Expenditures for Nonresidential Improvements and Repairs

INTRODUCTION

These tables provide estimates of the dollars spent to improve and repair existing nonresidential buildings for the years 1986, 1989, and 1992. The statistics presented here are based on information collected as a supplement to the Department of Energy's triennial Commercial Buildings Energy Consumption Survey (CBECS). The CBECS covers all nonresidential buildings in the United States excluding industrial buildings, agricultural buildings, and all buildings 1,000 square feet or less. In addition, these tables exclude buildings in the CBECS classified as either owned by the Federal Government or by privately owned public utilities (i.e., electric, gas, telephone, railroad, or petroleum pipeline companies).

The Census Bureau views the results of the supplement cautiously because of a number of limitations in the statistics discussed later. For these reasons, the data were released in the form of a special study rather than included in the *Value of Construction Put in Place* report series.

DATA COLLECTION PROCEDURES

The CBECS was designed by DOE to provide basic statistical information on the consumption of energy in U.S. nonresidential buildings, along with data on energy-related characteristics of these buildings. To obtain this information, a sample of nonresidential buildings was selected according to the design described in appendix A of this documentation. Information on selected buildings was collected in the survey through voluntary personal interviews with the buildings' owners, managers, or tenants. Although designed to collect energy data, CBECS provides a vehicle to also obtain nonresidential improvements and repairs data. A special data collection form was included in the CBECS for the Bureau of the Census, Form EIA-871G, Construction Improvements and Maintenance and Repairs Supplement (hereafter referred to as "Census Supplement").

The data shown in these tables, representing calendar years 1986, 1989, and 1992 expenditures, were collected during the period of August through December. Therefore, it was necessary to ask respondents to combine actual expenditures through the date of the interview with an estimate of expenditures for the remainder of the year. Thus, a potential for increased nonsampling error is suggested in the results.

In 1992, the field staff consisted of 162 interviewers under the supervision of six regional supervisors and their assistants, and a central office staff consisting of a project manager, a field director, and a subsampling assistant. Interviewers visited all sampled buildings in person to ascertain if the structure met the eligibility requirements of the survey and to identify the individual meeting the criteria for a building representative or respondent. The respondent could be the owner of the building, a tenant, a hired building manager or engineer, or a spokesperson for a management company.

A limited number of interviews were conducted by telephone. This occurred as part of the nonresponse conversion effort, or if a knowledgeable building respondent was not located in the same area as the sampled building. However, in all cases, an interviewer had first visited and observed the sampled building.

To be eligible for the survey and to be included in the analysis contained in these tables, a building had to satisfy three criteria: (1) it had to meet the definition of a building; (2) it had to be used primarily for some commercial purpose; and (3) it had to measure 1,001 square feet or more. Buildings could be eliminated from the sample during the listing, interviewing, or analysis phases of the CBECS.

The definition of a building was a structure totally enclosed by walls that extend from the foundation to the roof and intended for human access. Thus, structures such as radio and TV towers were excluded from the survey.

Also excluded were partially open structures, such as lumber yards; enclosed structures that people usually do not enter, such as pumping stations and cooling towers at electric power plants; and dilapidated or incompleted buildings missing a roof or a wall. Structures that were included in the survey by specific exception, despite not being "totally enclosed by walls," were parking garages and structures on pillars.

The second criterion was that a building had to be primarily used for some commercial purposes; that is, more than 50 percent of the building's floorspace must be devoted to activities that are neither residential, industrial, nor agricultural. During the interviewing stage, screening questions instructed the interviewer to terminate the interview if the respondent indicated half or more than half of the square footage was used for residential, industrial or agricultural purposes. During the analysis phase, buildings found to be 50 percent or more residential were eliminated from the data base.

RESULTS AND EXPLANATORY REMARKS

Based on data collected in the Census Supplement, an estimated $91.2 billion was spent on nonresidential improvements and repairs in 1992. Tables 1-5 provide further detail by ownership, principal building activity, building size, year built, and geographic region.

Since they are based on a sample, the estimates shown in these tables are subject to sampling variability as well as errors of response and nonreporting. Due to considerable skewness in the reported expenditures (especially for improvements, most buildings report no or few expenditures and a few buildings report large expenditures), the sampling variability of the estimates is very large and the data presented in these tables must not be considered as precise estimates. In addition, because the questions used in the Census Supplement involve unbounded recall, that is, no attempt was made to prevent the reporting of expenditures prior to the data year by use of an earlier interview, and because expenditure reports included estimates of planned expenditures for the remainder of the data year after the interview, there is potential for large biases in the reported expenditures. A complete discussion of the reliability of the data appears in Appendix B, Sampling and Nonsampling Errors. Also included is a description of the procedure used to estimate expenditures for nonrespondents.

Improvements and Repairs

"Improvements" were defined to respondents of the Census Supplement to include all of the following: additions, alterations (renovations, remodeling, etc.), and major replacements. Major replacements are defined as the complete replacement of building systems such as the installation of a new roof or heating system. This contrasts to the patching of a hole in a roof which would be classified as "Repairs." In general, improvements are capital expenditures which add to the value or useful life of a property, or adapt a property to a new or different use. Repairs represent current costs for incidental maintenance and repairs which keep a property in ordinary operating condition. Repairs do not include expenses for trash and snow removal, lawn maintenance and landscaping, cleaning, and janitorial services.

Since the Census Supplement collected total expenditures on improvements and repairs during the year, it is not possible to identify the number or extent of each individual job. However, it was possible to estimate that about 23 percent of all buildings had some improvement work, while about 71 percent had some expenditures for repairs.

Principal Building Activity

A detailed description of the principal activity categories is contained in appendix E of CBECS Characteristics. As mentioned, excluded from both these tables and CBECS Characteristics were buildings classified as being 50 percent or more industrial, agricultural or residential, and all buildings 1,000 square feet or less. These tables further exclude buildings owned by the Federal Government or privately owned public utility companies.

Certain building categories shown separately in CBECS Characteristics were too small to show separately in these tables. These categories were combined in the following manner:

Private Buildings

CBECS Category	Census Supplement Category
Food sales Food service	Food sales/service
Mercantile and service Laboratory	Mercantile/service (nonfood)
Health care Skilled nursing	Health care
Public order/safety Other	Other

State and Local Buildings

CBECS Category	Census Supplement Category
Health care Skilled nursing	Health care
Food sales Food service Mercantile and service Laboratory Warehouses Lodging Religious worship Other	Other

Two building categories received special treatment for these tables. Expenditures for buildings classified as "public assembly" and "parking garages" in CBECS were reclassified to other categories based on a review of the completed questionnaires. These buildings were classified based on the activity of the associated facility.

Regions

The standard Census geographic regions are used in various tables. States contained in each region are as follows:

- **Northeast**
  - Connecticut
  - Maine
  - Massachusetts
  - New Hampshire
  - New Jersey

- **Midwest**
  - Illinois
  - Indiana
  - Iowa
  - Kansas
  - Michigan

- New York
- Pennsylvania
- Rhode Island
- Vermont

- **South**
  - Alabama
  - Arkansas
  - Delaware
  - District of Columbia
  - Florida
  - Georgia
  - Kentucky
  - Louisiana
  - Maryland
  - Mississippi
  - North Carolina
  - Oklahoma
  - South Carolina
  - Tennessee
  - Texas
  - Virginia
  - West Virginia

- Minnesota
- Missouri
- Nebraska
- North Dakota
- Ohio
- South Dakota
- Wisconsin

- **West**
  - Alaska
  - Arizona
  - California
  - Colorado
  - Hawaii
  - Idaho
  - Montana
  - Nevada
  - New Mexico
  - Oregon
  - Utah
  - Washington
  - Wyoming

Tables