



# **NORTHERN IRELAND HOUSE CONDITION SURVEY 2023**

## **USER GUIDE**

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The purpose of this guide is to help users to better understand the Northern Ireland House Condition Survey (NIHCS) statistics and to aid the interpretation of statistics.

# 1. Survey Objectives

The NIHCS 2023 objectives were broadly consistent with the last six surveys (2001, 2004, 2006, 2009, 2011 and 2016):

- To provide a comprehensive picture of the dwelling stock and its condition in 2023 for Northern Ireland and, where possible, each of the 11 Local Government District Councils.
- To facilitate a comparative analysis of housing conditions in Northern Ireland with other parts of the UK.
- To examine the association between dwelling conditions and the social and economic circumstances of households.
- To examine changes in the condition of the stock over time in terms of key Government measures: Decent Homes Standard and the Housing Health and Safety Rating System.
- To provide a reliable assessment of the energy efficiency of the stock and the level of fuel poverty<sup>1</sup> in Northern Ireland (and if possible) on a comparable basis with the rest of the UK.

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1. Fuel poverty is a devolved issue and therefore national definitions can vary.

## 2. The NIHCS sample

The NIHCS is a survey based on a stratified random disproportionate sample of 5,000<sup>2</sup> dwellings. The published data are estimates for Northern Ireland housing stock based on this sample. The sample design process, and the weighting and grossing process are carefully designed to ensure that the results are accurate and representative of the total housing stock.

### Selecting sample size

Sample size was an important factor in the design of the NIHCS sample as it ultimately determines the level of geographical disaggregation for any analysis undertaken. User consultation highlighted the importance of having results at council level (there are 11 councils in Northern Ireland). To produce accurate results at this level the sample needs to be of a sufficient size. However, budgetary pressures also had to be considered. The agreed sample size (5,000<sup>3</sup>) reflected an optimal balance between user requirements, budgetary priorities and the capacity of the surveyors to conduct the fieldwork.

### Sample size implications

A sample size of 5,000 allows robust analysis, not only at Northern Ireland level, but also by important subgroups such as tenure, age of dwelling, type of dwelling and by urban and rural areas. Key figures for the 11 council areas may also be available, although caution will be required if analysis by subgroup within council area is undertaken. The robustness will depend on the achieved response rate in each area. This will be determined during the data analysis process. Cautions will be included in the report where appropriate.

### Sample frame

The sample for the NIHCS was taken from the Northern Ireland Statistics and Research Agency (NISRA) address register (NAR) which is developed within NISRA and is primarily based on the Land and Property Services (LPS) [Pointer](#) database. Pointer is the address database for Northern Ireland and contains the common standard address for every property in Northern Ireland. It is maintained by Land and Property Services (LPS) with input from local councils and Royal Mail. Every month LPS provides the Northern Ireland Statistics and Research Agency (NISRA) with an updated version of the database. Pointer is NISRA's preferred address database and is used as the sampling frame for the selection of addresses on Government social surveys in Northern Ireland. Detailed information about the quality assurance checks carried out on the sample frame and on the sample itself are available on the Housing Executive's website: [The Housing Executive - NIHCS Statistics quality information](#)

2. The actual sample was 4,995 but for ease of reporting 5,000 is used.

3. The original sample size was 7,000 but this was reduced prior to fieldwork due to surveyor capacity issues. Detailed information is available in section 11.0: Strengths and limitations.

## Sample design

The 2023 NIHCS was based on a random sample of 4,995 dwellings, which was completed in two stages.

- The first stage involved including all the full surveys completed as part of the 2016 NIHCS (resample: 1,918 surveys).
- The second stage was a fresh random sample of 3,077 properties selected by council area to ensure that each area total (fresh and resample) added to 333. In Belfast City Council Area, a total of 1,332 households were selected (333 in each sub-sector: North, East, South and West Belfast). In addition, the Causeway Coast and Glens council area was divided into two areas (Moyle and Limavady areas) with the intention to allow for more detailed information on holiday homes in Northern Ireland<sup>4</sup>.
- The fresh sample frame, in 2023, was the NISRA address register (NAR)<sup>5</sup>, which had been subject to extensive quality assurance and validation for the 2021 Northern Ireland census.

## Additional sampling procedures

Addresses were selected at random, and no substitution of addresses was allowed. In instances where surveyors encountered a multi-dwelling address and there was no sub-number on their contact sheet, processes were in place to ensure the correct address was selected. In the case of a fresh sample address, a kish grid was used to randomly select the sub-number. In the case of a resample address, the statistics team looked up the details of the previous survey to identify which sub-number had been surveyed, and the same sub-number was surveyed in 2023. If the address was a single-dwelling address in the previous survey but had subsequently changed to a multi-dwelling address, a kish grid was used to randomly select the sub-number.

## Confidence interval

Sample surveys provide estimates of the population, and these estimates are subject to confidence intervals. This indicates to the reader the +/- range in which the reader can be 'confident' that the true value of the statistic is found. There is an inverse relationship between sample size and confidence interval: as the sample size increases the confidence interval decreases. In the case of the NIHCS, where comparisons are made between areas, or between Northern Ireland and other parts of the UK, or between results of the current and previous surveys, it is important that the confidence interval is calculated - even approximately - to determine to what extent apparent differences (e.g. between councils) are real, or simply the result of statistical vagaries.

4. This will depend on the robustness of the data which will be determined during the data analysis process.

5. More information about the sample frame is available in section 2.0.

It has become normal practice to estimate the confidence interval at the 95% confidence level: i.e. the results would be replicated nineteen times out of twenty if the survey were repeated. The formula for sample error is:

$$\pm 1.96 \sqrt{\frac{P(100-P)}{N-1}}$$

Where P is the percentage in question and N is the sample size in question.

Where N is large, for convenience this 1 is ignored. The result of application of this formula is that the percentage error increases as the sample size is reduced, and the relative error increases when the percentage is very low or very high (e.g. less than 10% or higher than 90%).

Taking an example of a sample size of 100 and where the percentage in question is 10

Sample error =

$$\pm 1.96 \sqrt{\frac{10 \times 90}{99}} = \pm 5.91\%$$

Thus, the percentage (10%) should be read as 10%  $\pm$  5.91%: one can only be sure that the percentage is between 4.09% and 15.91%. For 50% and a sample size of 100, the sample error would be  $\pm$  9.85% i.e. the range would be from 41.15% to 59.85%.

The table of confidence intervals below has been calculated for the achieved sample, after allowance for non-response.

**Table 1: Confidence intervals at 95% confidence level for 2023**

% Sample Size:		5 or 95	10 or 90	15 or 85	20 or 80	25 or 75	30 or 70	35 or 65	40 or 60	45 or 55	50 or 50
	100	4.29	5.91	7.03	7.88	8.53	9.03	9.40	9.65	9.80	9.85
Unfit	38	7.02	9.67	11.51	12.89	13.95	14.77	15.37	15.79	16.03	16.11
Vacant	75	4.97	6.84	8.14	9.11	9.87	10.44	10.87	11.16	11.34	11.39
Pre 1919	150	3.50	4.82	5.73	6.42	6.95	7.36	7.66	7.87	7.99	8.03
Private Rented	265	2.63	3.62	4.31	4.83	5.22	5.53	5.75	5.91	6.00	6.03
Social Housing	442	2.03	2.80	3.33	3.73	4.04	4.28	4.45	4.57	4.64	4.67
Rural	644	1.68	2.32	2.76	3.09	3.35	3.54	3.69	3.79	3.85	3.86
Owner Occupied	1121	1.28	1.76	2.09	2.34	2.54	2.68	2.79	2.87	2.91	2.93
Urban	1259	1.20	1.66	1.97	2.21	2.39	2.53	2.64	2.71	2.75	2.76
Occupied	1828	1.00	1.38	1.64	1.83	1.99	2.10	2.19	2.25	2.28	2.29
Northern Ireland	1903	0.98	1.35	1.60	1.80	1.95	2.06	2.14	2.20	2.24	2.25

## 3. Data collection

During the 2023 Survey, electronic tablet devices were used to collect the data. This approach was first used in 2009 and was reviewed and enhanced for the 2023 survey. The bespoke software used was developed by the Building Research Establishment (BRE). Validation and consistency checks were built into the programme and, upon completion, each survey was uploaded and locked into a database via a secure website. The hardware had secure user identification and device level security.

## 4. The e-survey form

The E-Survey form comprised five main sections of questions covering:

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

The main area of change between the 2016 and 2023 survey forms was the inclusion of a number of new energy-related items for surveyors to record. The information gathered in the physical section allows measurement of repair costs, the Fitness Standard, the Decent Homes Standard, fuel poverty, SAP and the HHSRS. Information from the social survey is cross referenced with the physical survey data to provide an indication of the types of households living in dwellings which are in the poorest condition and most likely to fail government standards.

## 5. Surveyor training

A total of 39 professional surveyors were employed to work on the 2023 NIHCS. Surveyors employed were Environmental Health Officers, chartered surveyors, architects or technical Housing Executive staff.

Six experienced supervisors were appointed. Each supervisor was responsible for advising surveyors and ensuring their work was of a consistent and satisfactory quality.

All new surveyors attended a five-day training session in April 2023. The purpose of the training was to introduce the new surveyors to the technical aspects of the survey form including conventions around recording internal and external faults, disrepair and recommended actions. Guidance and definitions were set out. In addition, the training included the more complex aspects of the form, such as the HHSRS and the energy sections. Surveyors were also given training on the fieldwork tablets, the e-form and the accompanying website.

Surveyors who had previously worked on the NIHCS attended a two-day refresher course.

The training was conducted by the Building Research Establishment (BRE), Housing Executive Research Staff and the NIHCS supervisors. Training included test inspections of selected dwellings.

All surveyors also attended a one-day course in May 2023 on the social survey, which included training on interviewing techniques, vulnerable households / safeguarding and houses in multiple occupation (HMOs).

Prior to commencing fieldwork, surveyors were asked to complete two practice surveys of dwellings on their tablet and any problems encountered by the surveyors with the tablet or the website were reviewed.



## 6. Fieldwork

Fieldwork began in May 2023 and was completed by October 2023. Each surveyor was responsible for between 100 and 250 full inspections, based on their availability to work on the survey. They were required to work in at least two sample areas to reduce likelihood of differences between areas being the result of surveyor variability. In 2023 (as in previous years), a system of 'payment by result' was used and there were four different rates of payment:

- Full physical inspection and household survey;
- Full physical inspection but no household survey;
- Full physical inspection of vacant dwellings;
- Refusal/non-response.

A property could be classified as a non-response only after a minimum of five visits (including at least one evening and one weekend visit). Surveyors were required to complete the first two pages and take at least one photograph for all dwellings. These photographs were to be an important part of the data quality assurance. Approximately 7-14 days before calling at a property, surveyors issued a letter and a leaflet to each selected address, explaining the purpose of the survey. Each survey form was registered on a secure website using a unique schedule number. Surveyors uploaded their completed forms on a daily basis.

Initial quality assurance checks were carried out by surveyors on the tablet. The surveyors also completed further quality assurance and validation checks after the form had been uploaded to the website. On completion of their own checks, surveyors sent forms to their supervisors, who were responsible for checking key technical data and completing and correcting as appropriate in consultation with the surveyor. The website was designed to provide information on how the fieldwork was progressing, giving details by surveyor of the number of forms by status at any given time (uploaded, being validated, sent on to supervisor, or completed).

## 7. Project management

The electronic approach to data collection, the project management, the design of the sample and the questionnaire, administration, quality assurance, analysis and report writing were the responsibility of the Housing Executive's Research Unit.

## 8. Response rates

The 2023 sample issued consisted of the following components:

Resample from 2016	1,918
Fresh Sample	3,077
<b>Total Sample</b>	<b>4,995</b>

The following table summarises the Survey outcome:

### Survey outcome 2023

	Number	%
Full Survey	1,903	38
No contact made	575	12
Access refused to Surveyor	1,402	28
Access refused at Housing Executive	250	5
Address untraceable	1	0
Dwelling derelict	11	<1
Dwelling demolished	5	<1
No longer usable as a dwelling	6	<1
Other	10	<1
Address not visited	832 <sup>6</sup>	17
<b>Total</b>	<b>4,995</b>	<b>100</b>

Of the 4,995 addresses issued to surveyors, full surveys were completed for 1,903 properties, giving a gross response rate of 38%.

### Physical Survey

The potential response was 4,972 (excluding addresses that were not traced, derelict, demolished or no longer usable as a dwelling), giving a response rate for the physical survey of 38% (1,903 out of 4,972).

6. Detailed information about unvisited addresses is available in Section 11.0: Strengths and limitations

## Social Survey

The response rate for the household survey was higher. Overall, 1,828 inspected dwellings were occupied and of these 1,782 household interviews were achieved, a response rate of 98%.

The number of vacant dwellings visited during the survey was 75. Therefore, the total number of dwellings in which a household interview would have been possible was 4,972-75=4,897. This gives a social survey response rate of 36% (1,782 interviews out of 4,897).

The following table summarises the response rates:

### Response rates 2023

Full surveys as a % of sample	38%
Full physical surveys as a % of existing dwellings	38%
Full social surveys as a % of inspected occupied dwellings	98%
Full social surveys as a % of existing dwellings	36%
Full social surveys as a % of visited <sup>7</sup> existing dwellings	43%

<sup>7</sup> 832 addresses were not visited by a surveyor during the fieldwork period. Detailed information is available in section 11.0: Strengths and limitations

## 9. Weighting and grossing

### **Design, calculation and validation of statistical weights for the 2023 Northern Ireland House Condition Survey**

Weighting and grossing is the process whereby the information gathered by means of a sample survey is translated into figures that reflect the real world. The process has several stages reflecting the separate stages of the sampling process<sup>8</sup> and the survey process itself.

In the case of the 2023 NIHCS, a number of housing stock factors were considered when weighting; these included building splits and mergers, new build and demolitions.

Survey weighting factors that were considered included non-response. Adjustments for non-response were based on the sample and achieved surveys by tenure (public and private). Corrections were also required for the oversample in the Causeway Coast and Glens area.

The grossing process corrected to the known external totals of the NAR database held by NISRA.

The overall weighting and grossing strategy involved designing and calculating separate weights for the re-sample and the fresh elements of the sample.

The weights for these two elements were combined, and further adjustments were made for tenure and for the NAR sample frame totals.

In addition, the two strands of the process (weighting and grossing) were merged into a single 'weight' for application to each sampled dwelling and the data held for it. At the end of this process more than 40 weights had been calculated.

For each step of the weighting and grossing process, area tables by tenure (including vacants), construction date and fitness were checked for accuracy. A final quality assurance of statistical outputs by key variables was also undertaken.

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8. Refer to section 2.0 for detailed information about the NIHCS sampling process

## 10. Quality information

Quality assurance (QA) checks are carried out by the producers/suppliers of the administrative data which is used to select the sample for the NIHCS. QA checks are also carried out at various stages of the survey by the Housing Executive's Research Unit, Building Research Establishment (BRE) and by NIHCS supervisors.

The Housing Executive has produced a document which sets out the quality assurances processes carried out at each stage of the survey. It has also produced a background quality report which examines the quality of the NIHCS in terms of relevance, accuracy and reliability, timeliness and punctuality, accessibility and clarity, and coherence and comparability. Both documents are available on the Housing Executive's website: [The Housing Executive - NIHCS Statistics quality information](#)

# 11. Strengths and limitations

## Strengths

- The NIHCS provides statistics at national level relating to the dwelling stock, unfit, household profiles, state of repair, and the Housing Health and Safety Rating System. When the sample size allows, it also provides statistics at lower geographical levels, such as council area.
- It is the only source of data for key government measures of housing quality such as the Decent Homes Standard, Fitness Standards, fuel poverty, energy efficiency, SAP and Repair Costs.
- All tenures and types of housing are included: for example, owner occupied and rented housing, vacant dwellings, houses in multiple occupation, apartments, urban and rural dwellings.
- The sample design and the weighting and grossing processes ensure accurate and reliable data are produced.
- The consistency of the questionnaire over time, as well as the resample element of the survey, allow changes in the condition of stock over time to be measured.
- The partnership with Building Research Establishment (BRE) ensures that the questionnaire is (as much as possible) the same as the English Housing Survey, thus enabling comparability with England and, where possible, with Scotland and Wales.
- Where necessary, the questionnaire is tailored to NI conditions.
- The methodological expertise of the NIHCS Steering Group and of BRE ensures that sound methodology is used.
- Intensive training of surveyors by a combined BRE/Housing Executive team, monitoring by NIHCS supervisors, tablet and website validation, and validation by the Housing Executive and BRE all help to minimise surveyor variability and reduce the possibility of measurement error.
- Quality assurance processes are in place at all stages of the NIHCS to ensure that high quality data are produced: [The Housing Executive - NIHCS Statistics quality information](#).
- Regular engagement with users ensures that the statistics meet user needs.
- Before publishing statistics for any sub-groups, checks are carried out to ensure that the data are robust, and users are provided with information regarding confidence intervals.
- Statistical disclosure control techniques are used to safeguard the confidentiality of respondents to the NIHCS.
- The NIHCS team upholds the principles of the Data Protection Act.

## Limitations

All surveys have limitations which can be caused by several factors such as budget and resources. The Housing Executive monitors any issues that could cause weaknesses in the data and takes steps to address them. These are outlined below.

## Sample size

The size of the sample determines the geographical level at which analysis can be carried out. User consultation showed that many NIHCS users need results at the council level. However, in some cases, because of budget driven restrictions in sample size, robustness of council level figures is less than optimal.

In 2023, the sample size of 4,995 will provide robust data at Northern Ireland level, and possibly at council areas for some sub-groups (depending on the achieved response rate in each area). This will be examined further during analysis and report writing and cautions will be added as necessary.

It is normally not possible to carry out three-way cross tabulations (e.g. fuel poverty in rural areas by council area), as the data would not be sufficiently robust. Requests for three-way analysis are always checked for robustness and only provided if meaningful.

The Housing Executive will also examine the possibility of recoding sub-groups to improve robustness. The Housing Executive will inform users about the implications of the smaller sample size; for example, cells in some appendix tables will contain an 'x' rather than a number. This indicates to users that the cell contains a small number and that percentages should be used with caution.

In addition, the Housing Executive will, where possible, provide data to users which might only be useful for indicative purposes but would not be of sufficient robustness for quoting or publishing. The limitations of this data will be made clear to the users.

## Sample response 2023

The response rate has remained high over successive NI House Condition Surveys, reducing the effect of non-response bias. However, in 2023 the response rate fell to 38% (from 67% in 2016), for two main reasons.

Firstly, post-covid, fewer households have been willing to take part in face-to-face interviews; this is consistent with the experience of most household surveys both in Northern Ireland and across the UK.

Secondly, the working pattern of the surveyors completing the fieldwork changed. As the NIHCS takes place approximately every five years, surveyors are recruited for the survey on a temporary basis for the duration of the fieldwork. The majority of them are already in full-time employment. In previous years, in order to facilitate the completion of the NIHCS, some surveyors worked full time on the survey with the agreement of their employer and returned to their own employment at the end of the fieldwork period. However, it was not possible to implement this agreement for the 2023 survey, and efforts to find a solution



were ultimately unsuccessful. Therefore, the vast majority of surveyors worked part-time on the survey, alongside their main job.

Initially, the 2023 sample size was 7,000 and the intention was to publish key statistics at council level. However, when the change in working patterns became apparent at the beginning of fieldwork it was acknowledged that it would not be possible for surveyors to complete all surveys within the fieldwork period and the sample was reduced to approximately 5,000. Even with this reduction, by the end of the fieldwork period surveyors been unable to visit 832 addresses due to time constraints.

## **Non-response to individual questions**

As non-response can impact on the quality of data, the Housing Executive has measures in place to minimise its impact in the NIHCS. Validation built into tablets, website validation, and quality assurance checks by supervisors mean that the level of non-response for most key NIHCS variables is non-existent.

Consistently there are two variables that are likely to have incomplete data. These variables relate to sensitive topics i.e. income and religion. Surveyors are trained in interview techniques and encourage respondents to answer the questions by stressing the confidentiality of their personal information and the security of the data, and by explaining what the data will be used for. However, people find income difficult to answer and the refusal rate for this question is high. This is not unique to the NIHCS and is an issue for many surveys.

## **Addressing the issue of non-response to individual questions:**

Procedures are in place to deal with non-response to individual questions in the NIHCS via:

- built in tablet validation and ongoing monitoring and checking by NIHCS supervisors and Housing Executive staff;
- consistency checks; and
- imputation work for key data items such as income. This involves using other known data items such as age, employment status, Standard Occupational Group (SOC), whether there is a partner, benefit data and tenure, alongside estimated average incomes from other sources such as the NI Annual Survey of Hours and Earnings (ASHE) and the Family Resources Survey (FRS), to help impute an estimated banded income value. Imputations are cross-referenced with similar NIHCS sub-groups where average income bands have been supplied for 2023.

## **Changes to the sample frame**

The overall estimate of the housing stock in Northern Ireland was provided by NISRA from NAR. This database has been subject to ongoing quality assurance and validation and this, along with ongoing address checks, means that as new and improved address information becomes available, dwelling totals across the council areas will become more reliable. Consequently, comparison with earlier (i.e. before 2016) dwelling estimates published in House Condition Surveys should be treated with caution.

## 12. Definitions

These definitions relate to information produced in the NIHCS preliminary report.

### The Fitness Standard

The current Fitness Standard is set out in Schedule 5 of the Housing (Northern Ireland) Order 1992. This schedule states that a dwelling is unfit for human habitation if it fails to meet one or more of the following requirements:

- It is structurally stable.
- It is free from serious disrepair.
- It is free from dampness prejudicial to the health of the occupants (if any).
- It has adequate provision for heating, lighting and ventilation.
- It has an adequate supply of wholesome water.
- There are satisfactory facilities in the house for the preparation and cooking of food, including a sink with a satisfactory supply of hot and cold water.
- It has a suitably located water closet for the exclusive use of the occupants (if any).
- It has, for the exclusive use of the occupants (if any), a suitably located fixed bath or shower and wash-hand basin, each of which is provided with a satisfactory supply of hot and cold water.
- It has an effective system for the draining of foul, waste and surface water.

In addition, flats may be classified as unfit if the building or part of the building outside of the flat fails to meet any of the following requirements and by reason of that failure is not suitable for occupation:

- The building or part is structurally stable.
- It is free from serious disrepair.
- It is free from dampness.
- It has adequate provision for ventilation.
- It has an effective system for the draining of foul, surface and wastewater.

## Tenure

Definitions of tenure types are outlined in the NIHCS surveyor manual and are broadly comparable with those used in the English Housing Survey.

- a) owner occupied - includes outright owners, those buying with a mortgage and shared owners (people who are part renting and part buying their homes from the Northern Ireland Co-Ownership Housing Association). Includes anyone who is buying their home from a housing association or from the Housing Executive. Note: The Housing Executive has now sold more than 120,000 dwellings.
- b) private rented and others - rented from a private landlord, private company, other organisation, relative or friend. Includes tied accommodation and any 'other' type of accommodation not covered by the standard tenure types.
- c) Housing Executive - rented from the Housing Executive.
- d) Housing association - rented from a housing association, including co-operatives and housing charitable trusts.

## 13. Contact details

NIHCS statistics are produced by the Housing Executive's Research Unit:

The Housing Centre  
2 Adelaide Street  
Belfast  
BT2 8PB

For further information about the NIHCS contact Jahnet Brown, Donna McLarnon or the Lead Statistical Official (Ursula McAnulty)


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