

AT A GLANCE:

Commercial Buildings in Perspective

In-depth information about how energy is used by commercial buildings is provided by the Energy Information Administration (EIA) in this analysis of its 1995 Commercial Buildings Energy Consumption Survey results. Energy use and costs are analyzed by using the buildings' energy-related characteristics, such as size, age, location, and activity (for example, retail sales). Energy uses and sources are also covered.



Commercial buildings typically are small,

They average 13 thousand square feet, with fewer than 5 percent of buildings being larger than 50 thousand square feet, the size of a large supermarket. However, total commercial floorspace in the United States exceeds the area of the State of Delaware and amounts to about 200 square feet for each person in the Nation.



have a median age of 31 years,

Although new commercial buildings are constructed and older ones demolished every year, older buildings dominate the stock at any one time. More than half of the commercial buildings in the United States were built before 1970.



and are more likely to be in the South.

The South also has the highest population of the Census regions. The correlation of building location and population is not surprising, because most commercial activity entails providing goods and services to people.



Retail and wholesale stores and service businesses are the most numerous,

Office buildings and warehouses are also common. However, there are many more types of commercial buildings, ranging from courthouses and corner grocery stores to concert halls and skyscrapers.



and electric lighting and natural gas space heating are the most common uses of energy.

Lighting, space heating, cooling, and water heating (regardless of energy source) account for just over three-fourths of total commercial energy use. The remaining energy is used for ventilation, cooking, refrigeration, and operating office equipment and miscellaneous equipment, such as elevators, telephones, and vending machines.



Commercial Buildings Are Grouped

Commercial buildings are classified by the building. Included in the CBECS are not only and wholesale stores, offices, hotels, restaurants, of buildings that would not be considered such as warehouses, schools, correctional

Retail and wholesale stores and service businesses (**mercantile and service** buildings) are the most common. They account for more than one-fourth of all commercial buildings.

Mercantile and service and **office** buildings together consume one-third of commercial site energy.

Education buildings are, on average, the largest commercial buildings.

Energy-saving features that reduce energy use for lighting are the most common in **education** and **public order and safety** buildings.



Into 12 Categories in EIA's Survey

principal building activity that occurs in the buildings that provide services, such as retail and hospitals, but also a wide range “commercial” in a traditional economic sense, institutions, and religious organizations.



Food service and health care buildings use the most energy per square foot.

Not surprisingly, **vacant** buildings use the least energy per square foot.

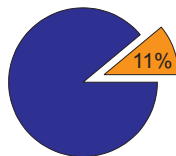
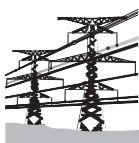
Religious worship buildings also use less energy per square foot than average.

Food sales buildings use 52 percent of their total energy for refrigeration.

In buildings used for **lodging**, 40 percent of the energy is used for water heating.

EIA's 1995 survey shows that U.S. commercial buildings . . .

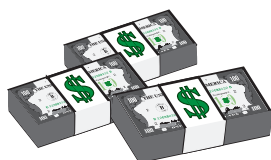
use 5.3 quadrillion Btu^{*} of energy,



The 5.3 quadrillion Btu of site energy use includes electricity. An equal amount of energy is needed to generate electricity and send it to the buildings. Added together, site use and production and delivery losses yield the total amount of energy (“primary energy”) used by commercial buildings: 10.6 quadrillion Btu, about 11 percent of U.S. total energy use in 1995.

Of all the energy sources and end uses of site energy, consumption of natural gas for space heating predominates. But of the sources and uses of primary energy, consumption of electricity for lighting is the most prevalent

pay about \$70 billion for it,



Building owners pay about \$70 billion for electricity, natural gas, fuel oil, and district heat. Most of the outlays are spent on electricity. On average, each building's energy costs totals \$15,300, but, as would be expected, costs vary widely, depending on the size of the building and on which activities take place in the building.

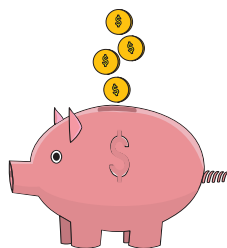
emit carbon dioxide from on-site burning of natural gas,



The major source of on-site carbon emissions by commercial buildings is the burning of natural gas for space heating and other end uses. The 1.9 quadrillion Btu of natural gas consumed emits about 100 million metric tons of carbon dioxide.

Those on-site emissions from natural gas are less than 2 percent of all energy-related carbon dioxide emissions nationwide. However, if emissions from the off-site sources of electricity and district heat were included, the share would be much greater than it is.

and seek to save energy in a variety of ways.



Newer buildings report more energy-saving equipment and practices. However, because they also use more electricity than older buildings, the newer buildings' energy intensity (energy use per square foot) is not as low as their energy-saving activities might imply.

Insulation, awnings, storm glazing, and tinted glass all are energy-saving features in commercial buildings, and all are used more by newer buildings. Similarly, energy-saving features of lighting systems, such as mirrored reflectors, dimmer switches, and natural lighting sensors, also are more prevalent in newer buildings.

^{*}All energy measurements in the body of this report are in British Thermal Units (Btu).