



## ***Target Population***

The target population consisted of all residential dwellings in the 25 communities in Nunavut (excluding small settlements and isolated outpost camps). Dwellings comprised only of temporary residents with a usual home elsewhere at the time of the interview were not surveyed. Collective dwellings (e.g., jails, group homes, shelters) were also excluded from the survey.

The unit of measurement was both the household and individuals living in the household. One adult person in each dwelling responded to the survey on behalf of all household members.

## ***Instrument Design***

The survey was modeled on the 2004 and 2009 NWT Community Survey and on the 2006 Census of Population. It was modified to meet the Nunavut Housing Corporation's data needs and also for applicability to the housing and local circumstances in Nunavut communities. When applicable, questions used in other Statistics Canada surveys were implemented in this survey.

The questionnaire content was developed in collaboration with the Nunavut Housing Corporation and the Nunavut Bureau of Statistics. Cognitive testing of the initial version of the questionnaire was done by Statistics Canada's Questionnaire Design Resource Centre. A focus group session and several one-on-one interviews were conducted in Iqaluit in November 2008. The testing was done in English, with simultaneous translation in Inuktitut when needed. Individuals from a mixture of age groups and from different types of dwellings (public housing, government staff housing and privately-owned housing) were recruited. A second test of the questionnaire was done by the Nunavut Bureau of Statistics involving one on one interviews with residents in Pangnirtung, Nunavut, in June and July, 2009.

## ***Sampling***

The original plan was to conduct a census in all 25 communities. Mid-way through collection, however, the decision was made to select a sample in Iqaluit because of difficulties in hiring interviewers and because a low response rate was causing concerns about the ability to complete the survey in that community within the available time.

Therefore, the sample design consisted of a sample survey of residential dwellings in Iqaluit (the largest community) and a census of residential dwellings in the 24 other communities. The frame was created using a list of dwellings provided by local and territorial government administrative sources. In Iqaluit, a systematic sample of 911 dwellings was selected, which represents about 36% of the residential dwellings in Iqaluit.

## ***Data Sources***

Data collection for the survey was from November 10, 2009 to June 11, 2010. Data were collected directly from survey respondents. Responding to this survey was voluntary.

The survey was conducted in person, using a paper questionnaire. This method is referred to as PAPI (Paper and Pencil Interview). Telephone interviews were permitted when follow-up was required. One adult person in each dwelling responded to the survey on behalf of all household members.

Electronic copies of the questionnaires in the four Nunavut's official languages are available on the NBS website at <http://www.eia.gov.nu.ca/stats/housing.html>.

## ***Error Detection***

Once the data were received at Statistics Canada's head office, an extensive series of processing steps was undertaken to examine each record received. A top-down flow edit was used to clean up any question paths that may have been mistakenly followed during the interview.

## ***Imputation***

Responses to questions that applied to the respondent but had missing or invalid data were either imputed or assigned the "not stated" code.

Imputation of the variable HOUSEHOLD INCOME was done using BANFF software, a generalized imputation system developed by Statistics Canada. Donor imputation and other deterministic imputation methods were used.

Missing values for the variables AGE, MARITAL STATUS, SEX and STATUS (usual resident versus temporary resident) were also imputed. Variable SEX was imputed by matching the FIRST NAME to the bank of first names from the complete respondents. Variables MARITAL STATUS, AGE and STATUS were imputed using various deterministic and donor imputation methods based on the information available (including variable RELATIONSHIP to Person 1).

## ***Estimation***

### *Weighting*

#### a) Initial Sampling Weight

The principle behind estimation in a probability sample is that each unit in the sample "represents", besides itself, several other units not in the sample. For example, in a simple random 2% sample of the population, each unit in the sample represents 50 units in the population. The initial sampling weight is the inverse of the probability of selection. In this example, the probability of selection is 2%, therefore the initial sampling weight is equal to 50.

In the case of a census, all the units in the population are selected in the sample. Therefore, the probability of selection is 100% and the initial sampling weight is equal to 1 (this is the case for all communities except Iqaluit).

#### b) Weight Adjustment for Nonresponse

Regardless of the survey design, all surveys suffer from a certain amount of nonresponse. Nonresponse occurs when all or some of the information requested from sampled units is unavailable for some reason. For example, this may occur when a unit refuses to participate, no contact is made, they cannot be located or the information obtained from them is not usable.

The most common way of dealing with nonresponse is to adjust for it by applying a weight adjustment to responding units in order to compensate for units that did not respond. The nonresponse adjustment process consists of redistributing the initial sampling weights of the nonresponding units to the responding units within response homogeneity groups. This is based on the assumption that the characteristics of the respondents are similar to the characteristics of the nonrespondents, in a given response homogeneity group. In each response homogeneity group, a nonresponse adjustment factor is calculated by taking the sum of the initial sampling weights of both the responding and the nonresponding units, divided by the sum of the responding units.

### c) Final Weight

In the NHNS, the final weight is obtained by multiplying the initial sampling weight by the nonresponse adjustment factor.

#### *Estimation*

The final weights must be used to derive meaningful estimates from the survey. For example if the number of dwellings with a given characteristic is to be estimated, it is done by selecting the records referring to those dwellings in the sample with that characteristic and summing the weights entered on those records.

#### *Sampling Variance*

It is important to note that estimates produced from a survey are subject to both sampling and nonsampling errors. Sampling error of a survey occurs when only a portion of the population is enumerated and the sampled units do not have exactly the same characteristics as all of the population units that they represent.

Since it is an unavoidable fact that estimates are subject to sampling error, sound statistical practice is required to provide users with some indication of the magnitude of this sampling error. The most common measure used is the coefficient of variation (CV). It is obtained by dividing the standard error of the estimate by the estimate itself and is expressed as a percentage of the estimate. For example, suppose that, in the NHNS, one estimates that 34.9% of dwellings had a given characteristic and this estimate is found to have a standard error of 0.0051. Then, the coefficient of variation of the estimate is  $[(0.0051) / 0.349] \times 100\% = 1.46\%$ .

The coefficient of variation is used to reflect the quality level of an estimate. The quality level of an estimate is indicated with a letter or a note in the published tables.

#### ***Disclosure control***

The Nunavut Bureau of Statistics and Statistics Canada are prohibited by law from releasing any data which would divulge information obtained under their respective Statistics Act that relates to any identifiable person, business or organization without the prior knowledge or the consent in writing of that person, business or organization. Various confidentiality rules are applied to all data that are released or published to prevent the publication or disclosure of any information deemed confidential. If necessary, data are suppressed to prevent direct or residual disclosure of identifiable data.

Data based on a count of fewer than 10 respondents were suppressed to ensure confidentiality of respondents. To further reduce risks of disclosures, all estimates were rounded to the nearest 10 units.

## Response Rates

The final response rate (the number of responding dwellings as a fraction of all dwellings occupied by usual residents in Nunavut) was 79%. Response rates were lower in larger communities such as Iqaluit, Rankin Inlet and Cambridge Bay. Excluding those communities, the final overall response rate for the remaining communities was 87%.

**Response Rates for the 2009/2010 Nunavut Housing Needs Survey by Nunavut community**

	Response rate (%)
<b>Nunavut</b>	<b>79</b>
<b>Qikiqtaaluk</b>	<b>85</b>
Arctic Bay	86
Cape Dorset	94
Clyde River	73
Grise Fiord	88
Hall Beach	96
Igloolik	94
Iqaluit	69
Kimmirut	87
Pangnirtung	91
Pond Inlet	90
Qikiqtarjuaq	87
Resolute Bay	89
Sanikiluaq	91
<b>Kivalliq</b>	<b>76</b>
Arviat	90
Baker Lake	72
Chesterfield Inlet	79
Coral Harbour	95
Rankin Inlet	61
Repulse Bay	92
Whale Cove	83
<b>Kitikmeot</b>	<b>71</b>
Cambridge Bay	44
Gjoa Haven	93
Kugaaruk	99
Kugluktuk	69
Taloyoak	97
<b>Nunavut not including Iqaluit, Rankin Inlet and Cambridge Bay</b>	<b>87</b>

### Notes

The response rate is determined by calculating the number of responding dwellings as a fraction of all dwellings occupied by usual residents in Nunavut. This response rate is calculated using only the dwellings occupied by usual residents. Vacant dwellings and dwellings occupied only by temporary/foreign residents are excluded from this calculation.

In the NHNS, a dwelling is considered as a respondent when it has been identified as a dwelling occupied by usual residents and a questionnaire has been completed for that dwelling. Dwellings occupied only by temporary residents with a usual home elsewhere were not included in the response rate, since a full questionnaire was not supposed to be completed.

The total number of dwellings is taken from the NHNS dwelling list, which was based on administrative residential files and updated in the field by interviewers.