

**Unified Enterprise Survey  
Data Quality Statement  
Construction Industry  
Reference year 1999**

## **1. Concepts**

The 1999 Survey of the Construction Industry results represent fiscal year estimates of financial statistics for the industry as a whole, as well as for detailed breakdown of the industry. These 1999 results are based both on survey data and tax data.

Classified under the North American Industrial Classification System (NAICS) code 23, this industry comprises establishments primarily engaged in the building, renovating and repairing of all types of buildings and structures. These establishments were in operation for at least one day during the reference period of 1999. Both incorporated and non-incorporated businesses, as well as employer and non-employer enterprises are included in the survey.

## **2. Definitions**

### 2.1 Business entity and an establishment

A business entity is an economic transactor having the responsibility and the authority to allocate resources in the production of goods and services.

A statistical establishment is one production entity or the smallest grouping of production entities which produces as homogeneous a set of goods and/or services as possible; which does not cross provincial boundaries; and for which records provide data on the value of output together with the cost of principal intermediate inputs used and cost and quantity of labor resources used to produce the output.

### 2.2 The population of interest

The population of interest is all statistical establishments classified to the industry group NAICS 23 or below and operating for at least one day during the reference year 1999. This industry group is further sub-divided into:

NAICS Code	Title
231	Prime contracting
2311	Land subdivision and land development
2312	Building construction
23121	Residential building construction
23122	Non-residential building construction
2313	Engineering construction
2314	Construction management
232	Trade contracting
2321	Site preparation work
2322	Building Structure work
2323	Building exterior finishing work
2324	Building interior finishing work
2325	Building equipment installation
2329	Other special trade contracting

## 2.3 Financial variables

### 2.3.1 Revenue

Revenue from construction activity and related services are generated from building, renovating, repairing and other related construction activities

Other operating revenue includes notably revenue from rental or leasing of office space and other real estate, revenue from rental and leasing of equipment, machinery and motor vehicle (without operator), and revenue from sales of goods, engineering services, architectural services, consulting services, property appraisals, etc.

Total operating revenue is the sum of revenue from construction activity and related services, and other operating revenue.

Non-operating revenue comprises income from interest and dividends

Total revenue is the sum of operating and non-operating revenues

### 2.3.2 Expenses

Cost of construction work subcontracted to others covers work on a contract basis, and direct labour contract workers for whom no benefits are paid by respondents. It includes piece work, lump sum payments, unit price and equipment rental with operator.

Cost of construction materials and supplies also include the cost for materials supplied to the subcontractors for installation, or used for resale by respondent

Salaries, wages and benefits refer first to salaries and wages payments, including notably vacation pay and commissions, for all employees for whom a T4 Supplementary Form were completed. This category also includes the employer portion of employee benefits for items such as Canada Pension Plan contributions or Employment Insurance premiums, health plans, insurance plans, workers' compensation

Total operating expenses is the sum of the cost for construction work sub-contracted to others; cost of construction materials and supplies; cost of salaries, wages and benefits; costs of energy and office supplies; purchased services (goods transportation, warehousing and storage; rental and leasing expenses; repair and maintenance expenses, payments to employment agency or personnel supplier; professional and business services fees; financial service fees; insurance premiums; advertising expenses; building permits and development charges expenses; property and business taxes), management fees paid to head office and business support units; depreciation charges and all other operating expenses

Non-operating expenses relate to interest expenses on capital lease obligations plus all other miscellaneous interest expenses such as interest on loans and interest portion of mortgage payments

Total expenses are the sum of operating and non-operating expenses

### **3. Methods**

The data were produced as part of Statistics Canada's Unified Enterprise Survey (UES). The survey incorporates several annual business surveys into an integrated survey. It aims to ensure Statistics Canada receives consistent and integrated data from many types of surveys and sizes of businesses, with enough detail to produce accurate provincial statistics.

#### 3.1 Target population

The target population is all establishments classified to NAICS 23 and operating for at least one day during the reference year 1999.

## 3.2 Frame and sample design

### 3.2.1 Frame

The frame for the selection of the probability sample is Statistics Canada's Business Register, which include all establishments that operated for at least one day during the reference period of 1999.

### 3.2.2 Sampling plan

Two sources of data were used to derive the estimates:

-a probability sample survey for clusters of establishments with an annual gross business income revenue above survey thresholds (which would vary by industry and provinces)

-taxation data to estimate for clusters of establishments with an annual gross business revenue below survey thresholds

In most provinces and territories, the survey thresholds varied along industry lines, ranging from \$30,000 to \$250,000. In total for the construction industry, 121,005 establishments on the Business Register had annual revenue above survey thresholds in 1999.

### 3.2.3 Sampling unit

The sampling unit used is the establishments of one enterprise that operate in the same industry and the same province or territory. The sampling unit can be called a "cluster of establishments".

### 3.2.4 Sampling rate

Out of 121,005 establishments, 8,044 were selected in the sample for an overall sampling rate of 6.6%.

## 3.3 Data collection and processing

### 3.3.1 Data collection

Questionnaires were mailed to the 8,044 establishments selected in the sample in the early months of 2000. Respondents were asked to report information for their 12-month fiscal period for which the final day occurs on or between January 1<sup>st</sup> 1999 and March 31<sup>st</sup> 2000 inclusively. The collection period ended in December 2000. Separate English and French questionnaires were used in data collection.

In addition to the mail-out/mail-back questionnaire approach, the survey was also conducted using Computer Assisted Telephone Interviews (CATI) for data collection, capture, edit and follow up.

### 3.3.2 Data processing - imputation

Reported data were examined for completeness and inconsistencies using automated edits coupled with analytical review. Records with partial responses were imputed to make them complete and were added to a donor pool along with completed records. Data for non-respondents, unable to locate and no contacts were imputed using nearest neighbour donor imputation. Tax data were used in order to identify nearest neighbour donors.

This imputation process was also coupled with a manual analytical review. In total, 33% of the records went through the imputation process in 1999. This is considered as relatively good for a business survey. With the use of taxation data, the quality of the data coming out of the imputation process is judged to be very good for the aggregate variables, such as total revenue and total expenses, and to be good or acceptable for more detailed variables.

### 3.3.3 Data processing - allocation

In some cases, respondents reported data combining many sampling units, resulting in the need for data allocation. Auxiliary information, stemming mainly from the survey or tax, was used to allocate the data reported on the combined report among the various sampling units. This source of information used for allocation purposes provides an adequate distribution of revenue and expenses by province and territory.

### 3.3.4 Data processing - estimation

The sampling weights derived from the sample survey design were modified and improved using updated information. This was possible because, during the passage of time since the sample was selected, the Business Register was updated further with more complete information. The final set of weights reflects as closely as possible the changing characteristics of the population in this industry. The final estimates were derived by combining the survey estimates and the taxation data estimates.

## **4. Data quality**

All surveys are subject to sampling and non-sampling errors. Statistics Canada uses a variety of methods to minimize all types of errors. Efforts were taken for instance through regular frame (Business Register) analysis, appropriate respondent follow-up, adequate imputation model and detailed analysis of the

estimates to non-sampling errors of omission, duplication, reporting and processing.

#### 4.1 Response rate

As depicted in Table 1 below, 50% of the 8,044 questionnaires sent in the sample survey were fully or partially completed in 1999. Another 17% were identified as out-of-scope to NAICS 23. Finally 33% of the respondents refused to complete the questionnaire, did not complete the questionnaire before collection cut-off, or were found unable to contact in 1999. The response rate, measured as the proportion of completed questionnaires out of in-scope questionnaires, reached 60% in 1999.

**Table 1**

Questionnaires	1999		Percentage of estimated total revenue from survey portion only
	Number	Percentage	Percentage
Fully/partially completed	4021	50%	71%
Out-of-scope	1344	17%	0%
Non-response/ refusal/ unable to locate	2679	33%	29%
Total	8044	100%	100%

## 4.2 Coefficients of variation

Coefficients of variation (CV) of the final estimates are generally recognized as a good indicator of sampling errors. Based on the calculated coefficients of variation, the quality of the final estimates is classified as follows:

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Excellent	CV is 0.01% to 4.99%
Very good	CV is 5.00% to 9.99%
Good	CV is 10.00% to 14.99%
Acceptable	CV is 15.00% to 24.99%
Use with caution	CV is 25.00% to 34.99%
Unreliable	CV is equal or greater than 35.00%
Census	no sampling error or CV

Based on these ratings and as depicted in Table 2 below, the total revenue estimates for the whole industry (NAICS 23) as well as both NAICS level 231 and 232 were judged to be excellent at the national level and very good to excellent at the provincial/territorial level in 1999.

**Table 2**

<b>Total revenue</b>			
	<b>NAICS 23</b>	<b>NAICS 231</b>	<b>NAICS 232</b>
	Construction	Prime contracting	Special trade contracting
NFLD	Excellent	Very good	Very good
PEI	Very good	Very good	Very good
NS	Excellent	Very good	Very good
NB	Excellent	Very good	Very good
QUE	Excellent	Excellent	Excellent
ONT	Excellent	Excellent	Excellent
MAN	Excellent	Very good	Very good
SASK	Excellent	Very good	Very good
ALB	Excellent	Excellent	Very good
BC	Excellent	Excellent	Very good
YUK	Census	Census	Census
NWT	Census	Census	Census
NUN.	Census	Census	Census
CANADA	Excellent	Excellent	Excellent