 DOE).

1.9 The Building Research Establishments BRELASS software was developed in order to provide an effective tool for the analysis of condition and energy efficiency data in line with the DETR's guidance on house condition surveys, and has been used to analyse the data from this survey.

1.10 The 1993 guidance was update in 2000 and under the new guidance local authorities are encourage to make full use of the data gathered from house condition surveys in conjunction with data from other sources. Also included is guidance on the Housing Health and Safety Rating.

Home Energy Conservation Act 1995

1.11 The Home Energy Conservation Act 1995 requires local authorities to develop a strategy for energy conservation. An important, prerequisite to developing a strategy is the existence of suitable methods of measuring energy efficiency.

1.12 In the early 1990s the Government introduced it own method of rating the energy efficiency of a domestic dwelling, the Standard Assessment Procedure. This is a rating on a scale from 1-100: the higher the number, the better the standard. A SAP rating has been calculated for every dwelling in the survey where access was achieved.

1.13 More recently the local authority has been issued with guidance asking them to report to the DTLR on their policies, strategies and achievements in attacking fuel poverty as part of their annual progress report. The survey includes a specific measure of fuel poverty to allow this reporting to take place.

The survey method

1.14 The survey used a stratified random sample of 1,455 dwellings from the Council Tax list. The sample was stratified by area, concentrating on three areas of the District: Littleport and the northern portion of the district, Ely and the central areas and an area consisting of the remaining, Southern, parts of the District. Table 1.1 below gives a breakdown of the sample.

Table 1.1 Sample stratification groups

Sample Groups	Totals
Littleport and north-district	485
Ely and mid-district	485
South-district	485

1.15 The sample sizes were selected in order to ensure that at an access rate of 55%, a total of 800 full inspections would be achieved.

1.16 All stock belonging to East Cambridgeshire District Council has been transferred to the private sector. The survey, therefore, incorporates the entire stock, included Registered Social Landlords (Housing Association) properties.

1.17 Each dwelling selected for survey was visited a minimum of three times and, where access failed basic dwelling information was gathered including a simple assessment of condition. To ensure the sample was not subject to a non-response bias, the condition of the dwellings where access was not achieved was systematically compared to those where the surveyors were successful. Where access was achieved, a full internal inspection was carried out including a detailed energy efficiency survey. In addition to this, where occupied, an interview survey was undertaken. More detailed information on the sampling methods and the methodology for dealing with non-response is given in Appendix A.

1.18 The basic unit of survey was the 'single self contained dwelling'. This could comprise a single self-contained house or a self contained flat. Where more than one flat was present the external part of the building, encompassing the flat and any access-ways serving the flat were also inspected.

1.19 The house condition survey form is based on the survey schedule published by the DOE in the 1993 guidelines (Local House Condition Surveys 1993 HMSO ISBN 0 11 752830 7). A copy of the form is included in Appendix B.

1.20 The data was weighted using the MetaSurvey Reports software. Two approaches to weighting the data have been used.

1.21 The first method is used for data such as building age, which has been gathered for all dwellings visited. In this case the weight applied to the individual dwellings is very simple to calculate, as it is the reciprocal of the sample fraction. Thus if 1 in 10 dwellings were selected the sample fraction is 1/10 and the weight applied to each is 10/1.

1.22 Where information on individual data items is not always present, i.e. when access fails, then a second approach to weighting the data is taken. This approach is described in detail in Appendix A, but a short description is offered here.

1.23 The simplest approach to weighting the data to take account of access failures is to increase the weight given to the dwellings where access is achieved by a proportion corresponding to the access failures. Thus if the sample fraction were 1/10 and 10 dwellings were in a sample the weight applied to any dwelling would be 10/1 which would give a stock total of 100. However, if access were only achieved in 5 dwellings the weight applied is the original 10/1 multiplied by the compensating factor, 10/5. Therefore 10/1 x 10/5 = 20. As there are only 5 dwellings with information the weight, when applied to five dwellings, still yields the same stock total of 100. The five dwellings with no data are ignored.

1.24 With an access rate of 55% there may be concern that the results will not be truly representative and that weighting the data in this manner might produce unreliable results. There is no evidence to suggest that the access rate has introduced any bias. When externally gathered information (which is present for all dwellings) is examined the stock that was inspected internally is present in similar proportions to those where access was not achieved suggesting no serious bias will have been introduced.

1.25 The use of a sample survey to draw conclusions about the stock of the two areas as a whole introduces some uncertainty. Each figure produced is subject to sampling error, which means the true result will lie between two values, e.g. 5% and 6%. For ease of reading, the data are presented as single figures rather than as ranges. A full explanation of these confidence limits is included in Appendix A.

Rounding of results

1.26 Throughout the report all percentages are reported to the nearest 1%, all dwelling numbers less than 1,000 are rounded to the nearest 10 and all dwelling numbers greater than 1,000 are rounded to nearest 100. The percentages are calculated on the basis of the unrounded numbers and then rounded to the nearest per cent.

1.27 This report includes the main results for the survey. Abstracts of the data are presented in figures and tables throughout the text. A main table in the reports usually supports each figure in the text and these are referenced at the end of each paragraph.

National comparisons and regional comparisons

1.28 The main source for comparison of figures to the national position, used in this report, is the 1996 English House Condition Survey and this includes some data on regions and local authority groupings (EHCS).

1.29 The 1996 EHCS has many substantial changes to typologies and wherever possible this report has tried to match these. If this has not been possible because data was collected in a different manner or different data was collected this report will refer to the 1991 EHCS.

1.30 This report refers to Urgent Costs, Repair and Replacement Costs, and Comprehensive Costs. These are "Plain English" definitions taken from the EHCS and are used to allow comparisons with this important national survey. In the BRELASS database, which is the basis of the reports, the naming conventions are different for two of the categories. Repair and Replacement Costs correspond to Non-urgent costs and Comprehensive Costs to 10yr Replacement Costs.

Guide to indexed tabulations

1.31 Throughout the report reference is made, in parenthesis at the end of certain paragraphs, to tables. These tables are the system outputs from MetaSurvey Reports. These outputs are included as an appendix to the main body of the report. The references are in the form of a chapter specific title (e.g. 'Gen Table' for general characteristics) and a letter to denote the individual report.

2 Profile of the housing stock

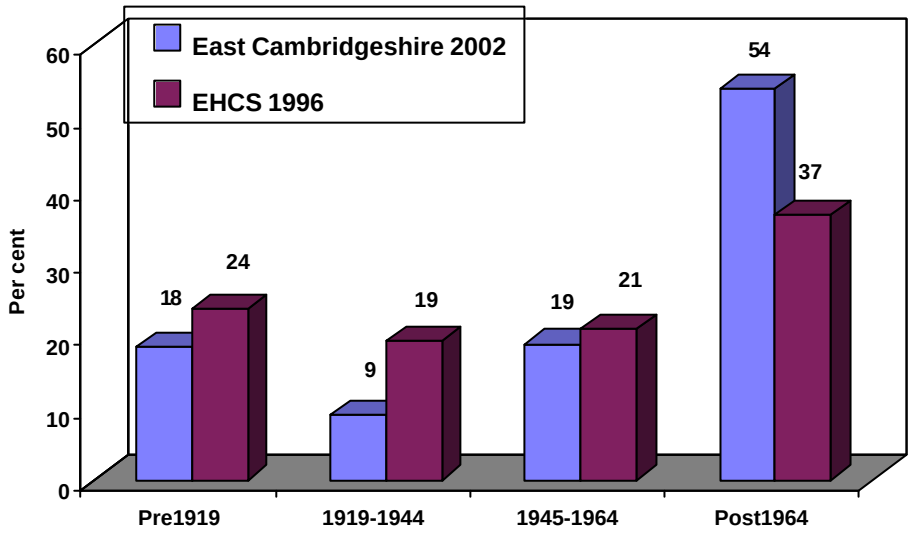
Size of the dwelling stock

2.1 In the year 2002 there are an estimated 31,100 private sector dwellings (including housing association dwellings) in the District of East Cambridgeshire (Gen Table A). The total of the private sector stock is derived from weighting the results for all dwellings surveyed. The total is lower than the original sample frame as it takes into account properties that are ineligible as they are non-residential, or where dwellings have been demolished or converted to other uses. Details of this estimate are contained in appendix A.

Age of the dwelling stock

2.2 The age profile of the stock for East Cambridgeshire is considerably more modern than the national profile, with a smaller proportion of the stock built before 1919 and a significantly larger post-1964 stock. The stock profiles are illustrated in Figure 2.1.

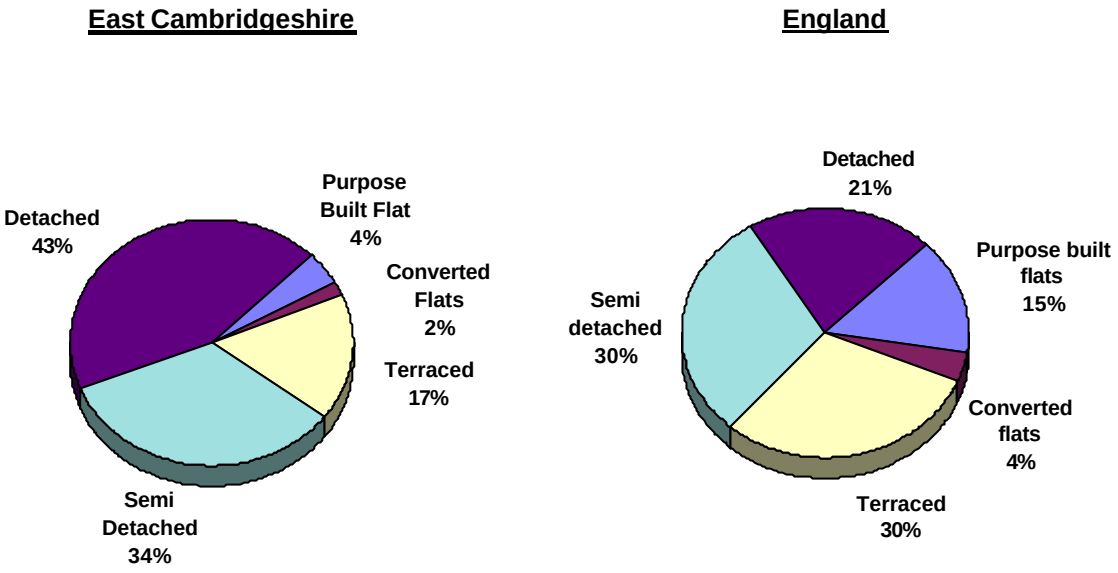
Figure 2.1 Dwelling age profile national and local



Dwelling type profile

2.3 Detached houses dominate building type in East Cambridgeshire, with 13,500 (44%) dwellings being of this type. Semi-detached houses are also present at a higher rate, 34% compared to 30% nationally. There are correspondingly smaller proportions of terraced houses and purpose built flats, and particularly few converted flats, less than 2% compared to 4% nationally (N.B. under this typology flats associated with non-residential properties are grouped in with converted flats) (Gen Table B).

Figure 2.2 Dwelling type profile national and local



Tenure

2.4 Approximately 3% (1,000) of dwellings do not fall into the main three tenures: owner-occupied, privately rented and housing association. This 3% represents other types of private dwelling such as caretaker's accommodation or job related residences. This is an unusually high proportion of 'other' tenure types, but may reflect the rural nature of the district. The remaining 30,100 dwellings fall into the three main categories and are examined below (Gen Table C).

2.5 Table 2.1 gives comparative percentages of private stock, within each tenure, first for East Cambridgeshire and then England as a whole.

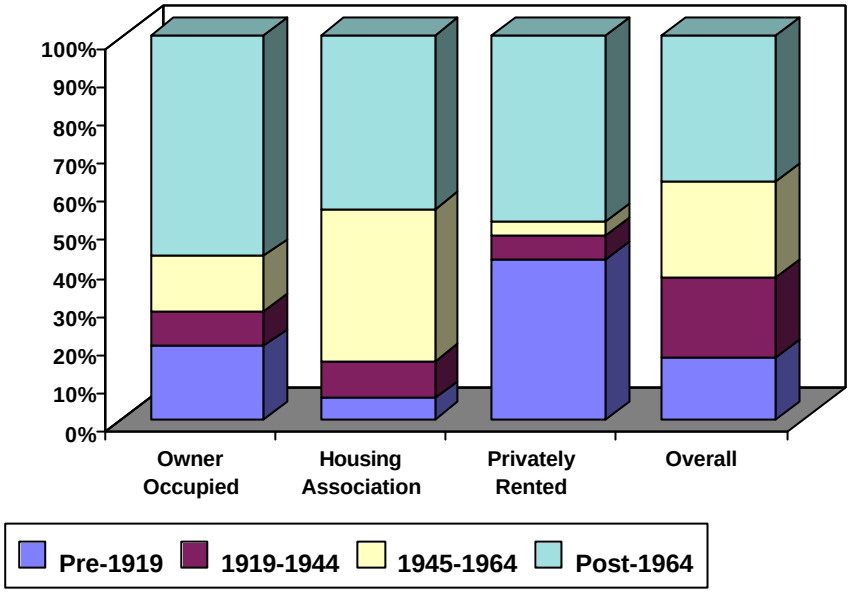
Table 2.1 National (1996 EHCS) and local tenure proportions (private sector)

	East Cambridgeshire 2002		England 1996
Owner occupied	22,100	71%	83%
Housing association	5,800	19%	5%
Privately rented	2,200	7%	11%
Other	1,000	3%	-

Tenure and age comparisons

2.6 Figure 2.3 illustrates the differing dwelling age profile between the main tenures (Gen Table D).

Figure 2.3 Tenure by date of construction



2.7 The Owner Occupied stock, at 71%, strongly influences most aspects of the survey. The transfer of stock to RSLs, however, does mean that this tenure also has some influence on overall stock condition.

2.8 Unusually the owner-occupied stock has the most modern profile with 58% of dwellings being built after 1964. The transfer of stock to RSLs is likely to be the main reason that this tenure does not exhibit the highest proportion of modern stock, as would normally be the case. The traditional position of the private rented sector having the oldest stock is maintained with 41% of this tenure dating from before 1919 compare to only 18% overall. Unusually, however, the privately rented sector shows a bi-polar distribution with 49% of its stock being post-1964, leaving very few inter-war and immediate post-war dwellings for this tenure (Gen Table D).

2.9 Overall, the distribution of age and tenure of the stock in East Cambridgeshire is quite unusual and does not lead to any clear expectations for the condition of the stock.

Vacant dwellings

2.10 In East Cambridgeshire, at the time of the survey, there were a total of 820 (3%) dwellings estimated to be vacant, this compares to 4% nationally (Gen Table E).

2.11 At this stage it is worth pointing out that house condition surveys are recognized not to be the best source of data for estimating vacancy totals. By there very nature they are a random sample and the emphasis on gaining access to properties. Vacant dwellings are necessarily difficult to identify or survey given such a methodology. The figures here should, therefore, be treated as merely an indicator of whether significant problems exist.

2.12 East Cambridgeshire District Council's own monitoring of vacant dwellings suggests that there are 290 genuinely vacant properties and 230 of these have been vacant for more than 6 months. The figures below show 360 dwellings with the same categorization as the 290 from the Council. Given that the survey is based on estimates from a sample, there is little significant difference between these figures.

2.13 The reasons for vacancy are given in Table 3.1 below with the corresponding national figures (Gen Table F). The national figures are drawn from the 1991 EHCS, as the 1996 survey does not collect this information. The 1996 EHCS does however state that 56% of vacant dwellings nationally are "problematic", i.e. in need of work before they can be reused.

Table 2.2 Vacant dwellings by reason for vacancy

Vacant status	East Cambridshire 2002		England (1991)
Vacant: awaiting sale	50	6%	39%
Vacant being modernised	140	17%	14%
Newly vacant	240	29%	18%
Mid-term vacant (1 - 6 months)	220	28%	14%
Long term vacant (more than 6 months)	140	17%	15%
Unlicensed occupation*	30	4%	-
Total	**820**	**100%**	**100%**

Unlicensed occupation includes groups such as squatters

2.14 Vacant dwellings in the first three categories are of less concern, as they are associated with periodic changes in occupancy, which are part of normal turnover in the housing stock. Of greater importance are dwellings thought to have been vacant for more than 6 months. The results for the long-term vacants are higher than the national position; however, the sample is so small that this cannot be regarded as a significant finding (Gen Table F).

General Characteristics by area

2.15 The survey allows for the comparison of three different sub areas as described in the introduction. The total stock within each area is given below:

Table 2.3 Dwelling totals by area

Area	Dwellings
Littleport and north-district	7,200
Ely and mid-district	13,600
South-district	10,300
Total	**31,100**

2.16 The areas were deliberately designed to be of different sizes in order to effectively over sample the Littleport and north-district area and under sample the Ely and mid-district area. This was done in order to gain more detail for the Littleport and North-district area where poorer conditions were anticipated.

2.17 Littleport and north-district has the oldest stock profile with 22% of its dwellings dating from before 1919 compared to 18% generally. Ely and mid-district has the most modern stock with 59% (Gen Table A).

2.18 The dwelling types most commonly associated with poor conditions are converted flats and terraced houses. There are too few converted flats to give any meaningful analysis, there are however, sufficient terraced houses and Littleport and north-district has the highest proportion 21% (2,800 dwellings). Littleport and north-district has the smallest proportion of detached and semi-detached houses, which usually have the best housing condition (Gen Table L).

2.19 The figures for tenure by area, however, point toward Littleport and north-district having better than average housing condition. This is due to the fact that this area has the highest proportion of housing association dwellings, 21% compared to 19% generally, which usually have the lowest rate of unfitness (Gen table C).

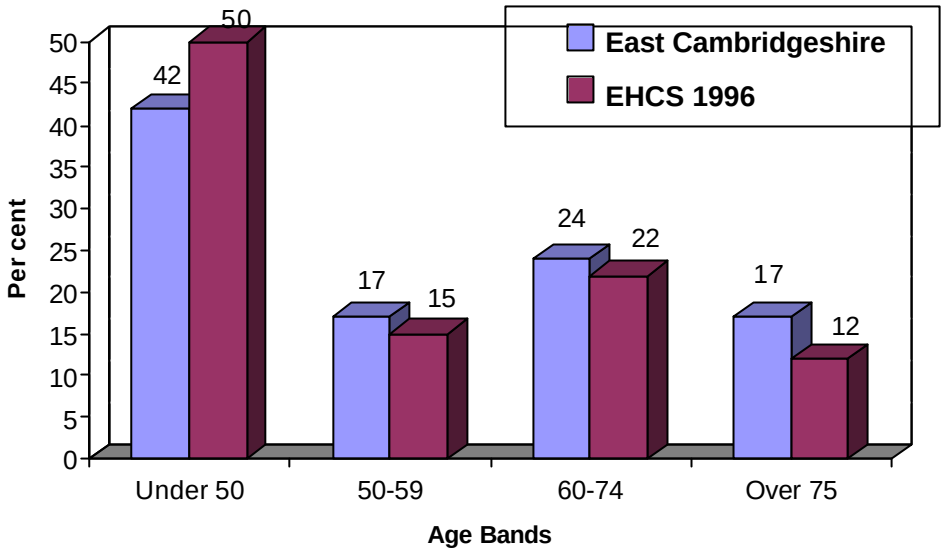
2.20 The general characteristics of dwellings across the three areas selected for survey do lend themselves to any particular expectations of poor conditions.

General characteristics of occupiers

2.21 From the social questions asked of residents it is possible to gain a general picture of the type of residents occupying the dwellings surveyed.

2.22 The age of head of household of a dwelling can have an influence on a dwelling's state of repair as well as a number of other factors. The age of head of household for dwellings in East Cambridgeshire is given in figure 2.4 below, with a comparison to the 1996 EHCS figures.

Figure 2.4 Age of head of household



2.23 The ages of head of household are slightly older than the national position with considerably more heads of household over the age of 75. From the distribution of heads of household, one would expect this to have a slight influence on housing condition with expectations of conditions being poorer than usual (Gen Table G).

2.24 Households can also be examined from the perspective of household type. Table 2.3 below gives a breakdown of the proportion of household types both nationally and for East Cambridgeshire.

Table 2.4 Household types

Household Type		East Cambridgeshire 2002		England 1996
Lone Adult	*1 Adult*	2700	9%	12%
Lone Older	*1 Aged over 65*	4800	16%	16%
Single Parent	*1 Adult and 1 or more children*	1000	3%	6%
Two Adults	*2 Adults*	12200	39%	34%
Traditional Family	*2 Adults with 1 or more children*	8200	26%	25%
Large Adult Group	*3 or more adults*	2200	7%	7%
Total		**31100**	**100%**	**100%**

2.25 The figures for household type again suggest that disrepair would not be expected. Lone older households and single parent households are usually associated with poor conditions and these groups are found at the same or lower rates than nationally.

2.26 Total annual household income will clearly have an influence on stock condition through a resident's ability to afford to carry out repairs. In East Cambridgeshire 35% of residents reported a household income of below £10,000 per annum, and a further 13% had incomes between £10,000 & £15,000 per annum (Unfit Table G). There are no figures for comparison within the EHCS, but given that the sum total of unemployed, retired, full-time student and part-time worker heads of household is below 30%; it is clear that the proportion of occupiers on low income in the survey is high.

2.27 As might be expected, benefit receipt tends to mirror low income. In The areas surveyed 20% of dwellings had a resident on an income related benefit (Unfit Table H).

2.28 A resident with a disability was reported in 6,900 (22%) dwellings, this includes the elderly and infirm, but at the national level 14% of dwellings report having a resident with a disability. Dwellings with disabled residents are more often associated with poorer housing conditions than dwellings generally. The higher proportion of older persons in the population is likely to account, to some extent, for the above average proportion of residents with a disability.

Occupiers by area

2.29 There are variations between the three areas with regard to age of head of household, for individual age bands. The overall pattern, however, does not suggest that any particular area has an especially old or young average head of household. Age of head of household is not, therefore, likely to have an impact on conditions between the three areas (Gen Table M).

2.30 There is again, no significant difference between areas with regard to income. The only exception to this is for the South-district where 19% of occupiers report a household income greater than £40,000 per annum, compared to 16% for the district as a whole (Unfit Table J).

2.31 The highest receipt of benefit by area is for the South-district and Ely mid-district areas where 22% and 21% of dwellings respectively have at least one resident receiving a means tested benefit, compared to 13% for Ely and mid-district (Unfit Table K).

Conclusion

2.32 There are some marked differences between the national age, building type and tenure profiles and those found in East Cambridgeshire. In general the stock in is more modern than the national position and has a far higher proportion of detached houses. The more modern stock is likely to reflect the transfer of local authority stock. The higher proportion of detached dwellings reflects the rural nature of the district. The majority of dwellings (71%) are owner occupied, however, this is a smaller proportion than is found nationally due to the larger housing association share created by the stock transfer. Overall the balance of building characteristics does not suggest poorer or better than average conditions would be found.

2.33 There is a higher proportion of older heads of household living in East Cambridgeshire. This is reflected in household type with fewer single parents and more traditional families and two adult (including elderly couples) households. As a consequence the proportion of residents on low incomes is greater as is those residents on benefit and the proportion of residents with a disability. The distribution of residents with regards to household characteristics would tend to lead to expectations of poorer conditions.

3 Unfit dwellings

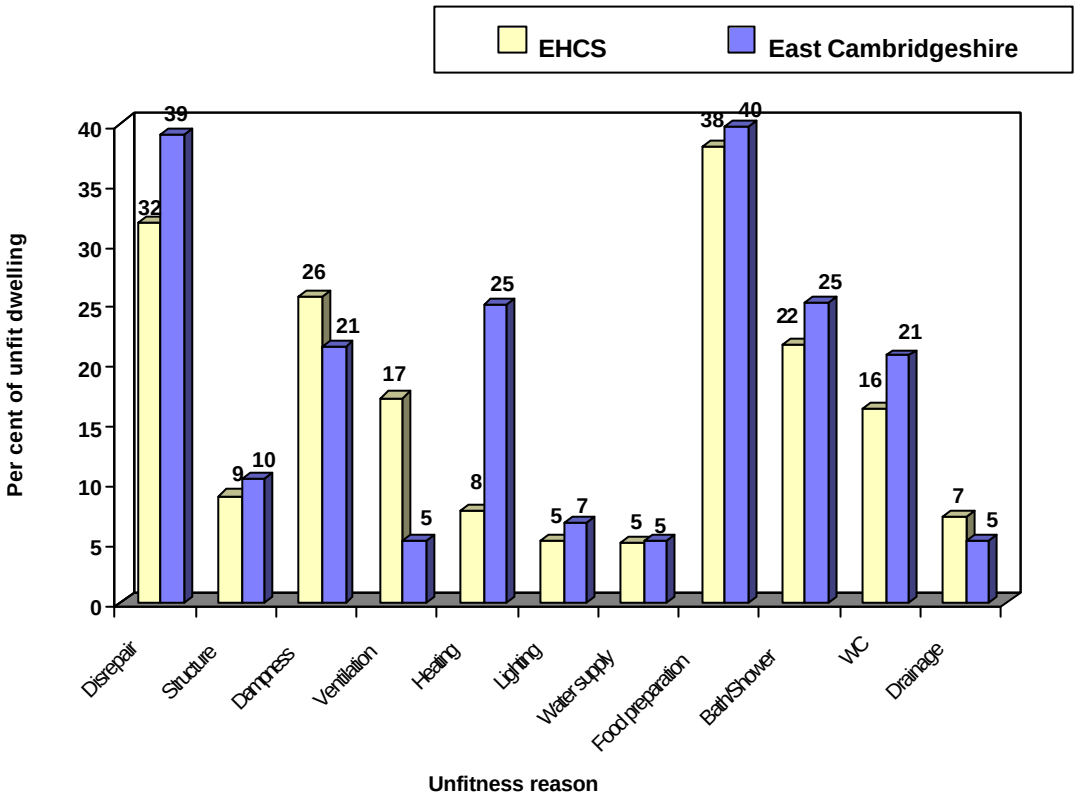
Incidence of unfit dwellings

3.1 The overall unfitness rate for East Cambridgeshire is 6%, compared to an unfitness rate of 7% nationally (1996 EHCS). This represents 1,800 unfit dwellings of which 300 (15%) are flats and 1,500 (85%) are houses (Unfit Table A).

Reasons for unfitness

3.2 The most common reasons for unfitness are failures associated with the following fitness categories: disrepair 700 (39%), food preparation 710 (40%), bath/shower 450 (25%) and heating 440 (25%) (Unfit Table B).

Figure 3.1 Unfit dwellings by reason for unfitness



3.3 At the national level failures due to food preparation and disrepair are among the highest, food preparation is found as reasons for failure at a broadly similar rate, but disrepair is at a higher rate 39% compared to 32% nationally. Dampness at 21% is lower than the national rate of 26% as is ventilation, 5% compared to 17% for England (Unfit Table B).

3.4 Nationally the least frequent causes of failure of the fitness standard are lighting, drainage and water supply, reflecting the very basic requirements for these items; this pattern is also shown in East Cambridgeshire (Unfit Table B).

Severity of unfitness

3.5 One indication of the severity of unfitness is the number of items on which a dwelling fails the fitness standard. In the East Cambridgeshire far more dwellings fail on multiple reasons for unfitness (51% compared to 36% nationally) suggesting that where dwellings are unfit, chronic unfitness is a greater problem than is usually the case (Unfit Table C).

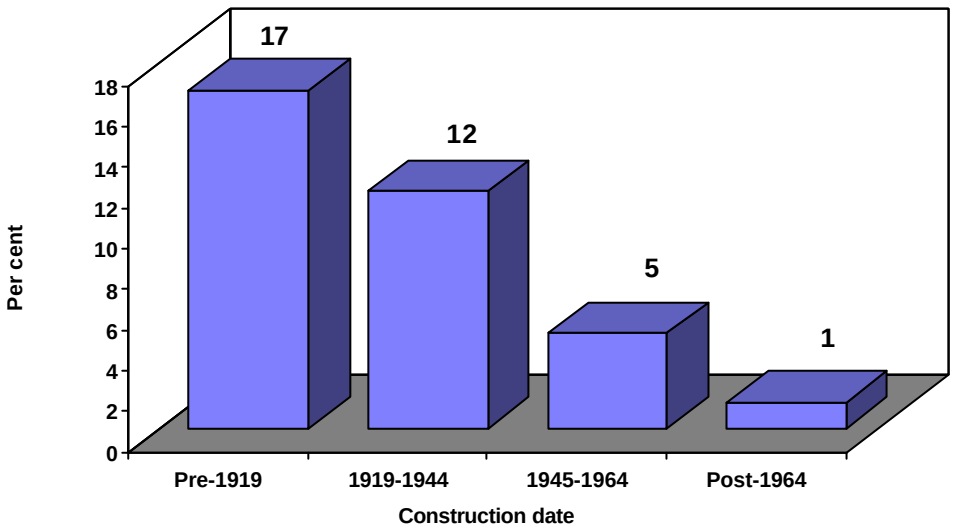
Costs of unfitness

3.6 The repair costs calculated by the system can be cumulated to give different cost types; these types are described in detail in box 4.1 at the beginning of the next chapter. The average repair and replacement cost in unfit dwellings is £8,500. The cost to make unfit dwellings just fit is £3,300 per dwelling. There is an increase in the mean cost to make fit as number of items on which a dwelling fails the test increases (Unfit Table C).

Unfit dwellings by age and type

3.7 Unfitness is usually strongly associated with age and this association exists strongly in East Cambridgeshire. The age distribution of unfit dwellings follows the national trend of increasing unfitness with age (Unfit Table D).

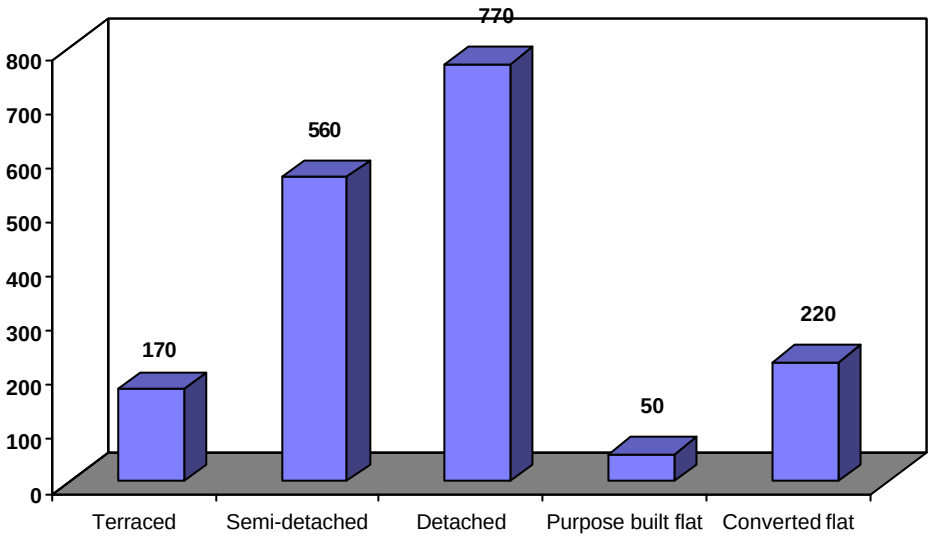
Figure 3.2 Per cent of age bands unfit



3.8 Converted flats return the highest rate of unfitness by building type at 41%; this is the same pattern as found nationally, but at a much higher rate. Detached houses have the next highest rate at 6%, followed by semi-detached houses at 5% (Unfit Table A). The trend is usually for terraced houses to have the second highest rate of unfitness behind converted flats. The rural nature of much of the dwelling stock, particularly detached houses, is likely to account for the trend found here.

3.9 Figure 3.3 illustrates unfit totals for each building type rather than unfitness rate. It illustrates very clearly how detached houses account for the biggest single total of unfit dwellings. This is due to the large number of such dwellings coupled with the average rate of unfitness. (N.B. figure 3.3 is based on the 1991 EHCS typology, which does not distinguish flats associated with commercial premises, nor does it separate mid and end terraced dwellings. It does however correspond to generally understood building type definitions, which unfortunately the 1996 EHCS does not) (Unfit Table A).

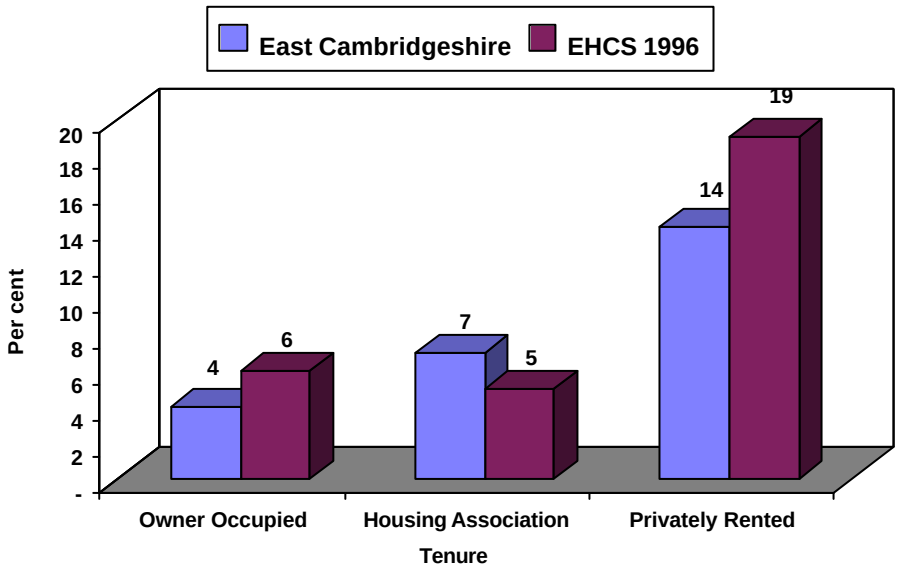
Figure 3.3 Unfitness by building type



Unfit dwellings and Tenure

3.10 Figure 3.4 gives a comparison of levels of unfitness across the three main tenures, between East Cambridgeshire and England as a whole.

Figure 3.4 Unfitness and tenure comparisons, national and local



3.11 The trend of unfitness by tenure again follows the national average closely. Privately rented dwellings have by far the highest rate at 14%, but this compares to 19% at the national level. The unfitness rate for owner-occupied dwellings is slightly below average and that for housing association dwellings slightly above, but neither of these significantly so (Unfit Table E).

Costs to make dwellings fit

3.12 Two different categories of costs calculated have already been covered earlier in this chapter. Either of these can be used to estimate the cost of making dwellings fit. The likely cost of improving unfit dwellings to a standard the Council would require for a renovation grant would be an average of £11,700. This figure is the comprehensive repair cost, defined in Box 5.1, in unfit dwellings. It includes all costs of repair likely to be incurred over the next 10 years (Unfit Table C).

Unfit dwellings by area

3.13 As might be expected given the variation in dwelling profiles, there are some differences in unfitness between areas. The highest rate of unfitness by area is for Littleport and north-district at 7%, compared to just under 7% for South-district and 4% for Ely and mid-district. This generally corresponds to the expectations prior to the survey and the reason behind the sampling strategy (Unfit table L).

Unfitness and social factors

3.14 A number of questions were asked of residents and these can be utilised to determine if there is any relationship between unfit dwellings and household characteristics.

3.15 Unfitness is usually associated with older heads of household and this association is evident in East Cambridgeshire. The highest unfitness rate is where heads of household are over 75 years of age at 11.9% and this group represents over 34% of unfit dwellings (610). This higher rate of unfitness is usually a reflection of older household's inability to afford repairs or renewal coupled with a lack of ability or a lack of desire to carry out works (Unfit Table F).

3.16 Another common relationship is that between low income and unfitness. This association is also clear in East Cambridgeshire as 35% of dwellings have a household income of below £10,000 per annum, but 67% of unfit dwellings are found where incomes are at this level. It is only as incomes increase above £25,000 per annum that dwellings are unfit in lower proportions that the total numbers for any given income group (Unfit Table G).

3.17 Unusually the rate of unfitness where householders are in receipt of benefit is only slightly higher than the overall position at 7% (Unfit Table H).

Conclusions

3.18 The overall rate of unfitness of 6% across East Cambridgeshire is not significantly different from the 7% figure found nationally.

3.19 Food preparation and Disrepair are the main causes of failure of the fitness standard. The causes of unfitness are broadly similar to the national position with disrepair, food preparation, ventilation and dampness being the principal items under which dwellings fail the standard nationally, however, ventilation failure occurs at a lower rate. All other categories of fitness occur within typical ranges. Disrepair is, however, found at a higher rate in unfit dwellings than is the case nationally (39% compared to 32%).

3.20 Multiple fitness failures i.e. failures on more than one grounds of unfitness category, occur at a much higher rate than the national average. This is an important finding as the rate is so much higher (51% compared to.36% nationally) meaning that the majority of unfit dwellings have multiple failures and are therefore likely to substantial work to make fit. This is reflected in an unfitness cost of over £3,000 per dwelling (this is examined in more detail in the next chapter).

3.21 Detached houses represent the greatest proportion of unfit houses, but this is due mainly to the large number of such dwellings. The highest rate of unfitness for any one building type is for converted flats.

3.22 As was expected the Littleport and north-district area had the highest rate of unfitness at 7%.

3.23 The usual association between older households, as well as low-income households, and unfitness was evident. Unusually, however, there was less of an association between benefit receipt and unfit dwellings.

4 Fabric of the dwelling

Measurement of repair costs

4.1 A set of standardised building prices was used in order to calculate repair costs and the cost of renewal of building elements and amenities. These costs are generated in relation to surveyor's assessment of the condition of each individual element and any repair or replacement required. The costs are therefore a good indication of the condition of the fabric of each individual dwelling.

4.2 In undertaking repairs to the fabric of the dwelling different amounts of work are required, depending on the objectives of those responsible for the dwelling. To accommodate these different objectives several alternative measures of repair have been calculated and they are described in Box 4.1.

Box 4.1

Repair and replacement takes in all the works needed in the next five years, taking no account of the relative seriousness of the defect to be remedied or the possibility of short term repairs;

Urgent repair includes only those items needing urgent action (within the next year) to remove threats to health, safety, security and comfort of the occupants, and to forestall further rapid deterioration in the building;

Comprehensive repair includes all repairs together with replacement of elements of the building having less than 10 years remaining life;

Standardised repair is the repair and replacement cost per square metre of floor area, calculated to remove the effect of the size of buildings and give a better measure of relative deterioration.

4.3 The costs described in Box 4.1 are those made use of by the 1996 English House Condition Survey.

Overall condition of the stock

4.4 The average costs of repair per dwelling in East Cambridgeshire are, (see box 5.1 for repair cost definitions):

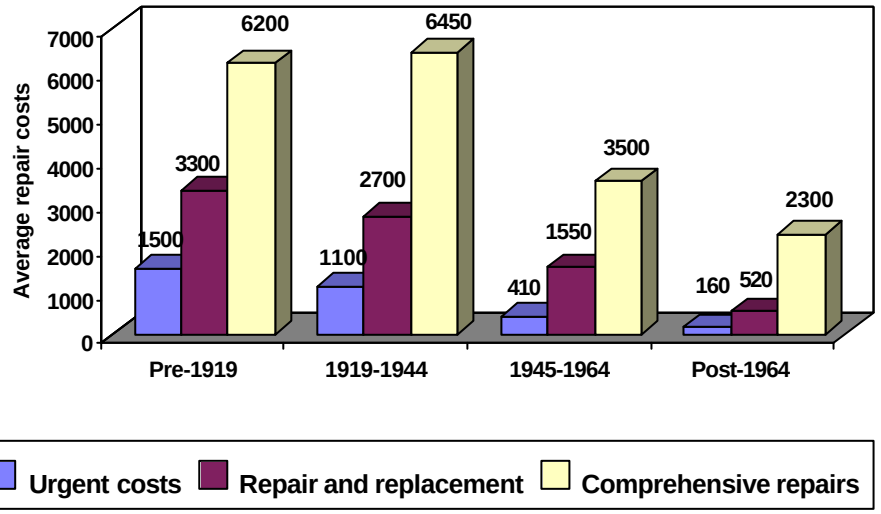
• Repair & replacement	£1,430	(England £1,830)
• Standardised repair	£12.50 per m^2	(England £17.20)
• Urgent repair	£540	(England £1,280)
• Comprehensive repair	£3,600	(England £3,420)
		(Cost Tables A and B)

4.5 The short-term repair costs to dwellings in East Cambridgeshire is similar to but slightly below the national average. In the longer term, costs are roughly equal to those found at the national level. This tends to suggest that whilst problems of disrepair are not substantial at present, they will start to present a more significant problem within the next 10-15 years.

4.6 These averages are useful for simple purposes of comparison but they can hide wide ranges that exist around the mean figures. The overall figures have therefore been broken down by a selection of variables.

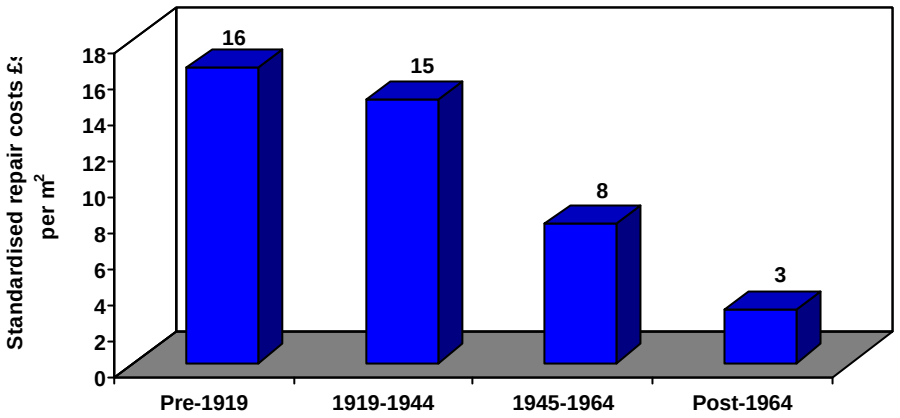
4.7 Pre-1919 dwellings have the highest levels of disrepair – roughly twice the average for the whole stock at £24.80 per m^2 (Cost Table B). The 1919-1944 stock, however, is also a real concern with costs close to those found in dwellings dating from the earlier period. This does not however come as a major surprise as research based on EHCS data shows that mean repair costs reach their peak in houses around 80 years of age and many of these houses are now approaching this. Beyond 80 years of age mean costs gradually reduce as a result of major elements being replaced as their useful lives come to an end. It would, however, seem that much of the pre-1919 stock has yet to see this improvement and it still has the highest costs (Cost Table C). Figure 4.1 shows the variation of repair and replacement costs with age of dwelling.

Figure 4.1 Repair cost by age of dwelling



4.8 The particularly high costs for the inter-war stock may pose less of a problem in East Cambridgeshire than many other parts of the country, as there are substantially fewer dwellings from this age band in the district.

Figure 4.2 Standardised repair cost by dwelling age



4.9 When costs are standardised the trend is similar to that for the basic cost types.

Repair costs and tenure

4.10 The average cost of repair per dwelling is:

- Private rented £2,700 (repair & replacement)
  £33.80 (standardised)
- Owner occupied £1,400 (repair & replacement)
  £12.30 (standardised)
- Housing assoc. £200 (repair & replacement)
  £4.40 (standardised)

(Cost Tables A and B)

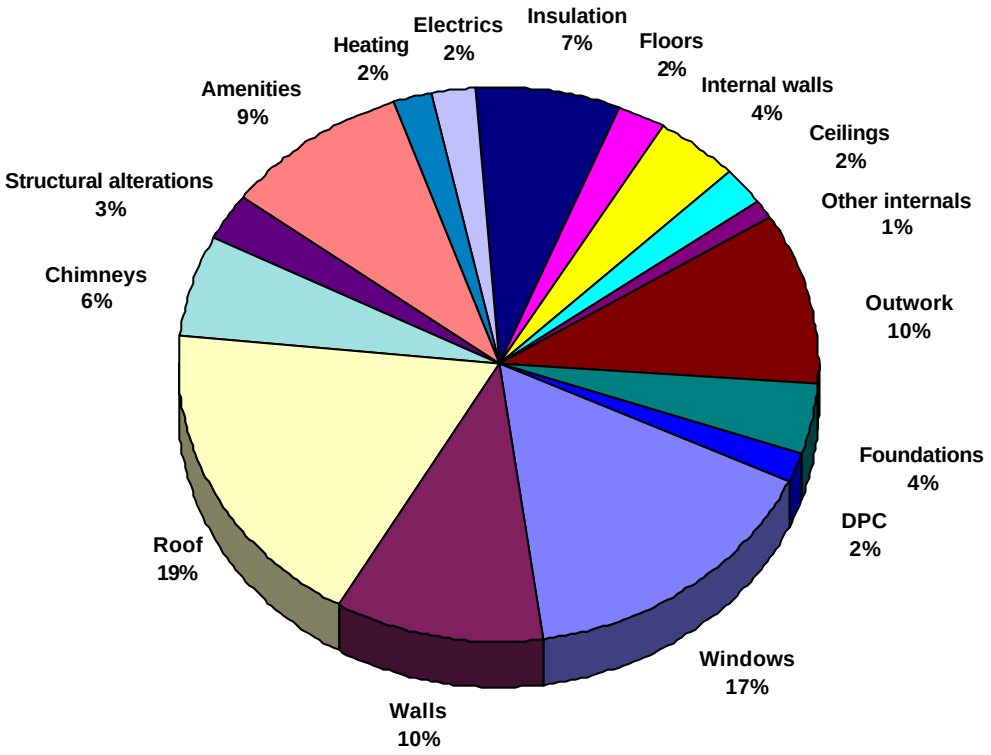
Repair costs and building types

4.11 Highest mean repair & replacement costs are found in converted flats at £3,600. Caution on placing too much emphasis on this figure is urged, as the sample size for this building type is very small. Terraced houses are next highest at £1,700 followed by semi-detached houses at £1,600. Purpose built flats return the lowest costs at £190 (Cost Table D). Unfortunately these figures are difficult to compare to national statistics, which use a different typology for disrepair.

Repair costs and building elements

4.12 Almost the same proportion of costs in East Cambridgeshire as nationally (69% compared to 70%) relate to the exterior fabric of the dwelling. A detailed breakdown is given in the figure below (Cost Table E).

Figure 4.3 Repair costs by building element



4.13 Repairs to windows account for 16% of all costs while walls and roofs account for 10% and 18% respectively (Cost Table E). These three costs represent the largest proportions for costs at the national level and are elements that typically require repair. The proportion of costs for repair to windows is higher than the national average of 13%. The only national comparison that is available is from the 1991 EHCS, as the most recent survey did not report on the cost of repairs in this way.

4.14 The slightly higher proportion of costs represented by internal elements and amenities is not unusual given a stock in better condition and more modern than average. External costs tend to increase with older dwellings as more elements come to the end of their useful life.

Repair costs by area

4.15 Littleport and north-district has the highest repair costs for urgent and comprehensive costs when examining mean costs per dwelling. The table below gives a breakdown of cost types for the three areas.

Table 4.1 Repair costs by area (mean cost per dwelling)

Area	Urgent Costs	Repair and Replacement Costs	Comprehensive Costs	Standardised Costs
Littleport and north-district	£650	£1,430	£4,000	£10.60
Ely and mid-district	£510	£1,280	£3,200	£12.10
South-district	£510	£1,630	£3,900	£14.00
All Areas	**£540**	**£1,430**	**£3,600**	**£12.50**

4.16 When costs are given by floor area Littleport and north-district has the lowest costs suggesting that dwellings have larger than average floor areas. It is interesting to note, however, that the standardised cost per dwelling for pre-1919 dwellings in Littleport and north-district is nearly £34 per m^2, which is considerably higher than for any other area or age band. This tends to suggest that there is a concentration of unfit, high repair cost dwellings in this group (Cost Tables F and G).

Conclusions

4.17 Comparisons of general repair costs suggest that the repair and replacement costs are similar to but lower than the national average, but that comprehensive costs are slightly more than the national average.

4.18 The distribution of repair cost by age of dwelling, building type and tenure is typical and reflects the findings of the unfitness chapter. Converted flats and privately rented dwellings tend to have higher costs and both of these are associated with older dwellings. Detached houses also return higher costs, as would be expected given their size and level of unfitness.

4.19 The distribution of repair costs by building element is similar to the national position.

4.20 The distribution of costs by area suggests that the poorest conditions are to be found in Littleport and north-district, which corresponds with the findings for unfitness. The pre-1919 stock in this area has particularly high costs and given the association of unfitness with age already demonstrated, it seems clear that this area has the greatest potential for investment in renovation and renewal.

5 Private Sector Housing Renewal

5.1 The total cost of repair and replacement for private sector dwellings, for the two survey areas combined, over the next ten years is an estimated £110million, with an average of approximately £3,600. Over the next thirty years the total is £662million, an average of £21,300 per dwelling (Cost Table A).

5.2 These figures exclude the cost of normal maintenance such as external decoration. The owners of the dwellings will meet the majority of these repair costs but not all will be able to afford them and these may result in a demand that the authority may wish to address under the Regulatory Reform Order or consider under the current grant schemes.

5.3 Renovation grants can now be given entirely at the discretion of the Council and they are no longer mandatory for unfit dwellings. The Council still, however, has a duty to remedy unfitness and so it is worthwhile considering the potential renovation grant demand these dwellings represent. If grants ultimately give way to loans, it is still worth considering what the likely financial requirements would be for the most urgent cases.

Potential renovation grant demand

5.4 The potential renovation demand cost is based on the owner occupied stock and assumes that all the unfit owner occupied dwellings would apply for a renovation grant immediately. In reality many of these would not be eligible for a renovation grant under current conditions and the demand would be spread over a number of years and would depend on the extent to which the Council promoted grants, or in future loans or other schemes.

5.5 The costs can be based on: (i) a minimalist approach of making the dwelling just fit, (ii) the cost of dealing with all repairs and replacements within five years and (iii) comprehensive repairs likely to be required within 10 years.

5.6 The three different costs can be a guide to the effect of applying three different standards. The costs for comprehensive repair are probably the closest to current renovation grant standards adopted by most local authorities.

Table 5.1 Repair costs in unfit owner occupied dwellings

Income bands	Unfit dwellings	Total costs to make just fit	Total repair and replacement costs	Total comprehensive costs
		£millions	£millions	£millions
£10,000 or less	430	900	3300	5000
£10,000-25,000	150	2200	2700	4200
Over £25000	310	750	2800	3100
Total	**890**	**3850**	**8800**	**12300**

5.7 The implications of adopting the comprehensive cost standard are very clear with a potential grant demand of £12.3 million compared to £3.85 million for a 'just fit' approach to standards (RRO Table A).

5.8 The potential grant demand would be limited by the application of the test of resources, which table 5.2 attempts to illustrate. The assumption in table 5.2 is that all households with a gross income of less than £10,000 would receive a 100% grant and those with between £10,000 and £25,000 would receive a 50% grant. Above this income level no grant aid would be paid (RRO Table A).

Table 5.2 Potential grant demand in unfit owner occupied dwellings by income band

Income bands	Unfit dwellings	Total costs to make just fit	Total repair and replacement costs	Total comprehensive costs
		£millions	£millions	£millions
£10,000 or less	430	0.9	3.3	5.0
£10,000-25,000	150	2.2 x 50%	2.7 X 50%	4.2 x 50%
Total	**580**	**2.0**	**4.7**	**7.1**

5.9 The effect of these assumptions is to reduce the potential grant demand for the three standards. If the standard for comprehensive repair is taken as the most accurate reflection of current grant policy, then the potential grant demand is approximately £7.1million.

Potential home repair assistance grant demand

5.10 Home repair assistance of up to £5,000 has been an effective and simple method of assisting those in greatest need. Traditionally the key group that grants have been made available to is owner-occupiers who are over 60 and in receipt of benefit. The limit for grants was recently raised to £5,000 making this potentially more effective than the previous £2,000 level, but also more expensive. In future, however, it will be up to the individual authority to determine thresholds.

5.11 A total of 350 dwellings had urgent costs of less than £5,000; and 80 with costs greater than £5,000, which would result in a grant demand of £722,000. This total is based on the assumption that all dwellings where costs exceed £5,000 are restricted to only £5,000 (RRO Table B).

Discretionary grants for energy efficiency improvement

5.12 A final consideration is the potential discretionary renovation grants for improving energy efficiency. It is likely that in future local authorities will have to continue to have energy efficiency schemes as part of their private sector housing strategy, even if this is not in the form of grants.

5.13 A total of 5,700 dwellings could usefully have loft insulation added as they currently have less than 100mm of fibreglass or equivalent. This would cost £1.5million. A further 6,600 dwellings could benefit from cavity wall insulation at a cost of £2.6million. A total of 900 dwellings would benefit from a new heating system at a cost of £2.5million. These cost are based on the following assumptions:

- Cost of providing loft insulation of £270 per dwelling
- Cost of providing cavity wall insulation of £400 per dwelling
- Cost of providing a full gas central heating system with high efficiency boiler, distribution to radiators and insulated hot water cylinder of £2,500.

5.14 If the same estimates of the test of resources are applied as was discussed earlier in this chapter, this results in the costs described in Table 5.3 (RRO Table C).

Table 5.3 Discretionary grant demand for energy efficiency improvements

Income bands	Loft insulation	Loft insulation cost	Cavity wall insulation	Cavity wall insulation cost	Space heating	Space heating cost
		£000s		£000s		£000s
0-9999	2,700	720	2,800	1,140	620	1,770
10000-25,000	1,800	500 x50%	2,000	820 x50%	180	520 x50%
Total	**4,500**	**970**	**4,800**	**1,550**	**800**	**2,030**

5.15 The relatively high proportion of people on low incomes means that applying a test of resources does not reduce demand significantly to £4.5million. This compares to £6.6million before the test of resources.

Potential repair cost demand by area

5.16 From the previous chapters it is clear that there is a notable difference between areas with regard to the residents of the dwellings as well as the levels of unfitness, repair costs and nature of the dwellings. Given the generally low incomes across the board coupled with the poorer conditions found in the Littleport and district-north area, it seems clear that this area is likely to have the most residents in greatest need of assistance.

Conclusion

5.17 As a mechanism for dealing with unfit owner occupied dwellings, the use of renovation grants may change after the introduction of the Regulatory Reform Order. In order to deal with unfitness, however, action will still be needed in the owner occupied sector. Any scheme that utilises loans or other mechanisms would need to be substantial as even under the current scheme potential renovation grant demand is £7.1million.

5.18 Demand, under the current scheme, for home repair assistance amounts to £722,000, based on those who are over 60 and in receipt of benefit.

5.19 Applying the same test of resources already described to energy efficiency improvement measures would result in a requirement for £4.5million. In future it may be necessary to increase the proportion of partnering schemes for energy efficiency to replace this demand on the authority.

5.20 All the figures given are based on current grant policies and procedures, but give sum idea of the level of potential demand arising from repair and improvement. It seems clear that in the future, under the RRO, considerable sums of money will need to be found, in the form of loans and other mechanisms, if repair and maintenance of properties with the poorest occupiers is to be achieved.

6 Energy efficiency

6.1 The standard assessment procedure or SAP is a government rating for energy efficiency and is described in box 6.1 below. It is used in this report in conjunction with annual CO_2 emissions figures, calculated on fuel consumption, and the measure of that fuel consumption in kilo Watt hours (kWh), to examine energy efficiency.

6.2 Comparisons with the national average are based on the 1996 EHCS Energy Report.

Box 6.1 Definition of SAP rating

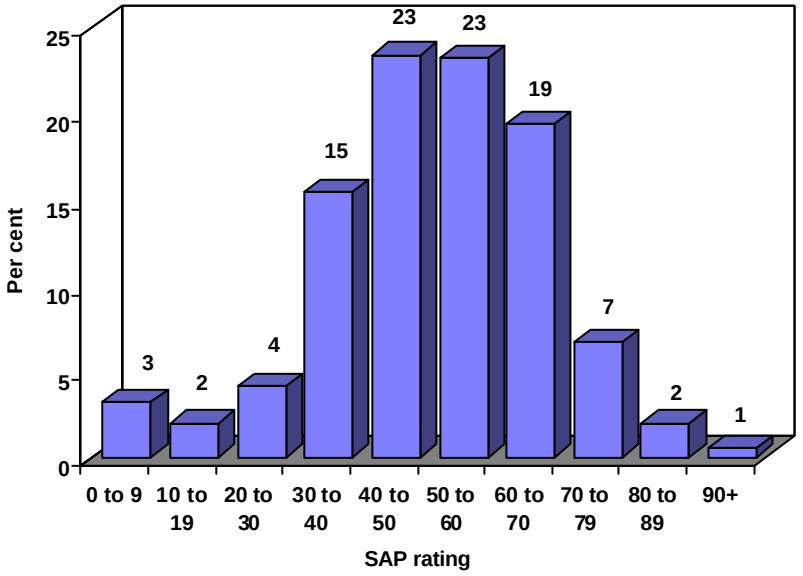
SAP rating: This is a government-specified energy rating for a dwelling. It is based on the calculated annual energy cost for space and water heating. The calculation assumes a standard occupancy pattern, derived from the measured floor area so that the size of the dwelling does not strongly affect the result, which is expressed on a 1-100 scale. The higher the number the better the standard.

Distribution of SAP ratings

6.3 The average SAP rating for a dwelling in East Cambridgeshire is 50. This compares to a national average for all dwellings of 44 from 1996 EHCS survey (Energy Table A).

6.4 Figure 6.1 shows the distribution of SAP ratings.

Figure 6.1 Frequency distribution of SAP



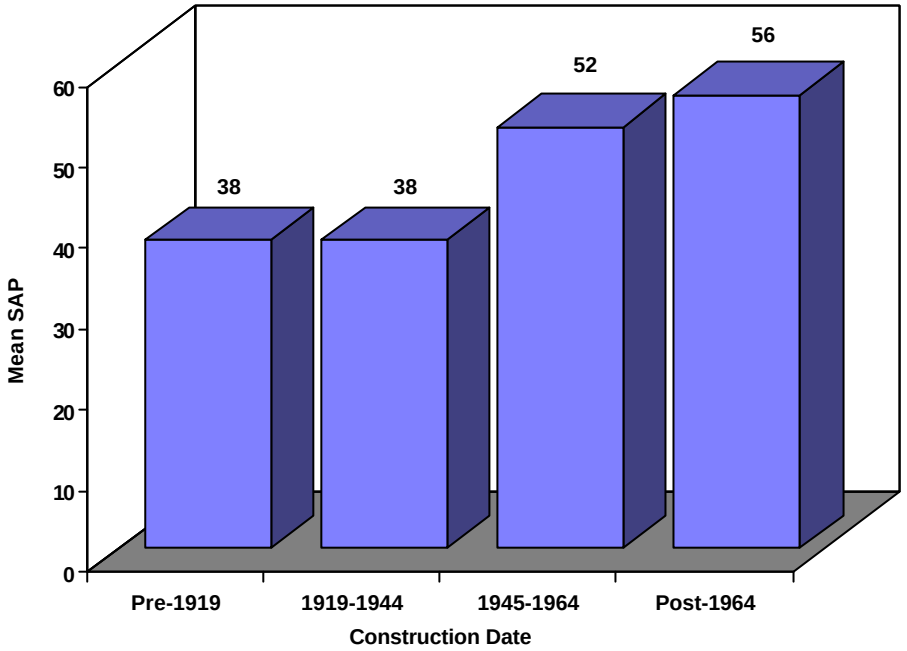
6.5 The majority of dwellings (81%) have a SAP rating between 30 and 70. At the national level a smaller proportion (79%) fall in this range. Nationally 16% of dwellings have a SAP of less than 30 while in East Cambridgeshire only 9% fall within this range (Energy Table A).

6.6 Only 1,600 (5%) of dwellings have a SAP rating of less than 20, which is lower than the national figure of 8%. It should however be stated that the national figures date from 1996 and are likely to have improved since then (Energy Table A).

SAP and age of dwelling

6.7 Increases in SAP are usually associated with a reduction in dwelling age; thus the most modern stock has the highest SAP. This is true of East Cambridgeshire with a mean SAP of 56 for the most modern age band in the post 1964 era (Energy Table B).

Figure 6.2 SAP by age of dwelling



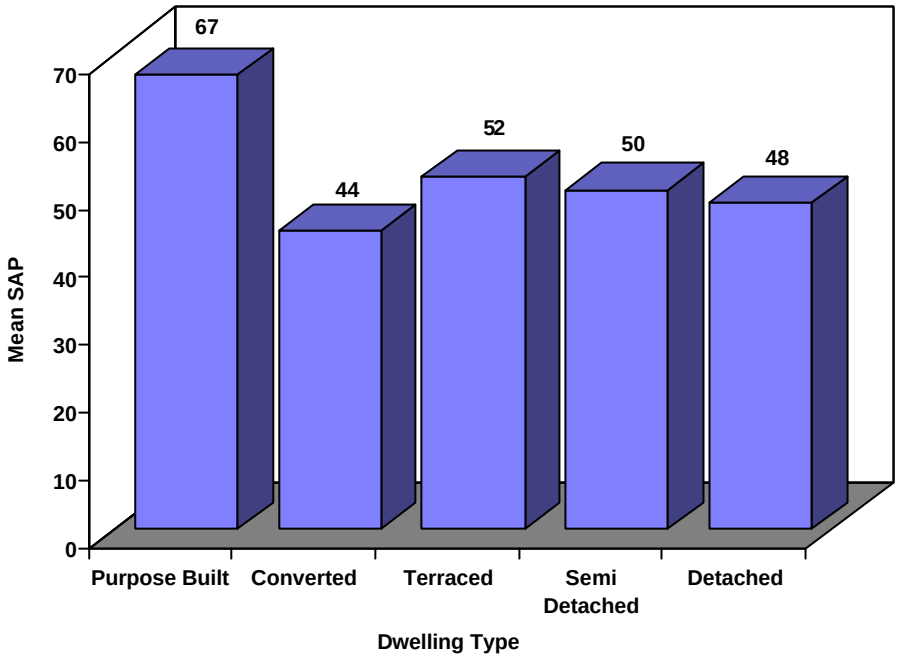
SAP ratings and building type

6.8 When examining SAP ratings by built form the distribution for this survey shows that the dwelling types with the lowest SAP are detached houses and converted flats with mean SAPs of 48 and 44 respectively. This is followed by semi-detached and terraced houses, which have mean SAPs of 50 and 52 respectively. Purpose built flats have the highest average SAP with 67 (Energy Table C).

6.9 Nationally SAP is considerably influenced by the degree of external exposure of particular building types. In general the more exposed building types suffer greater heat loss and return lower SAPs. Typically flats return highest SAPs followed by terraced houses then semi-detached and finally detached houses. East Cambridgeshire generally follows the national trend.

6.10 A combination of insulation and heating systems can also have a dramatic effect on SAP and account for the variations in the typical age and type distributions. The effect of these factors is explored later in this chapter.

Figure 6.3 SAP rating by building types



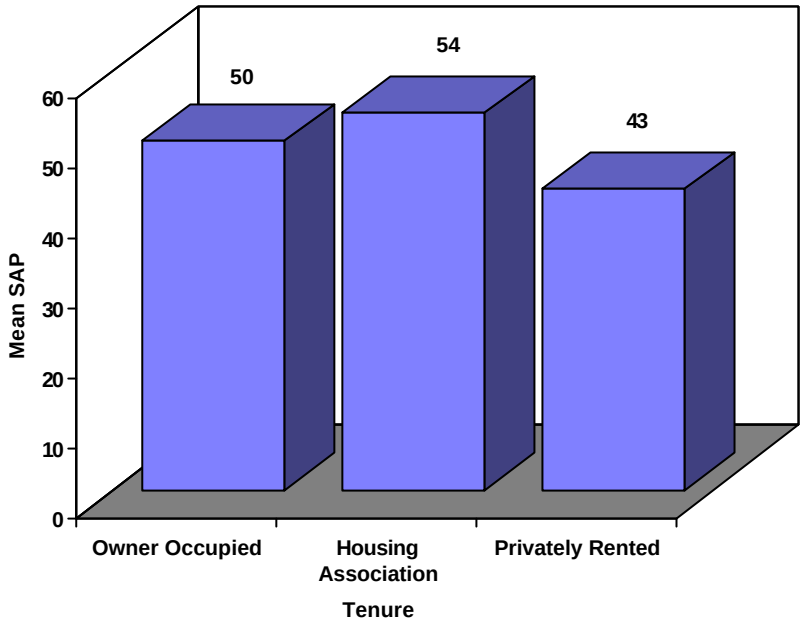
SAP ratings and tenure

6.11 Owner occupied dwellings have a mean SAP of 50 compared to 54 for housing association dwellings and 43 for privately rented, but this is largely to do with the building type distribution for these tenures (Gen Table K and Energy Table D). The housing association stock is more modern and includes larger proportions of more efficient building types so it is easy to understand why it should have the most efficient stock.

6.12 The private rented sector has the oldest stock and is comprised of less efficient building types, this tenure therefore has lower SAP ratings. The impact of heating and insulation will also have an effect and this will be discussed later in the chapter.

6.13 Age and building type, therefore, are helpful to establish the potential efficiency of the stock but insulation and heating provision need to be examined to give a full picture.

Figure 6.4 SAP ratings by tenure



Insulation

6.14 The variation within housing types and ages is likely to be in part the result of improvements in insulation. To investigate the impact of insulation on the stock it is necessary to consider the existing provision when the dwelling was built as well as that which has been added since.

6.15 Information was collected on both wall and loft insulation. Loft insulation has been a requirement of the building regulations since 1965 but the current standard of 200mm of fibreglass (or equivalent to U value of 0.25) was only introduced in 1995. Surveyors recorded insulation added since built. Table 6.1 gives the requirement with regard to loft and wall insulation made in Building Regulations since 1965.

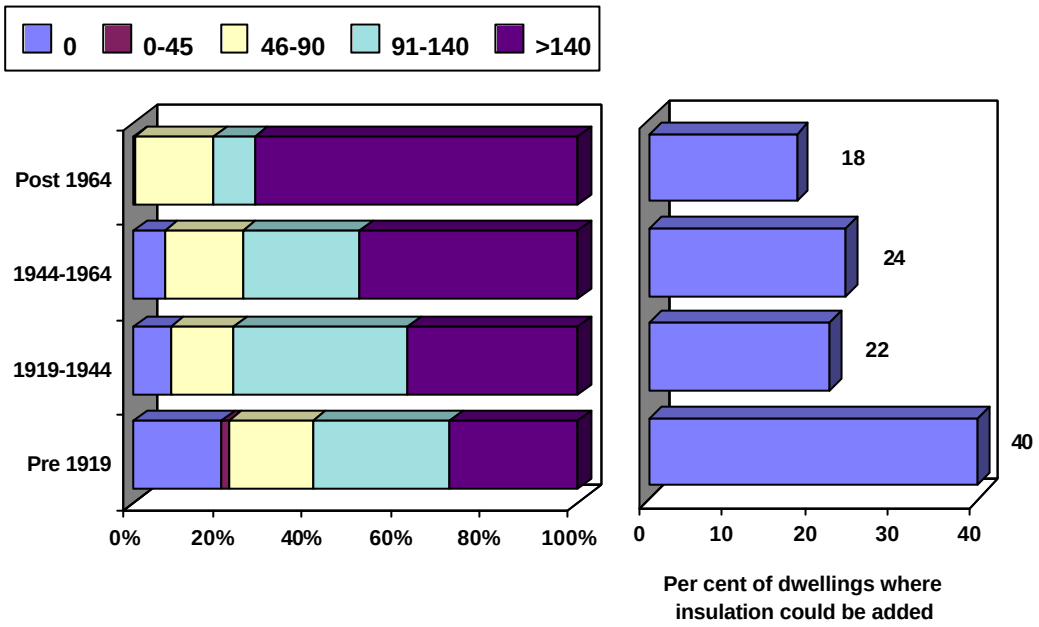
Table 6.1 Loft and cavity wall insulation requirements

Survey age band	Building Regs. Change	Loft insulation as fibre glass quilt (mm)	Wall insulation (U value)	Typical wall type
1965-1975		25	1.7	Brick cavity
1976-1981		50	1	Cavity brick and block
Post-1982	1982-1990	100	0.6	Varying constructions; brick and lightweight blocks; brick cavity with expanded polystyrene foam.
	Post-1990	150	0.45	
	Post-1995	200	0.25	

6.16 Figure 6.5 shows the extent to which loft insulation has been added to dwellings.

6.17 This analysis excludes dwellings without lofts. The remaining dwellings 30,000 (96%) represent the stock that could usefully have added loft insulation. Of these 17,100 (57%) dwellings already have 140mm of insulation or more. A total of 7,100 (24%) had less than 140mm of insulation and these are an obvious target group for low cost improvements in energy efficiency. A total of 1,700 (6% of the relevant stock) are reported to have no loft insulation at all, this represents 6% of the stock overall, compared to 7% nationally (Energy table E).

Figure 6.5 Dwellings by loft insulation (millimetres of fibre glass quilt or equivalent)

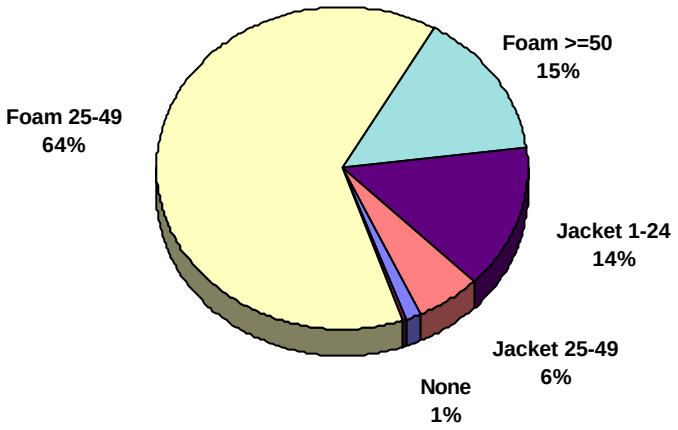


6.18 As with loft insulation, cavity fill is not something that can be added to all dwellings. In this analysis, it is assumed that all pre-1982 dwellings which have cavity construction will be without any form of fill unless there is evidence of this having taken place, or the occupier informed the surveyor that it had been carried out. In the 1976 – 1982 age band there may, depending on construction type, be some insulation originally built into the cavity, but in most instances this will not be the case, and this age band has therefore been assumed to be capable of retrofitting with cavity insulation.

6.19 There are 22,300 dwellings in the survey areas, with cavity walls. Of these, 13,300 (60%) had insulation when built or have had insulation retrofitted. In fact 10,600 (80%) of these dwellings are post 1964, the majority of which will have been built with insulation. Of the remaining 6,500 pre1964 dwellings only 2,800 (43%) have had insulation retrofitted (Energy Table F).

6.20 The last insulation element to be considered is insulation to hot water cylinders. Information was collected on the presence of cylinders in the system and where these existed, the type and thickness of insulation present was examined.

Figure 6.6 Insulation to hot water cylinders (in mm)



6.21 26,900 dwellings had hot water cylinders. Of these, 380 (1%) had no insulation at all. 5,300 (20%) cylinders have jacket insulation and of these, 3,800 (72%) have less than 25mm of jacket insulation. Provision of thicker jackets and replacement of cylinders with foam-insulated cylinders would have some impact on improving energy efficiency (Energy Table G).

SAP and heating systems

6.22 The high efficiencies of modern heating systems have a positive effect on the energy efficiency of a dwelling. Central heating is present in 29,700 (96%) dwellings, although not all have modern systems. The definition of central heating used here is a very wide one including electric storage radiators (Energy Table H).

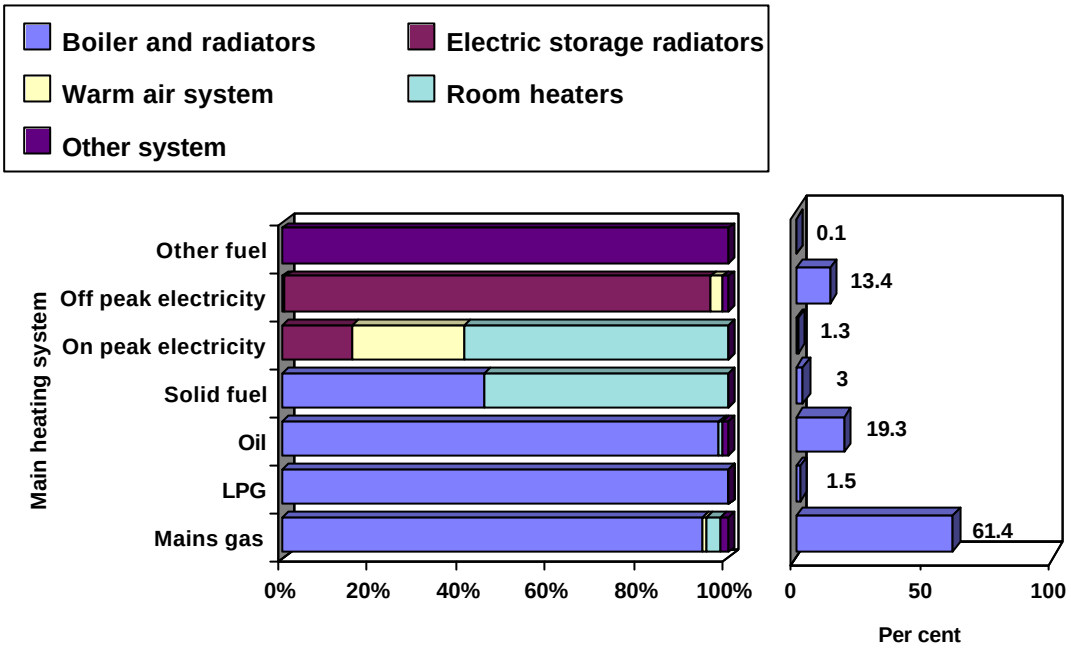
6.23 In dwellings with central heating, the average SAP is 51 compared to 25 for those without (Energy Tables P and Q).

6.24 A gas-fired boiler and radiators are present in 18,000 (58%) of dwellings as their main heating system, and 570 (2%) use gas fired room heaters. Oil fired central heating systems account for 5,900 (19%) dwellings and off peak electric storage radiators account for the heating systems in 4,200 (13%) dwellings. Warm air systems are used in 420 (1%) dwellings (Energy Table H).

6.25 Mains gas is the dominant fuel used for 19,100 (90%) main heating systems. The balance is made up by, oil 6,000 (19%), off peak electricity 4,200 (13%), on peak electricity, solid fuel or wood and LPG totalling 1,800 (6%) (Energy Table H).

6.26 Figure 6.7 illustrates the type of heating systems and fuels used.

Figure 6.7 Dwellings by heating system and fuel



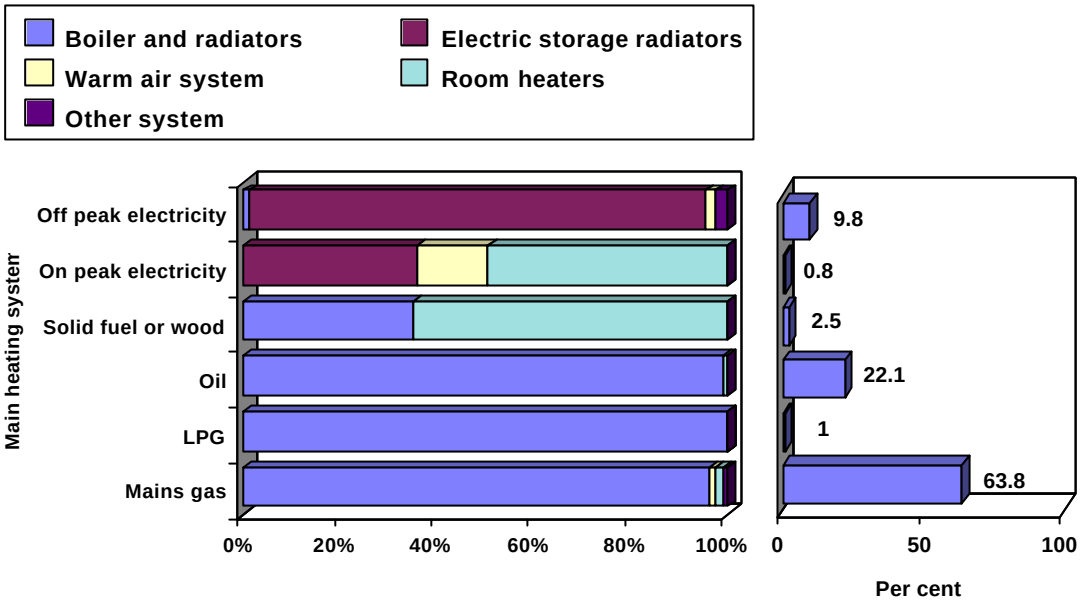
6.27 The levels of energy efficiency are above national figure, which is probably due to a good level of provision of central heating coupled with modern, well-insulated stock.

Heating systems in the owner occupied stock

6.28 The owner occupied sector is very similar to the overall profile. Some form of central heating is provided in 21,300 (97%) of the dwellings, slightly higher than for the stock as a whole. There is a slightly greater preference for gas fired boiler and radiator systems, which account for 61% compared to 58% overall. Oil fired boiler and radiator systems are also more common, found in 4,800 (22%) dwellings. Gas room heaters account for 260 (1%) heating systems, which is lower than all tenures combined. Off-peak electric storage radiators are also slightly less frequent, used in 2,200 (10%) dwellings (Energy Table J).

6.29 Gas is again the dominant fuel and it is used for 14,100 (64%) heating systems with 4,900 (22%) using oil. There are correspondingly similar or lower figures for off peak electricity and on peak electricity (Energy Table J).

Figure 6.8 Heating systems by fuel in owner occupied dwellings

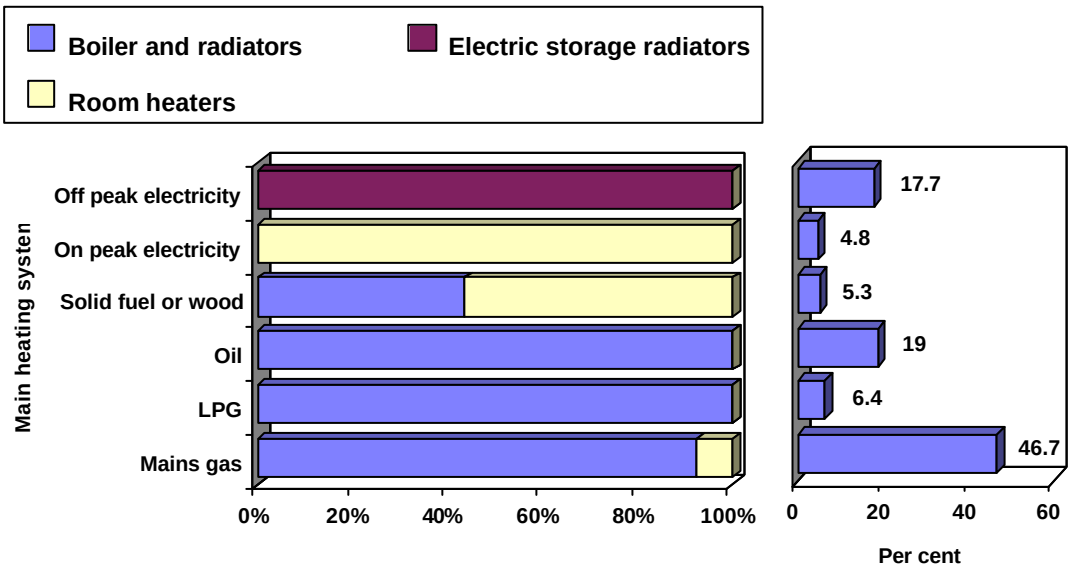


Heating systems in the private rented sector

6.30 The private rented sector has the lowest percentage of dwellings with some form of central heating, 1,950 (89%) compared to 96% generally (Energy Table L).

6.31 Only 950 (43%) dwellings have gas fired boiler and radiator systems, compared to the general level of provision, which is 58%. Gas room heater use in the private rented sector at 100 (4%), is twice the level for the stock overall and to some extent accounts for the lower energy efficiency of the privately rented sector (Energy Table L).

Figure 6.9 Dwellings by heating system and fuel in private rented dwellings

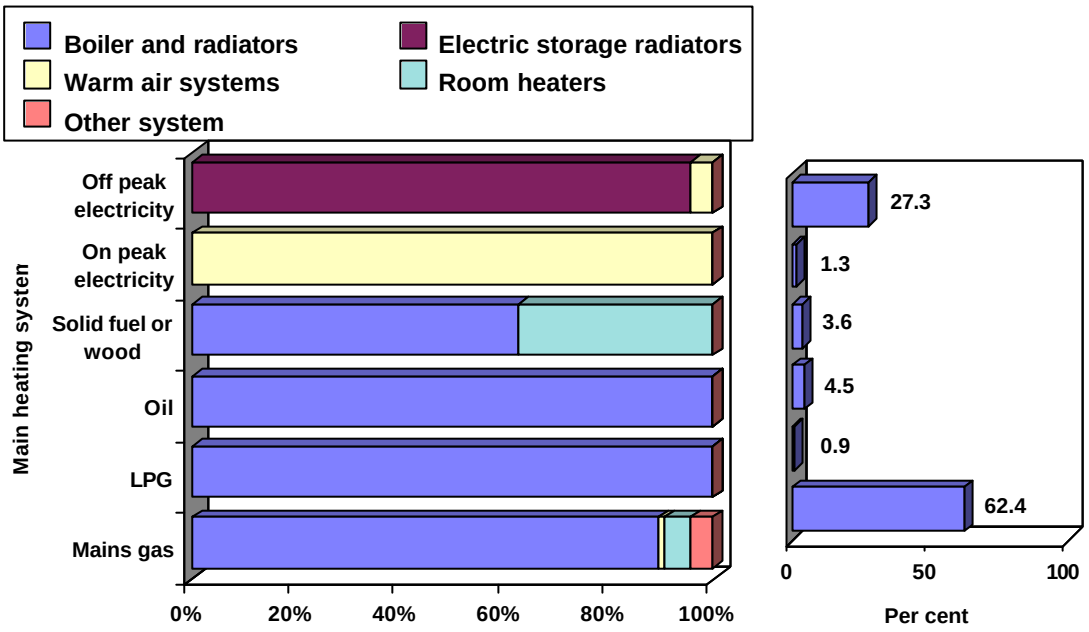


Heating systems in the housing association stock

6.32 The housing association stock has a high proportion 5,600 (96%) of dwellings having some form of central heating. Of these, 56% use gas fired boiler and radiator systems, which is below the stock average. Off-peak electric storage heaters account for a large proportion of the reminder: 1,500 (26%) dwellings.

6.33 Mains gas is still the dominant fuel for this tenure being used in 3,600 (62%) of dwellings. Most of the remainder 1,600 (27%) use off peak electricity (Energy Table K).

Figure 6.10 Dwellings by heating system and fuel in housing association dwellings

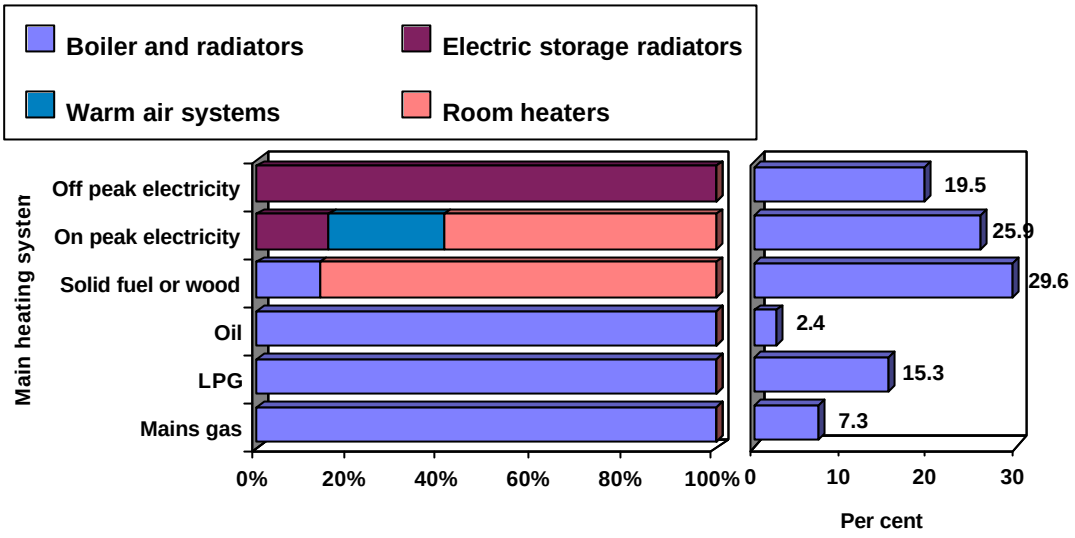


Heating systems and fuel by SAP level

6.34 From experience gained on a large number of similar surveys, it is well established that type of heating systems has the greatest effect on energy efficiency. For this reason, particular attention is paid to this area. To determine how important this factor is in East Cambridgeshire, the fuel/heating system mix was examined for those dwellings with the lowest and highest SAP ratings.

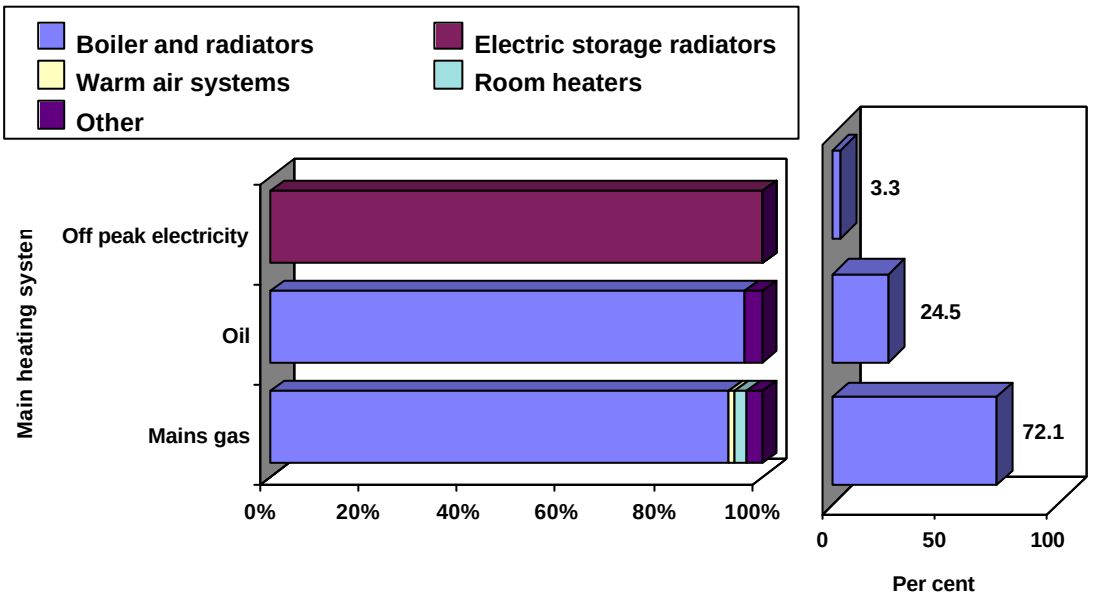
6.35 Figure 6.11 illustrates the position for the 1,600 (5%) dwellings with SAP ratings less than 20 (Energy Table M).

Figure 6.11 Main fuel and heating system in dwellings with SAP less than 20



6.36 It is apparent that a wide variety of fuels and heating system types are used where SAPs are lowest. Only 100 (7%) of dwellings use gas fired boiler and radiator systems, which are among the most efficient heating systems (Energy Table M).

Figure 6.12 Main fuel and heating in dwellings with SAP more than 60



6.37 The last graph, Figure 6.12 shows the other end of the scale illustrating the fuel/heat system profile for the stock with the highest SAP ratings. The results are typical of dwellings in this group. Gas and Oil dominate the picture accounting for 97 of all fuel use and the majority of this (91%) is for boiler and radiator systems (Energy Table N).

Energy efficiency by area

6.38 The lowest mean SAP by area (49) is for South-district. This may seem surprising given the poor conditions found in the Littleport north-district area, but is easily explained by the dominance of larger detached dwellings in South-district, which are inherently less efficient. Littleport and north-district and Ely and mid-district both have mean SAPs of 51, this means that there is little significant difference between the three areas in terms of energy efficiency (Energy Table T).

SAP ratings and socio-economic factors

6.39 There is no significant difference in energy efficiency between those dwellings occupied by people in receipt of benefit and dwellings overall. Mean SAP of dwellings where a benefit recipient lives is therefore 50. This is not uncommon as an above average proportion of benefit recipients tend to live in housing association dwellings, which are usually more efficient than average (Energy Table R).

6.40 There is a relationship between low incomes and poor energy efficiency however. Dwellings where household income is less than £5,000 are over represented in terms of low SAP, 8% with a SAP below 20 compared to 5% overall. Those dwellings where income is between £5,000 and £10,000 are also over represented, 6% with a SAP below 20 (Energy Table S).

Conclusions

6.41 East Cambridgeshire has an above average SAP rating of 50 compared to 44 for England as a whole.

6.42 The lowest SAP ratings by tenure are found in privately rented dwellings, as is typically the case. This is usually due to a combination of older dwelling stock and a higher proportion of converted flats. Both older dwellings and converted flats were found to have below average energy efficiency in this survey.

6.43 There is potential for improving the energy efficiency of the stock through loft and cavity wall insulation and greater provision of insulation to the water cylinder. There is little room for improvement when it comes to heating systems as the current provision of central heating is at 94%.

6.44 The poorest energy efficiency by area is found in the South-district area where the mean SAP per dwelling is 49.

6.45 The usual association of low income and poor energy efficiency was evident from the survey.

7 Improving energy efficiency

Introduction

7.1 The previous section considered the energy efficiency of the stock with regard to age, building type and tenure. The variation of insulation and heating systems was examined, the current position established and improvement options began to be identified. This section explores the effect of implementing a series of improvement options, both in terms of the overall energy efficiency of the stock as measured by the SAP rating, and in terms of reduction in energy use and CO_2 emissions. Energy consumption is measured in kWh (kilo-Watt-hours), mWh (mega-Watt-hours, which equate to 1,000 kWh), and in Gjoules (Gigajoules).

7.2 The chapter also examines the potential improvement combinations for given dwellings and estimates the likely cost of implementing these on a per-dwelling and area wide basis. The effect of these measures is also given, allowing payback periods for these improvements to be calculated.

Energy efficiency improvement

7.3 The 1995 Home Energy Conservation Act (HECA) aimed to improve the energy efficiency of dwellings across the country. The target local authorities were asked to achieve was a 30% reduction in energy consumption over 10 years (1996 to 2006).

7.4 It should be noted at this point that improving energy efficiency does not necessarily equate to a reduction in energy consumption. In the majority of cases it will do, but, for example, where a dwelling is being tackled because its occupants are in fuel poverty, energy consumption may well go up. This is because in such dwellings the occupiers are under heating the dwelling with expensive fuel. Using more, but cheaper fuel will result in affordable warmth, but will mean using more fuel.

The cost and extent of improvement

7.5 The following figures are based on modelling changes in energy efficiency bought about by installing combinations of items listed in box 7.1 below. These are based on measures that have been provided by various local authorities and are loosely based on the HEES scheme.

Box 7.1 Energy efficiency improvement measures

Loft insulation to 200mm
Cylinder insulation to 50mm Jacket (unless foam already)
Double Glazing to all windows
Cavity wall insulation
Installation of a modern high efficiency gas boiler where none is present
Full central heating where none is present

7.6 Different combinations would be required for different dwellings depending on the current provision of these items in each dwelling.

Future improvement

7.7 If all combinations of improvements listed in box 7.1 above were carried out to all dwellings, the total cost would be £12.7million, an average of £410 per dwelling (Energy Update Table E). Replacement boilers and the installation of central heating systems are clearly the most expensive items. However, as the majority of dwellings have gas central-heating systems, the exclusion of these items would still leave the total cost at £9.5million or £310 per dwelling (Energy Update Table D).

7.8 Targeting those dwellings where the elderly live or where people are on benefit is usually a good starting point for any scheme. There are 12,900 dwellings that are occupied by an elderly person (over 65) or person on benefit. The total cost of improvements to these dwellings would be £5.3million, an average of £400 per dwelling (Energy Update Table C).

7.9 The elderly or persons on benefit present a useful target group for energy efficiency programs. Many of the dwellings identified in these groups, however, would be eligible for the HEES and HEES+ schemes and may, therefore, already be eligible for this government funded and administered scheme.

7.10 HEES and HEES+ do not however cover all dwellings where residents are considered to be in fuel poverty. Energy efficiency improvement measures were therefore examined for a group comprising all those dwellings where the residents were in fuel poverty but not eligible for HEES assistance.

7.11 There are an estimated 800 dwellings from the survey where the residents are in fuel poverty but not eligible for HEES assistance. The cost of carrying out all the energy improvement works identified, for all these dwellings, would be £0.3million, an average of £350 per dwelling (Energy Update Table B).

Improvement cost analysis

7.12 Table 7.1 below gives a breakdown of cost, payback times and improvements in energy efficiency for applying measures for different groups. The measures applied comprise the full range as above except the “Basic scheme only” row, which excludes boiler replacements and provision of central heating. The figures for energy reduction by group represent the improvement for those dwellings where applied. The figures for "Energy Reduction Whole" reflect the anticipated reduction in consumption across the whole survey.

Table 7.1 Improvement options cost analysis

Target group	Total cost *millions*	Cost per dwelling *£s*	Pay back period *Years*	Mean SAP *SAP*	New Mean SAP *SAP*	Energy Reduction by group *Per Cent*	Energy Reduction District *Per Cent*
Not in HEES	0.3	350	1.3	31	46	24	0.1
Benefit and Elderly	5.3	410	3.6	48	58	20.5	7.6
Basic scheme only	9.5	310	3.7	50	57	15.7	15.7
All dwellings	12.7	410	3.8	50	59	19.4	19.4

7.13 It is immediately clear that targeting different groups has different effects. The cost of applying all measures to all dwellings would, on average, be recouped in only 4 years by the savings made in heating costs. This would also result in a reduction in energy consumption of 19.4%.

7.14 The three target sub-groups offer different advantages:

- Targeting those dwellings in the reduced scheme has the lowest mean cost per dwelling (Energy Update Table D).
- Targeting dwellings where the elderly or benefit recipients live gives a higher cost but gives one of the best improvements in energy efficiency in any one group (Energy Update Table C).
- Targeting those dwellings outside the HEES scheme, but which residents in fuel poverty occupy gives the biggest fuel cost savings and consequently the best payback period of 1.3 years, but has almost no impact on reducing energy consumption for the district as a whole (Energy Update Table B).

7.15 Clearly targeting allows different objectives to be met. Targeting is, however, not without problems. Targeting those dwellings where the residents are not eligible for the HEES schemes or where the elderly or benefit recipients live does not give many dwellings for improvement.

7.16 It is also important to note the differential between the reductions in energy consumption and costs for the dwellings outside the HEES scheme, but who have residents in fuel poverty. The reason for this is that this group suffers fuel poverty mainly because of relying on expensive fuel such as on-peak electricity. The improvement options will tend to cut out expensive fuels in favour of cheaper ones thus massively reducing expenditure on heating and hot water. This saving in cost is more significant than the resultant reduction in energy consumption (Energy Update Table B).

Achieving the 30% target

7.17 Clearly there will have been improvements in energy efficiency since the 1st of April 1996. In order to reach a 30% reduction however, would require a reduction of 11% to have already been made since 1996. In essence a problem exists in that the average dwelling in East Cambridgeshire is already very efficient. The short payback periods and linked to the small cost per dwelling, because very few require new or improved heating systems. As a consequence only cheap measures such as adding insulation are required. The down side of such cheap options is that they do not have as much of an impact on improving energy efficiency.

7.18 East Cambridgeshire would seem to have a strong case for making energy efficiency improvements, but not to a target of 30% reduction in fuel consumption as this does not appear to be possible under normal measures

Improvements by area

7.19 The even distribution of dwellings, in terms of energy efficiency, between areas tends to suggest that no one area need be specifically targeted when attempting to improve energy efficiency. A better approach would be to target particular dwelling types such as converted flats and older dwellings.

Conclusions

7.20 The good provision of central heating in the areas surveyed, coupled with the more modern stock, means that making large improvements in reducing energy efficiency will not be easy. In fact achieving a 30% reduction in energy consumption may well prove impossible.

8 Housing Health and Safety Rating System

Introduction

8.1 The Housing Health and Safety Rating System (HHSRS) was introduced in a trial form nearly three years ago. It is intended to be a replacement for the fitness standard and gives scores for individual hazards rather than giving a simple fit/unfit judgement. At present there is no set date for when the system will be introduced, and early findings are currently under review. The results from this survey will give an indication of likely future problems and will provide a useful comparative tool.

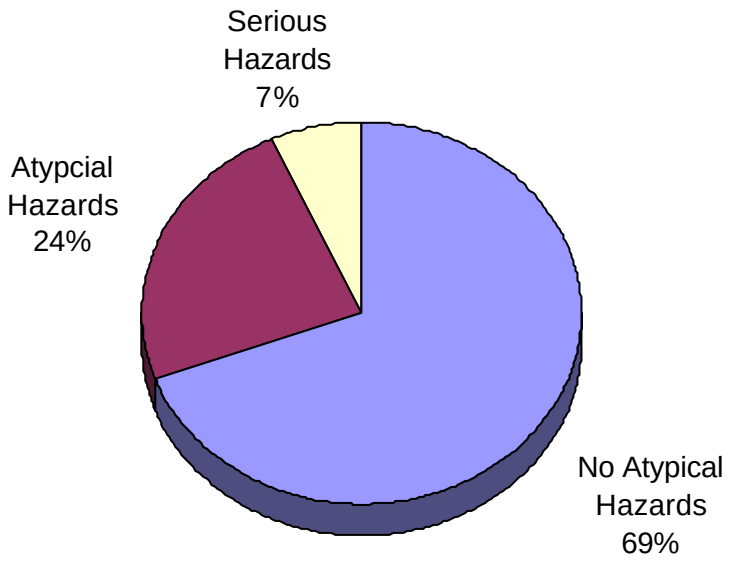
8.2 The HHSRS scoring system combines the probability that an accident will occur with the spread of likely outcomes. Thus if an accident is very likely to occur and the outcome is likely to be serious (e.g. a major or fatal injury) then the score will be very high.

8.3 The approach adopted for this survey mirrors the EHCS methodology whereby the most common 7 hazards are examined. These are: Falls on the Stairs, Falls on the level, Falls between levels, Fire, Hot surfaces and materials, Excessive cold and Damp & mould growth. The surveyor records the first five of these hazards during the inspection. The remaining two hazards are modelled, based on the energy data collected and the data on condensation.

A Typical Hazards

8.4 From the survey it was found that 12,700 atypical hazards were present in dwellings In East Cambridgeshire. These hazards were found in 9,500 dwellings, 31% of the stock surveyed. The distribution of dwellings with hazards and with serious hazards is given below (HHSRS Tables A and B).

Figure 8.1 Hazard dwelling distribution



8.5 The distribution of hazards by type is given below:

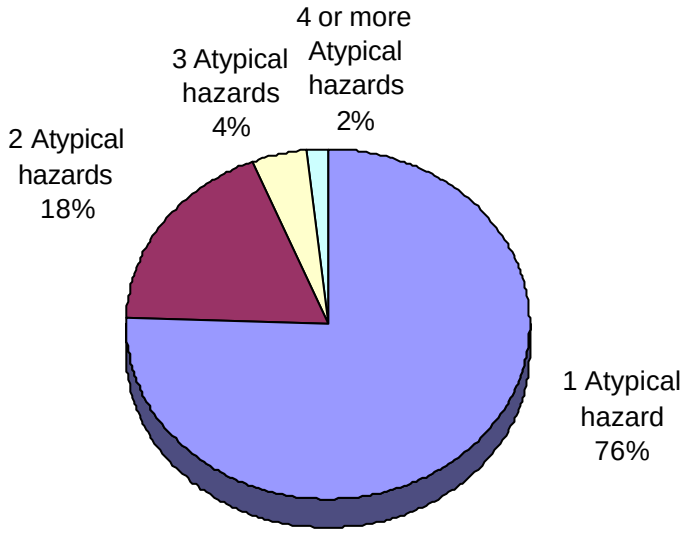
Table 8.1 Occurrence of Hazards by type

Hazard	Atypical less than 1000		Atypical over 1000 (Serious)		All Atypical Hazards	
	Hazards	Per cent	Hazards	Per cent	Hazards	Per cent
Damp and Mould Growth	2220	93	180	7	2400	100
Excessive Cold	0	0	1,600	100	1600	100
Falls Between Levels	550	92	50	8	600	100
Falls on Stairs	3920	98	80	2	4000	100
Falls on the Level	1620	90	180	10	1800	100
Fire	1170	90	130	10	1300	100
Hot Surfaces and Materials	680	76	220	24	900	100

8.6 The figures given are based on total hazards, obviously some dwellings will have more than one hazard so the totals are greater than the number of dwellings and the percentages are based on total hazards not dwellings (HHSRS Tables A and B).

8.7 The distribution of total number of atypical hazards per dwelling is given below:

Figure 8.2 Number of atypical hazards per dwelling



8.8 The number of hazards on which a dwelling fails indicates how 'generally' hazardous a dwelling is. Unlike with unfitness, a relatively small proportion 24% of dwellings have multiple, atypical hazards. We saw earlier that 51% of dwellings that were unfit had multiple fitness failures (HHSRS Table E).

Serious Hazards

8.9 The total number of dwellings with a serious hazard is 2,100 (7%), which is slightly above the 6% figure for unfitness. The initial expectation from the DTLR was that serious hazards would be found at a slightly higher rate than unfit dwellings in most cases (HHSRS Table B).

8.10 The most common serious hazards are: Excessive cold 1,600 (5%), Falls on the level 180 (1%) and Damp & mould growth 180 (1%) (HHSRS Table B).

Serious hazards and general characteristics

8.11 The distribution of serious hazards by construction date follows the same trend as is found for unfitness. In the pre-1919 stock 15% of dwellings had a serious hazard, for the inter-war stock the figure is 14%. The most modern, post-1964 stock has a rate of just 4% (HHSRS Table C).

8.12 Serious hazards by building type, as might be expected, follow the same trend as unfitness. The highest rate is for converted flats with 14% having a serious hazard compared to just 4% for purpose built flats and semi-detached houses (HHSRS Table D).

8.13 The similarity with unfitness is again evident for tenure. In the privately rented stock the rate of serious hazards is 16%, this compares to just 4% for housing association dwellings and 6% for owner-occupiers (HHSRS Table F).

Serious Hazards and unfitness

8.14 The reason for hazards being associated with the same stock characteristics as unfit dwellings is clear when one examines the relationship between unfitness and hazards.

8.15 For dwellings with a hazard score above 1,000, 56% are unfit. For the remaining hazards with score between 1 and 999 the rate is still 13%, which is above the 6% unfitness rate overall. For those dwellings with no atypical hazards the unfitness rate is 2% (HHSRS Table G). Please note that HHSRS table G is based on hazards not dwellings and therefore has totals greater than those for dwellings.

Serious hazards by area

8.16 Given the relationship between unfitness and serious hazards described, it is perhaps not surprising that the highest proportion of dwellings with a serious hazard is to be found in the Littleport and north-district area at a rate of 7.4%. The difference between areas is, however, not significant as all three are at approximately 7% (HHSRS Table H).

Conclusions

8.17 An atypical hazard is found in 9,500 (31%) dwellings. Serious hazards (those with a score of 1,000 or more) are found in 2,100 (7%) dwellings. Dwellings with serious hazards represent those that would need most urgent attention under the HHSRS and will be likely to represent the same sorts of issues with regard to action that unfit properties currently represent.

8.18 There is a strong relationship with unfitness and as a consequence serious hazards also have the same relationships with general characteristics. Serious hazards tend to be most associated with older properties, converted flats and the private rented sector.

8.19 There is little significant variation between areas with regard to serious hazards, but Littleport and north-district has a slightly higher rate.

9 Conclusions and policy implications

Introduction

9.1 This final section of the report seeks to summarise the key findings and examines some of their policy implications. It further identifies initiatives and measures that have been suggested by central government, of which some may be applicable in East Cambridgeshire. Indeed, it is understood that certain of them have already been adopted. These have not been separated out for comment, as it was not part of the survey brief to report on existing initiatives. It remains for others to assess these and the data gathered by the survey will be a major source for those that are charged with such a task.

9.2 This section concentrates on the results for the private sector, which was the principal target of the survey. Improving this, in particular the rented tenure and the worst of the owner-occupied housing presents a major challenge, which should be given special attention when considering claims on scarce resources.

General character of the stock

9.3 There are some marked differences between the national age and building type profiles and those found in the East Cambridgeshire. At the national level, problems of dwelling disrepair and unfitness are associated with a range of issues. Of the physical factors, age of the stock has the strongest association with dwellings in poor condition. As the stock profile in East Cambridgeshire is considerably more modern than the national profile this is likely to account, to some extent, for the slightly better conditions that exist.

9.4 The influence of building type on unfitness and disrepair is likely to be less pronounced. There is a greater than average proportion of detached houses, which tend to be in slightly better condition than average, but a much smaller proportion of purpose built flats, which also tend to be in slightly better condition than average. These two factors are likely to balance each other out reducing the influence of building type on the overall condition of the stock.

9.5 The influence of tenure on the rate of unfitness and disrepair would be expected to be fairly strong as the tenure most associated with poor conditions, the private rented sector, is present in smaller proportions to that found nationally and the vast majority of the stock is owner-occupied or housing association. It should be noted at this point the housing association stock is large as it contains the transferred local authority stock.

Unfit dwellings

9.6 Unfit dwellings over the survey areas occur at a rate of 6%, which is slightly below the national figure of 7%, and the pattern of unfitness itself differs somewhat.

9.7 Food preparation and disrepair are the main causes of failure of the fitness standard both in East Cambridgeshire and nationally. Multiple fitness failures occur at a much higher rate suggesting that those dwellings that are unfit suffer more intractable problems associated with multiple fitness failures and represent a small core of particularly poor housing.

9.8 The most frequently occurring unfit building type is the detached house and this is a reflection of both their large share of the dwelling stock and an average rate of unfitness. Converted flats have the highest unfitness rate of 41%.

Repair costs

9.9 There is a strong association between advancing dwelling age and repair costs with the pre-1919 stock returning the highest costs, but the 1919-1944 costs standing out as being relatively high. This suggests the stock from this period is potentially likely to suffer decline within the next few years if no investment in properties of this age is made.

9.10 Results by tenure show privately rented dwellings are in poorer condition than other dwellings and again it is the oldest stock in this tenure that is in the worst condition.

9.11 Across the survey converted flats were the building type with highest repair costs by floor area, this is the same as nationally. Detached houses also have relatively high repair costs, though this is due mainly to their considerably larger than average size.

9.12 The distribution of costs by building element shows a similar balance of external and internal costs to the national position.

Implications for the Regulatory Reform Order

9.13 As a mechanism for dealing with unfit owner occupied dwellings the use of renovation grants will have only a limited effect as the potential demand of £7.1 million is far in excess of current levels of grant spending. In future however, under the Regulatory Reform Order (RRO) it will be up to the individual Authority to decide what strategy and what policies it will use to tackle such potential demand.

9.14 When considering energy efficiency there is greater need in the grant-aidable sector. Applying the test of resources would therefore reduce the level of grant demand but at current levels of funding it is difficult to see any potential for assisting with energy efficiency except for those households in greatest need, as the reduced figure is still £4.5 million. Local Authorities are still obliged to work toward reducing energy consumption and will, therefore, still have to consider schemes to assist with this, even if they choose to no longer use grants.

9.15 Demand for home repair assistance amounts to £722,000, based on those over the age of 60 and in receipt of benefit being eligible. This is again a discretionary grant and the Authority will determine its continued application after the introduction of the RRO.

Energy efficiency

9.16 The average SAP at 50 is greater than the national average of 44. The higher SAP will largely be a result of a greater proportion of dwellings with central heating.

9.17 Improvements to insulation in order to reduce energy consumption have been extensive but there are still opportunities for improvement. There are over 1,700 (6%) dwellings that do not have loft insulation, and cavity wall insulation could also be provided in over 3,700 (12%) dwellings.

9.18 Generally speaking, there is good provision when it comes to heating systems. Installing some form of central heating is usually the best method for gaining large improvements in energy efficiency. The current provision of central heating is 96%, above the national average of 88%. Provision of new central heating systems could, however, still help to improve energy efficiency.

9.19 The DTLR have now issued guidance on tackling fuel poverty. It's emphasis is on actions to help reduce this in communities through improved energy efficiency in large part by ensuring that communities get their full share of the new Home Energy Efficiency Scheme (HEES) resources.

Improvement in energy efficiency

9.20 The group of residents who would benefit most from direct council intervention/assistance are those found to be in fuel poverty that fall outside the existing HEES scheme. The reason for this group suffering fuel poverty is mainly due to reliance on expensive fuel such as on-peak electricity. The improvement option will tend to cut out these in favour of cheaper options, thus reducing expenditure on heating and hot water. This saving in cost is more significant than the resultant reduction in energy consumption.

9.21 The current total cost of this would be £0.3million, which would offer the best payback period of 1.3 years and increase the mean SAP of these dwellings from 31 to 46. The Council would have to consider how best to target these residents. Unfortunately these residents represent a very small proportion of dwellings (800, 3% of the stock total from the survey areas).

9.22 Given the already good level of energy efficiency in the district, it seems unlikely that a 30% improvement can be made. There has, of course, been a 6-year period since the objectives of the 1996 Home Energy Conservation Act were laid out and it is likely that improvement has been made over this period already.

Housing Health and Safety Rating

9.23 This new system has now been published. It is based upon the calculation of risk of harm to persons using the dwelling. Most of these hazards are either rare, or very unlikely to cause a serious health and safety outcome. A hazard score of 1,000 or more implies that there is a risk of death equivalent to 1 in 1,000 that is considered unacceptable.

9.24 An atypical hazard is found in 9,500 (31%) dwellings, there are 12,600 atypical hazards in total distributed among the 9,500 dwellings. Serious hazards (those with a score of 1,000 or more) are found in 2,100 (7%) dwellings. Dwellings with serious hazards represent those that would need most urgent attention under the HHSRS and will be likely to represent the same sorts of issues with regard to action that unfit properties currently represent.

9.25 There is a strong relationship with unfitness and as a consequence serious hazards also have the same relationships with general characteristics. Serious hazards tend to be most associated with older properties, converted flats and the private rented sector.

Sub area analysis

9.26 The survey was designed in order to give sub-area analysis of results and to target specific areas that were perceived to be in poor condition. The Littleport and north-district area was deemed to have the poorest conditions, and this area did indeed have the highest rate of unfitness at 7%. This level of unfitness is not, however, significantly different from that found across the district as a whole (6%).

9.27 A range of other indicators demonstrate that the Littleport and north-district area does have the poorest conditions, but there is again, no statistically significant difference between areas in most cases.

9.28 In general the poorest condition dwellings tend to have multiple failures and appear to be in isolated pockets of particularly poor housing rather than a broad area.

Appendix A – Additional Data

Density of occupation

A1 The average number of persons per dwelling is 2.5, which is slightly below the national average of 2.56 (Appendix Table A).

A2 The occupation density figures in table A1 are compared to the 1991 EHCS figures as the 1996 EHCS does not collect this type of information, but relies solely on the bedroom standard (the standard used by the general household survey).

Table A.1 Occupation and floor space by tenure

		Owner occupied	Housing assoc.	Private rented	All [1] dwellings
East Cambs	No. persons	56,700	12,900	4,000	75,200
	No. dwellings	21,600	5,800	1,900	30,100
	No. persons per dwelling	2.63	2.25	2.11	2.5
	Mean floor area of dwelling (sq. metres)	115	70	84	104
	Floor space per person (sq. metres)	44	31	40	42
England	No. persons per dwelling	2.61	2.14	2.29	2.56
	Mean floor area of dwelling (sq. metres)	87	58	74	84
	Floor space per person (sq. metres)	33	27	32	33

(1) Excludes vacant dwellings. Total includes all private sector (e.g. other public and other private are included).

(2) Also excludes dwellings where no social data was collected.

A3 Table A1 allows comparison of the different tenures to the national data. The dwelling total is slightly lower than the overall stock total as vacant dwellings cannot, by definition, be included (there are no occupants to count) and dwellings where residents refused to answer social questions are also excluded.

A4 Floor space varies considerably with building type. Unsurprisingly the largest dwellings are detached houses (130m^2). Semi-detached and terraced houses average 89m^2 and 83m^2 respectively. The dwellings with the smallest average floor space are purpose built flats averaging 49m^2. (Appendix Table B). The building types described are those used in the 1996 EHCS.

A5 There is some variation in occupancy between dwelling types. In general the larger dwelling types (terraced, semi-detached and detached) have the highest density of occupation at between 2.2 and 2.8 persons. Purpose built flats have the lowest density, 1.3 persons per dwelling with converted flats slightly higher at 1.6 persons per dwelling. The largest mean floorspace per person is found in detached houses with an average of 47m^2 compared to 37m^2 in semi-detached houses and purpose built flats. Converted flats have the smallest floor space per person at 31m^2 (Appendix Table B).

A6 The very oldest dwellings (pre-1919) were found to be the largest with an average floor space of 112m^2. Dwellings then drop in size to 89m^2 for the 1944 – 1964 stock before rising again to 106 m^2 for post 1964 dwellings (Appendix Table C).

Overcrowding

A7 The approach taken to overcrowding has been to calculate a simple room rate by dividing the number of persons in a dwelling by the number of habitable rooms. This measure is used firstly for its simplicity but secondly because it is the same measure used by the census, which will allow comparisons to be made.

A8 The census definition of overcrowding adopts a two-tier approach with a room rate of greater than 1 considered as being overcrowded and greater than 1.5 as seriously overcrowded. Using these definitions 2% of dwellings are overcrowded, with the top 0.5% being seriously overcrowded (Appendix Table D).

A9 There was no overcrowding discovered in privately rented dwellings (Appendix Table F). In housing association dwellings, a level of 3% overcrowding was found, with 0.5% being seriously overcrowded and owner-occupied dwellings had the same pattern of overcrowding as the stock in general (Appendix Tables E and G). This is a pattern not uncommonly found in other areas where similar surveys have been undertaken. The figure for the privately rented sector is lower than is usually found, but this may be due to the very small sample size for this tenure.

Under occupation

A10 At the opposite end of the scale some properties can be regarded as under occupied. In some cases occupiers may welcome assistance to convert large houses into flats. Dwellings with 6 rooms or more were considered as having potential for conversion into flats. There are an estimated 8,700 (40%) owner-occupied dwellings of this type in the survey. Of these an estimated 760 (9%) were dwellings where an elderly person lives alone. Single adults account for an estimated 210 (2%) such dwellings (Appendix Table H).

Facilities and Services

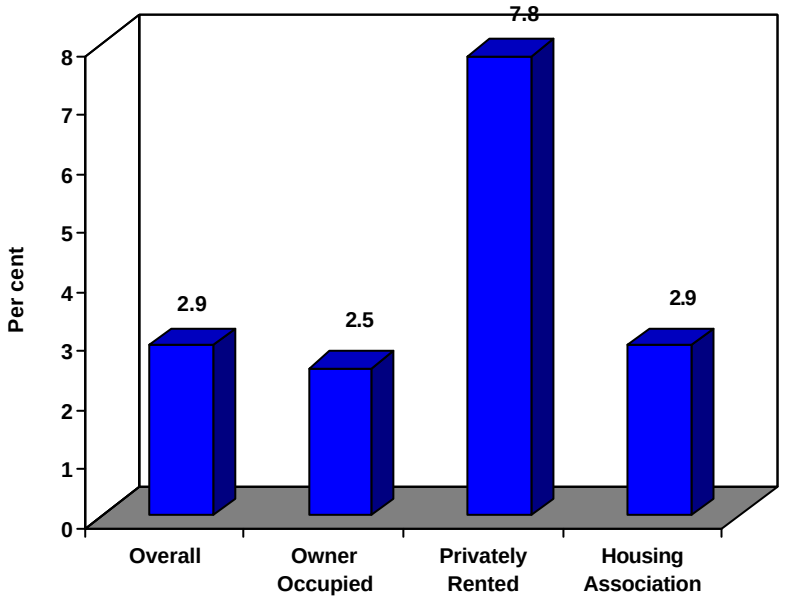
Kitchens

A11 Over 99% of singly occupied dwellings now have the five basic amenities i.e. a kitchen sink; a bath or shower in a bathroom; a wash-hand-basin; hot and cold water supply to each of these; and an internal WC (Appendix Table J).

A12 The high level of amenity provision means that an analysis of facilities and services should shift to a focus on the condition of services. In common with the findings of most local house condition surveys there is little evidence of amenities in disrepair. This is recognised at the national level where the emphasis has shifted to an analysis of the age of amenities, as an indicator of their adequacy. To compare with the national position the age of four key facilities is examined: kitchens, bathrooms, electricity supply and heating.

A13 The national survey collects much more detailed information than is possible for this HCS in respect of kitchen facilities. However, as only a major kitchen refurbishment is likely to involve replacement of the kitchen sink, the age of this element can act as an indicator of likely condition. The 1996 EHCS regards amenities installed before 1964 as unmodernised.

Figure A.1 Unmodernised kitchens by tenure



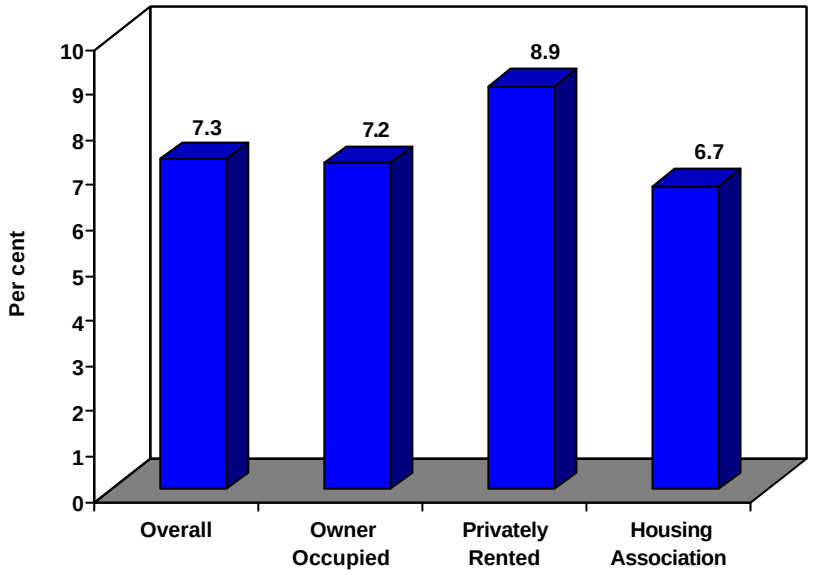
A14 Using this measure, 900 3% kitchens are unmodernised, slightly less than the 4% proportion that is found nationally (Appendix Table K).

A15 Examining unmodernised kitchens with reference to tenure shows that lack of modernisation occurs at a similar rate in owner occupied dwellings where 2.5% of dwellings have kitchen sinks installed before 1964. The private rented sector has older kitchens facilities, but housing association dwellings have approximately the same provision (Appendix Table K).

Bathrooms

A16 A similar analysis can be applied to bathrooms, again utilising pre 1964 as the defining period, which for this survey reveals that an estimated 940 (9%) of bathrooms are unmodernised, which is just below the national average of 10% (Appendix Table K).

Figure A. 0.1 Dwellings with unmodernised bathrooms by tenure



A17 Figure A.2 shows the profile of unmodernised bathrooms by tenure. The least modern bathroom facilities are to be found in private rented dwellings at 9%. In housing association dwellings there were the fewest pre 1964 bathrooms (7%) (Appendix Table K).

Electricity Installation

A18 The quality of electrical installations is difficult to judge in housing stock surveys, and therefore the age of an installation becomes even more important as a means of establishing the need for action. There is, of course, scope for significant surveyor error in making such judgements and the results below are therefore indicative of trends but must be interpreted with care.

A19 Comparisons with the national position are also problematic as the 1996 EHCS utilises a different typology where dwellings that lack PVC wiring; modern 13amp sockets and modern light fittings are regarded as unmodernised. Comparisons with national figures cannot therefore be made.

A20 Unmodernised electrical installations (i.e. those installed before 1964) were present in 9% of the private sector stock (Appendix Table L).

A21 When disaggregated by tenure the private rented dwellings had the highest proportion at 11%, whilst for the owner-occupied sector the figure was 10% and 3% for housing association dwellings (Appendix Table L).

Gas supply

A22 62% (19,300) of dwellings had a permanent mains gas supply, which is considerably lower than the 86% nationally, but this reflects the very rural nature of the area and larger reliance on oil (Appendix Table J).

Appendix B – Survey Sampling

Sample Design

A23 The sample was drawn from the East Cambridgeshire council tax list. The total number of dwellings on the list was 31,670. This included all local authority properties that had been transferred to RSLs.

A24 The target number of complete surveys was 800. This was to be met at an access rate of 55%.

A25 The original sample was a stratified random sample of 1,455 addresses. The sample was stratified by area. This was done in order to focus on three sub-areas of the district. Table B.1 below gives a breakdown of the sample.

Table B.1 Sample stratification groups

Areas	Sample
Littleport and north-district	485
Ely and mid-district	485
South district	485
Total	**1455**

Stock total

A26 The stock total is based initially on the council tax list, this constitutes the sample frame from which a proportion (the sample) is selected for survey. Any non-dwellings found by the surveyors are marked as such in the sample, these will then be weighted to represent all the non-dwellings that are likely to be in the sample frame. The remaining dwellings surveyed are purely dwellings eligible for survey. These remaining dwellings are then reweighted according to the original sample fractions and produce a stock total.

A27 In producing the stock total the amount by which the total is adjusted to compensate for non-dwellings is estimated, based on how many surveyors found. With a sample as large as 1,455 dwellings however, the sampling error is likely to be very small and the true stock total is likely, therefore, to be very close to the 31,100 figure reported. Sampling error is discussed later in this section.

Response rates

A28 Table B.2 shows the response rates to the survey.

Table B.2 Response rates

	Dwellings	Per cent of addresses issued	Per cent of traceable eligible dwellings
Addresses issued	1455	100	N/A
Non-residential	0	0	N/A
Untraceable	14	1	N/A
Believed demolished	12	1	N/A
Demolished	0	0	N/A
Traceable eligible dwellings	1429	98	100
External data collected	1356	93	98
Vacant dwellings	34	2	2
Internal access data collected	797	55	56

A29 The Survey achieved a response rate of 55%, which compares favourably to 44% rate in the 1996 national survey. The national survey excluded 7% of dwellings from the survey whereas in East Cambridgeshire 5% were excluded. The survey therefore compares creditably with the national survey with regard to overall response.

Weighting the data

A30 The original sample was drawn from the Council Tax list. The sample fractions used to create the sample from this list, can be converted into weights. If applied to the basic sample these weights would produce a total equal to the original Council Tax list. However, before the weights are applied the system takes into account all non-residential and demolished dwellings. This revised sample total is then weighted to produce a total for the whole stock, which will be slightly lower than the original total from which the sample was drawn.

Dealing with non-response

A31 Where access fails at a dwelling selected for survey the easiest strategy for a surveyor to adopt is to seek access at a neighbouring property. Unfortunately this approach results in large numbers of dwellings originally selected subsequently being excluded from the survey. These are the dwellings whose occupiers tend to be out all day, i.e. mainly the employed population. The converse of this is that larger numbers of dwellings are selected where the occupiers are at home most of the day, i.e. the elderly, the unemployed and families with young children. This tends to bias the results of such surveys as these groups are often on the lowest incomes and where they are owner-occupiers they are not so able to invest in maintaining the fabric of their property.

A32 The methods used in this survey are designed to minimise the effect of access failures. The essential features of this method are; the reduction of access failures to a minimum by repeated calls to dwellings and the use of first impression surveys as a proxy for complete inspections.

A33 Surveyors were instructed to call on at least three occasions and in many cases they called more often than this. At least one of these calls was to be outside of normal working hours, thus increasing the chance of finding someone at home.

A34 Where access failed this normally resulted in a brief external assessment of the premises. Among the information gathered was the surveyor's first impression of condition. This is an appraisal of the likely condition of the dwelling based on the first impression the surveyor receives of the dwelling on arrival. It is not subsequently changed after this, whatever conditions are actually discovered. The first impression groups and descriptions are listed in table A.2.

Table B.3 First impression groups and description

First Impression Group	Short Description	Full description
1	**Seriously defective**	Exterior condition suggests that dwelling/module is probably unfit.
2	**Defective**	Dwelling/module has serious problems and is likely to be 'borderline fit'.
3	**Defective**	Dwelling/module has major problems but is unlikely to be unfit. Dwelling/module in need of fairly major/extensive repairs.
4	**Just Acceptable**	Dwelling/module is in generally poor condition with some faults but with no major problems. Dwelling/module in need of several minor repairs.
5	**Just acceptable**	Dwelling/module is in reasonable condition with a few minor repairs needed.
6	**Satisfactory**	Dwelling/module is in good condition with enhanced maintenance only required.
7	**Satisfactory**	Dwelling/module is in excellent condition and well maintained.

A35 Where access fails no data is collected on the internal condition of the premises. During data analysis weights are assigned to each dwelling according to the size of sample fraction used to select the individual dwelling.

A36 Where access to a particular dwelling fails the weight applied to all other dwellings in the first impression group is increased to compensate for the missing data. If no access is achieved in a dwelling where the first impression group is equal to 1 (seriously defective) then all dwellings in the same first impression group 1 have their weight increased.

Sampling error

A37 Results of sample surveys are, for convenience, usually reported as numbers or percentages when in fact the figure reported is at the middle of a range in which the true figure for the population will lie. It is usual to report these as the 95% confidence limits, i.e. the range either side of the reported figure within which one can be 95% confident that the true figure for the population will lie.

A38 For this survey the estimate of unfit dwellings is 5.7% and the 95% confidence limits are + or – 1.6%. In other words one can say that 95% of all samples chosen in this way would give a result in the range between 4.1% and 7.3% (Appendix Table M).

A39 The 95% confidence limits for a proportion are found by multiplying the standard error for a sample by 1.96.

$$s.e.(p_{st}) = \sqrt{\frac{1}{N^2}\sum \frac{N_i^2 p_i (1 - p_i)}{n_i - 1}}$$

A40 The standard error for the results of this survey which arise from the overall sample and any sub-samples which include dwellings from different areas should be calculated using the general formula for a disproportionate stratified sample:

Where $s.e.(p_{st})$ is the notation to describe the general formula for the standard error for a stratified random sample.

N = the number of dwellings in the population.

N_i = the population of dwellings in an individual stratum of the sample.

n_i = the number of dwellings in an individual stratum of the sample.

p_i = the proportion of dwellings in the sample with a particular attribute such as unfitness.

$$s.e.(p_{srs}) = \sqrt{\frac{p(1-p)}{n}}$$

A41 Where results are for dwellings contained within the same sample group, the formula for a simple random sample can be used. The standard error of a proportion for a simple random sample is calculated using this formula:

where p = the standard error for a simple random sample

as $s.e.(p_{srs})$ = the proportion found with a particular attribute such unfitness

and n = the size of the sample

A42 This formula can be used to calculate the confidence limits for the results of any attribute such as unfitness. Table A.3 gives a number of sample sizes and the confidence limits for a range of different possible results.

Table B.4 95% per cent confidence limits for a range of possible results and sample sizes

	Sample size									
Expected result as per cent	**100**	**200**	**300**	**400**	**500**	**600**	**700**	**800**	**900**	**1,000**
10	5.9	4.2	3.4	2.9	2.6	2.4	2.2	2.1	2	1.9
20	7.8	5.5	4.5	3.9	3.5	3.2	3	2.8	2.6	2.5
30	9	6.4	5.2	4.5	4	3.7	3.4	3.2	3	2.8
40	9.6	6.8	5.5	4.8	4.3	3.9	3.6	3.4	3.2	3
50	9.8	6.9	5.7	4.9	4.4	4	3.7	3.5	3.3	3.1
60	9.6	6.8	5.5	4.8	4.3	3.9	3.6	3.4	3.2	3
70	9	6.4	5.2	4.5	4	3.7	3.4	3.2	3	2.8
80	7.8	5.5	4.5	3.9	3.5	3.2	3	2.8	2.6	2.5
90	5.9	4.2	3.4	2.9	2.6	2.4	2.2	2.1	2	1.9

A43 The formula takes no account of the size of the population the sample is drawn from as this is not significant unless the sample size is large compared to the population. Where this occurs this complete version of the formula for the standard error should be used:

$$s.e.(p_{srs}) = \sqrt{(1 - \frac{n}{N})\frac{p(1-p)}{n}}$$

A44 This takes account of the size of the population N.

A45 For general purposes the figures quoted in table A3 will provide a reasonable approximation of the confidence limits calculated by the full formula for the stratified random sample.