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Northern Ireland's Housing Stock: Evidence, Comparisons and Innovation

Over a period of more than four decades, the Northern Ireland House Condition Survey has helped track changes in the fitness, state of repair, tenure and age profile of the region's housing stock. More recently, the data gathered by the survey has enabled measurement and monitoring of indicators including fuel poverty, energy efficiency, the Decent Homes Standard and the Housing Health and Safety Rating System. The full report on the 2016 survey was published in spring 2018.

At the Housing Executive's most recent *Insight* housing market intelligence exchange in October 2018, which was chaired by our Interim Chair, Professor Peter Roberts, delegates heard about the key findings from the 2016 Northern Ireland House Condition Survey, how they fit in the wider historical and UK-wide context, and how they have been used to carry out further analysis on the cost of poor housing and to design projects and programmes that improve the energy efficiency of the housing stock.

This *Insight Briefing* summarises the information that was shared and the discussions that took place on the day, and provides signposts to other recent research and policy developments.

2016 Northern Ireland House Condition Survey

One of the Housing Executive's key statutory roles is to regularly examine housing conditions in Northern Ireland, and the organisation has carried out 12 House Condition Surveys since 1974, including the most recent in 2016. A total of 19 professional surveyors (Environmental Health Officers, chartered surveyors and architects) were employed to work on the 2016 survey, and used electronic tablet devices with bespoke software to collect information on:

- The internal and external physical attributes of each dwellings;
- The physical aspects of flats and common areas;
- Demographic, social, economic and attitudinal household information;
- The front and back plot of the dwelling, the local neighbourhood and area; and
- The Housing Health and Safety Rating System (HHSRS).

The physical information allows measurement of repair costs, the fitness standard, fuel poverty, SAP (energy efficiency) and the HHSRS, while information from the social survey is cross-referenced with the physical survey data to provide an indication of the types of households living in the dwellings that are in the poorest condition and most likely to fail government standards. Following validation and quality assurance of the data, a <u>preliminary report</u> setting out key headline findings on dwelling tenure, age, location (urban/rural) and unfitness was published in May 2017. Further analysis and modelling were then carried out to produce the full range of findings at Northern Ireland level, which were published in the <u>main report</u> and accompanying <u>data tables</u> in May 2018.

The 2016 House Condition Survey was assessed for, and awarded, <u>National Statistics</u> status, which means that the statistics meet the highest standards of trustworthiness, quality and public value. It should be noted that reports and tables relating to previous House Condition Surveys are not classed as National Statistics. The Housing Executive's Head of Research, Karly Greene, presented some of the key findings from the survey, highlighting trends, changes over time and how the survey data is used.

Overall trends in stock and tenure

The first Northern Ireland House Condition Survey was carried out in 1974, and showed that at that time one fifth (20%) of dwellings in the region were legally unfit for human habitation. Over subsequent decades, the clearance and replacement of unfit stock and investment in new and existing dwellings has seen the quality of the stock improve substantially where fitness is concerned, so that by 2016 only around two per cent of dwellings in Northern Ireland were estimated to be unfit.

More recent trends over the decade since 2006 in relation to a number of other key indicators are set out in Table 1. The well-documented growth in the private rented sector (both numerically and as a proportion of the overall stock) has been offset by a reduction in the *proportion* of the stock accounted for by owner occupied dwellings over the period (despite numerical growth), while continuing provision of new dwellings by housing associations through the social housing development programme has meant that the social housing sector as a whole has grown numerically and continued to account for a steady share of the overall stock.

There was a substantial (and statistically significant) reduction in the number and proportion of vacant dwellings between 2011 and 2016, and the most recent figures show that vacancy is strongly associated with the age and location of dwellings; the vacancy rate in rural areas (5.8%) was more than twice that in urban locations (2.5%) and more than one third (35%) of all vacant properties had been constructed before 1919.

	2006		2011		2016	
	Number	%	Number	%	Number	%
Total Stock	705,000	100	760,000	100	780,000	100
Urban	493,800	70	490,600	65	502,900	65
Rural	211,200	30	269,400	36	277,100	36
Owner Occupied	468,900	66.5	469,100	61.7	494,700	63.4
Private Rented and others	80,900	11.5	125,400	16.5	136,000	17.4
Housing Executive	93,400	13.3	110 000*	14.6*	85,300	10.9
Housing Association	21,500	3.1	110,600*		35,600	4.6
Vacant	40,300	5.7	54,700	7.2**	28,500	3.7
Pre-1919	113,800	16.1	87,700	11.5	81,600	10.5
1919-44	71,000	10.1	68,100	9.0	67,600	8.7
1945-64	141,400	20.1	134,000	17.6	126,200	16.2
1965-80	169,300	24.0	169,500	22.3	189,400	24.3
Post-1980	209,500	29.7	300.700	39.6	315,200	40.4

Table 1: Overall stock, location, tenure and age, Northern Ireland, 2006-2016

* In 2011 'Housing Executive' and 'housing association' were combined due to small numbers.

** The quality assurance of the database after 2011 may have removed non-eligible dwellings that were surveyed in 2011 and therefore this figure should be treated with caution.

Household profiles

Surveyors completed the household questionnaire section of the survey with the Household Reference Person (see definition below) or partner, if applicable, gathering data which provides a useful update of the profile of households in Northern Ireland and an insight into the relationship between key dwelling characteristics and the social and economic circumstances of occupants.



Owner occupiers

- Older: 85% of HRPs aged 40+
- Mainly working (55%) or retired (38%); only 3% 'not working'
- Higher incomes: 56% had gross household income of £20,800 or more
- 61% owned their home outright, of which 73% were aged 60+
- Newer stock: 64% built after 1964; 55% semi-detached or detached

Private renters

- Younger: half of HRPs under 40, with children
- Largest proportion of working HRPs (57%), but 20% 'not working'
- Middle income bands (47% £10,400-£20,799)
- Highest proportion of pre-1945 dwellings (28%)
- Mainly terraces (44%)

Social renters

- Middle age groups: 60% of HRPs aged 40-74; 73% 40+
- Mainly retired (30%) or permanently sick/disabled / looking after family/home (28%); only 25% working
- Lower income (74% less than £15,600)
- Highest proportion of terraces (46%) and stock built after 1964 (80%)

Household Reference Person (HRP)

The HRP is the member of the household who owns or pays the rent or mortgage on the property or has the property as a perquisite or because of some relationship with the owner, where the owner is not a member of the household. Where two people have equal claim (e.g. husband and wife jointly own the property), the HRP is the person with the highest annual income. This definition is for analysis purposes and does not imply any authoritative relationship within the household.

House Conditions: Unfitness, Decent Homes and the Housing Health & Safety Rating System

Fitness, state of repair and repair costs have been key elements of the Northern Ireland House Condition Survey since 1974. In order to be classified as unfit, a dwelling must fail on one or more of 11 individual criteria set out in the fitness standard; this standard provides a robust measure and has demonstrated the substantial progress made in improving housing conditions over successive decades, with the unfitness rate falling from 20% in 1974 to 2% in 2016. The three most common reasons for a property being classified as unfit in 2016 were dampness (9,300 dwellings), serious disrepair (9,100 dwellings) and unsatisfactory facilities for the preparation and cooking of food (8,800 dwellings).



Over successive House Condition Surveys, additional measures of housing quality and conditions have been incorporated in order to reflect policy developments and changes in housing standards in the decades since the fitness standard was conceived; these include the Decent Homes Standard and the Housing Health and Safety Rating System. The overall non-decency rate fell between 2011 and 2016 (Table 2) and, after vacant properties (40%), pre-1919 dwellings (28%) and those in small villages, hamlets and the open countryside (13%) were most likely to be non-decent.

The Decent Homes Standard

A decent home is one that is wind- and weather-tight, warm and has modern facilities. A decent home meets four criteria:

- a. It meets the current statutory minimum standards for housing
- b. It is in a reasonable state of repair
- c. It has reasonably modern facilities and services
- d. It provides a reasonable degree of thermal comfort

Table 2: Non-Decent Homes by tenure. Northern Ireland, 2016 (and 2011)

Tenure	Total dwellings (2016)	Number Non-Decent (2016)	Non- Decency rate (2016)	Non- Decency rate (2011)
Owner occupied	494,660	31,470	6.4	8.2
Private rented	135,980	14,500	10.7	10.2
Social Housing	120,890	**	3.1	3.7
Vacant	28,470	11,270	39.6	57.1
All stock	780,000	60,930	7.8	11.4

** small sample numbers; proportion should be treated with caution

The Housing Health and Safety Rating System (HHSRS) is a risk-based system that identifies defects in dwellings and evaluates their potential effect on the health and safety of occupants, visitors, neighbours or passers-by. The system generates a score, which represents the seriousness of any hazard; hazards with a score of over 1,000 are described as 'Category 1' hazards, which pose a serious and immediate risk to a person's health and safety.



The HHSRS represents a very different approach to the measurement of housing standards, as it is not a pass/fail test and is primarily concerned with safety rather than matters of quality, comfort and convenience.¹ In England, the unfitness element of the Decent Homes Standard has been replaced with a requirement that, to be decent, a dwelling should be free from Category 1 hazards as assessed through the HHSRS. Northern Ireland retains the fitness standard as the first component of the Decent Homes Standard, but data collected through the House Condition Survey allows measurement of performance under the HHSRS and enables comparisons with findings in England and Wales.

The 2016 survey indicated that in Northern Ireland:

- Overall, 9% of all dwellings (69,900) had Category 1 hazards. This proportion was in line with 2011 (10%) and slightly lower than in England during 2014/15 (12%).
- Almost three quarters (74%) of dwellings with Category 1 hazards had only one such hazard, while 11% had two. However, 6% of dwellings, the majority of which were vacant, had between six and thirteen Category 1 hazards.
- The rates in the owner occupied (8.8%) and private rented sectors (8.2%) were in line with the overall average, while social housing had a lower proportion of properties with Category 1 hazards (4.4%) and – not surprisingly – the proportion was much greater among vacant properties (35.5%).
- The most common risks in 2016 were falls on stairs (3% of dwellings); falls on level surfaces (2%) and excess cold (2%).
- As well as being associated with vacancy, having at least one Category 1 hazard was linked with a number of other dwelling characteristics. Dwellings most likely to have such hazards were:
 - older: built before 1919 (27%) and between 1919 and 1944 (17%);
 - o rural: located in small villages, hamlets and open countryside (17%)
 - o *occupied by households with older HRPs* aged 75 and over (11%).

Energy Efficiency

The energy efficiency of a dwelling is determined primarily by the fuel source and heating type, in combination with other factors such as insulation and double glazing. The House Condition Survey is the primary data source for assessing progress towards improved energy efficiency and provides key statistics that help the Housing Executive to fulfil its role as the Home Energy Conservation Authority for Northern Ireland.



Box 1 indicates the level of investment in residential energy efficiency in Northern Ireland between 2011 and 2016. This included around 13,000 loft insulations or upgrades, 23,900 double glazing installations and 29,400 boiler replacements, comprising 21,800 gas boilers and 7,600 oil boilers. Oil remained the predominant fuel source, used in 68% of dwellings, but there was a substantial increase in the number and proportion of homes heated by gas (from 17% in 2011 to 24% in 2016), and a reduction in the proportion using solid fuel, electric and dual fuel systems.

Box 1: Investment in residential energy efficiency, 2011-2016

£300 m	Total investment in residential energy efficiency in Northern Ireland 2011-2016
£117 m	Warm Homes, Affordable Warmth and Boiler Replacement (private sector)
£181 m	Energy efficiency improvements to Housing Executive stock

¹ The Housing Health and Safety Rating System (HHSRS) Briefing Paper Number 01917, 19 May 2016 London: House of Commons Library (http://researchbriefings.files.parliament.uk/documents/SN01917/SN01917.pdf)

The energy efficiency of dwellings is measured using the **Standard Assessment Procedure** (SAP). SAP takes account of a range of factors that contribute to energy efficiency, such as materials used for construction, the efficiency and control of heating systems and fuel used for space and water heating. The higher the SAP score, up to a maximum of 100, the higher the efficiency of the dwelling. For ease of understanding, SAP energy efficiency ratings (EER) are often reported using an A-G banding system. EER band A represents low energy costs (i.e. the most efficient band), while EER band G is the least efficient band, with the highest energy costs.

The calculation model has been modified over time in order to improve the accuracy of ratings, and the SAP figures and EER banding information quoted in the full report on the 2016 House Condition Survey are based on version 9.93 of RdSAP 2012. This means that they are not comparable with previously-published SAP ratings for earlier surveys; however, a revised time series based on the updated methodology will be published in due course. Some of the key energy efficiency indicators for 2016 were that:

- Northern Ireland's dwelling stock had an average SAP rating of 65.83. The mean SAP ratings for owner occupied (65.11) and private rented dwellings (65.33) were in line with this overall average, while social housing had a higher (more efficient) mean SAP rating of 72.63, and vacant dwellings were generally (and not surprisingly) less energy efficient (mean SAP: 51.78).
- Mean SAP rating increased in line with the date of dwelling construction; the oldest (pre-1919) dwellings had the lowest mean SAP of 51.53, rising to 71.60 among properties built after 1980.
- Almost half (49%) of all dwellings were in EER bands A-C, and more than one third (36%) fell into band D. Only three per cent of dwellings were in the lowest EER bands (F and G). Figure 1 illustrates the proportion of dwellings of each tenure falling into EER bands A-C, D, E and F-G, and shows the extent to which social housing was generally *more* energy efficient than the rest of the stock, and vacant properties less so.



Figure 1: Proportion of dwellings in Northern Ireland within EER bands, by tenure, 2016

- Dwellings in urban areas, which had a mean SAP rating of 68.14, were more likely to fall within EER bands A-C (57.4%) than those in rural areas (mean SAP 61.63; proportion in EER bands A-C 35.0%).
- Households with children were more likely to live in a dwelling rated band A-C (63.6%; mean SAP 69.41) than older households (38%; mean SAP 63.48).

Fuel Poverty 10% definition

Under the '10% methodology' a household is considered to be in fuel poverty if, in order to maintain a satisfactory level of heating (21°C in the main living area and 18°C in other occupied rooms), it is required to spend in excess of 10% of its household income on all fuel use. This measurement of fuel poverty assesses the ability to meet all domestic energy costs including space and water heating, cooking, lights and appliances.



As measured by the 10% definition, the 2016 House Condition Survey estimated that approximately 22% of households in Northern Ireland (160,000) were in fuel poverty. This represents a significant (and *statistically* significant) improvement by comparison with 2011, when the figure was 42% (294,000). The reduction was the result of changes in the key factors influencing fuel poverty over a period of time (Figure 2): lower average fuel prices, lower modelled household energy use (mainly due to improved energy efficiency of the stock) and increased income.





The households most likely to be impacted by fuel poverty in 2016 were those on the lowest incomes (up to £10,399 per year; 55% in fuel poverty); those living in dwellings constructed before 1919 (52%); those living in rural areas (32%); those with a Household Reference Person aged 75 or over (38%); and those with a HRP who was not working (32%) or retired (31%).

Estimating the impact of fuel price change

The Housing Executive is mindful of the fact that changes to fuel prices have a large impact on the level of fuel poverty in Northern Ireland. Following publication of the main House Condition Survey report, in order to meet users' needs and provide a more nuanced view of the picture on fuel poverty, the Housing Executive commissioned BRE to investigate how various fuel price scenarios would alter the number of households in fuel poverty, thus creating a 'ready reckoner' for the effect of fuel price changes. A short <u>report</u> on this analysis is available on the Housing Executive website, while Table 3 summarises the headline findings on the proportion of households likely to be in fuel poverty – by comparison with the 2016 base of 21.5% – under each pricing scenario.

It is important to note that these scenarios represent the overall change in fuel prices from an annual 2016 price, rather than a price at any particular point in that year, as fuel poverty is based on annual fuel cost and annual income. The estimates indicate that if, for example, the price of oil increased by 25% compared with the annual 2016 price, the proportion of households in fuel poverty would rise from the 2016 base of 21.5% to 28.6%.

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	Percentage of households in fuel poverty							
% Change in price of	-25%	-10%	-5%	2016 BASE	5%	10%	25%	50%
Mains gas	20.6	21.3	21.4	21.5	21.7	21.9	22.9	24.0
Electricity	16.3	19.6	20.7	21.5	23.2	24.4	28.8	36.7
Solid fuel	21.1	21.3	21.4	21.5	21.6	21.7	22.4	23.0
Oil	15.1	18.8	20.7	21.5	23.1	24.4	28.6	35.4
All fuel types	9.8	15.9	19.0	21.5	25.1	28.0	37.9	52.1

Table 3: Percentage of households in fuel poverty in Northern Ireland for various fuel price scenarios, with 2016 as a base figure

Conclusions, uses and further information

In conclusion, Karly noted that the most recent House Condition Survey evidence highlights a number of key trends and issues for the housing stock and housing market in Northern Ireland.

- The **private rented sector** grew substantially over the decade to 2011 and continues to play an important role in the housing market, especially for households with children.
- Overall, the **condition of the stock** continues to improve; the unfitness rate is negligible and other measures such as the Decent Homes Standard indicate that the overall quality of housing in Northern Ireland remains relatively good, reflecting the value of ongoing investment in the housing stock.
- The value of investment is similarly reflected in the evidence on the **energy efficiency** of the stock, as measured by SAP ratings and the reduced level of **fuel poverty** in 2016. However, the rate of fuel poverty is highly dependent on fuel prices and household income, and these issues are more difficult to address, especially for vulnerable households.

The House Condition Survey provides a wealth of data that is and has been used to inform analysis, research and policy and strategy development on issues ranging from District Housing Plans, the private rented sector and child poverty outcomes to multiple deprivation measures and disability indicators. All published information is available on the <u>House Condition Survey</u> page of the Housing Executive website, where future House Condition Survey-related reports will also be published.

50 years of UK housing surveys: the Northern Ireland survey in a UK context

House Condition Surveys are also carried out in England, Scotland and Wales, and the 1967 House Condition Survey of England and Wales was the first national sample housing survey in the world. Simon Nicol, Director of Housing and Energy at Building Research Establishment (BRE), which provides technical and modelling services for housing stock surveys across the UK, provided an overview of the evolution of the surveys over five decades and some insights into how Northern Ireland's housing stock compares with that of England.

While the late 1960s are perceived as the era of the birth of the modern UK, much of the housing stock at the time dated from before World War 1 and took the form of terraced homes without bathrooms, indoor WCs or electricity. Clearance programmes were developed to replace the worst of the housing, but this often resulted in the break-up of established communities and, in spite of a substantial new build programme, there was a homelessness crisis which was highlighted by the drama 'Cathy Come Home', which had been aired in 1966 and brought contemporary housing problems into sharp focus. In light of these issues, the Government Central Housing Advisory Committee of the day recommended in its 1966 report, *Our Older Homes – a call for action*, that a national survey should be carried out to provide reliable data on house conditions.

"A national sample survey, scientifically designed and carried out by skilled investigators [is] necessary to provide reliable data on house conditions" *Central Housing Advisory Committee, 1966*

The results of this survey, which focused on amenities, fitness for habitation and state of repair, were published in 1968, and indicated that the condition of the housing stock in England and Wales was poor; 40% of dwellings had been constructed before 1919, one quarter (25%) lacked at least one basic amenity; 19% had no indoor WC, 12% were unfit for habitation and five per cent had estimated repair costs exceeding £1,000 (£17,000 at 2017 costs). There was an immediate response, including a commitment of more funding from the Treasury to spend on private sector housing renewal.

Faced with similar challenges around the quality of housing stock in Northern Ireland, the Housing Executive was (and remains) tasked with examining house conditions and carried out its first House Condition Survey in 1974. It indicated that 35% of the homes in the region at that time were built before 1919 and that 40% were unfit, lacked a basic amenity or were in disrepair.

Refining the methodology

In 1986, England and Wales moved to a new methodology, replacing that which had been developed based on the original 1967 approach. It collected much more detailed information on repairs and improvements, from which it is possible to build a 3D model of every property surveyed. This methodology was adopted for Northern Ireland in 1991, when surveyors attended joint training with their counterparts in England to ensure that robust comparisons could be made between the findings for the two jurisdictions. While the survey carried out in England in 1967 was a one-page, paper form, the English survey is now 25 pages long, while the Northern Ireland survey, which comprises both the physical inspection and the household interview, is slightly longer. Surveyors in Northern Ireland collect the data using a tablet PC, which assists with validation and reduces the amount of work associated with data processing.

A social survey was introduced in England in 1976 in parallel with the physical inspection, and Scotland also commenced national housing surveys from 1991, after relying on local housing survey data for many years. Currently, both England and Scotland carry out field work continuously and report annually, while Northern Ireland and Wales continue to carry out surveys at regular intervals.

Comparative findings

Over their lifespan, the surveys in both England and Northern Ireland have assisted the development and monitoring of government housing renewal policies. In the 1980s, £1 billion of public funding was targeted at private sector improvement work based on the findings of the English House Condition Survey. This was spent on projects such as enveloping schemes, which allowed neighbourhoods that would otherwise have been cleared to be retained. Similarly, between 1976 and 2000 the Housing Executive awarded around 250,000 home improvement grants, investing in the region of £875 million in private housing in Northern Ireland. This amount was proportionately greater than in England and brought about substantial improvements to the housing stock.

The surveys also provide a useful picture of the changing composition of the housing stock over time; Figures 3 and 4 illustrate a fairly stark difference between England and Northern Ireland, in that while around 10 million new homes have been added to the housing stock in England since the 1967 survey, the great majority of the stock that was in existence at the time of that survey still remains (Figure 3). However, in Northern Ireland, the number of pre-1964 dwellings decreased by almost a quarter between 1974 and 2015, so that by 2016 stock built after 1964 accounted for 65% of homes in Northern Ireland, compared with around 44% in England (Figure 4).







Figure 4: Housing stock in Northern Ireland by date of construction, 1974 and 2016

Due to the differing frequency with which surveys are carried out, the most recent comparable results on some of the main indicators for England, Scotland, Wales, Northern Ireland and the UK as a whole date back to 2008/09. While these figures (Table 4) should be treated with caution due to their age and some of the subsequent changes in methodology (e.g. SAP modelling), they highlight some of the main similarities and differences between the characteristics of the housing stock in the various parts of the UK.

In 2008/09:

- Wales had the oldest housing stock in the UK, with 30% of dwellings built before 1919, while Northern Ireland had the newest.
- Across the UK as a whole, terraced housing was the most common dwelling type, followed by semi-detached dwellings. Scotland had a much higher proportion of purpose-built low-rise flats (33%) than the other nations, while Northern Ireland had the highest proportion of bungalows (22%).
- Wales had the highest proportion of owner occupied dwellings (73%), while Scotland had the lowest rate of owner occupancy (63%) and the highest prevalence of social housing (28%). Northern Ireland had the greatest proportion of private rented dwellings (18%).
- Consistent with the high proportions of flats in Scotland and newer stock in Northern Ireland, less than 10% of stock in both these regions was in the least energy efficient bands (F and G), while Wales had generally lower energy efficiency ratings, reflecting the older age profile of the stock, a large proportion of which had solid walls.
- As performance under the Housing Health and Safety Rating System is influenced by the age and type of the stock, Wales also had the highest proportion of homes with at least one Category 1 hazard, while Northern Ireland had the lowest. (The HHSRS is not measured in Scotland.)

	Northern Ireland	England	Wales	Scotland	UK
Dwelling Age 2008/09 (% of dwellings)					
Pre-1919	13.0	20.8	30.2	18.9	20.9
1919-1944	10.4	16.5	10.9	13.6	15.8
1945-1964	17.1	19.8	21.2	23.0	20.1
Post-1964	59.5	42.9	37.7	44.5	43.2
Dwelling Type 2008/09 (% of dwellings)					
Terrace	31.8	28.4	31.4	20.1	27.9
Semi-detached	20.4	26.5	27.9	17.7	25.6
Detached	18.9	17.8	20.1	13.3	17.5
Bungalow	21.7	9.4	12.2	12.7	10.1
Converted flat	<1	3.5	1.7	1.3	3.1
Purpose-built flat, low rise	5.8	13.0	6.5	32.7	14.3
Purpose-build flat, high rise	<1	1.4	<1	2.3	1.4
SAP EER band 2008/09 (% of dwellings)					
A-C	21.7	10.3	8.9	19.4	11.4
D	42.5	35.5	35.0	46.6	36.7
E	27.2	37.7	37.1	26.7	36.3
F and G	8.6	16.6	18.9	7.4	15.6
Tenure 2008/09 (% of dwellings)					
Owner occupied	66	69	73	63	68
Private rented	18	13	9	9	13
Local authority/Housing Executive	12	9	11	16	10
Housing association	4	9	7	12	9
HHSRS 2008/09 (% of dwellings)					
Any Category 1 hazard	19.5	22.7	28.7		
All falls hazards	13.4	12.6	18.4		
Excess cold	5.3	8.4	11.1		
Other hazards	4.3	5.2	5.7		

Table 4: Key housing stock indicators Northern Ireland, England, Wales, Scotland and UK (where available), 2008/09

European comparisons

While some regions and municipalities have undertaken ad hoc housing stock conditions surveys over the years, none has a continuing legacy of surveys of the type that exists in the UK. In 2017, Eurofound, an agency of the EU, asked BRE to develop a *poor housing* variable using factors from the UK national surveys which could be extrapolated across Europe. The resulting indicator was broadly similar to the HHSRS, excluding the home accidents component.

The <u>report</u> on this analysis indicated that, with the oldest housing stock in Europe and low rates of replacement, the UK as a whole is in line with the European average in terms of housing conditions, and lags behind other northern European countries such as Denmark – which had the best housing in Europe – Finland, Austria and Ireland.

Conclusion

Simon concluded by highlighting a number of overall messages that emerge from the five decades of UK housing surveys.

- Housing changes slowly over time.
- Housing improvements are one-way gains and will accrue benefits long into the future.
- It is very important that housing repair and maintenance are sustained.
- Targeted policies can have a major effect on housing improvement and conditions.
- If we provide and maintain good quality housing, everything else will follow, with proven gains in health, wellbeing, education, life chances and economic performance.
- If we build poor quality housing, we are stuck with it, and it can be very difficult to repair, improve or replace.
- Investment in a national housing survey will pay for itself in well-funded, targeted and informed housing policies, which will ultimately deliver social and economic benefits.

The cost of poor housing in Northern Ireland: 2016

Simon went on to provide an overview of the findings of a <u>new report</u> which used House Condition Survey data to estimate the cost of poor housing in the Northern Ireland housing stock. This report follows on from a <u>previous</u> <u>analysis</u> published in 2012, which estimated that some 144,000 (20%) of Northern Ireland's homes had at least one Category 1 hazard (in 2009) and so were deemed 'poor housing'. It suggested that if works were targeted to reduce the most serious health and safety hazards to an acceptable level, there would be a benefit to the NHS of some £33 million per year.

The latest report uses the most recent 2016 House Condition Survey data, including the most up-to-date SAP model, and the revised annual NHS treatment cost methodology used for a report on *The full cost of Poor Housing*, which was also produced by BRE, and therefore the findings of the 2016 and 2012 reports are not directly comparable. The analysis is important because UK accident statistics suggest that almost half of all injuries (around 45%) take place in the home, while only around three per cent occur in the workplace. (A further 48% are leisure-related and five per cent are related to transport.)

Defining poor housing

The methodology for the analysis draws heavily on the Housing Health and Safety Rating System, which in the Northern Ireland survey measures the risks associated with 26 hazards in the home. These hazards fall within four main groups: physiological requirements; psychological requirements; protection against infection and protection against accidents. The 2016 House Condition Survey estimated that around 69,900 dwellings (9% of the housing stock) had at least one of the 26 Category 1 hazards that pose a serious and immediate risk to a person's health and safety, and were thus defined as 'poor housing' for the purposes of the analysis.

Of the dwellings with a Category 1 hazard, the majority (74%) had one such hazard and a further 11% had two. Table 5 (overleaf) sets out the various hazards that were measured in Northern Ireland within the four broad groupings, along with the number and proportion of dwellings where each hazard was found to be present. The three most

common hazards were falls on stairs, falls on the level and excess cold. A greater proportion of owner occupied (10%) and private rented (9%) dwellings than social sector homes (4%) had Category 1 hazards, and they were found in more than one third (36%) of vacant homes, compared with only 8% of occupied dwellings. Not surprisingly, the oldest dwellings (built before 1919) were most likely to have at least one Category 1 hazard (27%).

It is important to bear in mind that although the table shows no dwellings with, for example, Category 1 hazards relating to falls associated with baths, this is a feature of the survey sample rather than an indication that no such hazards exist in Northern Ireland's housing stock. While there is therefore some degree of error around these estimates of poor housing, they nevertheless provide a useful indicator, particularly where more common hazards are concerned.

Physiological requirements			Protection against accidents				
Hazard	No.	%	Hazard	No.	%		
Excess cold	16,029	2.1	Falling on stairs	25,746	3.3		
• Radon	5,825	0.7	Falling on level surfaces	16,491	2.1		
• Lead	3,422	0.4	Falling between levels	8,258	1.1		
 Damp and mould growth 	1,559	0.2	 Position and operability of amenities 	4,477	0.6		
Carbon monoxide	1,216	0.2	• Fire	3,535	0.5		
 Uncombusted fuel gas 	280	0.0	Electrical hazards	2,000	0.3		
Excess heat	0	0	 Structural collapse and falling elements 	489	0.1		
			Flames and hot surfaces	350	0.0		
			Explosions	280	0.0		
			Falls associated with baths	0	0		
			Collision and entrapment	0	0		
Psychological requirer	nents		Protection against infection				
Hazard	No.	%	Hazard	No.	%		
Entry by intruders	4,437	0.6	Personal hygiene, sanitation and drainage	8,125	1.0		
Lighting	1,795	0.2	Food safety	7,091	0.9		
Crowding and space	0	0	Water supply	3,734	0.5		
Noise	0	0	Domestic hygiene, pests and refuse	3,441	0.4		

Table 5: Number and proportion of dwellings with Category 1 hazards, by type of hazard, Northern Ireland, 2016

The cost of mitigating Category 1 hazards

As part of the House Condition Survey, the costs of the remedial works needed to reduce higher-than-average risks under the HHSRS to an acceptable level (the average for the type and age of dwelling) are identified. These remedial works are costed using standard prices for the English Housing Survey. For modelled hazards (apart from *excess cold*) a 'typical' package of works is used, while for *excess cold* the calculations use the latest EPC improvements model for Northern Ireland, which means that these costs are not directly comparable with the 2009 estimates of mitigating excess cold.

The estimated HHSRS-related repair costs varied by the type of hazard and there was also substantial variation around the mean cost of repairing many of the hazard types. Broadly speaking, however, for around one fifth (20%) of homes with Category 1 hazards, it was estimated that it would cost just under £250 to reduce the risk of harm to no worse than the average, and in half of homes effected it was estimated that the cost of mitigating Category 1 hazards would cost up to £1,300. However, estimated repair costs increased sharply for the highest costing 20% of homes with Category 1 hazards, with some poor housing likely to require expenditure of over £10,000 to mitigate the hazard(s).

The estimated **total cost** of dealing with Category 1 hazards in 2016 was **£305 million.**

The estimated **average cost** for reducing Category 1 hazards to an acceptable level was **£4,366**. Low cost work includes adjustments such as relocating a cooker (£157), installing two wired smoke detectors (£194) or providing a handrail on a staircase (£295). Examples of medium cost work encompass measures such as replacement of lead piping (£1,910) or rewiring the dwelling (£3,846), while higher cost work might involve re-fitting a kitchen (£7,000), damp remedial works (£10,940) or solid wall insulation (£20,000). More detail on the estimated cost of remedial work is provided in Table 6.

Hazard	Number of dwellings	Average cost per dwelling (£)	Total cost to mitigate hazard (£)
Excess cold	16,029	4,145	66,445,259
Falls on the level	16,491	2,243	36,993,849
Food safety	7,091	5,114	36,264,648
Falls associated with stairs and steps	25,746	1,266	32,582,162
Damp and mould growth	1,559	20,572	32,079,214
Fire	3,535	8,011	28,320,680
Falls between levels	8,258	2,424	20,013,369
Domestic hygiene, pests and refuse	3,441	4,071	14,009,820
Personal hygiene, sanitation and drainage	8,125	1,613	13,106,456
Electrical hazards	2,000	3,846	7,693,151
Radon (radiation)	5,825	1,294	7,538,521
Lighting	1,795	3,900	6,998,818
Lead	3,422	1,910	6,534,899
Entry by intruders	4,437	1,026	4,552,775
Water supply for domestic purposes	3,734	1,058	3,949,330
Structural collapse and falling elements	489	6,515	3,185,795
Position and operability of amenities	4,477	570	2,552,489
Carbon monoxide	1,216	570	693,105
Uncombusted fuel gas	280	570	159,533
Explosions	280	570	159,533
Hot surfaces and materials	350	120	41,877
Total with any Category 1 hazard	69,878	4,366	305,054,048

Table 6: Average and total costs for remedial work for each type of Category 1 hazard, Northern Ireland, 2016

The total amount required to remedy all Category 1 hazards is less than the total number of Category 1 hazards multiplied by the average cost. This is because the modelling avoids the double counting of costs where repair work/energy improvements mitigate more than one hazard.

Linking poor housing to health costs

The links between housing and health have been well documented and Simon highlighted the complexity of the relationships between housing, health, community stability, crime and disorder, environmental targets and the cost to the environment of very practical neighbourhood issues such as vandalism and graffiti. More specifically, there are a range of costs to society of living with poor housing (as represented by HHSRS hazards); these can be separated into the costs to residents themselves (such as poor mental and physical health, social isolation, higher fuel bills, personal insecurity, accidents and poor hygienic conditions) and the 'external' costs, including higher insurance premiums, extra school costs, policing costs, higher *physical health service treatment costs*, higher *mental health service treatment costs*.

More detail on how the cost of poor housing to the NHS is calculated is available in the full report. In summary, using NHS data, BRE has costed the NHS treatments for the various outcomes of different HHSRS hazards, where possible, based on first year treatment costs. For the hazards that were fully measured through the 2016 House Condition Survey, a 'likelihood' score for all homes with a Category 1 hazard can be compared with an *average* likelihood score for the same home, for its age and type. Using the difference between the actual score and the average for the whole stock, an estimate for the additional total annual treatment cost to the NHS due to poor housing can be calculated. In 2016, this was estimated at £39.5 million per year, if the homes are left unimproved. Further, the direct payback period for all hazards was calculated at 7.7 years if the repairs or improvements are all made 'up front', although the payback period varied greatly according to the type of hazard.

In 2016, the estimated total additional treatment cost to the NHS due to poor housing in Northern Ireland (if the homes are left unimproved) was **£39.5 million per** year.

Example: cost-benefit of home improvements

The example of an older, mid-terrace house with solid, uninsulated stone walls, partial double glazing, a small amount of roof insulation, off-peak storage radiators and an electric immersion heater was used to illustrate the various benefits of investing in housing improvements, including the cost savings to the NHS. The improvements in this example consisted of fitting a condensing gas boiler and radiators for space and water heating, and providing top-up loft insulation and full double glazing. Box 2 sets out the 'before' and 'after' comparison of these upgrades and shows the multiple benefits that arise.

Box	2: Cost-	benefit	of imp	rovements	to an	older,	mid-terrace	property
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	Before	After
Cost of upgrade	Not applicable	£3,528
SAP	22	59
Annual fuel cost	£965	£461
CO2 emissions	8,972 kg p/a	4,666 kg p/a
HHSRS	Category 1 hazard	Low hazard
In fuel poverty?	Yes	No
Asset value increase	Not applicable	£2,500
Cost savings to NHS	Not applicable	£528 per annum
Payback to NHS	Not applicable	5.1 years

Conclusion

The presentation concluded with a number of key messages:

- Poor housing can seriously damage people's physical and mental health and affect their future wellbeing and prosperity.
- If the most severe hazards were removed from Northern Ireland's housing stock, there would be benefits to the NHS of around £40million a year in saved treatment costs.
- The full cost to society of leaving people living in poor housing in Northern Ireland is estimated to be around £400 million per annum.
- Tackling poor housing conditions does not have to be expensive and has clear benefits.
- It makes sense to invest in improving housing rather than pay for the consequences of poor housing through the NHS.

Good quality housing underpins the whole economy. Denmark has the best housing in Europe; it also has the best health, best wellbeing, highest educational achievement and lowest rates of absenteeism.

Improving the energy efficiency of the housing stock – with research

As part of the Home Energy Conservation Act (1995), the Housing Executive assumed the statutory role of Home Energy Conservation Authority (HECA) for Northern Ireland. This means that the organisation is required to identify practicable, cost-effective measures that are likely to result in a significant improvement in the energy efficiency of residential accommodation. The final speaker, Housing Executive Sustainable Development Manager Robert Clements, explained how the House Condition Survey helps his team to measure progress on the energy efficiency target and develop strategies to improve the energy efficiency of the housing stock across all tenures in Northern Ireland. Robert noted that the HECA role involves three main elements:

- 1. **REPORT** annually on energy efficiency across all tenures
- 2. **SUPPORT** practical, cost effective measures, significant improvements and innovation
- 3. **PROMOTE** energy efficiency awareness across all tenures

Figure 5: Hierarchy of energy efficiency



Robert also drew attention to the hierarchy of energy efficiency (Figure 5) which is particularly relevant in considering the refurbishment of residential dwellings. This hierarchy, which was conceived as part of the Local Government Position Statement on Energy, 1998, prioritises measures to reduce household demand for energy, followed by measures to improve the energy efficiency of the dwelling and finally advocates the provision of renewables, where appropriate, to generate heat or power within the home. In considering the impacts of this activity, some of the key indicators are *fuel poverty, carbon dioxide* and *SAP ratings*.

Measuring fuel poverty

In Northern Ireland, the '10% definition' is used to measure and track fuel poverty (for more information and key findings, see page 6) and, based on this measure, the evidence from 2016 points to a reduction in fuel poverty and improvements in energy efficiency between 2011 and 2016. In England, recent surveys have used a different definition of fuel poverty – the *Low Income High Costs* approach (Box 3) – and for the first time in 2016 the main report on the House Condition Survey provided analysis for Northern Ireland based on this methodology, for comparison.

The *Low Income High Costs* definition is intended to capture the fact that fuel poverty is distinct from general poverty: not all poor households are *fuel* poor, and some households would not normally be considered poor but could be pushed into fuel poverty if they have high energy costs. Fuel poverty is therefore an overlapping problem of households having a low income *and* facing high energy costs. *Low Income High Costs* is a dual indicator, in that it measures not only the *extent* of the problem (i.e. how many households are in fuel poverty) but

Box 3: The Low Income High Costs fuel poverty definition

A household is considered to be fuel poor if it has higher than typical energy costs and would be left with a disposable income below the poverty line (i.e. disposable income of less than 60% of the national median) if it spent the required money to meet those costs.

also its *depth* (i.e. how badly affected each fuel poor household is). The depth of fuel poverty is calculated by taking account of the *fuel poverty gap* – a measure of the additional fuel costs (in pounds) faced by fuel poor households to meet the non-fuel poor household threshold.

When analysed using the two different definitions, there were some similarities and some differences between patterns and rates of fuel poverty in Northern Ireland in 2016:

- Only 7% of households in Northern Ireland were estimated to be in fuel poverty under the Low Income High Costs (LIHC) definition, compared with 11% in England, and 22% in Northern Ireland under the current '10%' definition. The lower rate in Northern Ireland may reflect the fact that Northern Ireland has a narrower income distribution than England, with fewer households having incomes that are below 60% of the median for the region.
- In contrast to the 10% definition, households headed by persons in the 40 to 59 (11%), and 25 to 39 (10%) age
 bands were more likely to be in LIHC fuel poverty in 2016. Consequently, households with children were more
 likely to be in LIHC fuel poverty (13%) than older households (2%). The reason for this is that LIHC uses
 equivalised income, which will make smaller households appear better off than larger households and
 therefore less likely to be in 'low income'; in general, older households are smaller than younger households.
- In 2016, the average **fuel poverty gap** for all Northern Ireland households (the amount that needs to be added to income to enable the household to afford fuel bills) was estimated at **£436**. For comparison, the average fuel poverty gap in England in 2015 was £353. This indicates that while the *extent* of fuel poverty under LIHC is less in Northern Ireland (7% compared with 11% in England), the *depth*, or severity, is greater than in England.

Innovations: Solar PV scheme and Oil Buying Club Network

The House Condition Survey indicated that the average fuel cost for households in Northern Ireland was £1,500 per annum. In its HECA role, the Housing Executive continues to investigate ways of helping households reduce energy costs and one of the key challenges in this regard, and in addressing fuel poverty, is the region's continuing reliance on oil-fired heating systems. In 2016 as in 2011, more than two thirds of dwellings (68%) used oil as their heat source. Oil prices are volatile and unregulated, and vary depending on market conditions, the time of year and the level of competition among the 270 or so suppliers in the region.

Alternative fuel source: Solar PV

One approach is to seek out alternative fuel sources that reduce households' reliance on oil. 2016 saw the completion of a scheme installing solar photovoltaic (Solar PV) panels onto 1,000 Housing Executive homes in partnership with Salis Ltd, using private finance and based on the 'rent a roof' model. Solar PV panels generate electricity from daylight and private companies can recoup investment to make a profit over 20 years from the sale of Renewable Obligation Certificates (ROCs), with any unused tenant electricity going back into the grid. This scheme was the first large scale PV project for residential properties in Northern Ireland.

While the scheme presented some challenges in relation to practical matters such as dwelling orientation, tenant refusals and over-shading, there have been many positive outcomes; the scheme was popular and environmentally friendly, resulted in substantial total energy cost savings for the households involved, and presented no risk for the Housing Executive.

Improving buying power: Oil Buying Club Network

With oil remaining the most prevalent home heating fuel in Northern Ireland, another approach to addressing fuel costs is to help households get the best value for money when purchasing fuel. In 2014, the Housing Executive awarded a contract to Bryson Energy to set up a network of 27 Oil Buying Clubs across Northern Ireland. Clubs offer members monthly deliveries of as little as 200 litres, with the price at least 7% below the NI average price of

delivered home heating oil. By autumn 2018, the 27 clubs had 4,900 members and had processed 22,000 oil orders, with over 8.5 million litres of oil delivered. The collective buying power helped achieve savings of around £14.50 on 500 litres of oil, compared with Consumer Council average prices for this quantity of fuel, with estimated savings totalling £120,000 per year.

A number of factors drive the need for ongoing research and investment into measures to improve home energy efficiency. They include trends in energy prices, the UK Government's <u>Clean Growth Strategy</u>, the potential for new forms of delivery of household heating, Northern Ireland's relatively low average household income structure and fuel poverty (which remains a very real problem for many households, irrespective of how it is measured). In this context, the Housing Executive plans to continue working with its partners on a range of research, demonstration and evaluation projects to:

- assess the benefits of the 'fabric first' approach (maximising the performance of the components and materials that make up the building fabric itself);
- test electric energy storage;
- investigate energy efficient/renewable options for rural dispersed communities; and
- monitor the outcomes of ongoing activity such as the Housing Executive's investment in its own stock, and the impact of energy efficiency measures such as the Affordable Warmth scheme.

The Sustainable Development Unit will also seek to influence policy reviews and development and has begun to investigate, with the Research Unit, the feasibility of producing an annual modelled fuel poverty update to enable tracking of this important indicator between House Condition Surveys.





Key messages

Robert concluded by highlighting a number of key points:

- The 2016 House Condition Survey showed continued progress in achieving higher levels of energy efficiency through increases in the proportion of gas central heating, higher standards of loft insulation and increases in double glazing.
- The House Condition Survey is an essential data source for measuring indicators to support evaluations.
- Northern Ireland remains a region with low average household income, significant fuel poverty and high dependency on home heating oil.

Solutions must address capital costs for the house builder/landlord and the running costs and functionality for the householder, and be sustainable.

Questions and discussion

The presentations generated questions and discussions around a number of issues.

Updating the evidence on fuel poverty

Attendees noted that the House Condition Survey findings are extremely useful and provide a rich source of evidence on a range of issues. However, there was a sense that it would be beneficial to have more regular updates on some of the key indicators – in particular fuel poverty.

The fitness standard

It was also noted that the English Housing Survey has moved away from using the fitness standard to monitor housing conditions. While it was acknowledged that examples of very poor quality housing still exist in Northern Ireland, there was a sense that unfitness has become a residual measure largely associated with vacancy and that there is scope to look at other measures of housing quality that may be more relevant in today's context.

The need for ongoing investment

The 2016 findings point towards progress on both energy efficiency and fuel poverty, reflecting the substantial investment through the Boiler Replacement and Affordable Warmth Schemes, and in Housing Executive and housing association stock. However, there is no room for complacency; it is clear from the wider economic and environmental context that there is more to do.

Addressing fuel poverty

Asked what they would do, given the opportunity to lead policy on addressing fuel poverty, the speakers suggested that Northern Ireland should: lead the UK in moving away from use of fossil fuels; focus on increasing the use of renewables; and think big and bold on energy efficiency programmes, including increased use of technology. It was suggested that with a strong engineering base, Northern Ireland would be well-positioned to diversify its manufacturing base towards the renewable energy market.

Meeting the needs of rural areas

There are particular challenges around providing alternative energy sources in rural areas. While the social housing sector applies a 'gas first' policy, this can only operate where a gas supply is available and some parts of the country will never be connected to a mains gas network. Wind, thermal storage and hybrid solutions may work in the long term, but change will not happen overnight and in general there is also a 'behavioural' element, whereby *all* households, irrespective of location, need to be persuaded of the benefits of using alternative energy sources and have confidence that the systems will work in the long term.

In England and Wales, some new housing in rural areas has been constructed to Passive House standard, which substantially reduces the requirement for energy consumption related to heating and cooling of the dwelling, and this design approach has been shown to work.

Other recent research findings

House Price Index

The most recent <u>Quarterly House Price Index</u> report was published by Ulster University in association with the Housing Executive and Progressive Building Society in November 2018, and indicated that the average price during the quarter (£161,948) was 1.5% higher (on a weighted basis) than during the equivalent quarter in 2017. The survey sample comprised just under 2,100 sales, which was in line with both the previous quarter and recent trends. Estate agents felt that there had been relatively little change in the housing market over the quarter, though concerns were again expressed regarding future unknowns, notably any negative implications stemming from Brexit.

Welfare Reform

The Housing Executive recently published two reports on Welfare Reform. The first report, <u>Welfare Reform in</u> <u>Northern Ireland: A Scoping Report</u>, details the elements of Welfare Reform in Northern Ireland on a cross-tenure basis and provides an insight into the potential impacts in order to inform further policy development and financial planning. The second, <u>Tenant Perceptions</u>, <u>Awareness and Experiences of Welfare Reform 2017</u>, presents findings from two waves of quantitative research within the Housing Executive's Continuous Tenant Omnibus Survey annual questionnaire.

Mapping Northern Ireland's Housing Market Areas 2018

The Housing Executive commissioned this study to enhance understanding of the concept of functional housing market areas and to update the suite of 11 broad housing market areas (HMAs) that were originally defined in 2009. The updated HMAs set out in this <u>report</u> are primarily intended to provide the Housing Executive with a spatial framework to support its analysis of local housing systems and its internal strategy development processes. However, the HMAs should also assist local authorities to more clearly understand the broad HMA of which their local area is part. This in turn should help to clarify which local authorities should look to collaborate in planning for housing development across the broad HMA. A <u>summary</u> is also available.

Affordability Summaries

A report on <u>Affordability in the private housing market in Northern Ireland in 2017</u> provides a summary of analysis carried out by Ulster University, looking at two related measures of house price purchase affordability (repayment affordability and deposit requirements) in Northern Ireland since 2010. A similar analysis, based on private rental costs and also carried out by Ulster University, is also available: <u>Affordability in the private rented sector in Northern Ireland in 2017</u>.

Environmental Control Systems (ECS): Scoping Review 2018

RF Associates, in association with Professor Suzanne Martin of Ulster University, were appointed to undertake a scoping study of Environmental Control Systems (ECS) for the Northern Ireland Housing Executive in January 2017. The study set out to review current service provision and help determine how co-ordinated Health and Social Care (HSC) / Housing service provision of home environmental control technology can support independent living of disabled people (both under and over 18) within Northern Ireland. The work focuses specifically on ECS that enable co-ordinated control of the home environment by a person living with a physical disability. This includes a defined range of electronic assistive technologies described as environmental control systems which enable control over the home environment for example opening doors, windows and turning on lights.

Mapping Segregation: 2011-based analysis

The availability of a new Northern Ireland Census Grid Square product in 2007 meant that it was possible, for the first time, to analyse residential segregation – and its changes through time – in individual housing estates. The Housing Executive therefore commissioned researchers from Queen's University (which developed the Grid Square tool) to analyse patterns of segregation based primarily on the 2001 Census. The research team produced two reports, one for estates in Belfast and one for those estates outside Belfast that were of sufficient size to allow analysis. This more recent, 2011-based research again used the grid square tool to identify trends and general patterns based on changes between the 2001 Census and the 2011 Census, with findings presented separately for <u>Belfast</u> and <u>estates outside Belfast</u>.

If you would like to attend future *Insight* events, or have any comments or questions about the Housing Executive's research programme, you can contact us on 02895 982562 or **research.bulletin@nihe.gov.uk**