

Sampling

The target population is all buildings with an area of at least 1,000 square feet, of which 50% or more is devoted to commercial or institutional activities, located in urban areas across Canada.

Given the absence of a complete list of buildings that make up the target population, a two-stage sampling approach is used to select most of the sample. For uncommon buildings (i.e. hospitals, colleges, shopping centre, and universities), a separate sample selection method is used. The uncommon buildings sample is merged with the initial sample to produce the final sample of buildings.

In the initial sample selection, the first stage is an area sample of the enumeration areas (EA) in the selected CMAs and CAs. To stratify the targeted EAs, the number of buildings and the number of new buildings (buildings constructed between 1995 and 1999) in each EA is approximated. The identification of new buildings is used in the stratification to ensure EAs with a large proportion of new buildings are appropriately represented.

Business locations on the Statistics Canada Business Register are used as a starting point to identify buildings. Locations with the following characteristics are excluded from the survey frame: the main activity is not commercial or institutional (e.g., primary industry, manufacturing), there are no employees at the location, the location is outside the targeted CMAs and CAs, or the postal code for a location corresponded with a post office box.

The remaining list of locations is further modified to create both a list of buildings and a list of new buildings for each EA. A unique building address list is developed by extracting the street number from the location address and allowing only one observation per postal code/street number combination (locations that share the same street address are treated as one building). Employment for each building is calculated and all buildings with 5 employees or less are excluded. New buildings are identified by linking location addresses to the Building Permits Survey (Survey ID 2802), which collects information on new buildings from Canadian municipalities.

For the area sample selection, the EAs are stratified into 3 groups: EAs with between 1 and 30 buildings and fewer than 5 new buildings (group 1); EAs with between 30 and 50 buildings and fewer than 5 new buildings or more than 50 buildings (group 2); EAs with fewer than 50 buildings and more than 5 new buildings (group 3). With each CMA/EA group forming a stratum, there are 62 strata in the survey. 370 EAs are selected to ensure a sample of approximately 4,750 buildings.

The second stage involves drawing a sample of buildings from EAs selected in the area sample. The allocation of the 4,750 buildings for second-stage sampling is done by region in proportion to the square root of the population of the targeted CMAs and CAs.

In order to produce reliable estimates by building type, age and size, a random sample of buildings, stratified based on these three variables, is taken in each of the EAs. Strata containing one, two or three buildings are take-all units. In the other strata, the sample is divided in proportion to the strata's sizes, with a minimum of three units per stratum as a constraint.

The initial sample of buildings by region was:

Region	# of buildings
Atlantic	547
Québec	1,083
Ontario	1,452
Prairies	1,160
British Columbia	519
Total	4,761

Uncommon buildings are sampled for separately. Hospitals, colleges, and shopping centres are sampled using lists to ensure good representation of these buildings within the sample. A list of hospitals is obtained from Statistics Canada Health Division. A list of colleges is obtained from Statistics Canada Centre for Education Statistics. A list of enclosed shopping centres is obtained from a private firm. The Generalized Sampling System (GSAM) is used to find optimal strata giving a minimum sample size for a given coefficient of variation (CV). Hospitals are stratified by number of beds, colleges by number of students and shopping centres by square feet. For universities, a two-stage sample is the chosen method. The universities are first chosen with a selection probability proportionate to the number of buildings on their respective campus. Five buildings are then drawn randomly for each university chosen in the first stage. In total, 379 uncommon buildings (81 hospitals, 102 shopping centres, 40 colleges and 156 university buildings) were selected.

Total sample size was 5,124 buildings (4,761 from the area frame and 379 uncommon buildings, less the 14 uncommon buildings on the area frame).