ASSESSMENT OF THE COMMERCIAL BUILDING STOCK IN THE PACIFIC NORTHWEST

Market Research Report

prepared by

KEMA-XENERGY Inc.

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March 8, 2004

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Final Report
Assessment of the Commercial Building Stock in the Pacific Northwest

Prepared for

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Portland, Oregon

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1 EXECUTIVE SUMMARY

1.1 BACKGROUND AND OBJECTIVES

This report characterizes the commercial building stock in the Pacific Northwest. Jointly sponsored by the Northwest Energy Efficiency Alliance (Alliance), Bonneville Power Administration, the Energy Trust of Oregon (ETO), and Puget Sound Energy, the study was intended to (1) update the results of several recent surveys of the nonresidential sector in the region, and (2) provide information on changes in the commercial building stock. The emphasis is on energy-use intensity (EUI) and penetration of energy-efficient technologies and practices. The results of this study are expected to serve as a basis for several current planning, forecasting, and program development initiatives by various entities in the region.

The study provides a snapshot of commercial building stock in 2001. Changes are assessed over the time period from 1987 to 2001.

1.2 STUDY DATA AND METHODS

This study is based on a re-survey of buildings that were observed in one of seven previous studies. The largest of these, and the only one that covered the entire Pacific Northwest region, was the 1987 PNNonRES study. A total of 812 sites that were in one of the previous studies were re-surveyed for the present study. In addition, data from 345 newly constructed sites that were studied in 1995 or later are included in the present study's cross-sectional estimates, without update.

In addition to updating previously observed characteristics, this study collected current electric histories for the majority of the premises included in the study, and gas consumption histories for a substantial number. This information allows estimation of EUIs, which were not included in the previous studies.

The study uses post-stratification to known population floorspace totals to expand the sample data to population estimates. The expansion procedures also provide approximate standard errors of the estimates. A survival model is used to adjust the floorspace known at various points in time to the surviving floorspace in 2001. The results of this model also provide estimates of demolition rates that can be used in ongoing forecasting work.

1.3 KEY FINDINGS

1.3.1 Building Characteristics

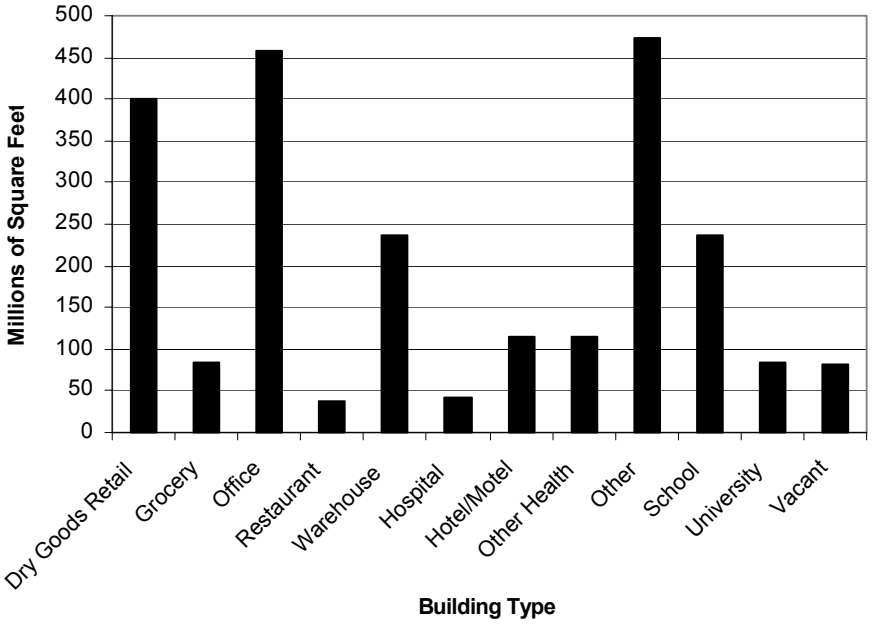
Total Floorspace

Total commercial floorspace in the Pacific Northwest was 2.4 billion square feet in 2001, compared with 1.7 billion in 1987. This change represents an increase of 35 percent, or just over 2 percent per year for 14 years.

Building Types

Floorspace by building type is shown in Figure 1-1. Office and Retail account for over one-third of the commercial floorspace. Together with Warehouses and Schools, the four building types account for 56 percent of commercial floorspace.

Figure 3-1
2001 Floorspace by Building Type, Millions of Square Feet



Size Distribution

Buildings over 100,000 square feet account for a little over a quarter of commercial floorspace. The remainder is split roughly evenly between those under 20,000 square feet and those between 20,000 and 100,000 square feet.

Age Distribution

Nearly one-third of commercial floorspace was built prior to 1970. Twenty-eight percent was built since 1987, the time of the last regional study. Eighteen percent was built in 1995 or later. The average age of the floorspace stock in 2001 was 35 years.

Heating and Cooling

Eighty-seven percent of commercial floorspace is heated, and 64 percent is cooled, up from 49 percent in 1987. Sixty-nine percent of commercial floorspace has supplemental heat.

Natural gas is the primary heating fuel for roughly two-thirds of commercial floorspace, electricity for most of the remainder. The gas-heated fraction is up by 14 percentage points from 1987.

Lighting

The overall indoor lighting power density (LPD) is 1.3W/sf. For buildings that existed in 1987, the LPD has dropped by 0.3 W/sf, from 1.5 to 1.2, since that time.

Seventy percent of commercial lighting wattage is in fluorescent lamps. Most of the remainder is split roughly evenly between incandescent and HID. In terms of floorspace, 81 percent is served by fluorescent; just over half of this (45 of the 81 percent) is in T-8s, while most of the remainder is in T-12s.

For each of the building types reported in the 1987 report, the fraction of incandescent was lower in 2001 than it was in 1987, while there is clear evidence of increases in HID lamps.

Outdoor lighting is used at a rate of 0.2 W per indoor square foot. Thus, overall lighting use, counting both interior and exterior lighting, is around 1.5 W/sf.

HID lamps account for 56 percent of outdoor lamp wattage. Use of HID lamps for outdoor lighting has increased since 1987 for each of the building types reported in the 1987 PNNonRes study.

1.3.2 Windows

Very little of the window area has single glazing (13 percent). Most window area is in metal frames (about 70 percent). A similar fraction is gas-filled or low E. Eighty percent is either tinted or reflective. Only 3 percent is in operable windows. About 25 percent of the commercial floorspace is in buildings with some form of skylight.

Business Ownership

Twenty-nine percent of commercial floorspace is in premises that are part of a chain. Only 2 percent is in franchises. The largest fractions of floorspace in chains are found for Warehouses (54 percent), Hotel/Motels (each 49 percent), and Dry Goods/Retail (38 percent).

Roughly half of commercial floorspace is owned by a corporation or partnership. Twenty percent is government-owned, mostly local or state, and a similar amount is individually owned.

Leased Space

Leased space accounts for 38 percent of commercial floorspace. Offices (70 percent), Dry Goods Retail (62 percent), and Warehouses (61 percent) have the highest fractions of leased space. Tenants do not pay electric utilities in about one-third of leased space.

Operating Hours

Fourteen percent of commercial floorspace is in continuously open buildings. Over half is in buildings open 60 hours a week or more. Only 8 percent is in buildings open under 40 hours per week. Each of the building types for which hours were reported in the 1987 PNNonRes study has shown a shift to longer operating hours.

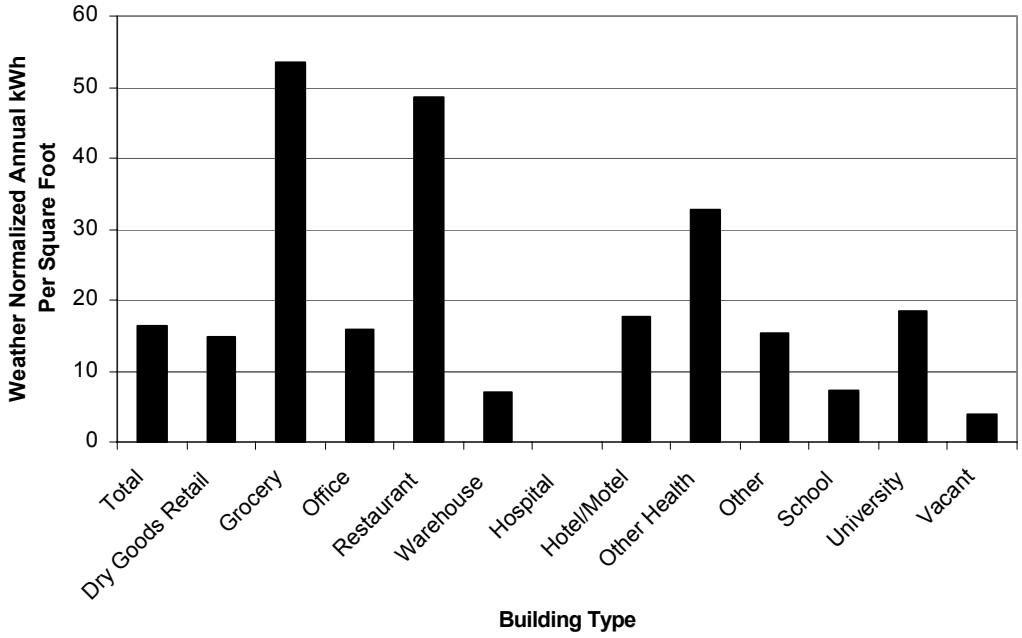
1.3.3 Energy Use and EUI

For the Pacific Northwest region as a whole, the electric Energy-Use Intensities (EUIs) estimated in this study have slightly greater uncertainty than the West Census region estimates available from the Commercial Buildings Energy Consumption Survey (CBECS) (Relative standard error of 7.5 percent versus 6 percent). On the other hand, the estimates from this study are specific to the Pacific Northwest. For most common building types, for size categories above 20 thousand square feet, and for cohort 1 (built 1987 or earlier), the EUIs from this study not only are more specific to the this region, but also are better determined than the corresponding CBECS West Census region estimates.

Electricity

Pacific Northwest commercial buildings had an overall electric EUI of about 16 kWh/sf in 2001. Restaurants and Groceries had the highest electric EUIs, at 49 and 54 kWh/sf, respectively (Figure 1-2). Warehouses and Schools were lowest of the nonvacant categories, both at 7 kWh/sf.

Figure 1-2
2001 Annual Electric EUI by Building Type



Office and Retail buildings accounted for 36 percent of regional electric use. Schools and Universities accounted for another 14 percent, and Warehouses for 4 percent.

The Pacific Northwest electric EUIs developed in this study are generally consistent with the national and West Census region values from the Energy Information Administration's 1999 CBECS, by building type, size, and vintage category. The aggregate electricity estimate is within 3 percent of the total commercial sales estimated for the region by the Northwest Power Planning Council. The EUI estimates also are well determined statistically. The main exception is that EUIs developed in this study for the 1995 to 2001 vintage category may be unreliable.

Natural Gas

The overall natural gas EUI was 0.49 therms/sf. Retail and Office gas EUIs were similar to one another, at 0.27 and 0.25 therms/sf, respectively. Because of limited data, estimates of gas EUI for other building types, or by size or vintage category are not generally reliable.

1.3.4 Demolition Rates

The rate at which existing floorspace is removed from the building stock is an important driver of long-term forecasts. Estimates of demolition rates are difficult to develop, because such estimates require tracking of building survival over time. This study, which returned to buildings originally visited 14 years earlier, provides an unusual opportunity to determine demolition rates.

The overall demolition rate for existing buildings over the 14-year period from 1987 to 2001 is estimated at 6.2 percent, a total of 108 million square feet. This total corresponds to an annual rate of 0.46 percent per year. For buildings that were vacant in 1987, 30.5 percent of the floorspace is estimated to have been demolished, an annual rate of 2.6 percent. For buildings under 5,000 square feet the total over 14 years was 12.7 percent, an annual rate of just under 1 percent.

1.4 ASSESSMENT OF THE STUDY APPROACH

This study has provided detailed audit data and statistical analysis for a regional sample of nearly 1,200 buildings. For over two-thirds of these buildings, comparison data were provided for two points in time 14 years apart. The work was accomplished at a substantially lower cost than would be required to develop and analyze a stand-alone sample of a comparable size.

This approach, involving compilation from prior studies and re-visits to prior samples, has advantages and disadvantages. One disadvantage is that interpreting existing data sets and mapping them into a common set of field definitions introduces uncertainty and potential bias into the analysis. In addition, compilation from various studies means that some data fields are inconsistently present, and it is not always possible to distinguish missing data from inapplicable cases.

Another set of limitations relate to the sample expansion. The post-stratification depends on the assumption that data collected from one part of the region are representative of other areas. In particular, the analysis assumes that buildings of the same building type, size, and vintage have the same characteristics across the region. The analysis also implicitly assumes that the estimated floorspace totals from the 1987 PNNonRes are correct. Further, it requires that the Dodge construction data used for total floorspace built in later years have been appropriately screened or adjusted for duplicate entries and buildings permitted but not completed.

Despite these concerns and limitations, the study provides meaningful and reliable estimates. Even without having a true statistical design, the standard errors developed provide useful indicators as to the reliability of particular estimates. Both on the basis of these standard errors and on the basis of comparisons with other data sources, the estimates developed in this study appear to be reliable and internally consistent.

The EUIs developed in this study are the first estimates based on a regional statistical sample specific to the Pacific Northwest. The electric EUIs by building type and size appear to be reliable, and in many cases are better determined than those from the less region-specific CBECS data. EUIs by vintage are also reliable, with the exception of the EUI for post-1994 buildings. EUIs by combinations of type, size, and/or vintage may be problematic due to small sample sizes. The natural gas EUIs are based on smaller samples than the electric EUIs, and are not recommended for comparative analysis across groups.

A key benefit of the approach taken here is that the re-visit to buildings in the 1987 study allows a glimpse at changes within existing buildings over time. Moreover, this type of change analysis from two observations of the same buildings provides greater accuracy for estimating changes than would two independent samples of the same size.

The re-visit to buildings in cohort 2, built between 1988 and 1994, did not contribute to meaningful trend analysis. While similar comparisons between original and 2001 results were calculated, the resulting change estimates were erratic and had large standard errors. For this reason, these change estimates are not included in the report. Nonetheless, the re-visit to these buildings was valuable because they provided a sample from that vintage. In addition, the attempt to re-contact these sites provided data for the survival/demolition rate analysis.

The demolition estimates represent a particularly useful outcome of the re-visit approach taken for both cohorts 1 (1987 and earlier) and 2 (1988 to 1994). These estimates have direct application in the development of the study's post-stratification weights. In addition, the survival model that provides these estimates is sufficiently general to be used in future planning work, to project survival rates over other future periods according to building stock characteristics. The Northwest Power Planning Council will be using results of both the trend analysis and the demolition analysis in developing forecasts.

2 INTRODUCTION

2.1 BACKGROUND AND OBJECTIVES

This report summarizes the results of a comprehensive study to characterize the commercial building stock in the Pacific Northwest. Jointly sponsored by the Northwest Energy Efficiency Alliance (Alliance), Bonneville Power Administration, the Energy Trust of Oregon (ETO), and Puget Sound Energy, the study was intended to update the results of several recent surveys of the nonresidential sector in the region; and to provide information on changes in the commercial building stock with an emphasis on energy-use intensity (EUI) and penetration of energy-efficient technologies and practices. More specifically, the study was designed to serve the two-fold objective of

1. Obtaining a clear characterization of the nonresidential building stock with respect to floorspace, fuel saturation, EUI, physical characteristics, equipment stock, functional use, ownership, management, occupancy, energy efficiency levels, and O&M practices; and
2. Establishing a baseline for and investigating changes in market size, energy use, and penetration of energy-efficient technologies in the commercial sector.

The study provides a snapshot of commercial building stock in 2001. Changes are assessed over the time period from 1987 to 2001.[1]

The results of this study are expected to serve as a basis for several current planning, forecasting, and program development initiatives by various entities in the region. Likely applications of the results include:

- Providing the necessary baseline information for the forthcoming update of the Northwest Power Planning Council's Conservation and Electric Power Plan;
- Developing the basis for commercial-sector program planning and development, evaluation, and tracking needs of the Alliance; and
- Supporting future planning and energy efficiency program development efforts of the ETO, Bonneville Power Administration, and regional utilities.

The data developed in this study are publicly available for analysis. For access to the datasets, contact the Alliance at www.nwalliance.org and request the CBSA data.

[1] Audits were conducted in 2002, but only buildings existing in 2001 are represented.

2.2 ORGANIZATION OF THE REPORT

Key findings from the study are presented in the next section. The methods used are then described in Section 4. This section includes the development of the frame for the current sample, the data collection procedures, and the estimation methods.

Detailed cross-tabulations of cross-sectional estimates and change estimates are provided in Appendices A through F. The primary study findings provided in this report are aggregate population characteristics, tabulated in Appendices A, B, and C. Most of these characteristics are in the form of aggregate ratios per square foot. These estimates can also be regarded as floorspace-weighted means.

There is naturally considerable variation across individual buildings. Approximate standard errors are provided in Appendices D, E, and F. These standard errors can be used to calculate confidence intervals for any point estimate of interest using procedures described in Section 4.

Further details on the data collection process are provided in the remaining appendices. A copy of the 1987 PNNonRes study is provided as Appendix L.

3 KEY FINDINGS

3.1 SAMPLE DESCRIPTION

The findings of this study are based on data from observation of 1,157 commercial premises. The majority of these premises were visited during one of several earlier studies between 1987 and 1994, and were re-visited for the present study in 2001.

New construction since 1995 is represented by data from sites that were visited in New Construction studies between 1995 and 1999; these data are included in the present study without update. That is, characteristics of these buildings are assumed not to have changed appreciably since their construction.

The number of sites included in the sample by type and timing of visit is indicated in Table 3-1. The survey types are described in Section 4. Further detail on the sample breakdown is provided in Appendix H.

Table 3-1
Sites in the Study by Type and Timing of Visit

	Year Surveyed		
Survey Scope	2001	Prior to 2001 only	Total
Drive-by	251	0	251
Campus/Complex	62	0	62
Phone only	77	0	77
Scheduled	206	345	551
Walk-in	216	0	216
Total	812	345	1157

3.2 BUILDING CHARACTERISTICS

3.2.1 Information Presented

2001 Population Snapshot

A primary goal of this study was to develop a snapshot of the 2001 commercial building population. Key characteristics of the population are described below. Detailed tables of statistics are provided in Appendices A through C.

Most statistics provided are in terms of fractions of floorspace or ratios per square foot rather than averages per building. For the commercial sector, floorspace measures are more meaningful than building counts or averages.

Trends Since 1987

Changes since the 1987 PNNonRes study are also described in this section. However, many of the statistics provided for this 2001 snapshot were not available in comparable form from the earlier study. For many characteristics, the prior study gave estimates for five building types only, and not for the total across all building types. In addition, some estimates that were previously provided in terms of averages per building are provided here for 2001 only in terms of ratios per square foot.

For these reasons, information on trends is provided in varying forms. In some cases, mostly where 1987 totals are available, a comparison between 2001 and 1987 PNNonRes estimates is given. These direct comparisons are of interest to those familiar with the earlier results. However, it is not possible to say whether these changes are statistically significant.

Another comparison offered is between the estimates based on 2001 and 1987 data for the subset of buildings that was in both samples. These comparisons indicate changes over this time frame within the surviving building stock. Effects of demolitions and new construction do not affect these changes. In addition, statistical significance tests are available. Detailed tables of comparisons between 1987 and 2001 values for the buildings in existence at both times are provided in Appendix C.

A third indicator of trends comes from comparison of 2001 values for recently constructed buildings with those of earlier vintage. These comparisons are of interest, because they indicate the shifts due to new construction. However, the new construction cohort is small compared to the original sample, and also has more gaps in coverage of building types and sizes. For these reasons, many of the new versus old comparisons are not highly reliable.

3.2.2 Total Floorspace

Total commercial floorspace in the Pacific Northwest was 2.4 billion square feet, compared with 1.7 billion in 1987. This change represents an increase of 35 percent, or just over 2 percent per year for 14 years.

At the same time, the estimated number of buildings in 2001 is smaller than that for 1987, 174,000 compared with 201,000. Thus, the average building size is larger in 2001, at 13,700 square feet compared with 8,700 in 1987.

In part, this shift reflects a larger average size for newer buildings and higher demolition rates for smaller buildings. However, the study methodology also makes estimates of building counts less reliable than the estimates of floorspace, as well as being less meaningful, as noted. This issue is discussed further in Section 4.

3.2.3 Building Type

The "building type" is the predominant activity taking place within the building.

2001 Snapshot

The distribution of Pacific Northwest commercial floorspace in 2001 by building type is indicated in Figures 3-1 and 3-2. Apart from the miscellaneous "Other" category, the largest fractions of floorspace are Office and Retail. These two building types account for over one-third of the commercial floorspace. Next most common are Warehouses and Schools, at around 10 percent each. Together, these four building types account for 56 percent of commercial floorspace.

Figure 3-1
Floorspace by Building Type, Percent

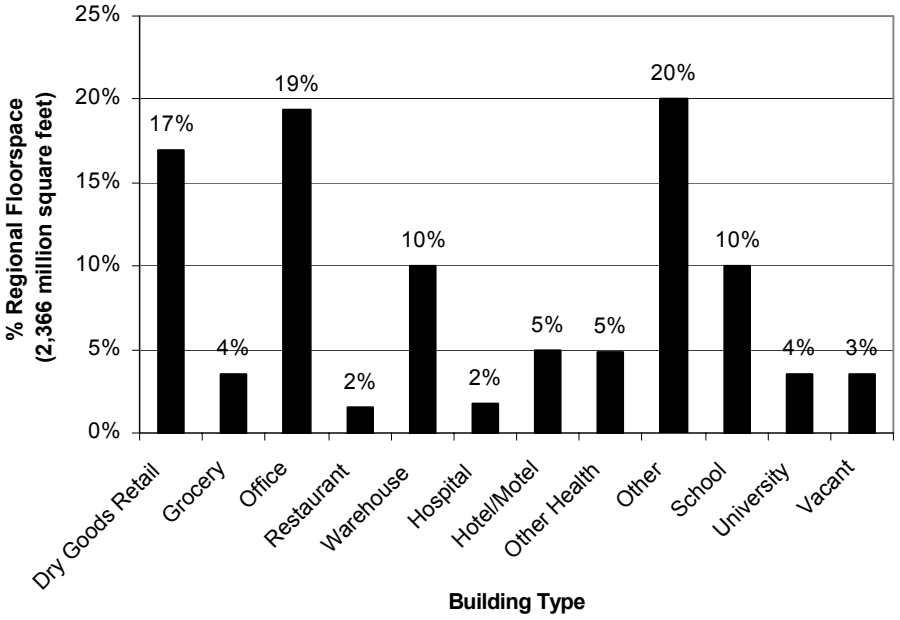
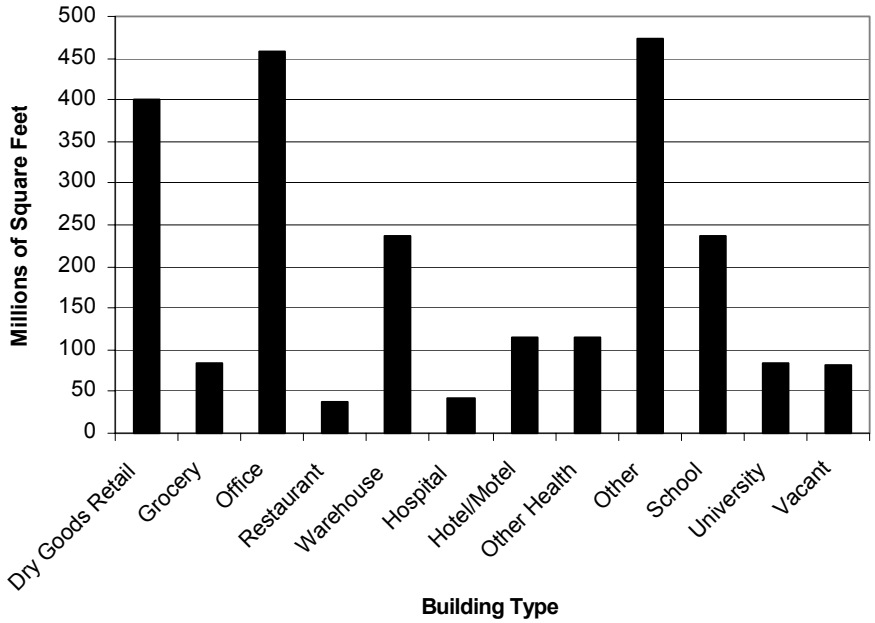
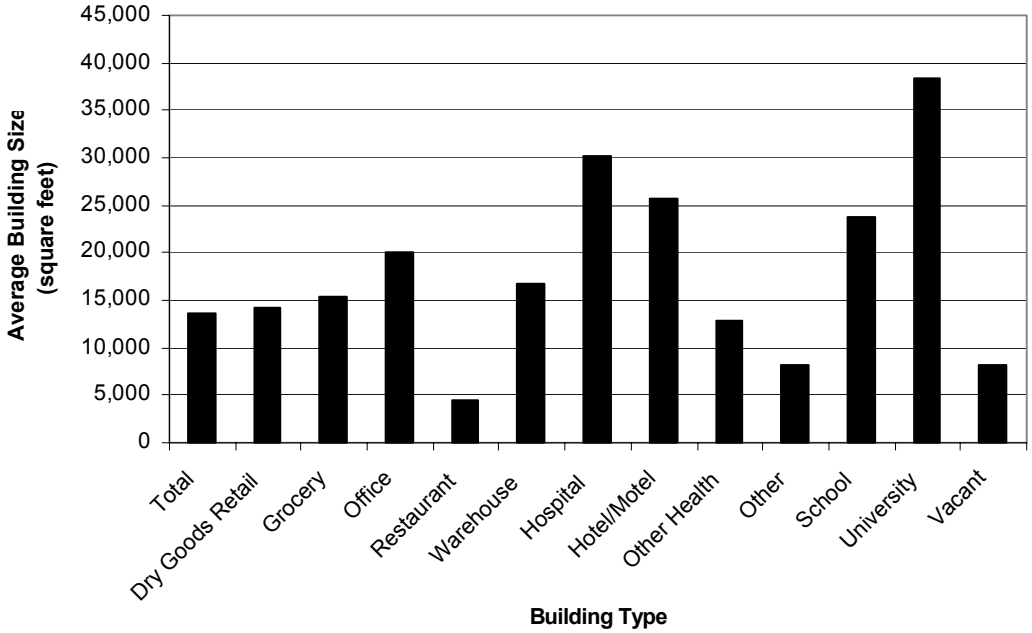


Figure 3-2
Floorspace by Building Type, Millions of Square Feet



The total floorspace by building type reflects both the size of the buildings and their number. Universities and Hospitals have the largest average building size, at 38,000 and 30,000 square feet, respectively (Figure 3-3). Hotel/Motels and Offices, which account for larger total amounts of floorspace, are next largest, at around 25,000 and 20,000 square feet, respectively. Restaurants are the smallest on average, at around 5,000 square feet.

Figure 3-3
Average Building Size by Building Type



Building Type Conversions

Table 3-2 indicates how much of the surviving floorspace was converted to a different use between 1987 and 2001 for each 1987 building type. For example, of all buildings that were used primarily as office buildings in 1987, buildings accounting for 6 percent of the floorspace were converted to a different use by 2001. Among nonvacant buildings, Restaurants, Warehouses, Hospitals, and Other had the greatest conversions to different uses. Common building types converted to were Offices and Warehouses.

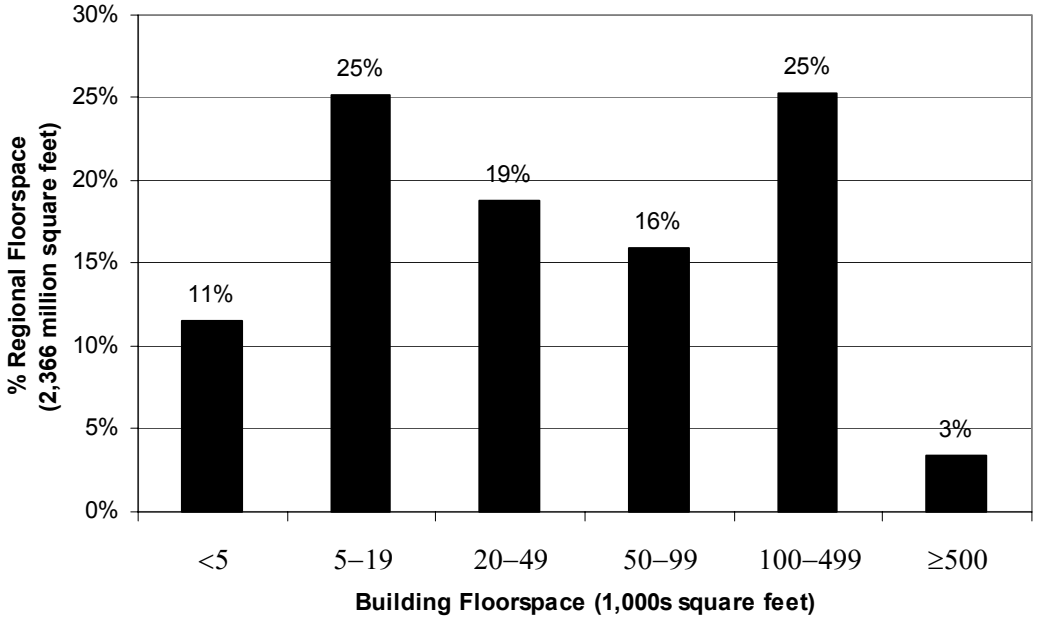
Table 3-2
Changes in Building Type (Percent of 1987 Floorspace)

	1987 Building Type											
2001 Building Type	**Dry Goods Retail**	**Grocery**	**Office**	**Restaurant**	**Warehouse**	**Hospital**	**Other Health**	**Hotel/ Motel**	**School**	**University**	**Other**	**Vacant**
Dry Goods Retail	86%	10%	0%	0%	5%	0%	0%	0%	0%	0%	1%	23%
Grocery	2%	83%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%
Office	6%	0%	94%	0%	5%	0%	0%	0%	0%	0%	5%	0%
Restaurant	0%	1%	0%	79%	2%	0%	0%	0%	0%	0%	1%	2%
Warehouse	1%	6%	2%	0%	73%	0%	0%	0%	0%	0%	2%	22%
Hospital	0%	0%	0%	0%	0%	75%	0%	0%	0%	0%	0%	0%
Other Health	0%	0%	0%	3%	0%	0%	98%	0%	0%	0%	0%	0%
Hotel/Motel	0%	0%	1%	0%	0%	0%	0%	100%	0%	0%	0%	0%
School	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	2%	0%
University	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%
Other	0%	0%	2%	5%	3%	0%	0%	0%	0%	0%	79%	8%
Vacant	4%	0%	1%	13%	12%	25%	2%	0%	0%	0%	8%	45%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

3.2.4 Building Size

Figure 3-4 shows the distribution by size. Buildings over 100,000 square feet account for a little over a quarter of the 2.4 billion square feet of commercial floorspace. The remainder is split roughly evenly between those under 20,000 square feet and those between 20,000 and 100,000 square feet.

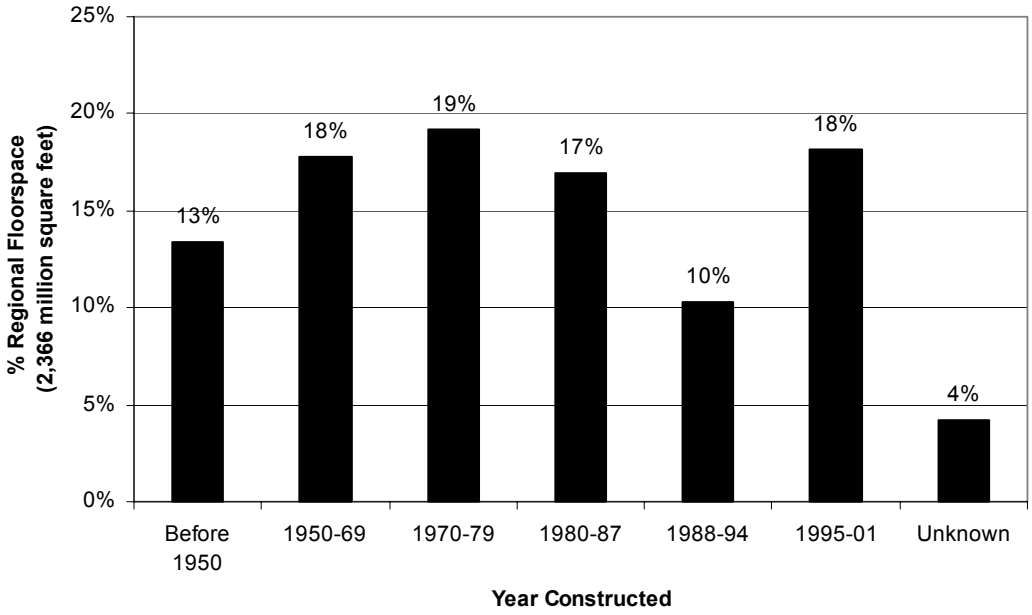
Figure 3-4
Floorspace by Building Size



3.2.5 Year Constructed

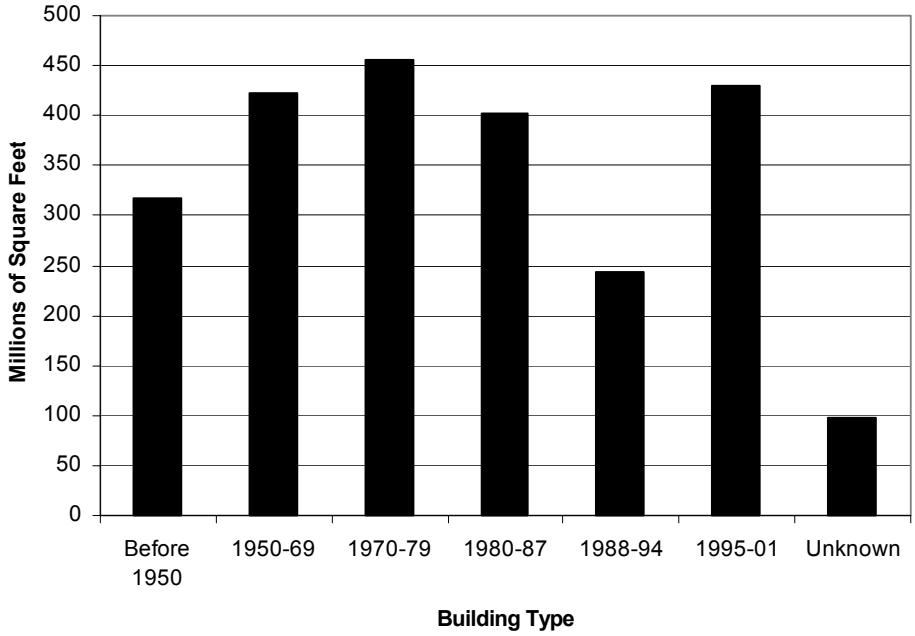
The floorspace distribution by year constructed is given in Figure 3-5. The recent vintage group divisions are defined to correspond to milestones in prior data and in building standards. The split at 1987 or earlier corresponds to the time of the last regional study. The next split between 1994 and 1995 corresponds to the time of significant energy code revisions—1994 in Washington and 1995 in Oregon.

Figure 3-5
Floorspace by Year Constructed, Percent



Nearly one-third of commercial floorspace was built prior to 1970. Twenty-eight percent was built since 1987, the time of the last regional study. Eighteen percent was built in 1995 or later. The average age of the floorspace stock in 2001 was 35 years. Total floorspace by vintage is displayed in Figure 3-6.

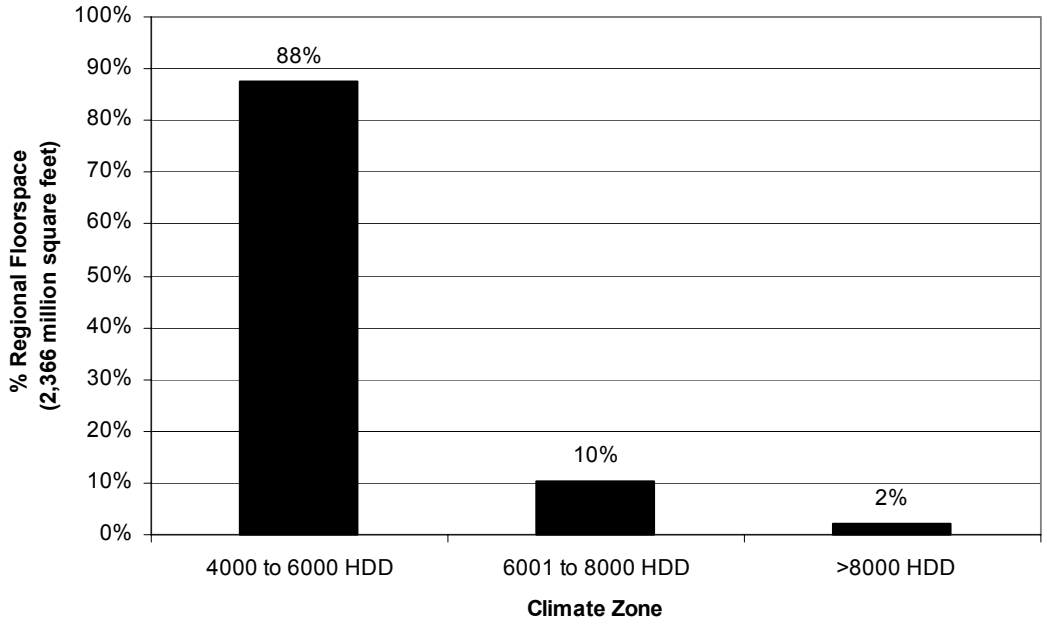
Figure 3-6
Floorspace by Year Constructed, Millions of Square Feet



3.2.6 Climate Zone

Almost 90 percent of the commercial floorspace in the region is in Climate Zone 1, 4,000 to 6,000 heating degree-days. The remainder are in colder climates, mainly Climate Zone 2, 6,000 to 8,000 heating degree-days. The climate zone affects heating and cooling loads and the potential for energy savings from heating and cooling-related efficiency measures. Percent of floorspace by climate zone is shown in Figure 3-7.

Figure 3-7
Floorspace by Climate Zone



3.2.7 Heating and Cooling

Eighty-nine percent of commercial floorspace is conditioned, and the great majority of this space (98 percent) is heated. This proportion is lowest for Groceries (90 percent). Warehouses have the least conditioned area (69 percent) with most other building types at 87 percent or higher.

In all, 87 percent of commercial floorspace is heated and 64 percent is cooled. Virtually all of the cooled floorspace is cooled by electricity. Sixty-nine percent has supplemental heat.

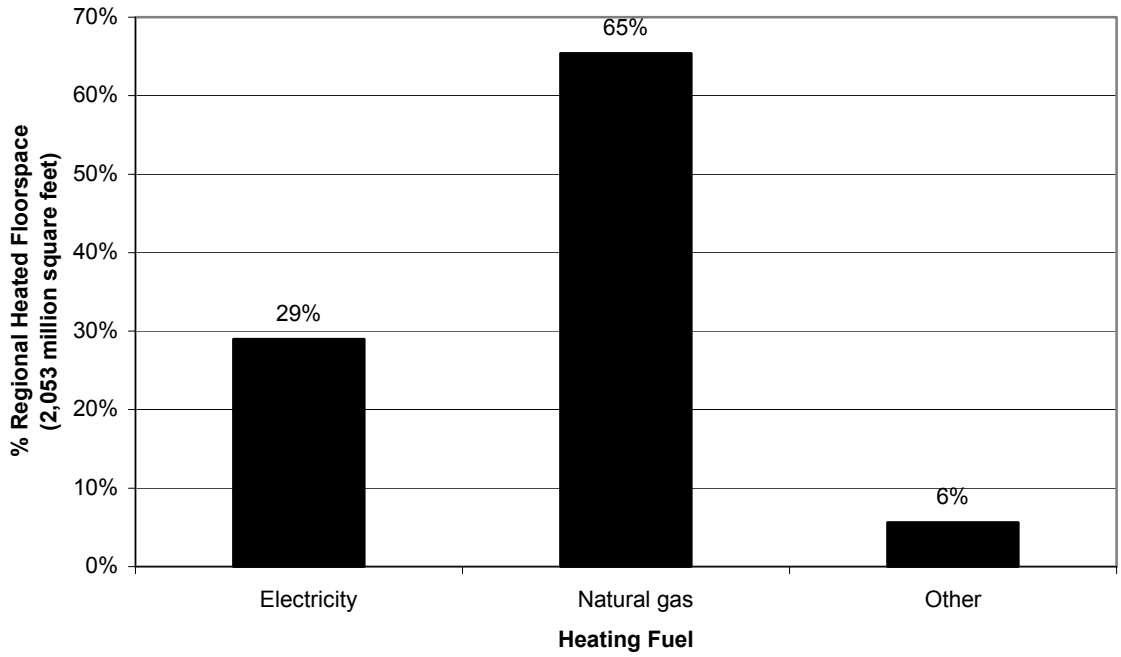
In 1987, 83 percent of floorspace was heated and 49 percent was cooled. The increase in the percent cooled appears to be due to higher cooling saturation among newer buildings, as well as an increase in cooling within existing buildings.

For buildings that existed in 1987 and 2001, there was no statistically significant change in the fraction of floorspace heated. There was an increase in the fraction of floorspace cooled, from 53 to 58 percent (significant at the 99 percent confidence level).

Predominant Heating Fuel

Electricity is the predominant heating fuel among buildings accounting for 29 percent of commercial heated floorspace, natural gas for 65 percent (Figure 3-8). Only a small fraction of heated floorspace has a primary heating fuel other than electricity or natural gas. The gas-heated fraction is up by 14 percentage points from that in 1987.

Figure 3-8
Heated Floorspace by Predominant Heating Fuel



Within buildings that existed in 1987, the share of natural gas as a heating fuel has increased by 11 percentage points from 50 to 61 percent (significant at better than 99 percent confidence). For buildings built after 1987, 74 percent of the heated floorspace is heated by gas, compared with 61 percent for buildings built in 1987 or earlier (difference significant at better than 95 percent confidence).

Offices and Hotel/Motel buildings are most likely to be electrically heated (51 percent and 67 percent, respectively). Retail stores use electricity for space heating for about 20 percent of heated floorspace. Schools and Warehouses use electricity to heat considerably less.

Primary HVAC System

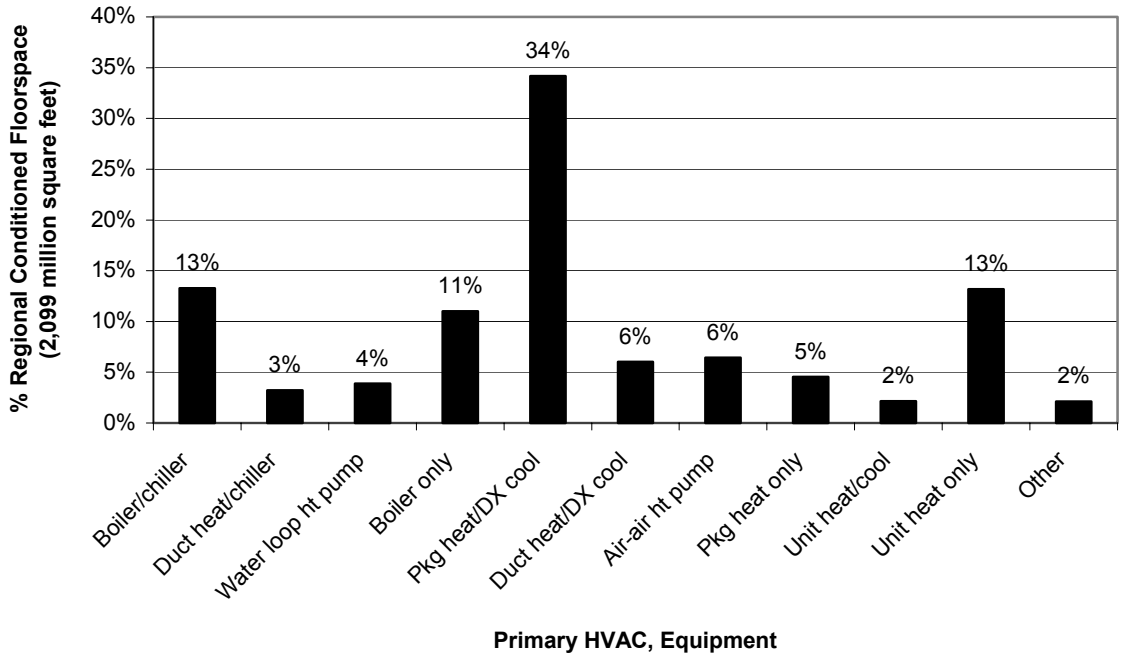
The distribution of primary heating and cooling systems is shown in Figure 3-9. Packaged heat with DX cooling serves about a third of commercial conditioned floorspace. Other types of cooling with packaged heating systems are rare. Boilers serve about one-quarter; about half of

this space is also served by a chiller. Unitary heat serves about 15 percent of conditioned floorspace, mostly without air conditioning.

About 10 percent of conditioned floorspace is served by heat pumps, 6 percent air to air, and 4 percent groundwater source. This heat pump use translates into about one-third of the electric heated space.

Of the cooled floorspace, direct expansion units account for 51 percent. Chillers account for about 20 percent of cooled floorspace. Less than 1 percent of cooled floorspace uses evaporative cooling.

Figure 3-9
Conditioned Floorspace by Primary Heating and Cooling System



HVAC Distribution Systems

HVAC distribution systems are predominantly air systems (75 percent of floorspace) with water systems accounting for most of the remaining systems (excluding unitary). About 40 percent of conditioned floorspace with air distribution systems is served by systems with economizers. For buildings constructed in 1995 or later, this fraction is 63 percent, compared with only 28 percent for those built in 1987 or earlier (difference significant at better than 99 percent confidence).

Variable volume systems typically account for less than 20 percent of floorspace. The exception is in Offices, where they account for almost 40 percent. In the comparison of 2001 with 1987

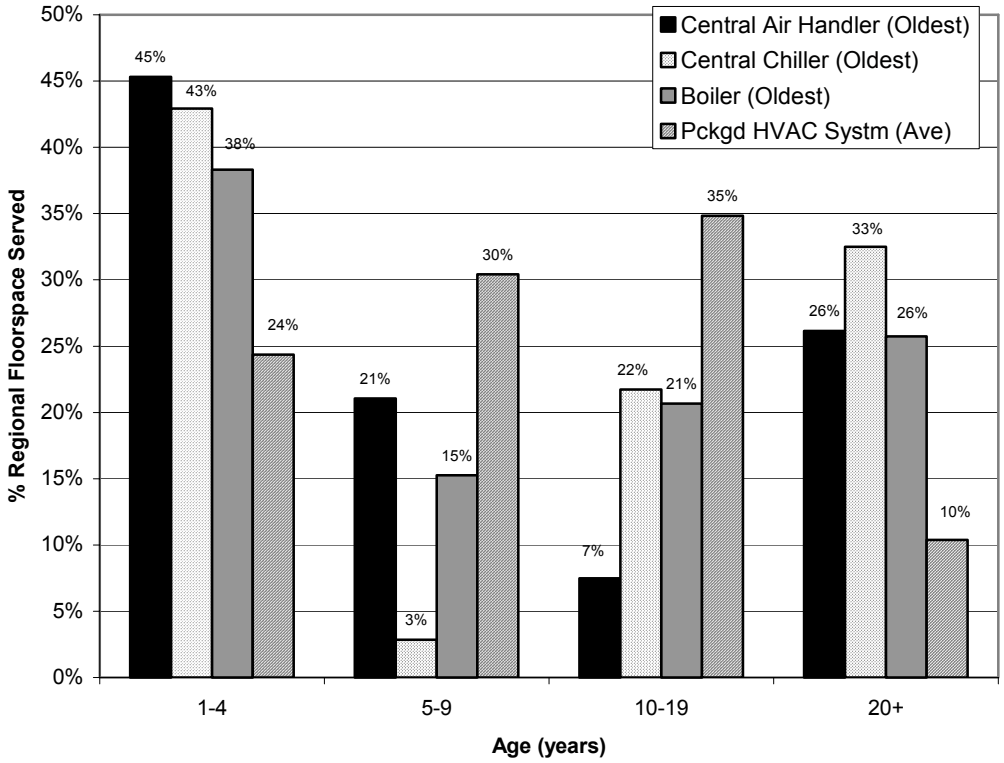
data for existing buildings, there appears to be some movement away from constant volume systems and toward variable air volume systems.

Almost 40 percent of floorspace uses energy management systems for distribution system controls. About 35 percent is controlled by programmable thermostats and about 35 percent is controlled by manual thermostats.

HVAC System Age

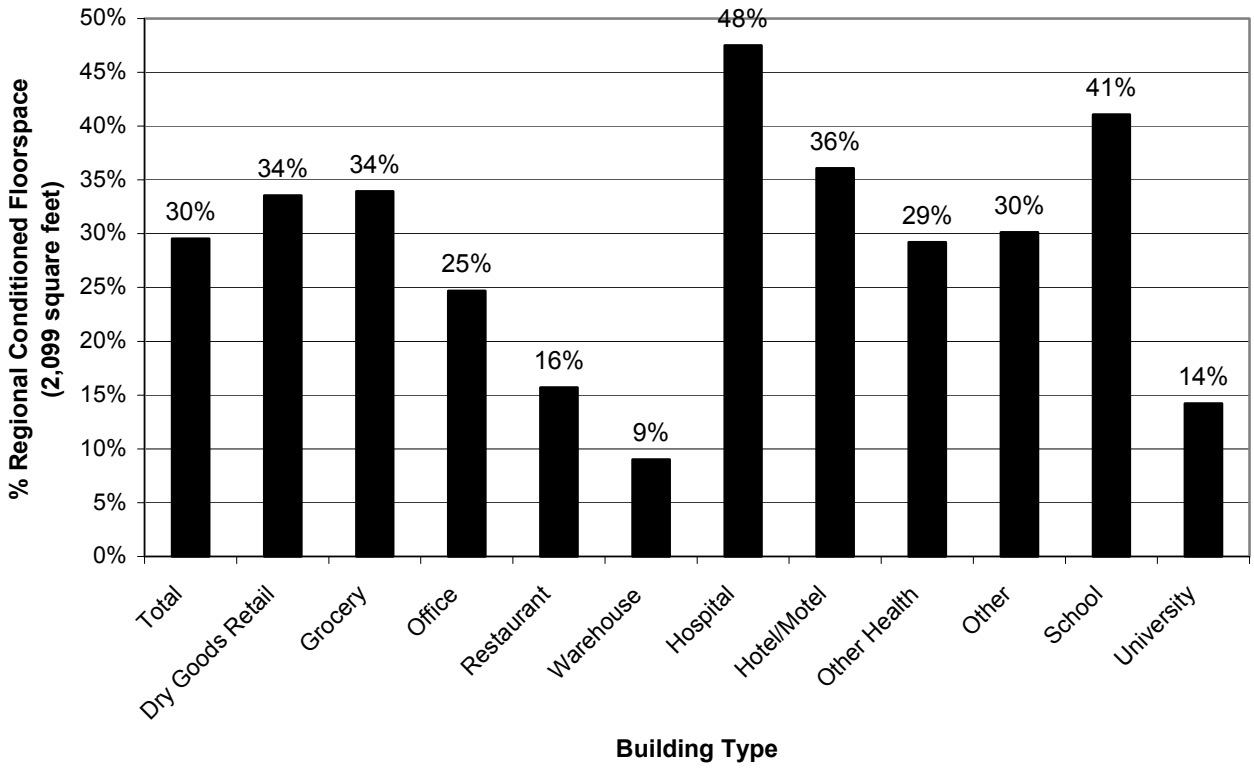
Central air handlers, central chillers, and boilers have roughly U-shaped age distributions, with large fractions of units under 5 years old and another large group 20 years or older (Figure 3-10). About 30 percent of floorspace with built-up HVAC systems, such as chillers, boilers, and air handling equipment, has equipment that is 20 years or older. Ten percent of floorspace with simple packaged rooftop HVAC equipment has equipment that is over 20 years or older. By comparison, about 50 percent of the floorspace is 20 years or older. Thus, the fractions of relatively new units are greater than the corresponding fractions of floorspace in newer buildings, reflecting recent replacements.

Figure 3-10
Age of Heating and Cooling Systems



The proportions of each building type that have upgraded their HVAC systems within the past 5 years are shown in Figure 3-11. Over 40 percent of conditioned floorspace in Schools and in Hospitals has had an HVAC upgrade in the past five years, compared with less than 10 percent of Warehouse conditioned floorspace. The overall percentage is just shy of 30 percent. This total translates into an average of 6 percent per year, or an average time between upgrades of 17 years.

Figure 3-11
Heating and Cooling Systems Upgraded in the Past 5 Years by Building Type



3.2.8 Water Heating

Electricity has a larger share of water heating than it does of space heating. Electricity is the predominant water heating fuel for 58 percent of commercial floorspace, compared to 39 percent for gas. The electric shares are particularly high for Warehouses (79 percent), Offices (75 percent), and Retail (66 percent). For the Other building types, the electric shares range from 33 to 46 percent.

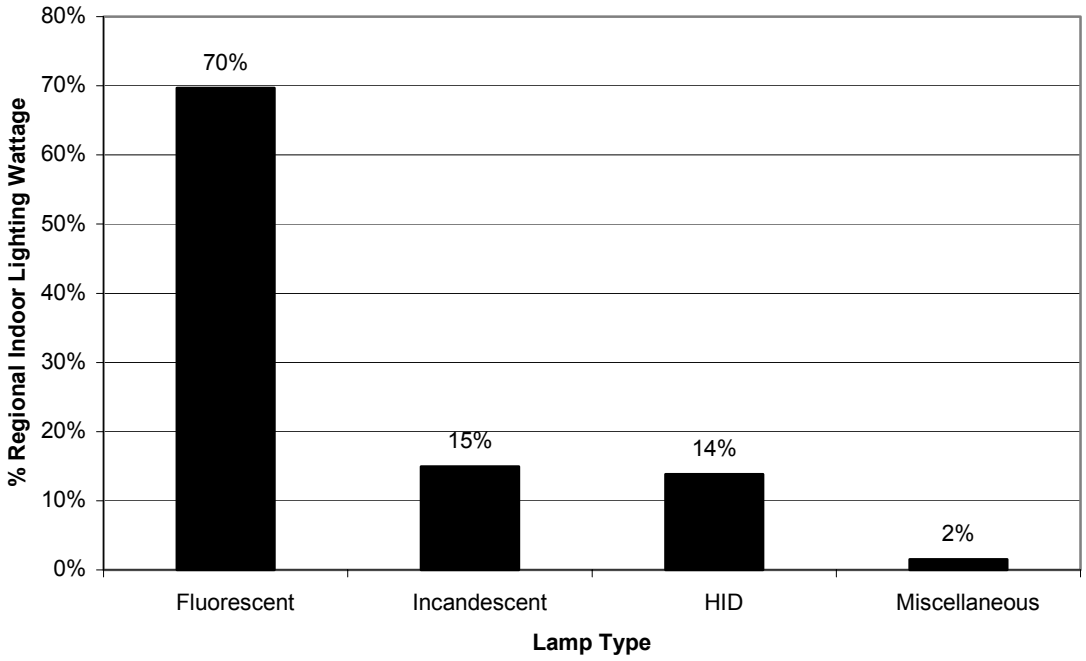
3.2.9 Lighting

Lamp Types

Seventy percent of commercial lighting wattage is in fluorescent lamps (Figure 3-12). Most of the remainder is split roughly evenly between incandescent and HID. In terms of floorspace, 81 percent is served by fluorescent; just over half of this (45 of the 81 percent) is in T-8s, while most of the remainder is in T-12s.

For each of the building types reported in the 1987 report, the fraction of incandescent was lower in 2001 than it was in 1987. Shifts from T-12s to T-8s over this time frame cannot be assessed, since these were not reported in the 1987 data. HID lamps were not broken out in the 1987 report. However, the "Other" category that included them was under 4 percent for 4 of the 5 reported building types, and 9 percent in the remaining one. Thus, there has been a clear shift to more efficient lighting technologies since the previous study.

Figure 3-12
Indoor Lamp Type



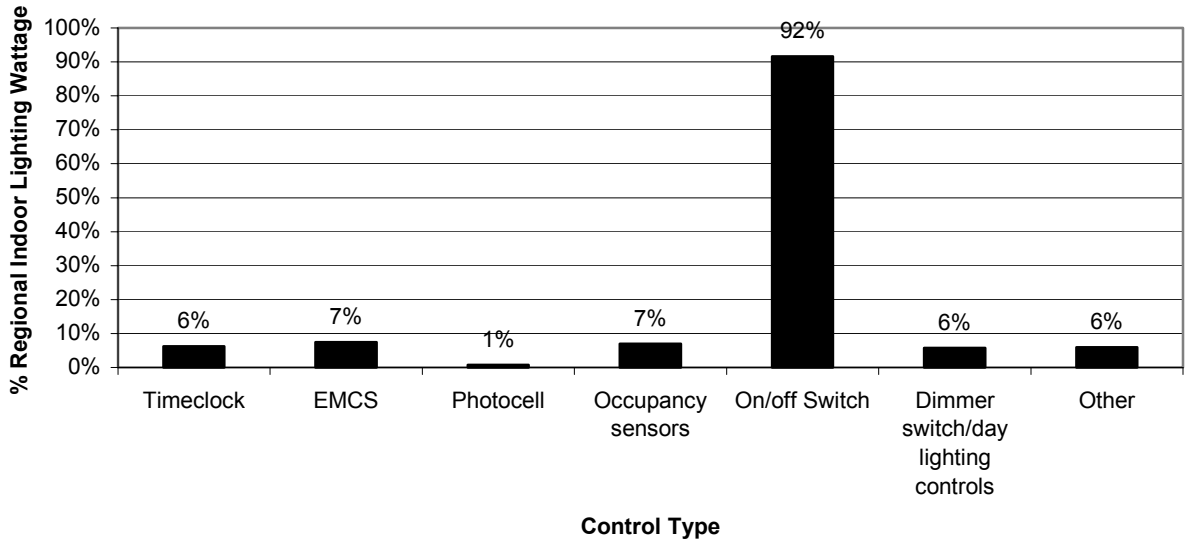
Fixture Types

Two- and three-lamp fixtures are most common for T-8s. Two- and four-lamp fixtures are most common for T-12s. About 30 percent of the T-12s are in 8-foot fixtures. Electronic ballasts are used for lighting serving 46 percent of the regional floorspace.

Controls

Lighting controls other than on-off switches are present for only a small fraction of the indoor lighting wattage (Figure 3-13). Similar information was not reported in 1987. (The percents sum to more than 100 percent, since more than one type of control can apply.)

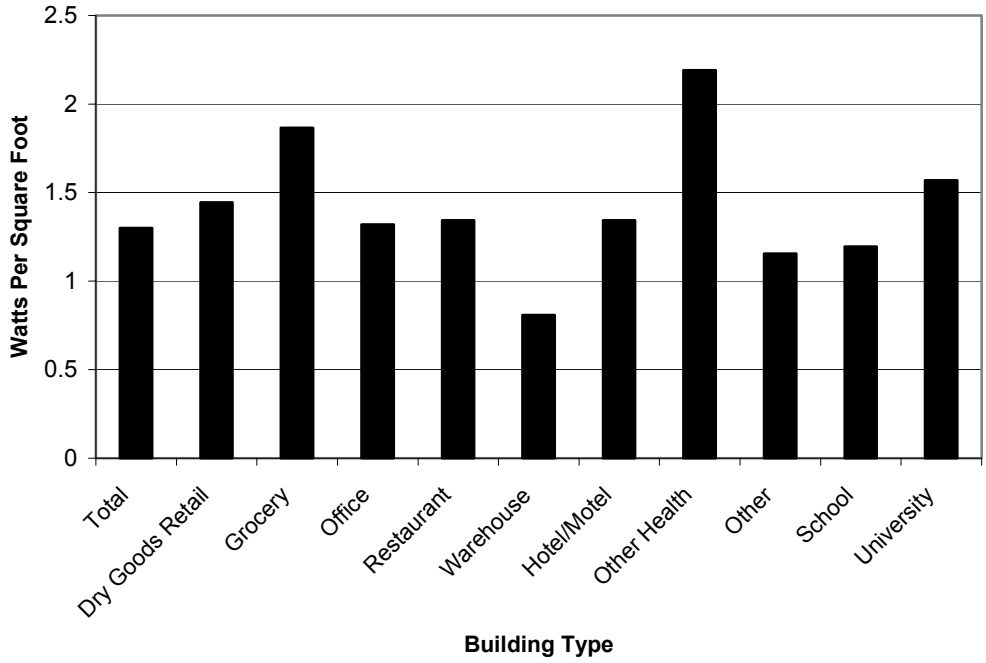
Figure 3-13
Indoor Lighting Control Type



Lighting Power Density

For most building types, the lighting power density (LPD) is close to the overall value of 1.3 W/sf (Figure 3-14). The LPD is low for Warehouses, as would be expected, at 0.8 W/sf. Likewise, the high value or 2.2 W/sf for Other Health makes sense. Groceries are also high at 1.9 W/sf.

Figure 3-14
Lighting Power Density (W/sf) by Building Type



Direct comparison between the 2001 LPDs and those in the 1987 report is not meaningful, because they were computed differently. The 1987 report calculated LPDs for individual buildings, and averaged these building-level LPDs. In the current report, the LPD is calculated as the ratio of total wattage to total floorspace within a category. This ratio estimation is more meaningful and more statistically reliable at an aggregate level.

One comparison that can be made is the change within buildings over time. For buildings that existed in 1987, a highly statistically significant decrease of 0.3 w/sf in the LPD was seen, from 1.5 in 1987 to 1.2 w/sf in 2001. This decrease is consistent with the observed shift to more efficient technologies.

In addition to declining LPDs in existing buildings, energy efficiency proponents would also hope to see lower LPDs in new construction. The estimated LPD for buildings constructed since 1994 was higher than that for those built in 1987 or earlier; however, the standard errors for the newer group were large, so that the differences are not at all significant statistically.

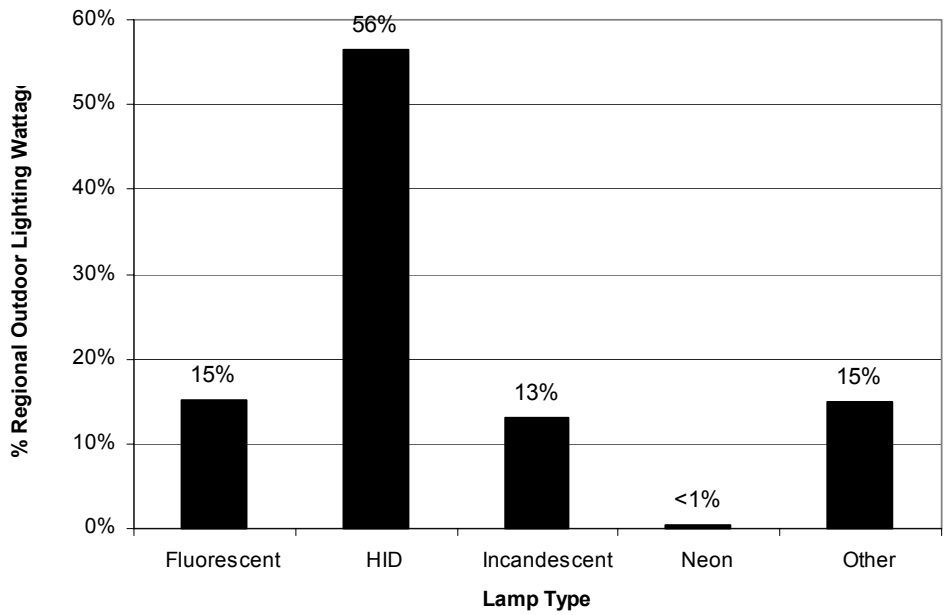
Only two building types had large enough sample sizes with LPD data to make comparisons within the type meaningful. Dry Goods/Retail shows no difference between newer and older buildings. For Office buildings, however, the LPD for post-1994 buildings was 1.1 w/sf, compared with 1.4 w/sf for 1987 and earlier buildings. The difference of 0.3 w/sf, is statistically significant at the 94 percent confidence level.

Outdoor Lighting

HID is by far the predominant lamp type for outdoor lighting, at 56 percent of regional outdoor lighting wattage (Figure 3-15). Fluorescent lamps account for 15 percent and incandescent for 13 percent.

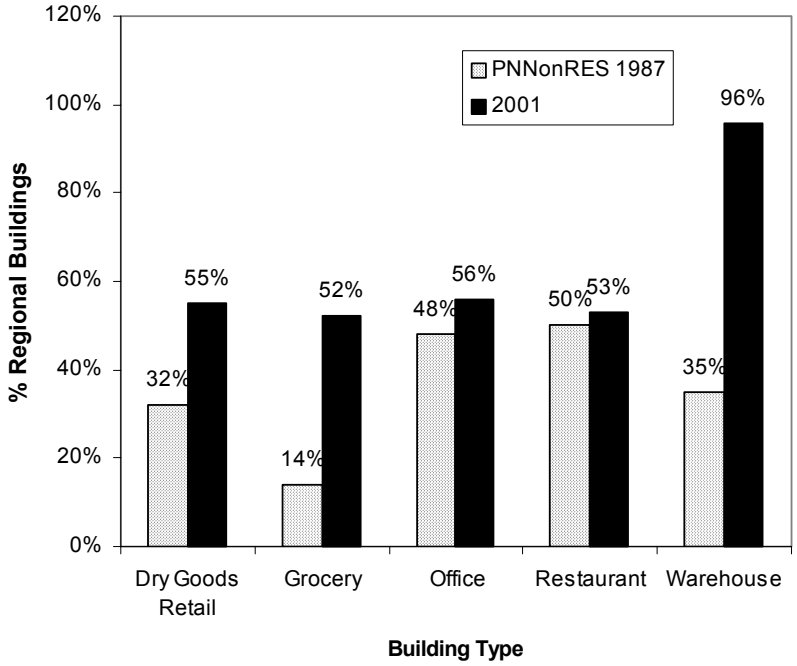
Outdoor lighting is used at a rate of 0.2 watts per indoor square foot. This compares with interior usage of 1.3 w/sf. Thus, overall lighting use, counting both interior and exterior lighting, is around 1.5 w/sf.

Figure 3-15
Outdoor Lamp Type



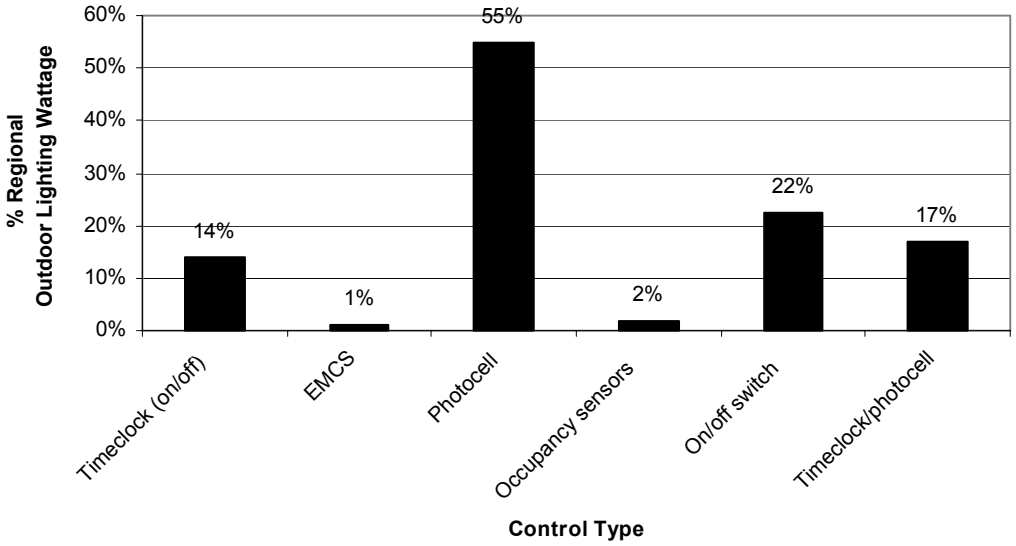
This distribution indicates a shift to more efficient outdoor lamps. For each of the building types reported in the 1987 report, the prevalence of HID has increased, in many cases substantially (Figure 3-16). For Warehouses, the predominant outdoor lamps were nearly all HID (96 percent of floorspace). For each of the other building types shown, HID dominated exterior lighting for over 50 percent of floorspace in 2001. Among buildings that existed in 1987 overall, the percentage of outdoor watts supplied by HID lamps increased from 28 percent in 1987 to 51 percent in 2001 (statistically significant at the 92 percent confidence level).

Figure 3-16
HID Predominant Outdoor Lamp Type by Building Type, 1987 and 2001



Outdoor lighting controls are dominated by photocells and timeclocks (Figure 3-17). Photocells alone control 55 percent of outdoor wattage, and another 17 percent in combination with timeclocks. Timeclocks alone control 14 percent. Only 22 percent have on-off switches only.

Figure 3-17
Outdoor Lighting Control Type



3.2.10 Windows

Very little of the window area has single glazing (13 percent). Most window area is in metal frames (about 70 percent). A similar fraction is gas-filled or low E. Eighty percent is either tinted or reflective. Only 3 percent is in operable windows. About 25 percent of the commercial floorspace is in buildings with some form of skylight.

3.2.11 Miscellaneous Equipment

Terminals used for cash registers are found at a rate of 0.4 per thousand square feet among buildings that use cash registers (Table 3-3). As would be expected, rates were highest for Retail (0.55), Restaurants (0.39), and Groceries (0.32), and low for Other building types.

For buildings with PCs, these were found at a rate of 1.5 per thousand square feet. The rate is twice this overall rate in Offices (3.0), and one-third higher (2.0) in Schools.

Servers are less common than PCs, occurring at a rate of 0.12 per thousand square feet among buildings that have them. Offices again have roughly twice the rate (0.22).

Refrigerators are found at a rate of 0.27 per thousand square feet among buildings that have them. The rate is highest in Hotel/Motels (1.41), and half that (0.74) in Restaurants (0.74).

Auxiliary pumps occur at a rate of 0.1 per thousand square feet among buildings that have any. The rate is highest for Other Health (0.22) and Groceries (0.16).

Table 3-3
Miscellaneous Equipment Density
Base = Buildings That Have the Equipment

Equipment Type	Number per Thousand Square Feet
Terminals (cash registers)	0.40
PCs	1.48
Servers	0.12
Refrigerators	0.27
Auxiliary pumps	0.10

3.2.12 Refrigeration

Quantifying the presence of various features of refrigeration units from this survey is complicated. The tables provided in Appendix A indicate the prevalence of refrigeration equipment features on a floorspace-weighted basis. On this basis, 85 percent of refrigeration

equipment involves cases with doors. This means that buildings with refrigeration units that have doors account for 85 percent of the total floorspace in buildings with refrigeration equipment. Ninety-one percent of the space is in buildings whose refrigeration equipment includes display cases.

On a similar basis, buildings where the compressors have floating head pressure controls account for 15 percent of the floorspace in buildings that have refrigeration. Those with refrigeration heat recovery account for 9 percent. Roughly speaking, then, 15 percent of compressors are likely to have floating head pressure controls and 9 percent of units are likely to have heat recovery.

The predominant condenser type is air cooled for 88 percent (of the floorspace) and water cooled for 10 percent. Compressor temperatures are medium for 61 percent (of the floorspace) and low for 36 percent.

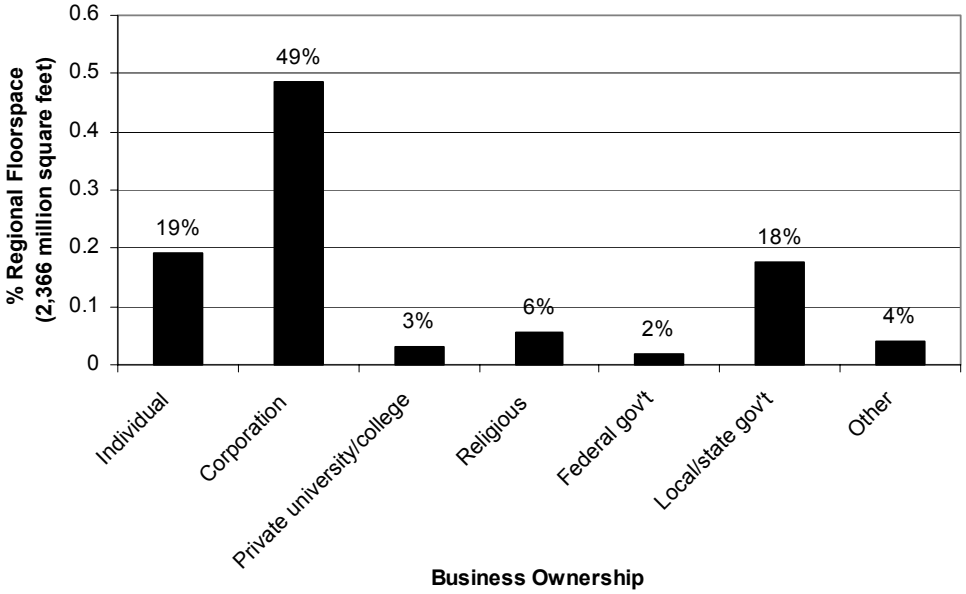
3.2.13 Operations

Business Ownership

Twenty-nine percent of commercial floorspace is in premises that are part of a chain. Only 2 percent is in franchises. The largest fractions of floorspace in chains are found for Warehouses (54 percent), Hotel/Motels (each 49 percent), and Dry Goods/Retail (38 percent).

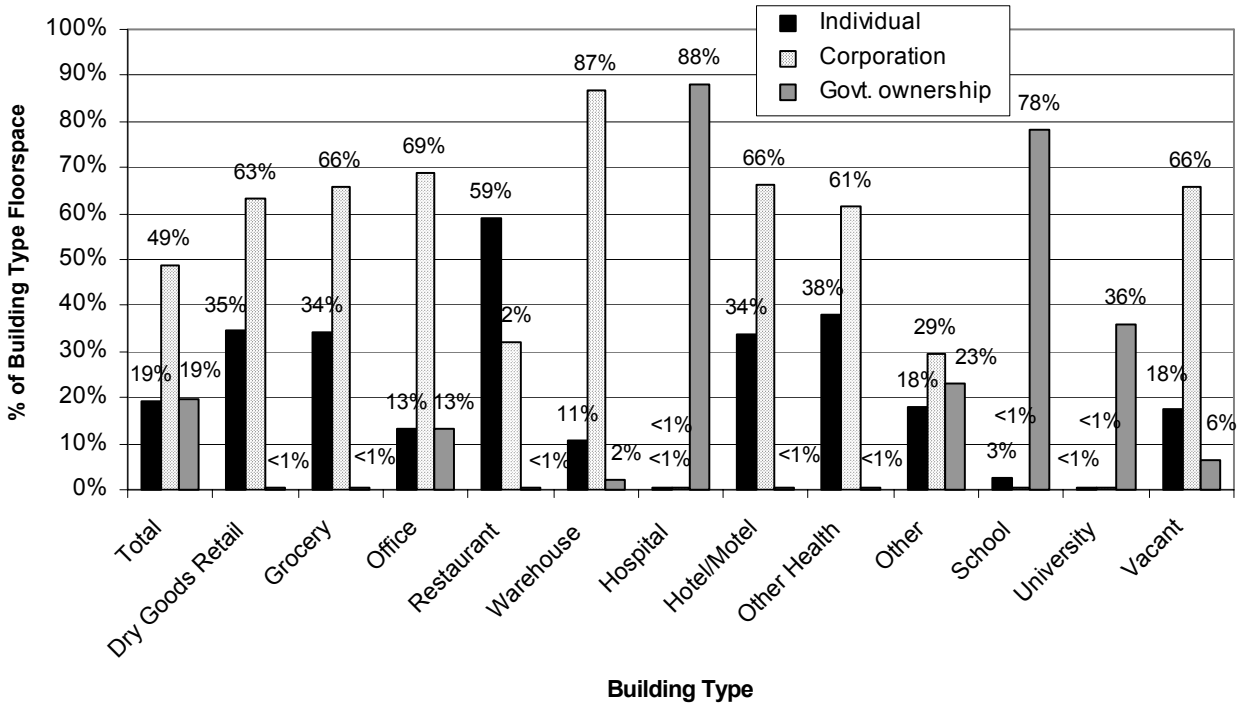
Roughly half of commercial floorspace is owned by a corporation or partnership (Figure 3-18). Twenty percent is government-owned, mostly local or state, and a similar amount is individually owned.

Figure 3-18
Building Ownership



The mix of ownership type varies markedly across building types (Figure 3-19). Government ownership dominates Hospitals, Schools, and University buildings. Restaurants are the only building type with mostly individual ownership (about 60 percent).

Figure 3-19
Building Ownership by Building Type



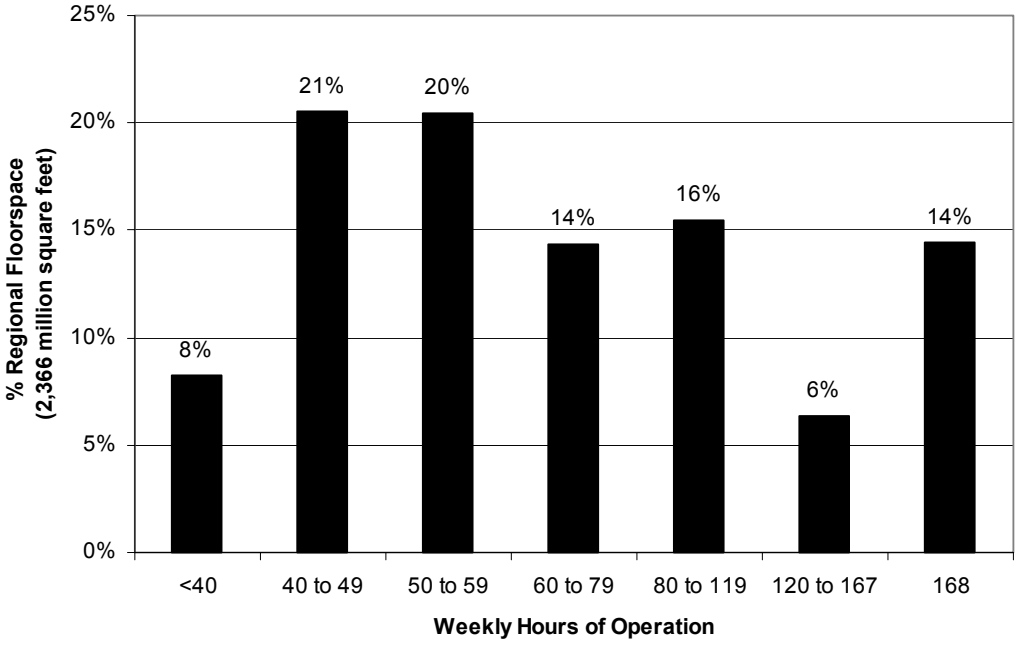
Leased Space

Leased space accounts for 38 percent of commercial floorspace. Offices (70 percent), Dry Goods Retail (62 percent), and Warehouses (61 percent) have the highest fractions of leased space. Tenants do not pay electric utilities in about one-third of leased space.

Operating Hours

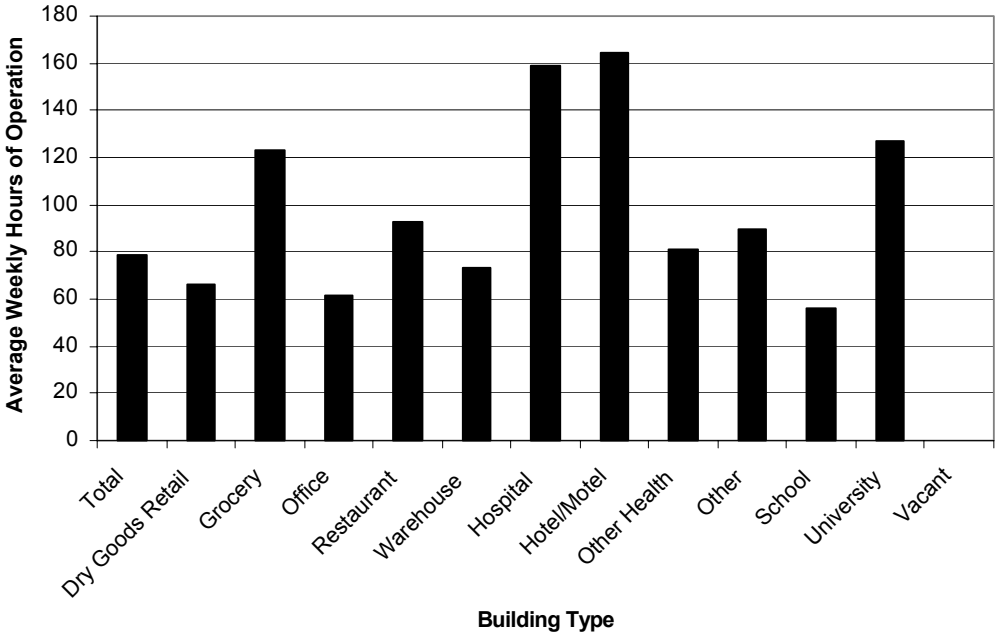
Fourteen percent of commercial floorspace is in continuously open buildings (Figure 3-20). Over half is in buildings open 60 hours a week or more. Only 8 percent is in buildings open under 40 hours per week.

Figure 3-20
Building Operating Hours



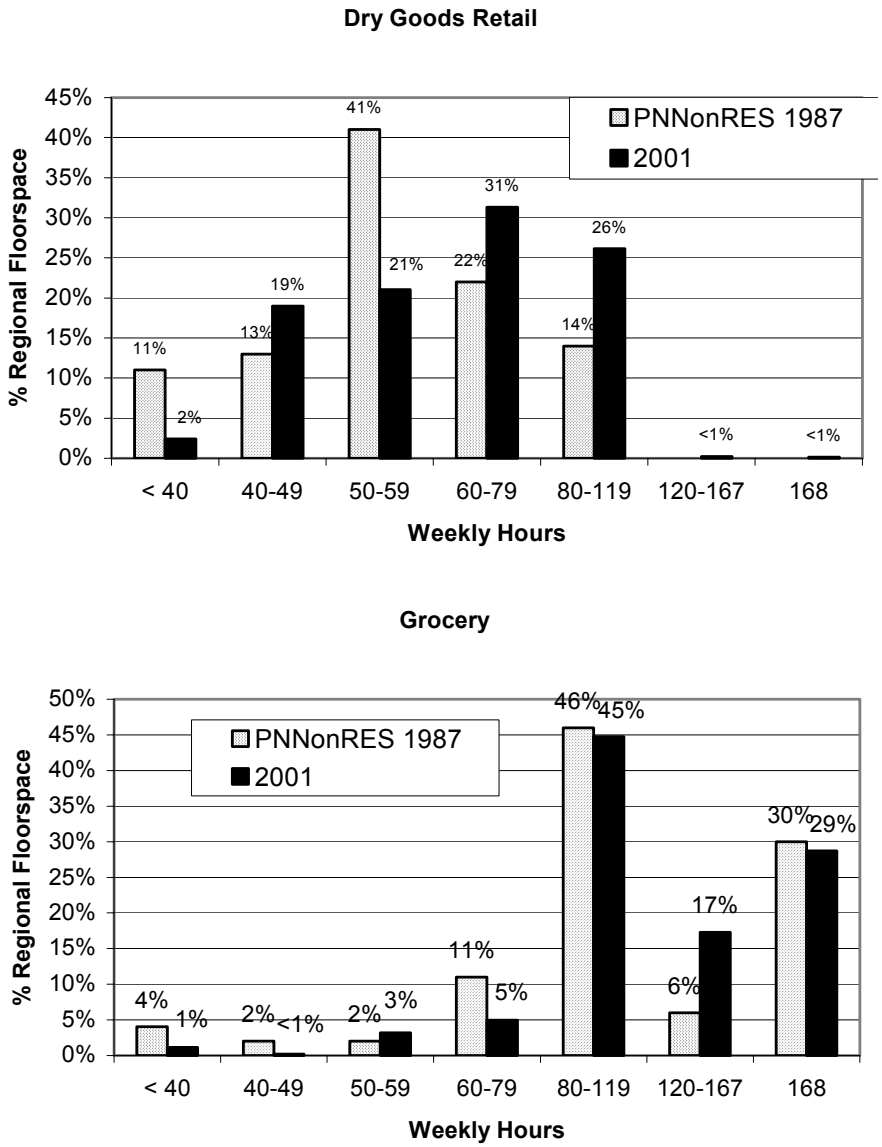
Hotel/Motels and Hospitals are mostly open continuously (Figure 3-21). Groceries and University buildings also have long hours. Retail, Office, and School buildings operate around 60 hours per week.

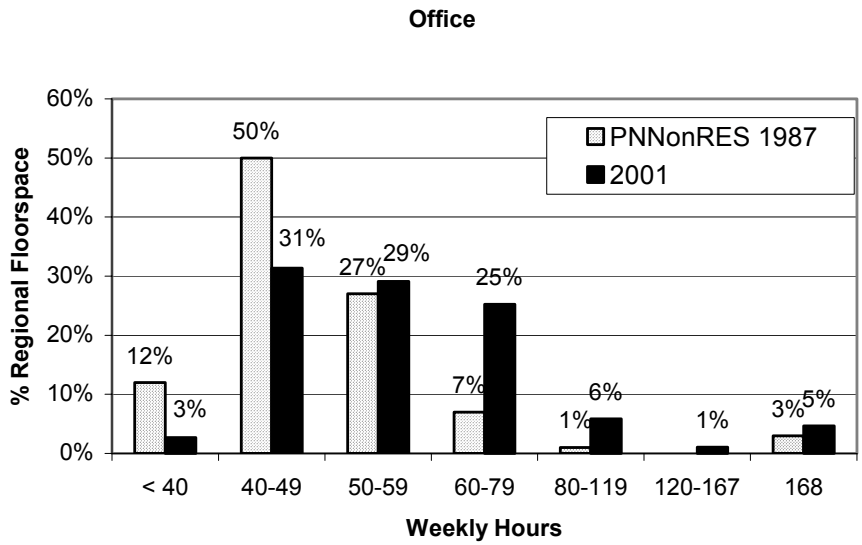
Figure 3-21
Average Weekly Operating Hours by Building Type



The average weekly hours were not reported in 1987. However, the building types in the 1987 report each showed a shift to longer hours in 2001. The distributions for the two snapshots are shown below for Dry Goods/Retail, Office, and Groceries (Figure 3-22).

Figure 3-22
Building Operating Hours by Building Type





3.2.14 Energy-Use Intensities

Energy-Use Intensities (EUIs) are calculated as the ratio of total energy use to total floorspace for a group of buildings. Thus, multiplying the EUI by the floorspace total gives consumption.

EUIs are a key index. They were not included in the previous 1987 study. Thus, the information provided here has great importance for the present study.

At the same time, these values must be interpreted with caution. Energy bills were requested for all buildings in the study, but were provided only for a subset. As a result, the sample does not have comprehensive coverage by building size, age, and type. Adjusting overall estimates for the degree of missing data across these cells was beyond the scope of this study. The resulting estimates are good indications, but may have some anomalous behavior not fully reflected in the standard errors.

For a few building types, the energy data were so thin that the EUIs developed did not seem meaningful, and are not presented. These building types are Hospital, University, and Vacant.

3.2.15 Electricity

Annual Electric EUI by Building Type

Pacific Northwest commercial buildings had an electric EUI of 16 kWh/sf in 2001 (Figure 3-23). Weather normalized and Actual 2001 values were very similar (Weather normalized results are presented in the figures and tables that follow). Office and Retail buildings were similar to the overall level. Groceries, Restaurants and Other Health buildings were higher, and Warehouses and Schools were lower.

Figure 3-23
Annual Electric EUI by Building Type

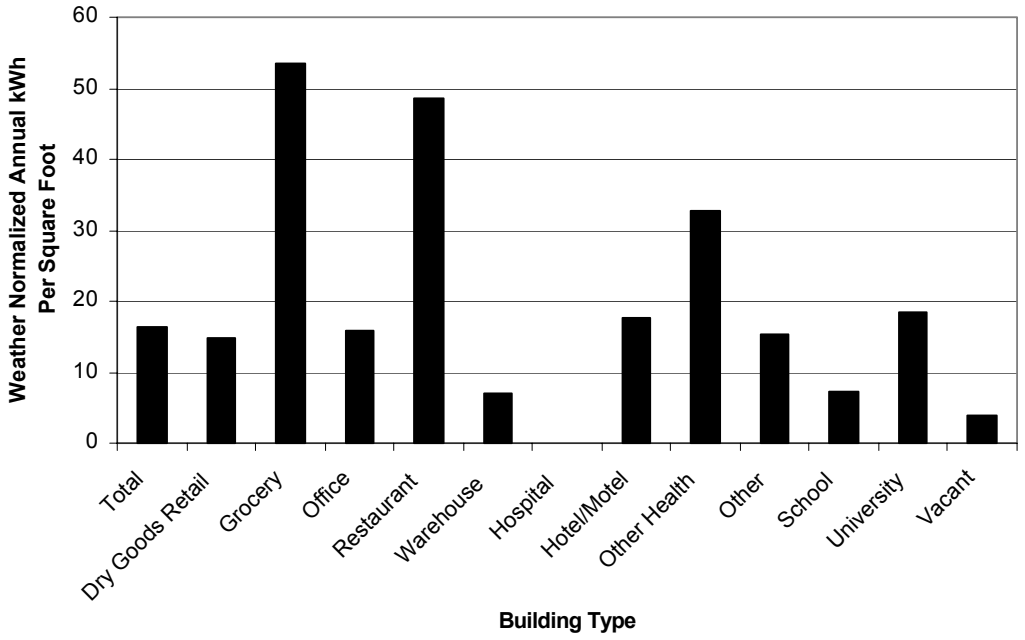


Table 3-4 compares the electric EUIs developed in this study with those from the 1999 Energy Information Administration's (EIA) Commercial Buildings Energy Consumption Survey (CBECS). The CBECS provides estimates at the national level and for the West Census region. This region encompasses 13 states—from Alaska and Hawaii to California, New Mexico, and Wyoming, as well as the four Pacific Northwest states. Nevertheless, it provides a reasonable basis for comparison.

Table 3-4
Annual Electric EUI Estimates Compared with CBECS and ELCAP by Building Type

Building Type			2001	1999 CBECS		1992 ELCAP Pacific
2001 CBSA	1999 CBECS	1992 ELCAP	CBSA	West	National	Northwest
Total	(same as 2001 CBSA)		16	13	14	
Dry Goods Retail	Mercantile	Retail	15	18	15	14
Grocery	Food Sales	(same as 2001 CBSA)	54	Q	49	67
Office	(same as 2001 CBSA)	(same as 2001 CBSA)	16	18	19	21
Restaurant	Food Service	(same as 2001 CBSA)	49	Q	34	58
Warehouse	Warehouse/Storage	(same as 2001 CBSA)	7	5	7	7
Hospital	Health Care		s	21	23	
Hotel/Motel	Lodging		18	11	13	
Other Health			33			
Other			15			
	Public Assembly			10	13	
	Public Order/Safety			Q	12	
	Religious Worship			3	4	
	Service			12	12	
	Other			Q	24	
	Education			8	9	
School			7			
University			19			
Vacant	(same as 2001 CBSA)		4	Q	3	

Notes: This study (2001 CBSA) and CBECS are ratios of aggregate consumption to aggregate floorspace, equivalent to floorspace-weighted means of individual building EUIs. ELCAP is the unweighted mean of individual building EUIs. The 2001 CBSA annual EUIs presented in this table are weather normalized, 1999 CBECS are actual, and 1992 ELCAP are most likely actual.
s, Q=Data withheld.

The table shows that the EUIs estimated in this study are close to those from the CBECS for most building types. The major discrepancy is for Hotel/Motels, which are estimated at much higher levels in the current study. The Other Health category in this study is likely to be primarily in Office and Other in CBECs.

Also shown for comparison in the table are estimates from the End-Use Load and Consumer Assessment Program (ELCAP) study. The values shown are simple means of the individual building EUIs given in the report, for samples sizes ranging from 11 to 20 across the building types. In addition, the ELCAP report explicitly states that these samples are not statistically representative. Nevertheless, they provide another benchmark against values that have been available up until now for the region.

The values from this study are notably smaller than those from ELCAP for Groceries, Offices, and Restaurants. The estimates from this study are more reliable, being based on more current, larger, and statistically expanded samples.

The CBECS estimates are themselves subject to uncertainty, being based on a statistical sample. For the overall (total) EUI, the relative standard errors (RSE, i.e., the standard error as a percent of the estimate) are 4 percent for the CBECS national estimate, and 6 percent for the West Census region. The Pacific Northwest estimate from this study has a relative standard error of 7.5 percent. Thus, the estimate from this study has somewhat greater uncertainty as a trade-off for the increased specificity. The difference between the estimate from this study and either the

national or West CBECS estimate is statistically significant at the 90 percent confidence level. Thus, it appears worthwhile to use the more specific estimate from this study.

For individual building types, the CBECS national RSEs are on the order of 7 percent for the building types that account for the largest fractions of space (Office, Retail, Lodging, Warehouse, Education); corresponding CBECS West Census region EUIs have RSEs on the order of 15 percent. The corresponding RSEs from this study are smaller than those for the West Census region. Thus, for most building types, the estimates from this study are both more specific and better determined than those from CBECS. Exceptions are Hospitals and Universities, both of which had small sample sizes and RSEs near 50 percent, and Other Health.

Annual Electricity Estimates

Regional annual electricity use can be estimated by multiplying each building type's annual electric EUI by its floorspace and summing over building types. This calculation is shown in Table 3-5.

Table 3-5
2001 Electricity Consumption Estimates

		Building Type											
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hospital	Hotel/ Motel	Other Health	Other	School	Univer-sity	Vacant
Total square feet (millions)		401	84	458	38	237	41	116	115	473	236	84	82
% Total square feet		17%	4%	19%	2%	10%	2%	5%	5%	20%	10%	4%	3%
Electric weather normalized EUI		15	54	16	49	7	s	18	33	15	7	19	4
Estimate of total MWh (1000s)	37,782	5,953	4,497	7,210	1,833	1,646		2,041	3,748	7,245	1,734	1,561	315
% Estimate of total kWh	100%	16%	12%	19%	5%	4%		5%	10%	19%	5%	4%	1%

s=Data withheld.

The table indicates annual commercial electricity use for the buildings in the region estimated at 37.8 billion kWh. One other source is available for an annual regional consumption estimate. The EIA provides annual state-level consumption totals by sector.

The staff of the Northwest Power Planning Council (Planning Council) provided adjustments to the EIA state-level data to represent the buildings in the Pacific Northwest region covered under this study. First, sales to the eastern half of Montana were removed because it is not in the region covered by this study. Second, the Planning Council staff provided an estimate of 2001 non-building electricity sales, also not covered by this study. Non-building electricity use includes municipal sewage treatment, municipal water supply, street and highway lighting, rail and communications.

Planning Council staff estimated commercial weather-adjusted sales to commercial buildings for 2001 at 38.9 billions kWh. This estimate is quite close to that from the present study, a difference of 3 percent.

Annual Electric EUI by Building Size

Annual electric EUI by building size are displayed in Figure 3-24. These estimates are compared with the corresponding CBECs estimates in Table 3-6. The correspondence is good.

Figure 3-24
Annual Electric EUI by Building Size

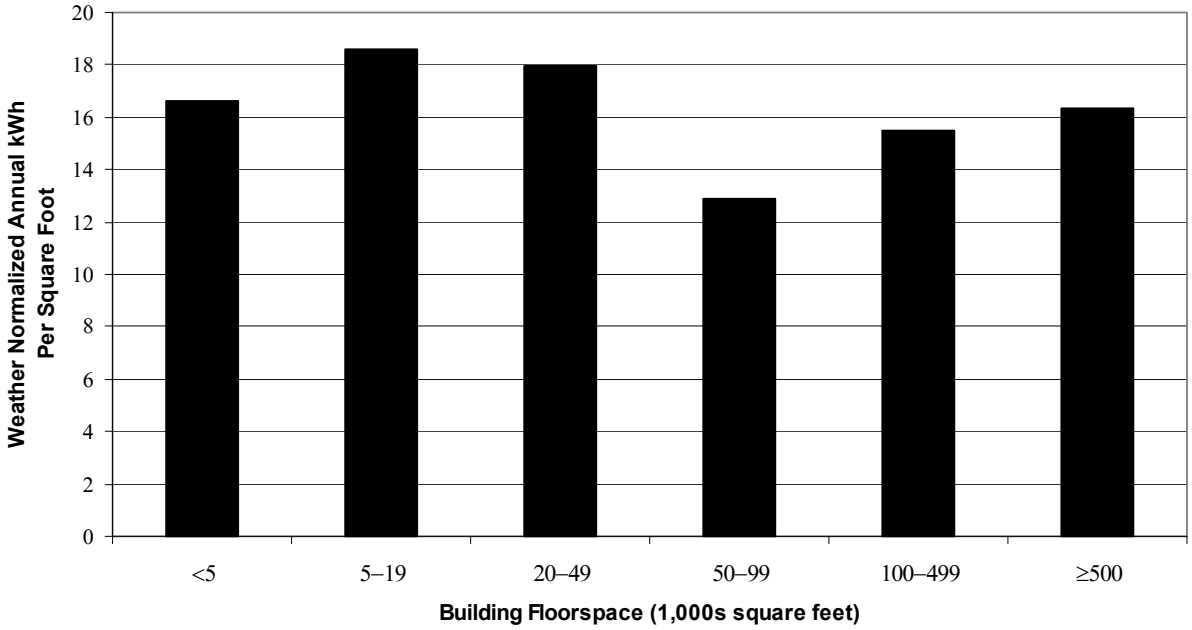


Table 3-6
Annual Electric EUI Estimates Compared with CBECS by Building Size

Building Floorspace (square feet)		2001 CBSA	1999 CBECS West	1999 CBECS National
Less than 5,000	1,001 to 5,000	17	18	19
	5,000 to 10,000		13	11
	10,001 to 25,000		9	10
5,000 to 19,999		19		
20,000 to 49,999		18		
	25,001 to 50,000		11	12
50,000 to 99,999	50,001 to 100,000	13	16	14
100,000 to 499,999		16		
	100,001 to 200,000		15	16
	200,001 to 500,000		14	15
500,000 or more	Over 500,000	16	13	17

Notes: This study (2001 CBSA) and CBECS are ratios of aggregate consumption to aggregate floorspace, equivalent to floorspace-weighted means of individual building EUIs. The 2001 CBSA annual EUIs presented in this table are weather normalized and 1999 CBECS are actual.

Both the CBECS estimates and those from this study show a dip in the middle sizes, with high EUIs for small and large buildings, though there is some inconsistency as to where the dip occurs. Qualitatively, the pattern is likely to reflect on the one hand the space conditioning inefficiency for small buildings due to high surface to volume ratios, and on the other hand, greater intensity of use for larger buildings.

RSEs for the CBECS EUIs by building size category are on the order of 7 percent for the national estimates, and 10 percent for the West Census region, somewhat higher in each case for buildings under 10 thousand square feet. For the estimates from this study, the RSEs are about 10 percent or smaller for the size groups above 20 thousand square feet, 14 and 22 percent for the under 5 thousand and 5 to 20 thousand categories, respectively. Thus, for the larger size categories, the EUIs from this study are preferable to those from the CBECS. For the smaller ones, the trade-off between specificity and uncertainty must be considered.

Annual Electric EUI by Year Constructed

Annual electric EUI by cohort are displayed in Figure 3-25. These estimates are compared with the corresponding CBECs estimates in Table 3-7.

Figure 3-25
Annual Electric EUI by Cohort

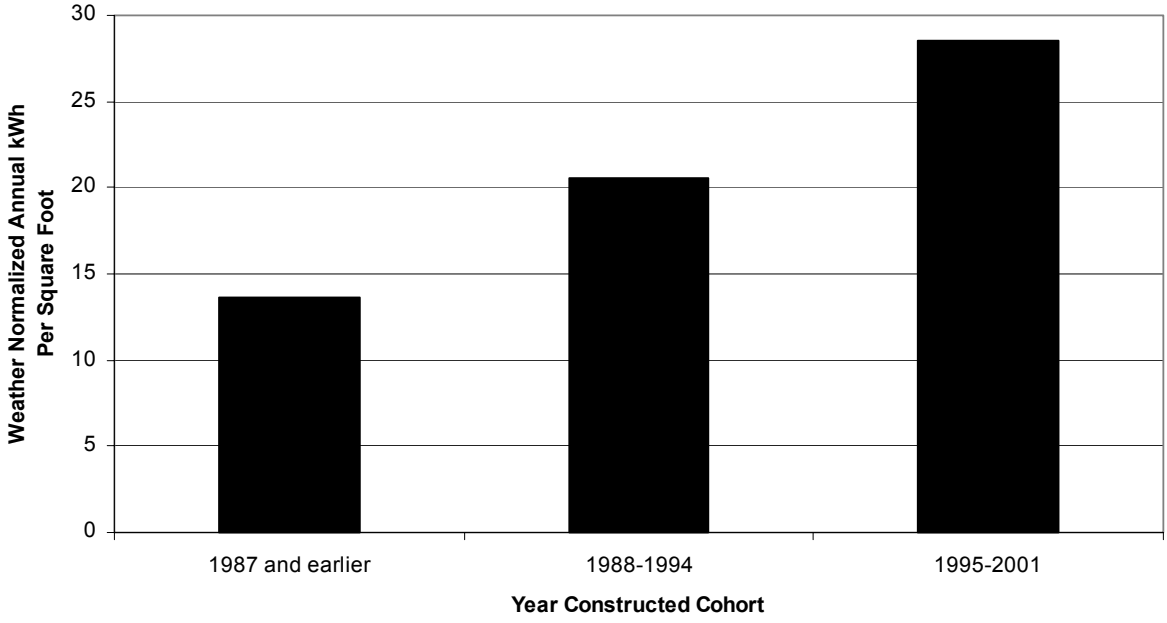


Table 3-7
Annual Electric EUI Estimates Compared with CBECS by Year Constructed

Year Constructed		2001 CBSA	1999 CBECS West	1999 CBECS National
	1919 or before		8	7
	1920 to 1945		9	9
	1946 to 1959		10	10
Before 1950		10		
1950 to 1969		13		
	1960 to 1969		12	13
1970 to 1979	1970 to 1979	14	14	16
1980 to 1987		17		
	1980 to 1989		15	16
1988 to 1994		21		
	1990 to 1999		18	18
1995 to 2001		29		
Unknown		10		

Notes: This study (2001 CBSA) and CBECS are ratios of aggregate consumption to aggregate floorspace, equivalent to floorspace-weighted means of individual building EUIs. The 2001 CBSA annual EUIs presented in this table are weather normalized and 1999 CBECS are actual.

While the vintage groupings don't match, the results of the present study line up fairly well with those from the CBECS up through around the time of the 1987 PNNonRes study. In addition, both the CBECS data and the present study show a consistent pattern of higher usage for newer buildings. However, the EUIs estimated in this study for the post-1987 buildings (20.6 kWh/sf), and especially for the post-1994 buildings (28.8) are much higher than those indicated by they CBECS for 1990 to 1999 (17.7).

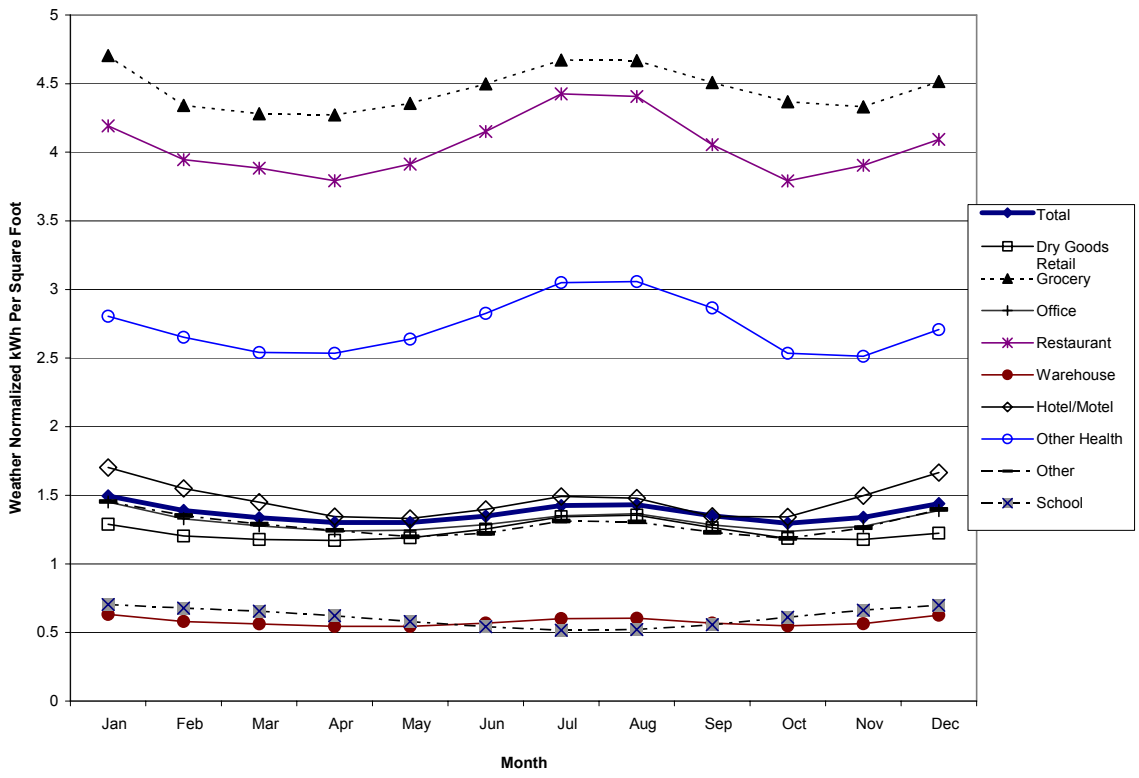
Of the three CBSA cohorts, this newest group of buildings, cohort 3, had the fewest sample cases (286) and the smallest fraction of these that had consumption histories (49 percent). As a result, for this cohort there could most easily be distortions due to outliers and incomplete coverage of building types and sizes. The standard error of the cohort 3 EUI is 7.2, compared with 2.2 for cohort 2 (1988 to 1994) and 0.7 for cohort 1. Cohorts 1 and 2 each had consumption histories for about two-thirds of the sample sites, but cohort 1 had nearly twice as many sites (559 versus 312).

Based on the combination of the CBECS benchmarks, sample sizes, and standard errors, the EUIs appear to be reliable for cohort 1 and to a lesser extent cohort 2, but not for cohort 3. Groceries, Restaurants, and Other Health, in particular had high EUIs in cohort 3, and also high standard errors for these estimates. For cohort 1, the estimate from this study is much better determined than the corresponding estimate from the CBECS.

Electric EUI by Month

The overall commercial EUI is fairly flat across the year, with mild winter and summer peaks (Figure 3-26). For the three building types with a higher annual electric EUI—Grocery, Restaurant, and Other Health—the summer peaks are stronger. For Hotel/Motels, which have high levels of electric heating, the winter peak is higher than the summer. Schools show a dip in the summer, as would be expected.

Figure 3-26
Electric EUI by Month and Building Type



3.2.16 Natural Gas

Annual Natural Gas EUI By Building Type

The overall weather normalized annual natural gas EUI was 0.49 therms/sf (Figure 3-27). (All the figures and tables that follow present weather normalized gas EUIs). Office, Retail, and School buildings were lower by nearly half. Hotel/Motels were twice as high, and Restaurants substantially higher still.

Gas data were provided for a much smaller number of buildings than were electric data. For this reason, the resulting EUIs should be regarded as indicative, but should not used at the basis for strong conclusions.

Figure 3-27
Annual Natural Gas EUI by Building Type

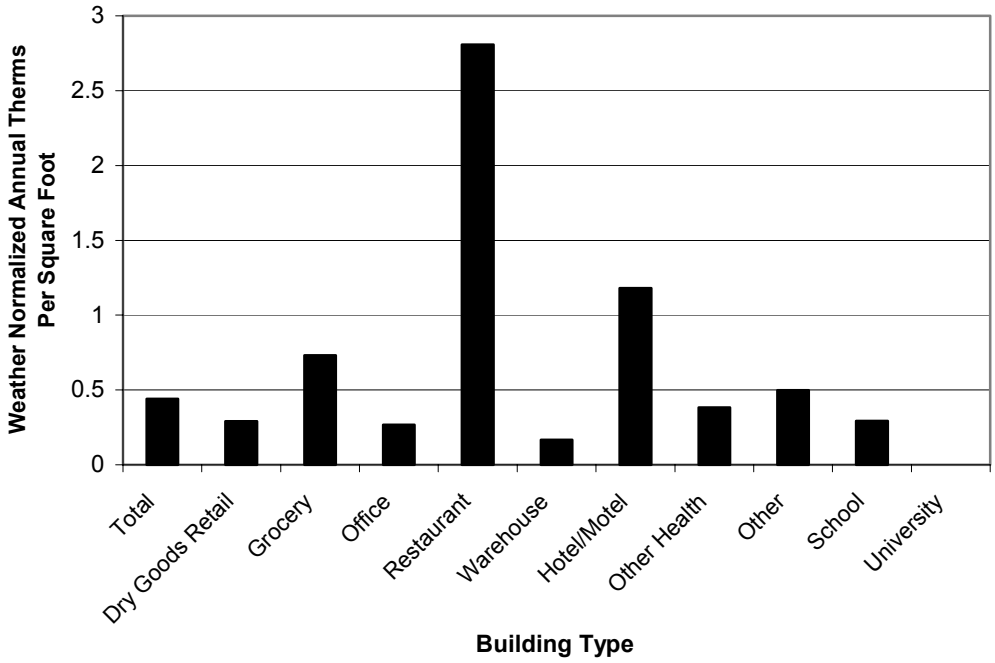


Table 3-8 compares the gas EUIs developed in this study with those from the 1999 CBECS.

Table 3-8
Annual Natural Gas EUI Estimates Compared with CBECS by Building Type

Building Type		2001	1999 CBECS	
2001 CBSA	1999 CBECS	CBSA	West	National
Total	(same as 2001 CBSA)	0.44	0.37	0.43
Dry Goods Retail	Mercantile	0.29	0.17	0.23
Grocery	Food Sales	0.73	Q	0.46
Office	(same as 2001 CBSA)	0.27	0.29	0.29
Restaurant	Food Service	2.81	Q	1.39
Warehouse	Warehouse/Storage	0.17	Q	0.36
Hospital	Health Care	s	0.90	0.92
Hotel/Motel	Lodging	1.18	0.40	0.50
Other Health		0.38		
Other		0.50		
	Public Assembly		0.47	0.31
	Public Order/Safety		Q	0.51
	Religious Worship		0.20	0.24
	Service		0.45	1.21
	Other		Q	0.62
	Education		0.29	0.34
School		0.29		
University		s		
Vacant	(same as 2001 CBSA)	s	Q	0.30

Notes: This study (2001 CBSA) and CBECS are ratios of aggregate consumption to aggregate floorspace, equivalent to floorspace-weighted means of individual building EUIs. The 2001 CBSA annual EUIs presented in this table are weather normalized and 1999 CBECS are actual.
s, Q=Data withheld.

The gas EUI from this study is within around 20 percent of that from CBECS for the total population of commercial buildings, and also for Retail, Office, and Education/School. For Groceries, Restaurants, and Hotel/Motels, on the other hand, the estimate from this study is substantially higher than the CBECS estimate; for Warehouses, the reverse is true.

The Retail and Office estimates are each based on around 40 sites, and have standard errors around 0.04, under 20 percent of the estimate. The remaining building types had relatively high standard errors and/or fewer than eight sites in the sample. (Warehouses had 26 sites in the sample, but 15 of them are units from the same self-storage facility with a common bill allocated into 15 equal parts; thus, the standard error is artificially low and the premise count artificially high.) Thus, the gas EUIs appear to be meaningful only for Office and Retail.

Annual Natural Gas Estimates

In principle, total regional gas use could be estimated in the same way as total regional electricity use, multiplying each building type's EUI by its floorspace. For gas, however, we have the added complication that not all buildings use gas. While the analysis could be expanded to incorporate an estimate of the fraction of floorspace using gas, this extended analysis is unlikely to be worthwhile given the data limitations discussed above.

Annual Natural Gas EUI by Building Size

Annual gas EUI by building size is displayed in Figure 3-28. These estimates are compared with the corresponding CBECs estimates in Table 3-9.

Figure 3-28
Annual Natural Gas EUI by Building Size

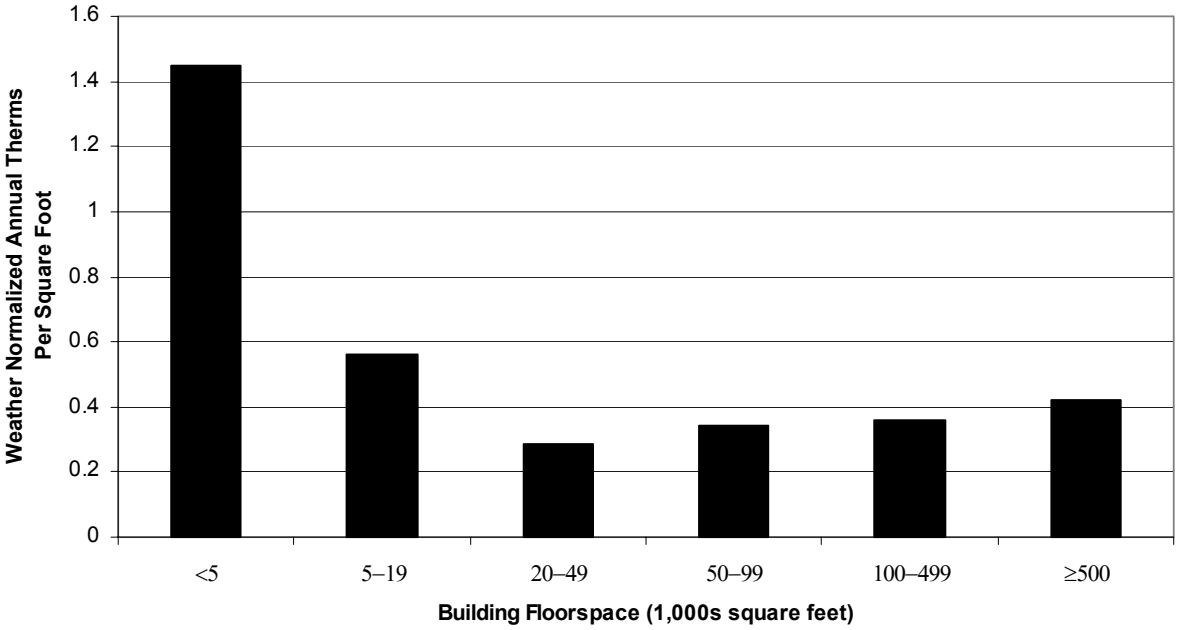


Table 3-9
Annual Natural Gas EUI Estimates Compared with CBECS by Building Size

Building Floorspace (square feet)		2001 CBSA	1999 CBECS West	1999 CBECS National
Less than 5,000	1,001 to 5,000	1.45	0.69	0.85
	5,000 to 10,000		0.49	0.56
	10,001 to 25,000		0.26	0.44
5,000 to 19,999		0.56		
20,000 to 49,999		0.29		
	25,001 to 50,000		0.33	0.36
50,000 to 99,999	50,001 to 100,000	0.34	0.37	0.34
100,000 to 499,999		0.36		
	100,001 to 200,000		0.26	0.38
	200,001 to 500,000		0.39	0.44
500,000 or more	Over 500,000	0.42	0.25	0.28

Notes: This study (2001 CBSA) and CBECS are ratios of aggregate consumption to aggregate floorspace, equivalent to floorspace-weighted means of individual building EUIs. The 2001 CBSA annual EUIs presented in this table are weather normalized and 1999 CBECS are actual.

The EUIs estimated in this study are roughly in line with the CBECS estimates for buildings in the range of 5 thousand to 200 thousand square feet. For smaller buildings, the estimate from this study appears to be quite high (1.4 versus 0.7 and 0.9 for CBECS), and also has a high standard error (0.5). For larger buildings, the estimate from this study is also high compared to CBECS (0.43 versus 0.25 and 0.28), with a standard error of 0.22. Thus, the EUIs at the high and low end from this study do not appear to be reliable.

Annual Natural Gas EUI by Year Constructed

Annual gas EUI by cohort is displayed in Figure 3-29. These estimates are compared with the corresponding CBECs estimates in Table 3-10.

Figure 3-29
Annual Natural Gas EUI by Cohort

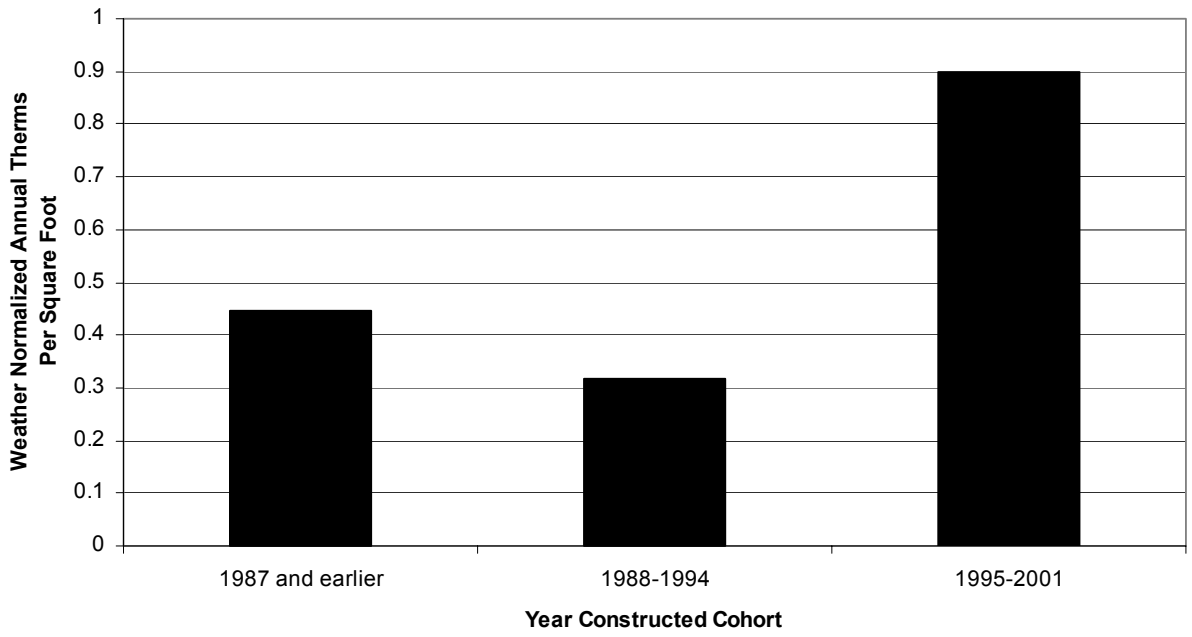


Table 3-10
Annual Natural Gas EUI Estimates Compared with CBECS by Year Constructed

Year Constructed		2001 CBSA	1999 CBECS West	1999 CBECS National
	1919 or before		0.42	0.42
	1920 to 1945		0.46	0.44
	1946 to 1959		0.30	0.41
Before 1950		0.38		
1950 to 1969		0.44		
	1960 to 1969		0.45	0.48
1970 to 1979	1970 to 1979	0.58	0.35	0.39
1980 to 1987		0.44		
	1980 to 1989		0.25	0.43
1988 to 1994		0.32		
	1990 to 1999		0.43	0.44
1995 to 2001		0.56		
Unknown		0.24		

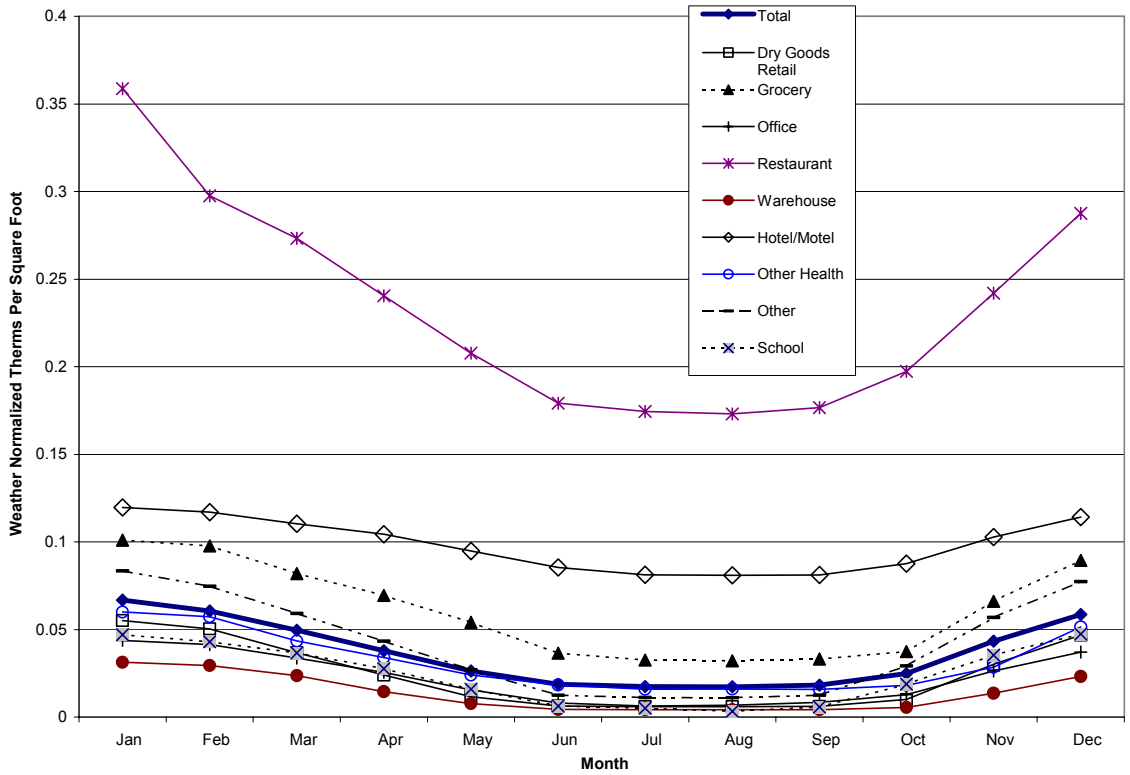
Notes: This study (2001 CBSA) and CBECS are ratios of aggregate consumption to aggregate floorspace, equivalent to floorspace-weighted means of individual building EUIs. The 2001 CBSA annual EUIs presented in this table are weather normalized and 1999 CBECS are actual.

As for electricity, gas EUIs from this study look high compared to CBECS for the most recent age group (0.54 versus 0.43), and also has high standard errors for this group (0.14). Similarly high standard errors (0.15, 0.13) are associated with the estimates for 1970 to 1979 and 1980 to 1987/89. These estimates are also similarly high compared to CBECS (0.54 versus 0.35; 0.42 versus 0.25). Thus, drawing conclusions about gas usage patterns by age from the EUIs developed in this study is not recommended.

Natural Gas EUI by Month

Monthly gas usage shows a definite increase in the winter months, for nearly all building types (Figure 3-30). Peak winter gas use is 5 to 10 times higher than minimum summer use for most building types. The exceptions are Grocery, Restaurants, Hotel/Motel, Other, and Other Health. These building types, in particular Restaurants, do have a pronounced winter peak. However, they also have more base usage across the year.

Figure 3-30
Natural Gas EUI by Month and Building Type



3.3 DEMOLITION RATES

The rate at which existing floorspace is removed from the building stock is an important driver of long-term forecasts. Estimates of demolition rates are difficult to develop, because such estimates require tracking of building survival over time. This study, which returned to buildings originally visited 14 years earlier, provides an unusual opportunity to determine demolition rates.

The overall demolition rate for existing buildings over the 14-year period from 1987 to 2001 is estimated at 6.2 percent, a total of 108 million square feet. For buildings that were vacant in 1987, 30.5 percent of the floorspace is estimated to have been demolished, and for buildings under 5,000 square feet 12.7 percent. Details on the demolition analysis are provided in Appendix I.

4 STUDY METHODS

In this section, we describe the methods used to develop the estimates presented in Section 3 and in more detail in the appendix tables. These methods include

- development of the sample frame,
- the data collection process, and
- estimation of population characteristics from the sample data.

4.1 THE SAMPLE FRAME

From 1987 to 2000, there have been seven major surveys of the commercial building stock in the Pacific Northwest. A listing of these surveys, their completion dates, and initial sample sizes are shown in Table 4-1. This study was an attempt to compile the information from these surveys and to update the results of three of the earlier studies completed from 1987 to 1992. Buildings in three of these studies, designated in Table 4-1 as "primary sources," comprised the sample frame for the current survey. In this study, an attempt was made to resurvey as many of the buildings in these studies as possible through telephone surveys and/or site visits. No new building characteristics data were collected on the later studies, designated as "supplemental sources." One year of complete electricity and gas consumption histories were also collected for the majority of buildings in all seven surveys.

To facilitate comparison of the results and to analyze changes in the building stock, the seven surveys were categorized into three "cohorts" of buildings based on vintages:

- Cohort 1: Buildings built before 1988;
- Cohort 2: Buildings built from 1988 through 1994; and
- Cohort 3: Buildings built from 1995 through 2001.

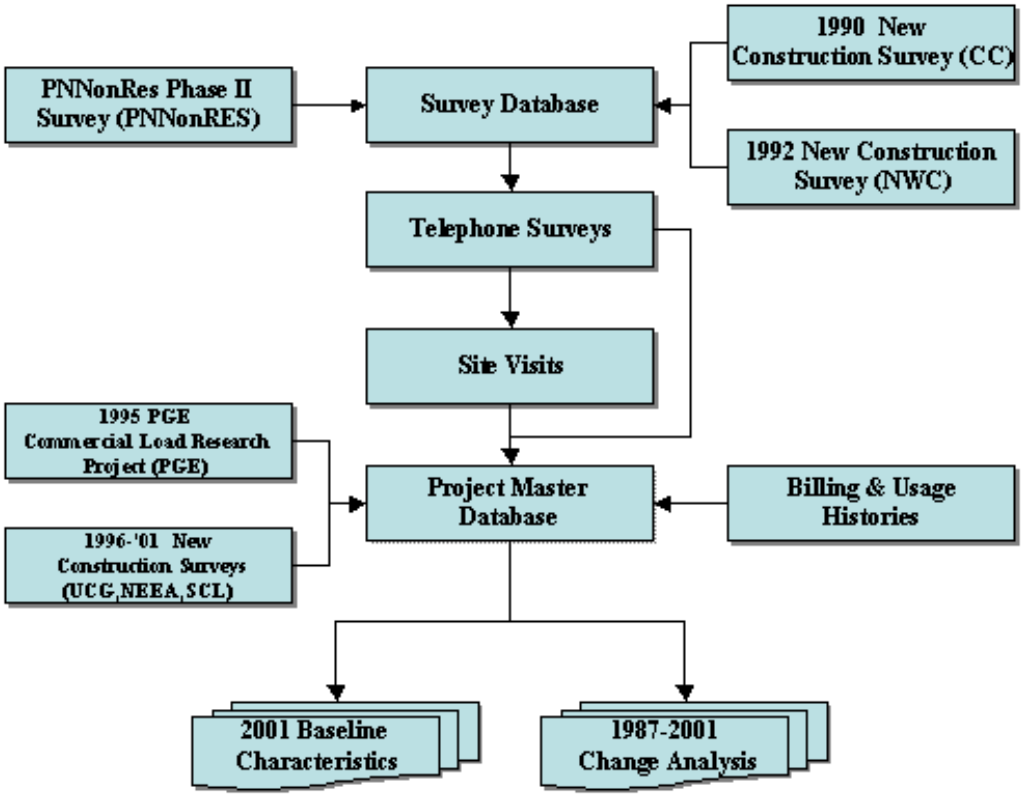
The site-level data collection efforts focused on updating the information on buildings in cohort 1 and cohort 2 and compiling electricity and gas consumption histories for buildings on buildings in all three cohorts.

Table 4-1
Disposition of Initial Samples and Supplemental Sources

Study Description	Original Sample Size
Primary Studies	
Pacific Northwest Non-Residential/ Commercial Energy Survey – Phase II: BPA, 1986–1987 (PNNonRES).	608
Energy Code Compliance in Commercial Buildings in Washington and Oregon Study. Washington State Energy Office, Oregon Department of Energy, 1990–1992 (CC).	141
NW Commercial Baseline Study (Performance Impacts for Commercial New Construction: A Pacific Northwest Study), 1992 (NWC).	183
Supplemental Studies	
Portland General Electric Commercial Load Research Project, PGE, 1995–1996 (PGE).	155
Washington Non-Residential Code Compliance Evaluation, 1996–1998 (UCG).	88
Baseline Characteristics of the Non-Residential Sector: Idaho, Montana, Oregon, and Washington, Northwest Energy Efficiency Alliance, 1999–2001 (NEEA).	144
Survey of Energy Efficiency in Seattle's New Non-Residential Buildings 1995–2000. Seattle City Light, 2000–2001 (SCL).	50
Total	**1,369**

The seven surveys included in this study were each conducted for specific and unique purposes, such as market characterization, code compliance, or energy efficiency program evaluation. They also used specialized data collection forms and procedures. An important difference in data collection approaches among these studies was that the information was recorded at different levels using tenants, space type, functional area, or the whole facility as sampling units. As a preliminary step in this study, it was necessary to establish a common basis for comparing the results of these surveys by aggregating all information to the building level. The building-level data were then compiled into one database, which formed the master database for the study and all subsequent analyses. An overview of this process is shown in Figure 4-1.

Figure 4-1
Project Overview and Data Sources



4.2 DATA DEVELOPMENT

Given the relatively limited number of sites in the sample frame and the dated contact information, it was necessary to design recruitment and scheduling procedures, which would result in reaching as many sites as possible. As an initial step, a survey firm was commissioned to update the contact information and to conduct preliminary telephone interviews and schedule site visits. This procedure, however, proved time-consuming and resulted in a limited number of completions. The decision, therefore, was made to abandon the telephone surveys and to visit all target buildings through unscheduled "walk-in" surveys and drive-by audits. The advantage of this approach was that it provided information on a much larger sample of buildings and made it possible to obtain more reliable information on demolition rates. Moreover, in many cases auditors were able to access facility managers through walk-in and drive-by contacts and to perform detailed audits of the facility.

Due to differences in sampling and data collection procedures in previous surveys, it was necessary to treat the campus facilities, namely hospitals and universities, as a separate population for surveys. To ensure consistency in data collection, these audits were all conducted through establishing contact with facility managers for the campus and mailing the survey forms

before the audit was conducted. In a majority of cases, the survey forms were completed by the facility managers, who in turn supplied campus-level consumption histories.

4.3 SAMPLE DISTRIBUTION

The distribution of the final study samples by state, cohort, and data collection method is shown in Table 4-2. The distribution of the sample by building type is shown in Tables 4-3 and 4-4.

Surveys resulted in obtaining data on 871 buildings in cohorts 1 and 2, or 94 percent of sites in the initial samples. Surveys through scheduled site visits were completed on 272 (31 percent) buildings. Detailed information was also collected on 271 sites (30 percent) through walk-ins; and partial surveys were conducted on 251 sites (29 percent). Data on an additional 77 sites (9 percent) were obtained through telephone surveys.

Re-visits were not conducted in this study for sites in cohort 3. Data from the prior cohort 3 studies were included in the database, and assumed to provide current information for 2001. Due to incomplete data and the fact that many of the sites consisted of small new additions, only 288 (66 percent) of cases in the existing cohort 3 datasets were included in the final database for this study. As part of this study, data were collected on an additional fifteen (15) sites from this vintage that were not in the original data sets, to augment the sample of buildings visited in the 1999-2001 NEEA study.

Complete electricity consumption histories were collected on 561 of sites (64 percent) in cohorts 1 and 2 and 140 sites (50 percent) in cohort 3. Gas consumption histories were made available from local utilities on 192 sites, representing 20 percent of natural gas-heated sites.

Table 4-2
Sample Distribution by State, Cohort, and Survey Type

State	Cohort	Telephone Survey	Scheduled Survey	Walk-In Survey	Drive-By Survey	Total Field Visits	Total Surveyed	% With Electric Billing History
Idaho	*1987 and earlier*	0	17	4	15	**36**	**36**	81%
	'88 - '94	0	12	4	7	**23**	**23**	70%
	'95 - '01	0	44	2	0	**46**	**46**	76%
Montana/ Wyoming	*1987 and earlier*	3	1	12	1	**14**	**17**	35%
	'88 - '94	0	0	0	0	**0**	**0**	0%
	'95 - '01	0	32	0	0	**32**	**32**	59%
Oregon	*1987 and earlier*	4	42	59	51	**152**	**156**	66%
	'88 - '94	5	103	28	21	**152**	**157**	71%
	'95 - '01	0	59	1	0	**60**	**60**	38%
Washington	*1987 and earlier*	42	65	132	111	**308**	**350**	61%
	'88 - '94	23	32	32	45	**109**	**132**	61%
	'95 - '01	0	144	4	0	**148**	**148**	43%
Total	*1987 and earlier*	49	125	207	178	**510**	**559**	63%
	88 - '94 [a]	28	147	64	73	**284**	**312**	67%
	'95 - '01	0	279	7	0	**286**	**286**	49%

[a] This includes 83 PGE sites.

Table 4-3
Sample Distribution of Buildings by State and Cohort

State	Cohort	Total	Building Type											
			Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hospital	Hotel/ Motel	Other Health	Other	School	Univer-sity	Vacant
Idaho	*1987 and earlier*	36	6	2	5	2	3	0	2	3	5	3	1	4
	'88 - '94	23	5	1	4	0	4	0	1	0	8	0	0	0
	'95 - '01	46	5	2	5	0	2	1	2	5	13	8	3	0
Montana/	*1987 and earlier*	17	1	1	1	1	0	5	0	0	2	0	4	2
Wyoming	*'88 - '94*	0	0	0	0	0	0	0	0	0	0	0	0	0
	'95 - '01	32	4	0	6	0	2	1	3	1	7	6	2	0
Oregon	*1987 and earlier*	156	25	8	33	14	23	4	9	3	19	5	2	11
	'88 - '94	157	26	19	46	19	12	0	0	6	18	8	0	3
	'95 - '01	60	4	4	16	1	10	1	4	3	11	6	0	0
Washington	*1987 and earlier*	350	49	18	72	21	42	1	18	22	42	16	36	13
	'88 - '94	132	24	7	31	7	10	0	2	8	21	16	4	2
	'95 - '01	148	28	11	28	7	17	0	2	3	34	11	7	0
Total	*1987 and earlier*	559	81	29	111	38	68	10	29	28	68	24	43	30
	'88 - '94	312	55	27	81	26	26	0	3	14	47	24	4	5
	'95 - '01	286	41	17	55	8	31	3	11	12	65	31	12	0

Table 4-4
Sample Distribution of Floorspace by Building Type and Cohort
(in thousands of square feet)

Cohort	Total	Building Type												
		Dry Goods Retail	Grocery	Dry Goods Retail/ Grocery	Office	Restau-rant	Ware-house	Hospital	Hotel/ Motel	Other Health	Other	School	Univer-sity	Vacant
Before 1988	53,278	6,464	592	0	26,138	252	2,178	2,071	6,147	1,332	4,560	1,690	1,491	311
1988 to 1994	15,981	0	0	4,551	5,408	106	1,715	0	263	370	1,565	1,833	154	0
1995 to 2001	19,988	0	0	4,413	5,698	32	2,957	57	472	548	2,936	2,091	765	0
Total	89,247	6,464	592	8,965	37,244	390	6,850	2,128	6,881	2,250	9,061	5,613	2,410	311

4.4 DEVELOPMENT OF POPULATION ESTIMATES

4.4.1 Introduction

The goal of this study is to characterize the commercial building stock. Thus, the sample data must be translated into population estimates. Developing population estimates from the 2001 study sample requires a set of expansion factors or case weights for each of the premises in the sample. These case weights in turn require population totals by year of construction. These population totals are based on totals known at certain points in time, together with a survival model to calculate the total in place in 2001 by construction year.

In this section, we first present the general approach to developing the case weights. We then describe the survival modeling to develop the population totals for these weights. Finally, we describe how the accuracy of the resulting estimates is calculated.

The sample in this study was developed by piecing together samples from several prior studies. As a result, standard statistical estimation techniques and corresponding accuracy measures are not applicable. Instead, the sample expansion procedures used are a form of post-stratification.

The accuracy measures provided are indicators of likely error under certain simplifying assumptions. Details are provided below.

4.4.2 Case Weights

The overall sample is the combination of several prior samples, and the sample designs for these samples cannot practically be reconstructed. As a result, it is not possible to develop case weights directly by using standard statistical methods.

General Method

The approach used to develop the sample expansion weights is to post-stratify the sample by building type, building size category, and year constructed category. The expansion factor for each cell (defined by type, size, and year) is the ratio of the population floorspace in that cell to the total sample floorspace in the cell.

That is, rather than saying that each building in the sample represents so many buildings in the population, our case weights say that each square foot of floorspace in the sample represents so many square feet in the population. This approach is taken because we have reliable population data on floorspace but not on numbers of buildings. Moreover, building counts are not well defined: Large complexes may be viewed as a single or multiple buildings, and small buildings, insignificant in terms of total floorspace, are particularly subject to inconsistent counting in any practical fieldwork. Thus, expansion in terms of floorspace is more reliable and more meaningful.

Use of these expansion factors assumes that, within each expansion cell, the tendency to be in our consolidated 2001 sample or not is unrelated to any of the characteristics we are analyzing from that sample. It is likely that the various audits from which the consolidated sample was built may have targeted particular sizes, building types, or years at different sampling rates. However, once we have controlled for type, size, and year, we assume that there is no systematic over- or under-representation of other characteristics within the sample. This assumption is not perfectly true, but is the only practical basis on which the sample results can be expanded to the population.

For some characteristics, the assumption that the sample is representative within each expansion cell is clearly incorrect. As a result, for these characteristics the sample cannot give meaningful estimates of the population distribution. These characteristics include:

- Type of utility serving the premise, and
- State.

The original 1987 sample provided coverage across states and utility types. However, the later samples that were used to represent more recent construction came only from certain utilities and states.

The expansion cells are defined by the following categories:

- Building Type (based on PNNonRES classifications)
- Dry Goods Retail
- Groceries (food stores with refrigeration)
- Offices
- Restaurants
- Warehouse
- Hospitals
- Other Health
- Hotel/Motels
- Schools (elementary and secondary education)
- Colleges/Universities
- Other (churches, libraries, theaters, museums, automotive repair, service stations, assembly, and other miscellaneous building types)
- Vacant

Size category (square feet):

- <5,000
- 5,000–20,000
- 20,000–50,000
- 50,000–100,000
- 100,000–500,000
- >500,000

Year Construction was Completed:

- Before 1988
- 1988–1994
- 1995–2001

Details on the calculation of the expansion weights are provided in Appendix G.

Determining the Population Floorspace

For the 1987 and earlier construction years, total floorspace in place in 1987 by building type and size category is taken from the PNNonRes study [BPA, 1986–1987]. For the subsequent

years, total floorspace built in each year by building type and size is available from Dodge [Complete Dodge Pacific Northwest Dataset of New Commercial Buildings, McGraw-Hill Construction/Dodge, 1987–2001]. For all these vintages, the floorspace in place as of 2001 is calculated by applying the estimated percent surviving to the total in place in 1987 or subsequent year. The survival model is described below.

Changing Categories

The assignment of post-stratification cells had to take into account three reasons the 2001 category could be different from the original category.

1. The use of the building changed between the original visit and the re-visit.
2. Additional floorspace was added to the building between the original visit and the re-visit.
3. The original visit covered only a portion of the building, and the original characteristics reported were for that portion only. The 2001 re-visit always covered the entire building.

Three general principles were used to deal with these changes in the 2001 snapshot.

1. A building's year of construction for both post-stratification and analysis was the year the majority of the building floorspace was built.
2. The building type for post-stratification was the building type of the full building in its year of construction. However, the building type used as an analysis category was the 2001 building type.
3. The building size used for post-stratification was the size of the portion of the building that determined the construction year. However, the full building size was used as an analysis and classification variable.

The practical effects of these principles were as follows:

- For cases where a premise building type changed, the original building type was used for post-stratification. However, in the data analysis, the building was classified by its 2001 building type. Expansion based on original building type is appropriate because the population floorspace is defined in terms of building type at the time of the 1987 PNNonRes sample, or at the time of construction for the new construction samples. For the current snapshot, however, the current building type is of interest.
- For cases where floorspace was added to the building since the original visit, and the addition was smaller than the original building, the construction year both for post-stratification and for analysis was that of the original building. The building size for post-stratification was that of the original building. However, the building size for analysis was that of the full 2001 building.
- For cases where floorspace was added to the building since the original visit, and the addition was larger than the original building, the construction year for both post-stratification and data analysis was set as the year of the addition. The building size for

post-stratification was that of the addition. However, the building size for analysis was that of the full 2001 building.

- For cases where the original visit was a new construction audit that covered only the new addition, the year constructed was assigned based on the year the majority of the building was built. Thus, some premises that were in cohort 2 or cohort 3 data sets were assigned an earlier construction year for purposes of post-stratification and analysis.

4.4.3 Survival Analysis

As described in Section 3, the majority of the 2001 sample consisted of re-visits to the premises visited in the 1987 PNNonRes study or a later study. Thus, a key step was to determine for each of the previously visited premises whether the premise still existed at the time of our study. This determination for each building provided the basis for estimating survival rates.

The survival analysis estimated the percent of floorspace surviving to the present as a function of

- building type,
- building size, and
- elapsed time since last known to exist.

The model form was exponential in the time since last observed. That is, for a given building type and size, the fraction $f(t)$ of floorspace surviving after t years is an exponential function of the length of time t.

$$f(t) = e^{\alpha t}$$

where the coefficient α depends on the building type and size. Details on the survival model are given in Appendix I.

4.4.4 Accuracy Measures Provided

Standard errors are calculated for each estimate as if the sample had been drawn as a stratified random sample according to the post-stratification scheme used. As noted, the simplifying assumption used for this analysis is that, within a post-stratification cell, the probability of inclusion in the sample is independent of any of the characteristics being analyzed from the data set. Under this simplifying assumption, these standard errors appropriately indicate the likely error of the estimates.

For each table of estimates provided in the detailed cross-tabulation tables, Appendices A through C, a corresponding table of standard errors is also provided in Appendices D through F. As a quick indication of the accuracy level, the sample size for each column of estimates is provided in the table with the estimates themselves.

Confidence intervals for an estimate can be calculated from the point estimate and standard errors as follows:

$$b = x \pm zs \ ,$$

where

b indicates upper and lower bounds of the confidence interval;
x is the point estimate from Appendix A, B, or C; and
s is the corresponding standard error from Appendix D, E, or F

$$z = \begin{cases} 1.64 \text{ for 90 percent confidence} \\ 1.96 \text{ for 95 percent confidence} \\ 2.58 \text{ for 99 percent confidence.} \end{cases}$$

For each table of point estimates, the corresponding standard error table is provided in the same units. The scalar z is dimensionless. Thus, the confidence interval has the same units as the point estimate itself. For example, if the point estimate is floorspace in square feet, the standard error and resulting confidence interval are also in units of square feet.

For point estimates that are percentages, the corresponding standard errors are also given as percentages, with the same base as the point estimate. For example, if the point estimates are percents of regional floorspace, the standard errors are also given as percents of regional floorspace, not as percents of the point estimates themselves. Thus, if the point estimate is 21 percent and the standard error is 5 percent, the 95 percent confidence interval is

$$b = 0.21 \pm (1.96)\ (0.05) = 0.21 \pm 0.098 = [0.11, 0.31],$$

or 11 to 31 percent.

4.4.5 Change Analysis

For sites in cohorts 1 and 2, data were available at two points in time—the original visit and the 2001 re-visit. These data allow calculation of changes in building stock over time.

Only buildings that had data from two points in time were included in the changes analysis. That is, this analysis describes changes in existing buildings. It does not capture effects of new construction and demolitions on the stock in place. The analysis also does not reflect changes due to conversions of existing buildings to and from commercial use.

Buildings included in the change analysis were restricted to those that satisfied the following requirements.

- There were audit data from two points in time.

- There were no large differences between the space covered by the original and 2001 audits. That is, if space was added since the original visit, the space added was smaller than the original floorspace.
- There were no other major anomalies making the data from the two visits non-comparable.

Observing the same buildings at two points in time provides better accuracy than observing two independent cross-sections. The standard error calculation used for the change analysis reflects this advantage. This calculation requires an additional approximation step compared to the single-point estimates. This additional step addresses the fact that the 1987 and 2001 samples are not independent. Details are provided in Appendix G.

Even with the restriction to buildings with data from an earlier plus the current study, for a specific data item a building in this "change" sample might have data for only one of the two studies. Limiting to cases with non-missing data for both the original and current studies on an item-by-item basis would have reduced the total pool of data available for the change analysis, as well as requiring more complicated analysis.

4.5 Overall Assessment of the Study Approach

This study has provided detailed audit data and statistical analysis for a regional sample of nearly 1,200 buildings. For over two-thirds of these buildings, comparison data were provided for two points in time 14 years apart. The work was accomplished at a substantially lower cost than would be required to develop and analyze a stand-alone sample of a comparable size.

This approach, involving compilation from prior studies and re-visits to prior samples, has advantages and disadvantages. One disadvantage is that interpreting existing data sets and mapping them into a common set of field definitions introduces uncertainty and potential bias into the analysis. In addition, compilation from various studies means that some data fields are inconsistently present, and it is not always possible to distinguish missing data from inapplicable cases.

Another set of limitations relate to the sample expansion. The post-stratification depends on the assumption that data collected from one part of the region are representative of other areas. In particular, the analysis assumes that buildings of the same building type, size, and vintage have the same characteristics across the region. The analysis also implicitly assumes that the estimated floorspace totals from the 1987 PNNonRes are correct. Further, it requires that the Dodge construction data used for total floorspace built in later years have been appropriately screened or adjusted for duplicate entries and buildings permitted but not completed.

Despite these concerns and limitations, the study provides meaningful and reliable estimates. Even without having a true statistical design, the standard errors developed provide useful indicators as to the reliability of particular estimates. Both on the basis of these standard errors

and on the basis of comparisons with other data sources, the estimates developed in this study appear to be reliable and internally consistent.

The EUIs developed in this study are the first estimates based on a regional statistical sample specific to the Pacific Northwest. The electric EUIs by building type and size appear to be reliable. EUIs by vintage are also reliable, with the exception of the EUI for post-1994 buildings. EUIs by combinations of type, size, and/or vintage may be problematic due to small sample sizes. The natural gas EUIs are based on smaller samples than the electric EUIs, and are not recommended for comparative analysis.

A key benefit of the approach taken here is that the re-visit to buildings in the 1987 study allows a glimpse at changes within existing buildings over time. Moreover, this type of change analysis from two observations of the same buildings provides greater accuracy for estimating changes than would two independent samples of the same size.

The re-visit to buildings in cohort 2, built between 1988 and 1994, did not contribute to meaningful trend analysis. While similar comparisons between original and 2001 results were calculated, the resulting change estimates were erratic and had large standard errors. For this reason, these change estimates are not included in the report. Nonetheless, the re-visit to these buildings was valuable because they provided a sample from that vintage. In addition, the attempt to re-contact these sites provided data for the survival/demolition rate analysis.

The demolition estimates represent a particularly useful outcome of the re-visit approach taken for both cohorts 1 and 2. These estimates have direct application in the development of the study's post-stratification weights. In addition, the survival model that provides these estimates is sufficiently general to be used in future planning work, to project survival rates over other future periods according to building stock characteristics. The Northwest Power Planning Council will be using results of both the trend analysis and the demolition analysis in developing forecasts.

5 GUIDE TO DETAILED TABLES

5.1 GUIDE TO DETAILED TABLES

The following tables indicate which detailed tables are provided in Appendices A through F. Table 5-1 indicates the 2001 building characteristic tables and the 1987 building stock characteristics change (from 1987 to 2001) tables. Table 5-2 provides the list energy-use intensity estimate and standard error tables in Appendices B and E, respectively.

Table 5-1
Guide to Appendices A, C, D, F

Section	Data Item Number	Description	By Building Type		By Cohort
			2001 Estimates: A1 Standard Errors: D1	2001 vs. 1987 Estimates: C Standard Errors: F	2001 Estimates: A2 Standard Errors: D2
GENERAL BUILDING INFORMATION	GB1	Total Floor Area	X		
	GB2	Building Floor Area	X		
	GB3	Building Floor Area, Mean	X		
	GB4	Conditioned Floor Area	X	X	
	GB5	Heated Floor Area	X	X	
	GB6	Cooled Floor Area	X	X	
	GB7	Unconditioned Floor Area	X	X	
	GB8	Refrigerated Floor Area	X	X	
	GB9	Vacant Floor Area	X	X	
	GB10	Number Of Stories	X		
	GB11	Number Of Stories, Mean	X		
	GB12	Multiple/Single Building	X		
	GB13	Heating Fuel	X	X	X
	GB14	Cooling Fuel	X		
	GB15	Secondary Fuel Type	X		
	GB16	Business Ownership	X	X	
	GB17	Climate Zone	X		
BUILDING OCCUPANCY AND MANAGEMENT	OM1	Year Constructed	X		
	OM2	Year Constructed, Mean	X		
	OM3	Building Age	X		
	OM4	Tenants Own	X		
	OM5	Tenants Lease	X		
SPACE INFORMATION	SP1	Number Of Tenants	X		
	SP2	Number Of Tenants, Mean	X		
	SP3	Average Lease Length	X		
	SP4	Lease Includes Electric Utilities	X		
	SP5	Lease Includes Gas Utilities	X		
	SP6	Lease Includes Heating	X		
	SP7	Lease Includes Cooling	X		
	SP8	Lease Includes Hot Water	X		
	SP9	Lease includes Indoor Lighting	X		
	SP10	Lease includes Outdoor Lighting	X		
	SP11	Tenants, Manual Heating	X		
	SP12	Tenants, Manual Cooling	X		
	SP13	Franchise	X		
	SP14	Chain	X		
	SP15	Functional Use	X		
TYPICAL OPERATING WEEK SCHEDULE INFORMATION	SC1	Weekly Hours Of Operation	X	X	
	SC2	Weekly Hours of Operation, Average	X		
	SC3	Primary Schedule, Open 24 Hr	X		
	SC4	Primary Schedule, Open Saturday	X		
	SC5	Primary Schedule, Open Sunday	X		
ENVELOPE INFORMATION	EN1	Wall Construction Type	X		
	EN2	Primary Wall Framing type	X		
	EN3	Average Layers of Window Glazing	X		
	EN4	Window Glaze Type	X		
	EN5	Predominant Window Glazing Low E/Gas Type	X		
	EN6	Predominant Window Frame Type	X		
	EN7	Window Type	X		
	EN8	Primary Roof Surface Construction Code	X		
	EN9	Skylights	X		
	EN10	Floor Construction Type	X		
	EN11	Wall Area:Gross Floor Area	X		
	EN12	Window Area:Wall Area	X		

Table 5-1 (cont.)

Section	Data Item Number	Description	By Building Type		By Cohort
			2001 Estimates: A1 Standard Errors: D1	2001 vs. 1987 Estimates: C Standard Errors: F	2001 Estimates: A2 Standard Errors: D2
HVAC SYSTEM SUMMARY	HS1	Central Air Handler Age (Oldest Air Handler)	X		
	HS2	Central Chiller Age (Oldest Chiller)	X		
	HS3	Boiler Age (Oldest Boiler)	X		
	HS4	Central Boiler Fuel	X		
	HS5	Total Boiler Capacity (MMBTU)	X		
	HS6	Average (weight sqft) Packaged HVAC System Vintage	X		
	HS7	Average (weight tons) Packaged HVAC System Vintage	X		
	HS8	HVAC System Upgrades Within Last 5 Years	X		X
	HS9	Primary HVAC, Equipment	X	X	
	HS10	Primary HVAC, Heat Fuel	X	X	
	HS11	Primary HVAC, Cool Fuel	X		
	HS12	Pri HVAC Sys, Heat Eqpt	X		
	HS13	Pri HVAC Sys, Cool Eqpt	X		
	HS14	Primary HVAC, Distribution	X	X	
	HS15	Secondary HVAC, Equipment	X		
	HS16	Secondary HVAC, Heat Fuel	X		
	HS17	Secondary HVAC, Cool Fuel	X		
	HS18	Supplemental Heat	X		
	HS19	Supplemental Heating Fuel	X		
	HS20	Distribution with Economizers	X		X
HEATING AND COOLING EQUIPMENT	HC1	Electric Baseboard	X		
	HC2	Water Boiler	X		
	HC3	Steam Boiler	X		
	HC4	Furnace	X		
DISTRIBUTION CONTROLS	DC1	EMCS	X		
	DC2	Thermostatic (Programmable) w/Night Set-Back	X		
	DC3	Thermostatic (Manual)	X		
	DC4	Timeclock (on/off)	X		
	DC5	On/Off Switch	X		
WATER HEATING	WH1	Predominant Service Hot Water Eqpt Type	X		
	WH2	Predominant Service Hot Water Fuel	X		
	WH3	Secondary Service Hot Water Eqpt Type	X		
	WH4	Additional tank wrap	X		
	WH5	Pipe Insulation	X		
AUXILLIARY FANS	AF1	Exhaust Fan(s)	X		
	AF2	Lab Hood Fan(s)	X		
	AF3	Make-up-air Fan(s)	X		
	AF4	Other Fans	X		
	AF5	Total Supply Fan HP	X		
	AF6	Total Supply Fan HP	X		
	AF7	Total Return Fan HP	X		
	AF8	Total Return Fan HP	X		

Table 5-1 (cont.)

Section	Data Item Number	Description	By Building Type		By Cohort
			2001 Estimates: A1 Standard Errors: D1	**2001 vs. 1987** Estimates: C Standard Errors: F	**2001** Estimates: A2 Standard Errors: D2
INDOOR LIGHTING	IL1	Watts	X	X	
	IL2	Watts Per Square Foot by Building Floor Area	X		
	IL3	Watts Per Square Foot by Year Constructed, Detailed	X		
	IL4	Watts Per Square Foot by Year Constructed, Cohort	X		
	IL5	Watts Per Square Foot, Percent of Regional Floor Area	X		
	IL6	Lamp Type, Percent of Regional Indoor Lighting Wattage	X	X	
	IL7	Lamp Type, Percent of Regional Floor Area	X		
	IL8	Fluorescent T12 # Feet, Percent of Regional Fluorescent T12 Indoor Lighting Wattage	X		
	IL9	Fluorescent T12 # Feet, Percent of Regional Floor Area Served by Fluorescent T12	X		
	IL10	Fluorescent T12 # Lamps, Percent of Regional Fluorescent T12 Indoor Lighting Wattage	X		
	IL11	Fluorescent T12 # Lamps, Percent of Regional Floor Area Served by Fluorescent T12	X		
	IL12	Fluorescent T8 # Lamps, Percent of Regional Fluorescent T8 Indoor Lighting Wattage	X		
	IL13	Fluorescent T8 # Lamps, Percent of Regional Floor Area Served by Fluorescent T8	X		
	IL14	Electronic Ballast Measure, Percent of Regional Indoor Lighting Wattage	X		
	IL15	Electronic Ballast Measure, Percent of Regional Floor Area	X		
	IL16	Main HID Type	X		
	IL17	Control, Timeclock (On/Off)	X	X	
	IL18	Control, EMCS	X	X	
	IL19	Control, Photocell	X	X	
	IL20	Control, Occupancy Sensors	X	X	
	IL21	Control, On/Off Switch	X	X	
	IL22	Control, Dimmer Switch/Daylighting Controls	X	X	
	IL23	Control, Other	X	X	

Table 5-1 (cont.)

Section	Data Item Number	Description	By Building Type		By Cohort
			2001 Estimates: A1 Standard Errors: D1	2001 vs. 1987 Estimates: C Standard Errors: F	2001 Estimates: A2 Standard Errors: D2
OUTDOOR LIGHTING	OL1	Watts Per Indoor Square Foot by Year Constructed, Cohort	X		
	OL2	Lamp Type, Percent of Regional Outdoor Lighting Wattage	X	X	
	OL3	Lamp Type, Percent of Regional Floor Area	X		
	OL4	Predominant Lamp Type, Percent of Regional Buildings	X		
	OL5	Control, Timeclock (On/Off), Percent of Regional Outdoor Lighting Wattage	X	X	
	OL6	Control, Timeclock (On/Off), Percent of Regional Buildings	X		
	OL7	Control, EMCS, Percent of Regional Outdoor Lighting Wattage	X	X	
	OL8	Control, EMCS, Percent of Regional Buildings	X		
	OL9	Control, Photocell, Percent of Regional Outdoor Lighting Wattage	X	X	
	OL10	Control, Photocell, Percent of Regional Buildings	X		
	OL11	Control, Occupancy Sensors, Percent of Regional Outdoor Lighting Wattage	X	X	
	OL12	Control, Occupancy Sensors, Percent of Regional Buildings	X		
	OL13	Control, On/Off Switch, Percent of Regional Outdoor Lighting Wattage	X	X	
	OL14	Control, On/Off Switch, Percent of Regional Buildings	X		
	OL15	Control, Timeclock/Photocell, Percent of Regional Outdoor Lighting Wattage	X	X	
	OL16	Control, Timeclock/Photocell, Percent of Regional Buildings	X		
MISCELLANEOUS EQUIPMENT	EQ1	Number of Terminals (Cash registers)	X		
	EQ2	Number of PCs	X		
	EQ3	Number of Servers	X		
	EQ4	Number of Refrigerators	X		
	EQ5	Number of Auxilliary Pumps	X		
	EQ6	Other Health, Lab	X		
FULL KITCHEN EQUIPMENT	EQ7	Number of Broilers	X		
	EQ8	Broiler Fuel Elec	X		
	EQ9	Number of Fryers	X		
	EQ10	Fryer Fuel Elec	X		
	EQ11	Number of Griddle/Grills	X		
	EQ12	Griddle/Grill Fuel Elec	X		
	EQ13	Number of Ovens	X		
	EQ14	Oven Fuel Elec	X		
	EQ15	Number of Range Tops	X		
	EQ16	Range Fuel Elec	X		
LAUNDRY EQUIPMENT	EQ17	Number of Dryers	X		
	EQ18	Dryer Fuel Elec	X		
	EQ19	Number of Washers	X		
	EQ20	Washer Fuel Elec	X		
REFRIGERATION COMPRESSORS	RF1	Compressor Temperatures	X		
	RF2	Floating Head Pressure Control	X		
	RF3	Refrigeration Heat Recovery	X		
REFRIGERATION CONDENSERS	RF4	Predominant Condenser type	X		
REFRIGERATION EQUIPMENT USE	RF5	Display Case	X		
	RF6	Cases With Doors	X		
POOLS AND SPAS	PS1	Pool	X		
	PS2	Pool Cover (base=have pool)	X		

Table 5-2
Guide to Appendices B and E

Section	Data Item Number	Description
ELECTRIC ACTUAL EUI RESULTS	EA1	Overall
	EA2	Building Floor Area
	EA3	Year Constructed, Detailed
	EA4	Year Constructed, Cohort
	EA5	Heating/Cooling Combination
	EA6	Heating Fuel
	EA7	Whether Or Not Cool
	EA8	Month
GAS ACTUAL EUI RESULTS	GA1	Overall
	GA2	Building Floor Area
	GA3	Year Constructed, Detailed
	GA4	Year Constructed, Cohort
	GA5	Heating
	GA6	Heating Fuel
	GA7	Whether Or Not Cool
	GA8	Month
ELECTRIC WEATHER NORMALIZED EUI RESULTS	EN1	Overall
	EN2	Building Floor Area
	EN3	Year Constructed, Detailed
	EN4	Year Constructed, Cohort
	EN5	Heating/Cooling Combination
	EN6	Heating Fuel
	EN7	Whether Or Not Cool
	EN8	Month
GAS WEATHER NORMALIZED EUI RESULTS	GN1	Overall
	GN2	Building Floor Area
	GN3	Year Constructed
	GN4	Year Constructed, Cohort
	GN5	Heating
	GN6	Heating Fuel
	GN7	Whether Or Not Cool
	GN8	Month

A

2001 BUILDING CHARACTERISTICS TABLES

Notes:

- "s" in the tables: The number of observations on a "question" for a particular building type (or the total) is less than five, the results have been suppressed.
- "m" in the tables: There are no observations in a "response category" for a particular building type (or the total).
- The total column in each of the tables reflects all of the data from all building types, not just the building types presented in the table.

A.1 RESULTS BY BUILDING TYPE

Table A1-GB1

GENERAL BUILDING INFORMATION: Total Floor Area

(Millions of Square Feet)

	Total	BUILDING TYPE											
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hospital	Hotel/ Motel	Other Health	Other	School	Univer-sity	Vacant
Total square feet (millions)	2,365.9	401.3	84.0	458.3	37.8	237.0	41.1	116.0	114.5	473.2	235.9	84.3	82.4
Bldg type % of TOTAL	100.0%	17.0%	3.6%	19.4%	1.6%	10.0%	1.7%	4.9%	4.8%	20.0%	10.0%	3.6%	3.5%
# Observations	1,157	177	73	247	72	125	13	43	54	180	79	59	35

Table A1-GB2

GENERAL BUILDING INFORMATION: Building Floor Area

PERCENT OF REGIONAL FLOOR AREA

BUILDING FLOOR AREA	Total	BUILDING TYPE											
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hospital	Hotel/ Motel	Other Health	Other	School	Univer-sity	Vacant
Less than 5,000 SF	11%	12%	9%	9%	43%	6%	1%	4%	11%	20%	7%	2%	19%
5,000 to 19,999 SF	25%	31%	21%	17%	57%	29%	10%	26%	35%	35%	4%	3%	44%
20,000 to 49,999 SF	19%	14%	43%	15%	<1%	21%	4%	16%	34%	16%	28%	32%	6%
50,000 to 99,999 SF	16%	12%	26%	11%	<1%	22%	<1%	11%	9%	13%	33%	33%	15%
100,000 to 499,999 SF	25%	31%	1%	36%	<1%	23%	61%	29%	11%	16%	29%	29%	16%
500,000 SF or more	3%	1%	<1%	11%	<1%	<1%	25%	14%	<1%	<1%	<1%	<1%	<1%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	1,157	177	73	247	72	125	13	43	54	180	79	59	35
Total (Millions of Sq. Ft.)	2,365.9	401.3	84.0	458.3	37.8	237.0	41.1	116.0	114.5	473.2	235.9	84.3	82.4
Building type % of Total	100.0%	17.0%	3.6%	19.4%	1.6%	10.0%	1.7%	4.9%	4.8%	20.0%	10.0%	3.6%	3.5%

Table A1-GB3
GENERAL BUILDING INFORMATION: Building Floor Area
MEAN PER BUILDING (Square Feet)

BUILDING FLOOR AREA	Total	BUILDING TYPE											
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hospital	Hotel/ Motel	Other Health	Other	School	Univer-sity	Vacant
Mean per building	13,616	14,204	15,423	20,100	4,544	16,835	30,179	25,679	12,811	8,171	23,677	38,449	8,265
# Observations	1,157	177	73	247	72	125	13	43	54	180	79	59	35
TOTAL (Buildings)	173,752	28,254	5,448	22,803	8,310	14,080	1,361	4,518	8,940	57,915	9,964	2,191	9,968

Table A1-GB4
GENERAL BUILDING INFORMATION: Conditioned Floor Area

CONDITIONED FLOOR AREA	Total	BUILDING TYPE											
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hospital	Hotel/ Motel	Other Health	Other	School	Univer-sity	Vacant
Square feet (millions)	2,098.5	349.4	80.8	417.3	32.9	163.2	40.2	110.1	111.0	402.3	234.7	81.5	70.5
Percent of total	89%	87%	96%	91%	87%	69%	98%	95%	97%	85%	99%	97%	86%
# Observations	1,029	161	63	227	66	114	13	39	48	158	72	57	11
TOTAL FLOOR AREA	2,365.9	401.3	84.0	458.3	37.8	237.0	41.1	116.0	114.5	473.2	235.9	84.3	82.4

Table A1-GB5

GENERAL BUILDING INFORMATION: Heated Floor Area

HEATED FLOOR AREA	Total	BUILDING TYPE											
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hospital	Hotel/ Motel	Other Health	Other	School	Univer-sity	Vacant
Square feet (millions)	2,053.2	343.1	72.6	403.6	31.4	153.2	40.2	109.3	110.6	399.2	233.3	81.5	70.2
Percent of total	87%	86%	86%	88%	83%	65%	98%	94%	97%	84%	99%	97%	85%
Percent conditioned	98%	98%	90%	97%	95%	94%	100%	99%	100%	99%	99%	100%	100%
# Observations	1,018	160	63	224	65	112	13	39	48	154	72	57	11
TOTAL FLOOR AREA	2,365.9	401.3	84.0	458.3	37.8	237.0	41.1	116.0	114.5	473.2	235.9	84.3	82.4

Table A1-GB6

GENERAL BUILDING INFORMATION: Cooled Floor Area

COOLED FLOOR AREA	Total	BUILDING TYPE											
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hospital	Hotel/ Motel	Other Health	Other	School	Univer-sity	Vacant
Square feet (millions)	1,519.0	278.7	68.7	397.3	28.4	62.9	36.2	104.0	104.7	239.9	116.6	10.7	50.1
Percent of total	64%	69%	82%	87%	75%	27%	88%	90%	91%	51%	49%	13%	61%
Percent conditioned	72%	80%	85%	95%	87%	39%	90%	94%	94%	60%	50%	13%	71%
# Observations	930	143	58	212	57	99	13	38	47	130	66	56	11
TOTAL FLOOR AREA	2,365.9	401.3	84.0	458.3	37.8	237.0	41.1	116.0	114.5	473.2	235.9	84.3	82.4

Table A1-GB7

GENERAL BUILDING INFORMATION: Unconditioned Floor Area

UNCONDITIONED FLOOR AREA	Total	BUILDING TYPE											
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hospital	Hotel/ Motel	Other Health	Other	School	Univer-sity	Vacant
Square feet (millions)	267.4	51.9	3.2	41.0	4.9	73.8	0.9	5.9	3.5	70.9	1.2	2.8	11.8
Percent of total	11%	13%	4%	9%	13%	31%	2%	5%	3%	15%	1%	3%	14%
# Observations	1,029	161	63	227	66	114	13	39	48	158	72	57	11
TOTAL FLOOR AREA	2,365.9	401.3	84.0	458.3	37.8	237.0	41.1	116.0	114.5	473.2	235.9	84.3	82.4

Table A1-GB8

GENERAL BUILDING INFORMATION: Refrigerated Floor Area

REFRIGERATED FLOOR AREA	Total	BUILDING TYPE											
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hospital	Hotel/ Motel	Other Health	Other	School	Univer-sity	Vacant
Square feet (millions)	19.2	2.9	6.5	0.4	1.2	6.5	<0.1	0.1	0.3	1.9	0.2	<0.1	0.3
Percent of total	1%	1%	8%	<1%	3%	3%	<1%	<1%	<1%	<1%	<1%	<1%	<1%
# Observations	703	105	49	150	57	77	10	28	36	92	41	48	10
TOTAL FLOOR AREA	2,365.9	401.3	84.0	458.3	37.8	237.0	41.1	116.0	114.5	473.2	235.9	84.3	82.4

Table A1-GB9

GENERAL BUILDING INFORMATION: Vacant Floor Area

VACANT FLOOR AREA	Total	BUILDING TYPE											
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hospital	Hotel/ Motel	Other Health	Other	School	Univer-sity	Vacant
Square feet (millions)	112.3	17.2	1.4	22.6	<0.1	11.3	<0.1	2.0	3.0	3.8	<0.1	<0.1	78.7
Percent of total	5%	4%	2%	5%	<1%	5%	<1%	2%	3%	1%	<1%	<1%	96%
# Observations	865	131	44	171	44	98	13	36	43	144	65	57	19
TOTAL FLOOR AREA	2,365.9	401.3	84.0	458.3	37.8	237.0	41.1	116.0	114.5	473.2	235.9	84.3	82.4

Table A1-GB10

GENERAL BUILDING INFORMATION: Number Of Stories

PERCENT OF REGIONAL FLOOR AREA

NUMBER OF STORIES	Total	BUILDING TYPE											
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hospital	Hotel/ Motel	Other Health	Other	School	Univer-sity	Vacant
1	48%	58%	79%	19%	79%	77%	10%	6%	45%	54%	73%	27%	46%
2 to 3	33%	33%	21%	25%	21%	23%	42%	46%	50%	39%	27%	33%	46%
4 to 7	8%	4%	<1%	19%	<1%	<1%	23%	13%	2%	5%	1%	27%	8%
8 or more	11%	5%	<1%	37%	<1%	<1%	25%	35%	3%	2%	<1%	13%	<1%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	1,157	177	73	247	72	125	13	43	54	180	79	59	35
Total (Millions of Sq. Ft.)	2,365.9	401.3	84.0	458.3	37.8	237.0	41.1	116.0	114.5	473.2	235.9	84.3	82.4
Building type % of Total	100.0%	17.0%	3.6%	19.4%	1.6%	10.0%	1.7%	4.9%	4.8%	20.0%	10.0%	3.6%	3.5%

Table A1-GB11

GENERAL BUILDING INFORMATION: Number Of Stories

NUMBER OF STORIES	Total	BUILDING TYPE											
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hospital	Hotel/ Motel	Other Health	Other	School	Univer-sity	Vacant
Mean per building	1.4	1.2	1.1	1.9	1.2	1.2	1.4	2.8	1.6	1.3	1.1	2.9	1.5
# Observations	1,157	177	73	247	72	125	13	43	54	180	79	59	35
TOTAL (Buildings)	173,752	28,254	5,448	22,803	8,310	14,080	1,361	4,518	8,940	57,915	9,964	2,191	9,968

Table A1-GB12

GENERAL BUILDING INFORMATION: Multiple/Single Building

PERCENT OF REGIONAL FLOOR AREA

MULTIPLE/SINGLE BUILDING	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Multiple	22%	20%	1%	8%	4%	30%	36%	10%	19%	38%
Single	78%	80%	99%	92%	96%	70%	64%	90%	81%	62%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	1,141	175	71	244	72	124	43	53	175	78

Table A1-GB13

GENERAL BUILDING INFORMATION: Heating Fuel

PERCENT OF REGIONAL HEATED FLOOR AREA

HEATING FUEL	Total	BUILDING TYPE											
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hospital	Hotel/ Motel	Other Health	Other	School	Univer-sity	Vacant
Electricity	29%	22%	28%	51%	22%	4%	1%	67%	34%	29%	11%	4%	26%
Natural gas	65%	75%	56%	43%	73%	94%	51%	29%	58%	68%	85%	93%	46%
Fuel oil	1%	3%	2%	<1%	<1%	<1%	14%	<1%	2%	<1%	<1%	<1%	<1%
Heat recovery	<1%	<1%	8%	<1%	2%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%
LPG	1%	<1%	4%	1%	3%	<1%	<1%	<1%	2%	2%	3%	<1%	<1%
Purchased HW, steam	2%	<1%	<1%	5%	<1%	<1%	34%	4%	3%	<1%	1%	3%	<1%
Other	<1%	<1%	2%	<1%	<1%	2%	<1%	<1%	<1%	<1%	<1%	<1%	<1%
Unknown	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	28%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	973	155	61	220	62	91	11	39	47	149	72	56	10
HEATED FLOOR AREA (Millions of Sq. Ft.)	2,053.2	343.1	72.6	403.6	31.4	153.2	40.2	109.3	110.6	399.2	233.3	81.5	70.2
Building type % of HEATED FLOOR AREA	100.0%	16.7%	3.5%	19.7%	1.5%	7.5%	2.0%	5.3%	5.4%	19.4%	11.4%	4.0%	3.4%

Table A1-GB14

GENERAL BUILDING INFORMATION: Cooling Fuel

PERCENT OF REGIONAL COOLED FLOOR AREA

COOLING FUEL	Total	BUILDING TYPE											
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hospital	Hotel/ Motel	Other Health	Other	School	Univer-sity	Vacant
Electricity	100%	100%	100%	100%	100%	100%	s	100%	100%	100%	99%	67%	s
Other	<1%	<1%	<1%	<1%	<1%	<1%	s	<1%	<1%	<1%	1%	33%	s
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	692	119	50	196	45	61	4	29	37	90	48	10	3
COOLED FLOOR AREA (Millions of Sq. Ft.)	1,519.0	278.7	68.7	397.3	28.4	62.9	36.2	104.0	104.7	239.9	116.6	10.7	50.1
Building type % of COOLED FLOOR AREA	100.0%	18.3%	4.5%	26.2%	1.9%	4.1%	2.4%	6.8%	6.9%	15.8%	7.7%	0.7%	3.3%

Table A1-GB15

GENERAL BUILDING INFORMATION: Secondary Fuel Type

PERCENT OF REGIONAL CONDITIONED FLOOR AREA WITH A SECONDARY FUEL

SECONDARY FUEL TYPE	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Electricity	42%	57%	27%	47%	12%	92%	<1%	38%	56%	21%
Natural gas	25%	20%	39%	30%	71%	8%	66%	1%	23%	18%
Fuel oil	15%	3%	7%	18%	<1%	<1%	27%	14%	10%	30%
LPG	9%	4%	6%	5%	<1%	<1%	<1%	47%	1%	23%
Pur. HW or steam	3%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	11%	2%
Heat recovery	4%	9%	21%	<1%	17%	<1%	7%	<1%	<1%	6%
Other	1%	7%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	209	34	21	40	7	15	17	12	36	22

Table A1-GB16

GENERAL BUILDING INFORMATION: Business Ownership

PERCENT OF REGIONAL FLOOR AREA

BUSINESS OWNERSHIP	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Individual	19%	35%	34%	13%	59%	11%	34%	38%	18%	3%
Corporation	49%	63%	66%	69%	32%	87%	66%	61%	29%	<1%
Private university/college	3%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%
Religious	6%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	24%	9%
Federal gov't	2%	<1%	<1%	4%	<1%	1%	<1%	<1%	2%	<1%
Local/state gov't	18%	<1%	<1%	9%	<1%	1%	<1%	<1%	21%	78%
Other	4%	2%	<1%	5%	9%	1%	<1%	<1%	5%	11%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	659	97	35	137	41	78	28	38	86	40
TOTAL FLOOR AREA	2,365.9	401.3	84.0	458.3	37.8	237.0	116.0	114.5	473.2	235.9
Building type % of TOTAL	100.0%	17.0%	3.6%	19.4%	1.6%	10.0%	4.9%	4.8%	20.0%	10.0%

Table A1-GB17

GENERAL BUILDING INFORMATION: Climate Zone

PERCENT OF REGIONAL FLOOR AREA

CLIMATE ZONE	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Zone 1: 4000 to 6000 HDD	88%	86%	83%	93%	88%	88%	81%	81%	89%	84%
Zone 2: 6001 to 8000 HDD	10%	12%	11%	5%	9%	11%	19%	19%	10%	13%
Zone 3: More than 8000 HDD	2%	2%	6%	2%	3%	1%	<1%	<1%	1%	2%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	1,157	177	73	247	72	125	43	54	180	79

Table A1-OM1

BUILDING OCCUPANCY AND MANAGEMENT: Year Constructed

PERCENT OF REGIONAL FLOOR AREA

YEAR CONSTRUCTED	Total	BUILDING TYPE											
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hospital	Hotel/ Motel	Other Health	Other	School	Univer-sity	Vacant
Before 1950	13%	18%	2%	11%	20%	6%	16%	12%	6%	19%	13%	15%	15%
1950 to 1969	18%	15%	23%	8%	10%	5%	45%	18%	14%	12%	46%	50%	34%
1970 to 1979	19%	21%	16%	20%	30%	23%	31%	23%	27%	14%	11%	23%	20%
1980 to 1987	17%	17%	19%	33%	12%	17%	<1%	28%	17%	14%	<1%	<1%	8%
1988 to 1994	10%	9%	16%	8%	7%	15%	<1%	7%	13%	12%	14%	5%	2%
1995 to 2001	18%	14%	23%	18%	10%	27%	6%	12%	23%	25%	16%	8%	<1%
Unknown	4%	7%	1%	2%	10%	8%	2%	<1%	1%	4%	<1%	<1%	21%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	1,157	177	73	247	72	125	13	43	54	180	79	59	35
Total (Millions of Sq. Ft.)	2,365.9	401.3	84.0	458.3	37.8	237.0	41.1	116.0	114.5	473.2	235.9	84.3	82.4
Building type % of Total	100.0%	17.0%	3.6%	19.4%	1.6%	10.0%	1.7%	4.9%	4.8%	20.0%	10.0%	3.6%	3.5%

Table A1-OM2
BUILDING OCCUPANCY AND MANAGEMENT: Year Constructed
MEAN PER BUILDING

YEAR CONSTRUCTED	Total	BUILDING TYPE											
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hospital	Hotel/ Motel	Other Health	Other	School	Univer-sity	Vacant
Mean per building	1966	1965	1976	1979	1968	1981	1982	1967	1976	1955	1976	1964	1956
# Observations	1,116	167	71	244	67	118	11	42	53	175	79	59	30
TOTAL (Buildings)	173,752	28,254	5,448	22,803	8,310	14,080	1,361	4,518	8,940	57,915	9,964	2,191	9,968

Table A1-OM3
BUILDING OCCUPANCY AND MANAGEMENT: Building Age

BUILDING AGE	Total	BUILDING TYPE											
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hospital	Hotel/ Motel	Other Health	Other	School	Univer-sity	Vacant
Mean per building	35	36	25	22	33	20	19	34	25	46	25	37	45
# Observations	1,116	167	71	244	67	118	11	42	53	175	79	59	30

Table A1-OM4
BUILDING OCCUPANCY AND MANAGEMENT: Tenants Own
PERCENT OF REGIONAL FLOOR AREA

TENANTS OWN	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	62%	37%	87%	30%	55%	39%	93%	55%	84%	100%
No	38%	63%	13%	70%	45%	61%	7%	45%	16%	<1%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	613	100	35	130	44	76	29	32	96	43

Table A1-OM5

BUILDING OCCUPANCY AND MANAGEMENT: Tenants Lease

PERCENT OF REGIONAL FLOOR AREA

TENANTS LEASE	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	38%	62%	13%	70%	45%	61%	3%	45%	16%	<1%
No	62%	38%	87%	30%	55%	39%	97%	55%	84%	100%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	605	98	35	128	44	76	27	32	95	42

Table A1-SP1

SPACE INFORMATION: Number Of Tenants

PERCENT OF REGIONAL FLOOR AREA

NUMBER OF TENANTS	Total	BUILDING TYPE											
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hospital	Hotel/ Motel	Other Health	Other	School	Univer-sity	Vacant
1	81%	68%	89%	58%	85%	91%	s	100%	67%	96%	100%	s	s
2 to 4	4%	5%	<1%	4%	15%	4%	s	<1%	16%	3%	<1%	s	s
5 to 9	7%	16%	11%	11%	<1%	5%	s	<1%	10%	<1%	<1%	s	s
10 or more	8%	11%	<1%	27%	<1%	<1%	s	<1%	8%	1%	<1%	s	s
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	344	57	27	84	39	28	0	15	18	55	19	0	2
Total (Millions of Sq. Ft.)	2,365.9	401.3	84.0	458.3	37.8	237.0	41.1	116.0	114.5	473.2	235.9	84.3	82.4
Building type % of Total	100.0%	17.0%	3.6%	19.4%	1.6%	10.0%	1.7%	4.9%	4.8%	20.0%	10.0%	3.6%	3.5%

Table A1-SP2

SPACE INFORMATION: Number Of Tenants

MEAN PER BUILDING

NUMBER OF TENANTS	Total	BUILDING TYPE											
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hospital	Hotel/ Motel	Other Health	Other	School	Univer-sity	Vacant
Mean per building	1.5	2.0	1.7	2.1	1.1	1.1	s	1.0	2.3	1.1	1.0	s	s
# Observations	344	57	27	84	39	28	0	15	18	55	19	0	2
TOTAL (Buildings)	173,752	28,254	5,448	22,803	8,310	14,080	1,361	4,518	8,940	57,915	9,964	2,191	9,968

Table A1-SP3

SPACE INFORMATION: Average Lease Length

PERCENT OF REGIONAL FLOOR AREA

AVERAGE LEASE LENGTH	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Less than 6 months	19%	13%	<1%	18%	36%	50%	s	7%	10%	s
6 months to 2 years	17%	26%	31%	3%	43%	10%	s	74%	22%	s
More than 2, less than 5 years	15%	18%	<1%	18%	1%	<1%	s	<1%	38%	s
5 years	42%	39%	69%	59%	1%	30%	s	19%	13%	s
More than 5 years	6%	3%	<1%	2%	19%	10%	s	<1%	17%	s
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	120	24	5	47	5	19	1	7	11	1

Table A1-SP4

SPACE INFORMATION: Lease Includes Electric Utilities

PERCENT OF REGIONAL FLOOR AREA

LEASE INCLUDES ELECTRIC UTILITIES	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	38%	22%	4%	68%	9%	49%	s	18%	25%	s
No	62%	78%	96%	32%	91%	51%	s	82%	75%	s
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	211	42	11	60	11	41	4	14	22	4

Table A1-SP5

SPACE INFORMATION: Lease Includes Gas Utilities

PERCENT OF REGIONAL FLOOR AREA

LEASE INCLUDES GAS UTILITIES	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	29%	18%	3%	63%	9%	16%	s	15%	21%	s
No	71%	82%	97%	37%	91%	84%	s	85%	79%	s
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	182	42	10	52	11	27	3	13	18	4

Table A1-SP6

SPACE INFORMATION: Lease Includes Heating

PERCENT OF REGIONAL FLOOR AREA

LEASE INCLUDES HEATING	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	46%	16%	1%	70%	2%	40%	s	32%	61%	s
No	54%	84%	99%	30%	98%	60%	s	68%	39%	s
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	112	20	5	49	8	13	0	7	10	0

Table A1-SP7

SPACE INFORMATION: Lease Includes Cooling

PERCENT OF REGIONAL FLOOR AREA

LEASE INCLUDES COOLING	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	46%	17%	1%	70%	2%	37%	s	32%	61%	s
No	54%	83%	99%	30%	98%	63%	s	68%	39%	s
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	108	18	5	49	7	13	0	7	9	0

Table A1-SP8

SPACE INFORMATION: Lease Includes Hot Water

PERCENT OF REGIONAL FLOOR AREA

LEASE INCLUDES HOT WATER	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	47%	23%	1%	70%	2%	40%	s	32%	61%	s
No	53%	77%	99%	30%	98%	60%	s	68%	39%	s
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	112	20	5	49	8	13	0	7	10	0

Table A1-SP9

SPACE INFORMATION: Lease includes Indoor Lighting

PERCENT OF REGIONAL FLOOR AREA

LEASE INCLUDES INDOOR LIGHTING	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	43%	16%	1%	70%	2%	72%	s	32%	3%	s
No	57%	84%	99%	30%	98%	28%	s	68%	97%	s
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	127	20	5	49	8	27	0	7	11	0

Table A1-SP10

SPACE INFORMATION: Lease includes Outdoor Lighting

PERCENT OF REGIONAL FLOOR AREA

LEASE INCLUDES OUTDOOR LIGHTING	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	50%	43%	8%	70%	2%	53%	s	45%	6%	s
No	50%	57%	92%	30%	98%	47%	s	55%	94%	s
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	114	21	5	49	8	12	1	7	10	0

Table A1-SP11

SPACE INFORMATION: Tenants, Manual Heating

PERCENT OF REGIONAL FLOOR AREA

TENANTS, MANUAL HEATING	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	51%	69%	64%	36%	88%	74%	83%	73%	71%	5%
No	49%	31%	36%	64%	12%	26%	17%	27%	29%	95%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	376	51	19	84	22	37	20	18	47	26

Table A1-SP12

SPACE INFORMATION: Tenants, Manual Cooling

PERCENT OF REGIONAL FLOOR AREA

TENANTS, MANUAL COOLING	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	51%	68%	65%	36%	86%	47%	89%	73%	65%	1%
No	49%	32%	35%	64%	14%	53%	11%	27%	35%	99%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	298	47	20	84	19	24	18	18	40	19

Table A1-SP13

SPACE INFORMATION: Franchise

PERCENT OF REGIONAL FLOOR AREA

FRANCHISE	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	2%	4%	8%	2%	7%	1%	<1%	<1%	3%	<1%
No	98%	96%	92%	98%	93%	99%	100%	100%	97%	100%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	571	97	39	120	45	79	27	36	87	30
TOTAL FLOOR AREA	2,365.9	401.3	84.0	458.3	37.8	237.0	116.0	114.5	473.2	235.9
Building type % of TOTAL	100.0%	17.0%	3.6%	19.4%	1.6%	10.0%	4.9%	4.8%	20.0%	10.0%

Table A1-SP14

SPACE INFORMATION: Chain

PERCENT OF REGIONAL FLOOR AREA

CHAIN	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	29%	38%	49%	26%	28%	54%	49%	14%	10%	15%
No	71%	62%	51%	74%	72%	46%	51%	86%	90%	85%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	571	97	39	120	45	79	27	36	87	30
TOTAL FLOOR AREA	2,365.9	401.3	84.0	458.3	37.8	237.0	116.0	114.5	473.2	235.9
Building type % of TOTAL	100.0%	17.0%	3.6%	19.4%	1.6%	10.0%	4.9%	4.8%	20.0%	10.0%

Table A1-SP15

SPACE INFORMATION: Functional Use

PERCENT OF REGIONAL FLOOR AREA

FUNCTIONAL USE	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Dry goods retail	15%	85%	4%	1%	1%	2%	<1%	<1%	2%	<1%
Grocery	3%	1%	92%	<1%	<1%	<1%	<1%	<1%	<1%	<1%
Office	20%	3%	<1%	82%	4%	14%	<1%	4%	6%	<1%
Restaurant	2%	3%	2%	<1%	87%	<1%	1%	<1%	<1%	<1%
Warehouse	9%	4%	2%	1%	1%	76%	<1%	<1%	4%	<1%
Hospital	2%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%
Hotel/motel	5%	<1%	<1%	<1%	<1%	<1%	93%	<1%	<1%	<1%
Other health	5%	<1%	<1%	2%	<1%	<1%	<1%	86%	<1%	<1%
Other	19%	2%	1%	4%	3%	4%	1%	5%	81%	2%
School	10%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	89%
University	4%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%
Vacant	2%	1%	<1%	1%	1%	4%	1%	2%	<1%	6%
Lobby	1%	1%	<1%	1%	3%	<1%	<1%	<1%	1%	1%
Parking	3%	1%	<1%	8%	<1%	<1%	3%	2%	5%	<1%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	14,672	2,212	952	3,248	924	1,568	546	700	2,296	1,064
TOTAL (Millions of Sq. Ft.)	2,365.9	401.3	84.0	458.3	37.8	237.0	116.0	114.5	473.2	235.9
Building type % of TOTAL	100.0%	17.0%	3.6%	19.4%	1.6%	10.0%	4.9%	4.8%	20.0%	10.0%

Table A1-SC1

TYPICAL OPERATING WEEK SCHEDULE INFORMATION: Weekly Hours Of Operation

PERCENT OF REGIONAL FLOOR AREA

WEEKLY HOURS OF OPERATION	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Less than 40	8%	2%	1%	3%	1%	3%	<1%	<1%	10%	<1%
40 to 49	21%	19%	<1%	31%	1%	33%	<1%	27%	21%	32%
50 to 59	20%	21%	3%	29%	7%	27%	<1%	20%	18%	42%
60 to 79	14%	31%	5%	25%	26%	2%	3%	23%	2%	18%
80 to 119	16%	26%	45%	6%	56%	9%	<1%	11%	17%	9%
120 to 167	6%	<1%	17%	1%	4%	20%	9%	<1%	12%	<1%
168 (always open)	14%	<1%	29%	5%	5%	5%	88%	19%	20%	<1%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	705	105	47	160	52	75	27	33	79	37
TOTAL FLOOR AREA	2,365.9	401.3	84.0	458.3	37.8	237.0	116.0	114.5	473.2	235.9
Building type % of TOTAL	100.0%	17.0%	3.6%	19.4%	1.6%	10.0%	4.9%	4.8%	20.0%	10.0%

Table A1-SC2

TYPICAL OPERATING WEEK SCHEDULE INFORMATION: Weekly Hours of Operation, Average

WEEKLY HOURS OF OPERATION, AVERAGE	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Average (weight bldg sqft)	79	66	123	62	93	74	164	81	90	56
# Observations	705	105	47	160	52	75	27	33	79	37

Table A1-SC3

TYPICAL OPERATING WEEK SCHEDULE INFORMATION: Primary Schedule, Open 24 Hr

PERCENT OF REGIONAL FLOOR AREA

PRIMARY SCHEDULE, OPEN 24 HR	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	16%	<1%	29%	6%	5%	7%	96%	23%	24%	<1%
No	84%	100%	71%	94%	95%	93%	4%	77%	76%	100%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	705	105	47	160	52	75	27	33	79	37

Table A1-SC4

TYPICAL OPERATING WEEK SCHEDULE INFORMATION: Primary Schedule, Open Saturday

PERCENT OF REGIONAL FLOOR AREA

PRIMARY SCHEDULE, OPEN SATURDAY	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	55%	82%	100%	34%	96%	38%	97%	50%	68%	12%
No	45%	18%	<1%	66%	4%	62%	3%	50%	32%	88%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	703	105	47	159	52	75	27	32	79	37

Table A1-SC5

TYPICAL OPERATING WEEK SCHEDULE INFORMATION: Primary Schedule, Open Sunday

PERCENT OF REGIONAL FLOOR AREA

PRIMARY SCHEDULE, OPEN SUNDAY	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	44%	55%	85%	16%	84%	31%	97%	36%	64%	2%
No	56%	45%	15%	84%	16%	69%	3%	64%	36%	98%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	702	104	47	159	52	75	27	32	79	37

Table A1-EN1

ENVELOPE INFORMATION: Wall Construction Type

PERCENT OF REGIONAL WALL AREA

WALL CONSTRUCTION TYPE	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Concrete	34%	48%	12%	35%	52%	46%	s	s	33%	6%
Concrete block	32%	43%	72%	18%	20%	36%	s	s	31%	43%
Brick	12%	5%	11%	16%	23%	<1%	s	s	5%	33%
Metal	19%	4%	6%	30%	<1%	18%	s	s	28%	4%
Wood	2%	<1%	<1%	1%	5%	<1%	s	s	3%	15%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	208	34	23	52	16	22	0	4	41	13

Table A1-EN2

ENVELOPE INFORMATION: Primary Wall Framing type

PERCENT OF REGIONAL WALL AREA

PRIMARY WALL FRAMING TYPE	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Metal	69%	82%	82%	74%	32%	62%	16%	93%	76%	63%
Wood	31%	18%	18%	26%	68%	38%	84%	7%	24%	37%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	209	22	7	49	12	24	10	7	46	24

Table A1-EN3

ENVELOPE INFORMATION: Average Layers of Window Glazing

PERCENT OF REGIONAL WINDOW AREA

AVERAGE LAYERS OF WINDOW GLAZING	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
1 layer	13%	21%	35%	11%	10%	37%	<1%	<1%	15%	1%
2 layers	87%	79%	65%	89%	90%	63%	100%	100%	85%	99%
3 layers	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	287	35	23	69	19	27	10	8	59	28

Table A1-EN4

ENVELOPE INFORMATION: Window Glaze Type

PERCENT OF REGIONAL WINDOW AREA

WINDOW GLAZE TYPE	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Clear	20%	46%	33%	13%	20%	17%	37%	15%	19%	36%
Reflective	6%	<1%	7%	12%	<1%	2%	<1%	<1%	2%	2%
Tinted	74%	54%	60%	75%	80%	79%	63%	85%	79%	63%
Opaque	<1%	<1%	<1%	<1%	<1%	2%	<1%	<1%	<1%	<1%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	281	34	22	69	20	27	9	9	55	27

Table A1-EN5

ENVELOPE INFORMATION: Predominant Window Glazing Low E/Gas Type

PERCENT OF REGIONAL WINDOW AREA

PREDOMINANT WINDOW GLAZING LOW E/GAS TYPE	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Gas-filled	51%	34%	23%	68%	<1%	17%	53%	s	44%	39%
Low-E	19%	21%	<1%	21%	<1%	<1%	37%	s	23%	18%
Neither	31%	45%	77%	11%	100%	83%	10%	s	33%	43%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	123	10	5	27	7	13	6	3	33	14

Table A1-EN6

ENVELOPE INFORMATION: Predominant Window Frame Type

PERCENT OF REGIONAL WINDOW AREA

PREDOMINANT WINDOW FRAME TYPE	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Metal	89%	87%	92%	96%	75%	96%	32%	91%	90%	89%
Vinyl	9%	12%	<1%	2%	10%	4%	68%	9%	10%	6%
Wood	2%	1%	8%	1%	15%	<1%	<1%	<1%	<1%	5%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	288	35	23	68	20	27	10	9	59	28

Table A1-EN7

ENVELOPE INFORMATION: Window Type

PERCENT OF REGIONAL WINDOW AREA

WINDOW TYPE	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Fixed	97%	88%	100%	98%	96%	99%	s	s	100%	97%
Operable	3%	12%	<1%	2%	4%	1%	s	s	<1%	3%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	162	25	18	43	19	13	1	2	30	9

Table A1-EN8

ENVELOPE INFORMATION: Primary Roof Surface Construction Code

PERCENT OF REGIONAL FLOOR AREA

PRIMARY ROOF SURFACE CONSTRUCTION CODE	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Built-up	41%	40%	63%	51%	52%	53%	47%	31%	35%	25%
Cool roof	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	1%	2%
Membrane	13%	24%	3%	13%	<1%	9%	10%	8%	7%	16%
Metal	27%	28%	33%	28%	24%	36%	23%	28%	22%	24%
Shingles/felt	18%	7%	2%	8%	24%	2%	19%	33%	35%	33%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	610	79	47	156	39	76	26	41	84	45

Table A1-EN9

ENVELOPE INFORMATION: Skylights

PERCENT OF REGIONAL FLOOR AREA

SKYLIGHTS	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	26%	25%	18%	26%	12%	29%	32%	34%	31%	19%
No	74%	75%	82%	74%	88%	71%	68%	66%	69%	81%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	653	106	39	148	44	91	26	39	94	45

Table A1-EN10

ENVELOPE INFORMATION: Floor Construction Type

PERCENT OF REGIONAL FLOOR AREA

FLOOR CONSTRUCTION TYPE	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Basement	12%	5%	<1%	29%	3%	<1%	18%	15%	11%	7%
Crawl	6%	2%	8%	6%	14%	1%	1%	18%	8%	6%
Slab	81%	93%	92%	64%	78%	99%	81%	65%	79%	87%
Unconditioned	1%	1%	<1%	1%	5%	<1%	<1%	2%	2%	<1%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	861	131	60	201	62	96	35	44	141	65

Table A1-EN11

ENVELOPE INFORMATION: Wall Area: Gross Floor Area

	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
WALL AREA: GROSS FLOOR AREA	0.56	0.42	0.43	0.56	0.94	0.76	0.53	0.60	0.57	0.46
# Observations	341	49	29	83	20	31	10	10	65	31

Table A1-EN12

ENVELOPE INFORMATION: Window Area: Wall Area

	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
WINDOW AREA: WALL AREA	0.12	0.10	0.06	0.22	0.18	0.05	0.15	0.14	0.08	0.11
# Observations	286	35	23	68	19	27	10	8	59	28

Table A1-HS1

HVAC SYSTEM SUMMARY: Central Air Handler Age (Oldest Air Handler)

PERCENT OF REGIONAL CONDITIONED FLOOR AREA SERVED BY A CENTRAL AIR HANDLER

CENTRAL AIR HANDLER AGE (OLDEST AIR HANDLER)	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
1 to 4 years	45%	53%	57%	43%	12%	60%	35%	77%	41%	40%
5 to 9 years	21%	46%	23%	10%	88%	40%	5%	9%	24%	25%
10 to 19 years	7%	1%	20%	14%	<1%	<1%	10%	<1%	7%	2%
20 to 29 years	15%	<1%	<1%	27%	<1%	<1%	13%	15%	19%	8%
30+ years	11%	<1%	<1%	6%	<1%	<1%	37%	<1%	9%	26%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	291	35	20	90	8	12	11	11	51	41

Table A1-HS2

HVAC SYSTEM SUMMARY: Central Chiller Age (Oldest Chiller)

PERCENT OF REGIONAL COOLED FLOOR AREA SERVED BY A CENTRAL CHILLER

CENTRAL CHILLER AGE (OLDEST CHILLER)	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
1 to 4 years	43%	s	<1%	31%	s	s	15%	61%	80%	80%
5 to 9 years	3%	s	<1%	<1%	s	s	7%	<1%	1%	20%
10 to 19 years	22%	s	100%	23%	s	s	32%	39%	19%	<1%
20 to 29 years	23%	s	<1%	37%	s	s	<1%	<1%	<1%	<1%
30+ years	9%	s	<1%	9%	s	s	46%	<1%	<1%	<1%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	78	2	5	37	0	0	6	5	8	8

Table A1-HS3

HVAC SYSTEM SUMMARY: Boiler Age (Oldest Boiler)

PERCENT OF REGIONAL HEATED FLOOR AREA SERVED BY A BOILER

BOILER AGE (OLDEST BOILER)	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
1 to 4 years	38%	s	s	38%	s	s	17%	75%	41%	32%
5 to 9 years	15%	s	s	13%	s	s	<1%	<1%	12%	28%
10 to 19 years	21%	s	s	22%	s	s	8%	25%	15%	29%
20 to 29 years	14%	s	s	15%	s	s	75%	<1%	16%	<1%
30+ years	11%	s	s	12%	s	s	<1%	<1%	17%	12%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	131	3	0	47	0	1	6	6	22	37

Table A1-HS4

HVAC SYSTEM SUMMARY: Central Boiler Fuel

PERCENT OF REGIONAL HEATED FLOOR AREA SERVED BY A BOILER

CENTRAL BOILER FUEL	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Electricity	16%	49%	s	37%	s	s	29%	14%	<1%	1%
Natural gas	81%	49%	s	61%	s	s	71%	69%	100%	94%
Fuel oil	<1%	<1%	s	2%	s	s	<1%	<1%	<1%	<1%
LPG	2%	3%	s	<1%	s	s	<1%	9%	<1%	4%
Other	<1%	<1%	s	<1%	s	s	<1%	7%	<1%	<1%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	160	6	1	58	0	1	11	8	27	44

Table A1-HS5

HVAC SYSTEM SUMMARY: Total Boiler Capacity (MMBTU)

PERCENT OF REGIONAL HEATED FLOOR AREA SERVED BY A BOILER

TOTAL BOILER CAPACITY (MMBTU)	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Less than 500 MMBTU	4%	s	s	8%	s	s	<1%	s	2%	3%
500 to 999 MMBTU	14%	s	s	28%	s	s	8%	s	15%	4%
1000 to 1999 MMBTU	20%	s	s	18%	s	s	18%	s	2%	32%
2000 to 3999 MMBTU	26%	s	s	20%	s	s	74%	s	39%	19%
4000 to 6999 MMBTU	18%	s	s	13%	s	s	<1%	s	4%	32%
7000 or more MMBTU	18%	s	s	13%	s	s	<1%	s	38%	9%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	100	1	0	32	0	1	5	4	18	36

Table A1-HS6

HVAC SYSTEM SUMMARY: Average (weight sqft) Packaged HVAC System Vintage

PERCENT OF REGIONAL CONDITIONED FLOOR AREA SERVED BY A PACKAGED SYSTEM

AVERAGE (WEIGHT SQFT) PACKAGED HVAC SYSTEM VINTAGE	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
4 years or less	24%	22%	28%	34%	4%	26%	27%	20%	22%	15%
5 to 9 years	30%	45%	26%	13%	46%	33%	27%	22%	30%	50%
10 to 14 years	26%	18%	14%	25%	26%	16%	10%	47%	37%	29%
15 to 19 years	9%	6%	29%	11%	<1%	9%	37%	<1%	3%	<1%
20 or more years	10%	8%	2%	17%	25%	17%	<1%	11%	8%	6%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	519	82	38	136	34	57	19	22	91	36

Table A1-HS7

HVAC SYSTEM SUMMARY: Average (weight tons) Packaged HVAC System Vintage

PERCENT OF REGIONAL CONDITIONED FLOOR AREA SERVED BY A PACKAGED SYSTEM

AVERAGE (WEIGHT TONS) PACKAGED HVAC SYSTEM VINTAGE	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
4 years or less	30%	26%	29%	36%	14%	30%	28%	31%	35%	15%
5 to 9 years	35%	60%	27%	17%	56%	41%	22%	45%	34%	49%
10 to 14 years	19%	10%	14%	25%	10%	8%	28%	17%	14%	33%
15 to 19 years	9%	3%	30%	4%	<1%	15%	22%	<1%	13%	3%
20 or more years	7%	<1%	<1%	19%	20%	7%	<1%	6%	4%	<1%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	455	70	36	128	27	42	18	19	83	28

Table A1-HS8

HVAC SYSTEM SUMMARY: HVAC System Upgrades Within Last 5 Years

PERCENT OF REGIONAL CONDITIONED FLOOR AREA

HVAC SYSTEM UPGRADES WITHIN LAST 5 YEARS	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	30%	34%	34%	25%	16%	9%	36%	29%	30%	41%
No	70%	66%	66%	75%	84%	91%	64%	71%	70%	59%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	423	58	19	91	28	38	21	25	55	32

Table A1-HS9

HVAC SYSTEM SUMMARY: Primary HVAC, Equipment

PERCENT OF REGIONAL CONDITIONED FLOOR AREA

PRIMARY HVAC, EQUIPMENT	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Boiler/chiller	13%	4%	1%	22%	<1%	<1%	29%	24%	14%	13%
Duct heat/chiller	3%	1%	7%	9%	<1%	4%	<1%	4%	1%	<1%
Water loop ht pump	4%	5%	<1%	8%	<1%	<1%	<1%	2%	1%	6%
Boiler only	11%	1%	<1%	4%	<1%	1%	11%	4%	8%	54%
Chiller only	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%
Pkg heat/DX cool	34%	58%	65%	29%	72%	27%	9%	50%	26%	18%
Duct heat/DX cool	6%	3%	1%	13%	<1%	<1%	<1%	5%	9%	2%
Air-air ht pump	6%	6%	11%	9%	14%	3%	17%	4%	4%	2%
Pkg heat only	5%	7%	2%	<1%	1%	2%	5%	<1%	13%	1%
DX cool only	<1%	1%	1%	1%	<1%	<1%	<1%	<1%	<1%	<1%
Evap cool only	<1%	<1%	<1%	<1%	2%	<1%	<1%	<1%	<1%	<1%
Pkg heat/evap cool	<1%	1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%
Heat rec/DX cool	<1%	<1%	8%	<1%	3%	<1%	<1%	<1%	<1%	<1%
Unit heat/cool	2%	<1%	<1%	<1%	<1%	<1%	28%	5%	2%	<1%
Unit heat only	13%	13%	4%	2%	8%	63%	<1%	2%	21%	3%
Boiler/DX cool	1%	<1%	<1%	2%	<1%	<1%	<1%	<1%	2%	<1%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	889	149	60	216	58	106	32	38	142	70
CONDITIONED FLOOR AREA (Millions of Sq. Ft.)	2,098.5	349.4	80.8	417.3	32.9	163.2	110.1	111.0	402.3	234.7
Building type % of CONDITIONED FLOOR AREA	100.0%	16.7%	3.9%	19.9%	1.6%	7.8%	5.2%	5.3%	19.2%	11.2%

Table A1-HS10

HVAC SYSTEM SUMMARY: Primary HVAC, Heat Fuel

PERCENT OF REGIONAL CONDITIONED FLOOR AREA

PRIMARY HVAC, HEAT FUEL	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Electricity	30%	23%	35%	51%	27%	11%	63%	25%	25%	11%
Natural gas	65%	73%	50%	43%	66%	87%	32%	68%	73%	85%
Heat recovery	<1%	<1%	8%	<1%	3%	<1%	<1%	<1%	<1%	<1%
Fuel oil	1%	3%	2%	<1%	<1%	<1%	<1%	<1%	<1%	<1%
LPG	1%	<1%	4%	1%	2%	<1%	<1%	3%	2%	3%
Pur. HW, steam	2%	<1%	<1%	4%	<1%	<1%	5%	4%	<1%	1%
None	<1%	1%	1%	1%	2%	<1%	<1%	<1%	<1%	<1%
Other	<1%	<1%	<1%	<1%	<1%	2%	<1%	<1%	<1%	<1%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	889	149	60	216	58	106	32	38	142	70
CONDITIONED FLOOR AREA (Millions of Sq. Ft.)	2,098.5	349.4	80.8	417.3	32.9	163.2	110.1	111.0	402.3	234.7
Building type % of CONDITIONED FLOOR AREA	100.0%	16.7%	3.9%	19.9%	1.6%	7.8%	5.2%	5.3%	19.2%	11.2%

Table A1-HS11

HVAC SYSTEM SUMMARY: Primary HVAC, Cool Fuel

PERCENT OF REGIONAL CONDITIONED FLOOR AREA

PRIMARY HVAC, COOL FUEL	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Electricity	70%	79%	94%	92%	90%	34%	84%	94%	57%	41%
None	29%	21%	6%	8%	10%	66%	16%	6%	43%	58%
Other	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	1%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	889	149	60	216	58	106	32	38	142	70
CONDITIONED FLOOR AREA (Millions of Sq. Ft.)	2,098.5	349.4	80.8	417.3	32.9	163.2	110.1	111.0	402.3	234.7
Building type % of CONDITIONED FLOOR AREA	100.0%	16.7%	3.9%	19.9%	1.6%	7.8%	5.2%	5.3%	19.2%	11.2%

Table A1-HS12
HVAC SYSTEM SUMMARY: Pri HVAC Sys, Heat Eqpt
PERCENT OF REGIONAL HEATED FLOOR AREA

PRI HVAC SYS, HEAT EQPT	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Space heating not listed	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%
Electric baseboard	<1%	<1%	<1%	<1%	<1%	1%	<1%	<1%	<1%	<1%
Water boiler	18%	5%	1%	19%	<1%	<1%	22%	19%	20%	47%
Steam boiler	8%	<1%	<1%	6%	<1%	<1%	5%	7%	7%	42%
Furnace	39%	66%	68%	31%	73%	28%	14%	50%	39%	19%
Resistance heater	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	3%
Duct heater	9%	3%	8%	19%	<1%	4%	<1%	9%	10%	3%
Infrared heater	<1%	<1%	<1%	<1%	<1%	9%	<1%	<1%	<1%	<1%
Unit heater	15%	18%	2%	2%	8%	141%	<1%	2%	30%	1%
Unit ventilator	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	2%
Steam/heat recovery heat exchanger	2%	<1%	8%	4%	3%	<1%	5%	3%	<1%	<1%
No heating system	<1%	<1%	<1%	1%	2%	<1%	<1%	<1%	<1%	<1%
Water-source heat pump	5%	7%	<1%	9%	<1%	<1%	<1%	2%	2%	10%
Heat/cool wall/window unit	2%	<1%	<1%	<1%	<1%	1%	28%	5%	2%	<1%
Air-source heat pump	6%	6%	12%	10%	14%	2%	18%	4%	4%	2%
Boiler: type unknown	1%	<1%	<1%	<1%	<1%	<1%	9%	<1%	<1%	1%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	878	148	60	213	57	104	32	38	138	70

Table A1-HS13
HVAC SYSTEM SUMMARY: Pri HVAC Sys, Cool Eqpt
PERCENT OF REGIONAL COOLED FLOOR AREA

PRI HVAC SYS, COOL EQPT	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Air-source heat pump	9%	8%	13%	10%	14%	9%	19%	4%	6%	5%
Water-source heat pump	5%	7%	<1%	9%	<1%	<1%	<1%	2%	1%	10%
Heat/cool wall/window unit	3%	<1%	<1%	<1%	<1%	2%	30%	6%	3%	<1%
Evaporative cooler	<1%	1%	<1%	<1%	2%	<1%	<1%	<1%	1%	<1%
Window/thru wall unit	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	2%	<1%
Direct expansion unit	51%	68%	78%	46%	84%	39%	8%	52%	51%	43%
Centrifugal chiller	12%	6%	1%	24%	<1%	13%	16%	3%	6%	5%
Reciprocating chiller	7%	1%	6%	6%	<1%	<1%	16%	16%	14%	6%
Double bundle chiller	<1%	<1%	<1%	1%	<1%	<1%	<1%	<1%	<1%	<1%
nocool	11%	9%	1%	4%	<1%	37%	10%	6%	16%	30%
Chiller: type unknown	1%	<1%	1%	1%	<1%	<1%	<1%	10%	<1%	1%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	793	133	55	201	49	91	31	37	115	64

Table A1-HS14

HVAC SYSTEM SUMMARY: Primary HVAC, Distribution

PERCENT OF REGIONAL CONDITIONED FLOOR AREA

PRIMARY HVAC, DISTRIBUTION	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
AIR single duct, constant volume	53%	80%	91%	49%	90%	35%	34%	66%	47%	32%
AIR dual duct, constant volume	1%	<1%	<1%	3%	<1%	<1%	<1%	<1%	<1%	<1%
AIR multi-zone, constant volume	4%	2%	5%	1%	<1%	1%	9%	<1%	7%	6%
AIR single duct, variable volume	15%	3%	1%	33%	<1%	3%	6%	11%	17%	11%
AIR dual duct, variable volume	1%	<1%	<1%	3%	<1%	<1%	6%	<1%	<1%	<1%
AIR variable volume, variable temperature	1%	<1%	<1%	2%	<1%	<1%	<1%	3%	<1%	<1%
2 Pipe, fan coil	3%	<1%	<1%	1%	<1%	<1%	9%	4%	<1%	19%
Radiator	6%	1%	<1%	5%	<1%	<1%	2%	4%	4%	27%
Unitary	16%	14%	4%	2%	10%	61%	31%	10%	23%	3%
Hydronic baseboard system	<1%	<1%	<1%	<1%	<1%	1%	<1%	<1%	1%	<1%
4 Pipe, fan coil	1%	<1%	<1%	<1%	<1%	<1%	3%	<1%	<1%	2%
Distribution system not listed	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	887	149	60	216	58	106	31	37	142	70
CONDITIONED FLOOR AREA (Millions of Sq. Ft.)	2,098.5	349.4	80.8	417.3	32.9	163.2	110.1	111.0	402.3	234.7
Building type % of CONDITIONED FLOOR AREA	100.0%	16.7%	3.9%	19.9%	1.6%	7.8%	5.2%	5.3%	19.2%	11.2%

Table A1-HS15

HVAC SYSTEM SUMMARY: Secondary HVAC, Equipment

PERCENT OF REGIONAL CONDITIONED FLOOR AREA WITH A SECONDARY HVAC SYSTEM

SECONDARY HVAC, EQUIPMENT	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Boiler/chiller	1%	<1%	<1%	<1%	<1%	<1%	8%	<1%	<1%	<1%
Duct heat/chiller	<1%	<1%	<1%	<1%	<1%	<1%	<1%	7%	<1%	<1%
Water loop ht pump	6%	5%	<1%	19%	<1%	<1%	10%	2%	5%	3%
Boiler only	3%	<1%	<1%	4%	<1%	<1%	<1%	<1%	10%	2%
Chiller only	<1%	<1%	<1%	1%	<1%	<1%	<1%	<1%	<1%	<1%
Pkg heat/DX cool	36%	22%	16%	26%	9%	70%	51%	25%	32%	55%
Duct heat/DX cool	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	1%
Air-air ht pump	10%	5%	18%	15%	7%	8%	18%	4%	8%	14%
Pkg heat only	3%	2%	7%	2%	<1%	6%	<1%	<1%	5%	2%
DX cool only	5%	7%	<1%	6%	31%	4%	<1%	<1%	7%	1%
Evap cool only	5%	4%	2%	2%	23%	<1%	3%	<1%	12%	<1%
Pkg heat/evap cool	1%	<1%	3%	<1%	8%	<1%	<1%	<1%	2%	<1%
Heat rec/DX cool	1%	<1%	10%	<1%	<1%	<1%	<1%	<1%	2%	<1%
Unit heat/cool	3%	4%	<1%	4%	<1%	<1%	<1%	19%	4%	<1%
Unit heat only	23%	47%	29%	19%	19%	12%	3%	28%	14%	20%
Boiler/DX cool	<1%	<1%	<1%	3%	<1%	<1%	<1%	<1%	<1%	<1%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	416	84	32	82	16	59	18	14	70	35
CONDITIONED FLOOR AREA (Millions of Sq. Ft.)	2,098.5	349.4	80.8	417.3	32.9	163.2	110.1	111.0	402.3	234.7
Building type % of CONDITIONED FLOOR AREA	100.0%	16.7%	3.9%	19.9%	1.6%	7.8%	5.2%	5.3%	19.2%	11.2%

Table A1-HS16

HVAC SYSTEM SUMMARY: Secondary HVAC, Heat Fuel

PERCENT OF REGIONAL CONDITIONED FLOOR AREA WITH A SECONDARY HVAC SYSTEM

SECONDARY HVAC, HEAT FUEL	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Electricity	32%	33%	23%	62%	10%	13%	32%	43%	24%	21%
Fuel oil	1%	1%	8%	2%	<1%	<1%	<1%	5%	<1%	<1%
Heat recovery	3%	3%	19%	<1%	3%	<1%	6%	15%	2%	2%
Pur. HW, steam	2%	<1%	<1%	3%	<1%	<1%	<1%	<1%	5%	1%
LPG	<1%	<1%	<1%	<1%	9%	<1%	<1%	<1%	<1%	<1%
Natural gas	52%	52%	48%	26%	24%	83%	59%	37%	49%	75%
Other	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%
None	10%	12%	2%	8%	55%	4%	3%	<1%	19%	1%
Unknown	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	416	84	32	82	16	59	18	14	70	35
CONDITIONED FLOOR AREA (Millions of Sq. Ft.)	2,098.5	349.4	80.8	417.3	32.9	163.2	110.1	111.0	402.3	234.7
Building type % of CONDITIONED FLOOR AREA	100.0%	16.7%	3.9%	19.9%	1.6%	7.8%	5.2%	5.3%	19.2%	11.2%

Table A1-HS17

HVAC SYSTEM SUMMARY: Secondary HVAC, Cool Fuel

PERCENT OF REGIONAL CONDITIONED FLOOR AREA WITH A SECONDARY HVAC SYSTEM

SECONDARY HVAC, COOL FUEL	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Electricity	67%	49%	49%	75%	78%	82%	88%	57%	64%	74%
Natural gas	2%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	8%	<1%
None	31%	51%	51%	25%	22%	18%	12%	43%	28%	26%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	416	84	32	82	16	59	18	14	70	35
CONDITIONED FLOOR AREA (Millions of Sq. Ft.)	2,098.5	349.4	80.8	417.3	32.9	163.2	110.1	111.0	402.3	234.7
Building type % of CONDITIONED FLOOR AREA	100.0%	16.7%	3.9%	19.9%	1.6%	7.8%	5.2%	5.3%	19.2%	11.2%

Table A1-HS18

HVAC SYSTEM SUMMARY: Supplemental Heat

PERCENT OF REGIONAL FLOOR AREA

SUPPLEMENTAL HEAT	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	70%	68%	s	87%	s	s	s	s	60%	51%
No	30%	32%	s	13%	s	s	s	s	40%	49%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	66	6	4	24	3	4	3	4	10	8
TOTAL (Millions Sq. Ft.)	2,365.9	401.3	84.0	458.3	37.8	237.0	116.0	114.5	473.2	235.9
Building type % of TOTAL	100.0%	17.0%	3.6%	19.4%	1.6%	10.0%	4.9%	4.8%	20.0%	10.0%

Table A1-HS19

HVAC SYSTEM SUMMARY: Supplemental Heating Fuel

PERCENT OF REGIONAL FLOOR AREA WITH SUPPLEMENTAL HEAT

SUPPLEMENTAL HEATING FUEL	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Electricity	81%	61%	s	86%	s	s	s	s	93%	63%
Natural Gas	14%	39%	s	9%	s	s	s	s	7%	12%
Pur. HW, steam	2%	<1%	s	5%	s	s	s	s	<1%	<1%
LPG	3%	<1%	s	<1%	s	s	s	s	<1%	25%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	65	6	4	24	3	3	3	4	10	8
FLOOR AREA WITH SUPPLEMENTAL HEATING (Millions of Sq. Ft.)	1,647.6	273.7	72.7	400.9	37.8	88.7	108.6	57.4	284.4	120.0
Building type % of FLOOR AREA W/SPPLMNTL HTNG	100.0%	16.6%	4.4%	24.3%	2.3%	5.4%	6.6%	3.5%	17.3%	7.3%

Table A1-HS20
HVAC SYSTEM SUMMARY: Distribution with Economizers
PERCENT OF REGIONAL CONDITIONED FLOOR AREA

DISTRIBUTION WITH ECONOMIZERS	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	42%	52%	22%	50%	26%	28%	18%	31%	42%	55%
No	58%	48%	78%	50%	74%	72%	82%	69%	58%	45%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	599	85	43	153	38	54	26	27	105	52

Table A1-HC1
HEATING AND COOLING EQUIPMENT: Electric Baseboard
PERCENT OF REGIONAL HEATED FLOOR AREA

ELECTRIC BASEBOARD	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	2%	3%	3%	1%	<1%	5%	1%	<1%	3%	3%
No	98%	97%	97%	99%	100%	95%	99%	100%	97%	97%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	800	131	54	195	49	82	32	37	131	70

Table A1-HC2
HEATING AND COOLING EQUIPMENT: Water Boiler
PERCENT OF REGIONAL HEATED FLOOR AREA

WATER BOILER	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	24%	5%	<1%	30%	<1%	<1%	30%	21%	29%	52%
No	76%	95%	100%	70%	100%	100%	70%	79%	71%	48%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	797	131	55	195	52	82	32	34	128	68

Table A1-HC3
HEATING AND COOLING EQUIPMENT: Steam Boiler
PERCENT OF REGIONAL HEATED FLOOR AREA

STEAM BOILER	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	6%	<1%	<1%	6%	<1%	<1%	8%	10%	4%	21%
No	94%	100%	100%	94%	100%	100%	92%	90%	96%	79%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	798	131	55	195	52	82	32	35	128	68

Table A1-HC4
HEATING AND COOLING EQUIPMENT: Furnace
PERCENT OF REGIONAL HEATED FLOOR AREA

FURNACE	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	66%	87%	92%	51%	77%	83%	43%	70%	69%	49%
No	34%	13%	8%	49%	23%	17%	57%	30%	31%	51%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	788	130	52	194	49	82	32	33	128	69

Table A1-DC1
DISTRIBUTION CONTROLS: EMCS
PERCENT OF REGIONAL CONDITIONED FLOOR AREA

EMCS	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	39%	19%	35%	56%	2%	3%	21%	32%	34%	73%
No	61%	81%	65%	44%	98%	97%	79%	68%	66%	27%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	704	102	49	181	45	68	31	32	119	63

Table A1-DC2

DISTRIBUTION CONTROLS: Thermostatic (Programmable) w/Night Set-Back

PERCENT OF REGIONAL CONDITIONED FLOOR AREA

THERMOSTATIC (PROGRAMMABLE) W/NIGHT SET-BACK	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	36%	51%	28%	29%	57%	71%	40%	36%	31%	20%
No	64%	49%	72%	71%	43%	29%	60%	64%	69%	80%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	704	102	49	181	45	68	31	32	119	63

Table A1-DC3

DISTRIBUTION CONTROLS: Thermostatic (Manual)

PERCENT OF REGIONAL CONDITIONED FLOOR AREA

THERMOSTATIC (MANUAL)	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	36%	58%	41%	15%	31%	58%	60%	43%	40%	24%
No	64%	42%	59%	85%	69%	42%	40%	57%	60%	76%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	704	102	49	181	45	68	31	32	119	63

Table A1-DC4

DISTRIBUTION CONTROLS: Timeclock (on/off)

PERCENT OF REGIONAL CONDITIONED FLOOR AREA

TIMECLOCK (ON/OFF)	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	3%	<1%	<1%	3%	3%	4%	<1%	<1%	<1%	9%
No	97%	100%	100%	97%	97%	96%	100%	100%	100%	91%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	443	65	34	129	37	40	21	23	58	34

Table A1-DC5
DISTRIBUTION CONTROLS: On/Off Switch
PERCENT OF REGIONAL CONDITIONED FLOOR AREA

ON/OFF SWITCH	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	6%	7%	3%	1%	13%	5%	6%	13%	12%	<1%
No	94%	93%	97%	99%	87%	95%	94%	87%	88%	100%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	704	102	49	181	45	68	31	32	119	63

Table A1-WH1
WATER HEATING: Predominant Service Hot Water Eqpt Type
PERCENT OF REGIONAL FLOOR AREA

PREDOMINANT SERVICE HOT WATER EQPT TYPE	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Heat pump	1%	1%	8%	1%	5%	3%	<1%	<1%	1%	1%
Heat recovery	3%	2%	6%	2%	<1%	2%	6%	6%	3%	1%
Instantaneous (tankless)	1%	<1%	<1%	<1%	4%	4%	4%	<1%	<1%	<1%
Self-contained	82%	91%	83%	81%	86%	92%	67%	64%	83%	82%
Storage tank (central boiler)	13%	6%	3%	14%	5%	<1%	23%	30%	10%	17%
Other	1%	<1%	<1%	1%	<1%	<1%	<1%	<1%	2%	<1%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	583	81	41	156	41	58	31	29	85	49

Table A1-WH2

WATER HEATING: Predominant Service Hot Water Fuel

PERCENT OF REGIONAL FLOOR AREA

PREDOMINANT SERVICE HOT WATER FUEL	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Electricity	58%	66%	35%	75%	33%	79%	42%	44%	46%	45%
Natural gas	39%	33%	60%	21%	67%	20%	53%	51%	53%	52%
LPG	1%	<1%	3%	1%	<1%	<1%	1%	3%	1%	3%
Pur. HW or steam	1%	1%	<1%	3%	<1%	<1%	3%	2%	<1%	<1%
Other	<1%	<1%	2%	<1%	<1%	1%	<1%	<1%	<1%	<1%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	654	95	49	165	45	69	35	35	101	50

Table A1-WH3

WATER HEATING: Secondary Service Hot Water Eqpt Type

PERCENT OF REGIONAL FLOOR AREA WITH SECONDARY SERVICE HOT WATER EQPT

SECONDARY SERVICE HOT WATER EQPT TYPE	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Heat recovery	1%	<1%	s	<1%	s	s	s	s	s	<1%
Instantaneous (tankless)	55%	66%	s	30%	s	s	s	s	s	76%
Self-contained	43%	34%	s	70%	s	s	s	s	s	20%
Other	1%	<1%	s	<1%	s	s	s	s	s	3%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	35	5	4	10	1	1	3	4	2	5

Table A1-WH4

WATER HEATING: Additional tank wrap

PERCENT OF REGIONAL FLOOR AREA

ADDITIONAL TANK WRAP	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	30%	25%	30%	36%	14%	17%	18%	52%	34%	28%
No	70%	75%	70%	64%	86%	83%	82%	48%	66%	72%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	390	55	32	107	39	37	19	21	51	28

Table A1-WH5

WATER HEATING: Pipe Insulation

PERCENT OF REGIONAL FLOOR AREA

PIPE INSULATION	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	48%	25%	29%	55%	18%	23%	61%	45%	50%	68%
No	52%	75%	71%	45%	82%	77%	39%	55%	50%	32%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	454	61	35	123	39	36	27	25	65	37

Table A1-AF1

AUXILIARY FANS: Exhaust Fan(s)

PERCENT OF REGIONAL FLOOR AREA

EXHAUST FAN(S)	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	86%	88%	91%	83%	89%	83%	81%	89%	83%	94%
No	14%	12%	9%	17%	11%	17%	19%	11%	17%	6%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	334	38	30	82	34	28	14	17	53	27

Table A1-AF2

AUXILIARY FANS: Lab Hood Fan(s)

PERCENT OF REGIONAL FLOOR AREA

LAB HOOD FAN(S)	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	1%	<1%	<1%	<1%	<1%	<1%	<1%	7%	<1%	<1%
No	99%	100%	100%	100%	100%	100%	100%	93%	100%	100%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	325	37	29	80	33	28	12	17	52	26

Table A1-AF3

AUXILIARY FANS: Make-up-air Fan(s)

PERCENT OF REGIONAL FLOOR AREA

MAKE-UP-AIR FAN(S)	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	7%	10%	7%	6%	8%	4%	16%	5%	10%	3%
No	93%	90%	93%	94%	92%	96%	84%	95%	90%	97%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	330	37	30	82	33	28	14	17	51	27

Table A1-AF4

AUXILIARY FANS: Other Fans

PERCENT OF REGIONAL FLOOR AREA

OTHER FANS	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	6%	2%	1%	11%	3%	13%	4%	<1%	7%	4%
No	94%	98%	99%	89%	97%	87%	96%	100%	93%	96%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	330	38	29	82	34	28	12	17	53	26

Table A1-AF5

AUXILIARY FANS: Total Supply Fan HP

PERCENT OF REGIONAL FLOOR AREA WITH SUPPLY FAN(S)

TOTAL SUPPLY FAN HP	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Less than 10 HP	<1%	s	<1%	<1%	s	s	s	s	<1%	<1%
10 to 29 HP	13%	s	27%	7%	s	s	s	s	10%	32%
30 to 59 HP	19%	s	22%	32%	s	s	s	s	7%	<1%
60 to 99 HP	17%	s	<1%	19%	s	s	s	s	36%	<1%
100 or more HP	23%	s	<1%	31%	s	s	s	s	31%	9%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	53	2	8	17	0	1	0	1	10	9

Table A1-AF6

AUXILIARY FANS: Total Supply Fan HP

PER SQUARE FOOT (1000s), BASE=HAVE SUPPLY FAN(S)

TOTAL SUPPLY FAN HP	Total	BUILDING TYPE											
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hospital	Hotel/ Motel	Other Health	Other	School	Univer-sity	Vacant
Per square foot (1000s)	0.62	s	0.22	0.61	s	s	s	s	s	0.83	0.33	1.80	s
# Observations	53	2	8	17	0	1	0	0	1	10	9	5	0

Table A1-AF7

AUXILIARY FANS: Total Return Fan HP

PERCENT OF REGIONAL FLOOR AREA WITH RETURN FAN(S)

TOTAL RETURN FAN HP	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Less than 0.25 HP	<1%	<1%	<1%	<1%	<1%	s	s	s	<1%	<1%
0.26 to 0.50 HP	15%	16%	40%	9%	<1%	s	s	s	20%	22%
0.51 to 1 HP	8%	9%	22%	5%	49%	s	s	s	<1%	13%
1.1 to 10 HP	17%	61%	11%	12%	43%	s	s	s	7%	5%
11 to 20 HP	19%	7%	16%	24%	<1%	s	s	s	<1%	46%
21 or more HP	37%	<1%	<1%	49%	<1%	s	s	s	66%	14%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	92	13	10	34	11	2	0	3	8	6

Table A1-AF8

AUXILIARY FANS: Total Return Fan HP

PER SQUARE FOOT (1000s), BASE=HAVE RETURN FAN(S)

TOTAL RETURN FAN HP	Total	BUILDING TYPE											
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hospital	Hotel/ Motel	Other Health	Other	School	Univer-sity	Vacant
Per square foot (1000s)	0.28	0.05	0.06	0.35	0.37	s	s	s	s	0.34	0.15	s	s
# Observations	92	13	10	34	11	2	1	0	3	8	6	4	0

Table A1-IL1

INDOOR LIGHTING: Watts

PER SQUARE FOOT

WATTS	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Per square foot	1.3	1.4	1.9	1.3	1.3	0.8	1.3	2.2	1.2	1.2
# Observations	663	120	51	141	46	74	25	25	112	57

Table A1-IL2

INDOOR LIGHTING: Watts Per Square Foot by Building Floor Area

WATTS PER SQUARE FOOT BY BUILDING FLOOR AREA	Total	BUILDING TYPE											
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hospital	Hotel/ Motel	Other Health	Other	School	Univer-sity	Vacant
Less than 5,000 SF	1.8	1.7	1.5	2.4	1.4	1.1	s	0.8	2.3	1.7	1.4	m	s
5,000 to 19,999 SF	1.5	1.4	2.9	1.4	1.3	0.9	s	2.0	5.5	1.2	3.6	1.1	s
20,000 to 49,999 SF	1.3	1.5	1.8	1.4	m	0.7	s	1.4	1.1	1.0	1.4	1.3	s
50,000 to 99,999 SF	1.0	1.2	1.8	1.2	m	0.7	s	1.0	0.9	1.1	0.9	1.5	s
100,000 to 499,999 SF	1.1	1.5	m	1.0	m	0.7	s	0.6	1.0	1.1	1.1	1.8	s
500,000 SF or more	0.8	0.7	m	0.8	m	m	s	0.8	m	m	m	m	s
# Observations	663	120	51	141	46	74	3	25	25	112	57	8	1

Table A1-IL3

INDOOR LIGHTING: Watts Per Square Foot by Year Constructed, Detailed

WATTS PER SQUARE FOOT BY YEAR CONSTRUCTED, DETAILED	Total	BUILDING TYPE											
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hospital	Hotel/ Motel	Other Health	Other	School	Univer-sity	Vacant
Before 1950	1.1	1.1	m	1.2	1.3	2.3	s	0.8	0.9	1.1	0.9	m	s
1950 to 1969	1.1	1.6	1.6	2.2	m	0.7	s	0.9	1.0	0.7	1.0	m	s
1970 to 1979	1.2	1.4	0.7	1.5	1.3	0.6	s	1.7	2.3	1.1	0.8	m	s
1980 to 1987	1.4	1.8	1.9	1.2	1.3	0.6	s	2.2	0.5	1.2	m	m	s
1988 to 1994	1.4	1.5	1.9	1.5	1.7	0.9	s	1.6	1.2	1.4	1.4	m	s
1995 to 2001	1.4	1.4	2.0	1.1	1.2	0.9	s	0.8	3.0	1.2	1.7	1.6	s
Unknown	1.2	1.1	0.8	1.6	1.4	0.9	s	m	m	m	m	m	s
# Observations	663	120	51	141	46	74	3	25	25	112	57	8	1

Table A1-IL4

INDOOR LIGHTING: Watts Per Square Foot by Year Constructed, Cohort

WATTS PER SQUARE FOOT BY YEAR CONSTRUCTED, COHORT	Total	BUILDING TYPE											
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hospital	Hotel/ Motel	Other Health	Other	School	Univer-sity	Vacant
1987 and earlier	1.2	1.4	1.7	1.4	1.3	0.7	s	1.5	1.5	1.0	1.0	m	s
1988 to 1994	1.4	1.5	1.9	1.5	1.7	0.9	s	1.6	1.2	1.4	1.4	m	s
1995 to 2001	1.4	1.4	2.0	1.1	1.2	0.9	s	0.8	3.0	1.2	1.7	1.6	s
# Observations	663	120	51	141	46	74	3	25	25	112	57	8	1

Table A1-IL5
INDOOR LIGHTING: Watts Per Square Foot
PERCENT OF REGIONAL FLOOR AREA

WATTS PER SQUARE FOOT	Total	BUILDING TYPE											
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hospital	Hotel/ Motel	Other Health	Other	School	Univer-sity	Vacant
Less than 0.4 watts/sqft	7%	<1%	1%	5%	<1%	21%	s	5%	6%	12%	3%	<1%	s
0.5 to 0.8 watts/sqft	28%	12%	4%	20%	22%	63%	s	40%	23%	21%	46%	<1%	s
0.9 to 1.2 watts/sqft	31%	34%	10%	37%	26%	10%	s	16%	27%	43%	30%	56%	s
1.3 to 1.6 watts/sqft	19%	28%	33%	17%	24%	3%	s	9%	31%	21%	15%	44%	s
1.7 to 2.0 watts/sqft	8%	13%	34%	14%	25%	2%	s	14%	<1%	2%	1%	<1%	s
2.1 to 2.4 watts/sqft	3%	6%	14%	3%	2%	<1%	s	2%	7%	1%	4%	<1%	s
2.5 to 2.8 watts/sqft	1%	4%	4%	<1%	1%	<1%	s	4%	4%	<1%	<1%	<1%	s
More than 2.8 watts/sqft	2%	1%	<1%	3%	<1%	<1%	s	10%	2%	<1%	1%	<1%	s
# Observations	663	120	51	141	46	74	3	25	25	112	57	8	1

Table A1-IL6

INDOOR LIGHTING: Lamp Type

PERCENT OF REGIONAL INDOOR LIGHTING WATTAGE

LAMP TYPE	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Fluorescent	70%	72%	87%	87%	44%	48%	30%	82%	56%	86%
Incandescent	15%	14%	4%	8%	50%	19%	69%	14%	11%	3%
HID	14%	11%	9%	4%	4%	32%	1%	<1%	31%	11%
Miscellaneous	2%	3%	<1%	1%	2%	<1%	<1%	4%	2%	<1%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	504	95	31	93	27	69	21	19	97	44

Table A1-IL7

INDOOR LIGHTING: Lamp Type

PERCENT OF REGIONAL FLOOR AREA

LAMP TYPE	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Fluorescent T12	31%	45%	30%	33%	33%	35%	19%	46%	30%	11%
Fluorescent T8 energy efficient	45%	32%	62%	55%	11%	33%	10%	32%	41%	84%
Fluorescent other	5%	2%	<1%	6%	12%	1%	20%	6%	5%	3%
Incandescent	12%	12%	4%	5%	34%	19%	50%	14%	8%	1%
HID	6%	7%	3%	1%	7%	12%	<1%	<1%	16%	1%
Misc	1%	2%	1%	1%	3%	1%	1%	3%	1%	<1%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	501	98	33	98	31	66	20	17	84	46

Table A1-IL8

INDOOR LIGHTING: Fluorescent T12 # Feet

PERCENT OF REGIONAL FLUORESCENT T12 INDOOR LIGHTING WATTAGE

FLUORESCENT T12 # FEET	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
4 feet	64%	47%	24%	90%	74%	35%	84%	88%	62%	55%
8 feet	31%	51%	61%	5%	23%	57%	<1%	2%	32%	44%
Other # feet	6%	3%	15%	4%	3%	9%	16%	10%	6%	<1%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	288	70	21	44	19	39	14	12	54	12

Table A1-IL9

INDOOR LIGHTING: Fluorescent T12 # Feet

PERCENT OF REGIONAL FLOOR AREA SERVED BY FLUORESCENT T12

FLUORESCENT T12 # FEET	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
4 feet	66%	56%	45%	91%	65%	41%	73%	83%	66%	75%
8 feet	27%	40%	46%	5%	30%	51%	<1%	1%	28%	23%
Other # feet	7%	4%	9%	5%	5%	8%	27%	17%	6%	2%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	336	79	26	56	23	41	15	14	62	17

Table A1-IL10

INDOOR LIGHTING: Fluorescent T12 # Lamps

PERCENT OF REGIONAL FLUORESCENT T12 INDOOR LIGHTING WATTAGE

FLUORESCENT T12 # LAMPS	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
1 lamp	3%	2%	31%	<1%	<1%	3%	16%	1%	2%	5%
2 lamps	53%	57%	62%	19%	65%	71%	61%	51%	75%	82%
3 lamps	5%	2%	4%	8%	4%	2%	17%	1%	2%	5%
4 lamps	39%	39%	3%	72%	30%	24%	6%	47%	21%	8%
5+ lamps	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	245	52	16	34	14	34	14	12	54	12

Table A1-IL11

INDOOR LIGHTING: Fluorescent T12 # Lamps

PERCENT OF REGIONAL FLOOR AREA SERVED BY FLUORESCENT T12

FLUORESCENT T12 # LAMPS	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
1 lamp	3%	2%	15%	1%	1%	5%	10%	1%	2%	6%
2 lamps	56%	55%	72%	21%	78%	61%	64%	69%	67%	68%
3 lamps	7%	9%	11%	10%	6%	9%	21%	1%	2%	9%
4 lamps	34%	34%	3%	69%	16%	25%	5%	29%	29%	17%
5+ lamps	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	293	62	21	46	17	36	15	14	62	17

Table A1-IL12

INDOOR LIGHTING: Fluorescent T8 # Lamps

PERCENT OF REGIONAL FLUORESCENT T8 INDOOR LIGHTING WATTAGE

FLUORESCENT T8 # LAMPS	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
1 lamp	9%	3%	4%	7%	7%	<1%	17%	45%	10%	2%
2 lamps	38%	57%	28%	39%	49%	28%	56%	22%	44%	36%
3 lamps	34%	12%	18%	46%	38%	36%	10%	24%	23%	49%
4 lamps	15%	25%	33%	7%	6%	36%	17%	8%	16%	10%
5+ lamps	4%	3%	17%	<1%	<1%	<1%	<1%	1%	6%	4%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	300	49	21	62	7	27	11	10	66	39

Table A1-IL13

INDOOR LIGHTING: Fluorescent T8 # Lamps

PERCENT OF REGIONAL FLOOR AREA SERVED BY FLUORESCENT T8

FLUORESCENT T8 # LAMPS	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
1 lamp	5%	4%	9%	6%	5%	<1%	17%	9%	8%	2%
2 lamps	42%	49%	36%	44%	45%	28%	55%	36%	47%	41%
3 lamps	37%	24%	16%	41%	32%	62%	8%	32%	25%	46%
4 lamps	13%	21%	27%	9%	18%	10%	20%	19%	15%	8%
5+ lamps	3%	2%	12%	<1%	<1%	<1%	<1%	4%	5%	3%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	371	60	28	85	10	28	14	14	73	48

Table A1-IL14

INDOOR LIGHTING: Electronic Ballast Measure

PERCENT OF REGIONAL INDOOR LIGHTING WATTAGE

ELECTRONIC BALLAST MEASURE	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	36%	23%	45%	36%	12%	20%	13%	56%	29%	73%
No	64%	77%	55%	64%	88%	80%	87%	44%	71%	27%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	551	102	37	110	27	58	25	23	105	53

Table A1-IL15

INDOOR LIGHTING: Electronic Ballast Measure

PERCENT OF REGIONAL FLOOR AREA

ELECTRONIC BALLAST MEASURE	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	46%	31%	58%	52%	20%	34%	26%	38%	43%	82%
No	54%	69%	42%	48%	80%	66%	74%	62%	57%	18%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	603	114	40	129	37	60	25	24	108	55

Table A1-IL16

INDOOR LIGHTING: Main HID Type

PERCENT OF REGIONAL INDOOR HID WATTAGE

MAIN HID TYPE	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
High pressure sodium	7%	3%	<1%	42%	<1%	14%	10%	s	2%	21%
Low pressure sodium	<1%	<1%	<1%	<1%	<1%	<1%	<1%	s	<1%	<1%
Metal halide	85%	78%	51%	56%	31%	83%	90%	s	95%	56%
Mercury vapor	4%	2%	<1%	1%	<1%	3%	<1%	s	4%	23%
Neon	4%	16%	49%	<1%	69%	<1%	<1%	s	<1%	<1%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	225	43	13	36	7	35	6	3	54	26

Table A1-IL17

INDOOR LIGHTING: Control, Timeclock (On/Off)

PERCENT OF REGIONAL INDOOR WATTAGE

CONTROL, TIMECLOCK (ON/OFF)	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	6%	7%	21%	13%	10%	2%	3%	<1%	<1%	1%
No	94%	93%	79%	87%	90%	98%	97%	100%	100%	99%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	418	82	36	99	37	46	15	17	53	29

Table A1-IL18

INDOOR LIGHTING: Control, EMCS

PERCENT OF REGIONAL INDOOR WATTAGE

CONTROL, EMCS	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	7%	9%	<1%	14%	<1%	<1%	7%	<1%	10%	6%
No	93%	91%	100%	86%	100%	100%	93%	100%	90%	94%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	550	94	42	125	38	60	24	24	84	48

Table A1-IL19

INDOOR LIGHTING: Control, Photocell

PERCENT OF REGIONAL INDOOR WATTAGE

CONTROL, PHOTOCELL	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	1%	<1%	<1%	1%	2%	3%	<1%	<1%	1%	<1%
No	99%	100%	100%	99%	98%	97%	100%	100%	99%	100%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	545	93	42	122	37	60	24	24	84	48

Table A1-IL20

INDOOR LIGHTING: Control, Occupancy Sensors

PERCENT OF REGIONAL INDOOR WATTAGE

CONTROL, OCCUPANCY SENSORS	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	7%	1%	2%	11%	<1%	6%	<1%	2%	5%	22%
No	93%	99%	98%	89%	100%	94%	100%	98%	95%	78%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	559	97	33	108	33	71	25	24	107	51

Table A1-IL21

INDOOR LIGHTING: Control, On/Off Switch

PERCENT OF REGIONAL INDOOR WATTAGE

CONTROL, ON/OFF SWITCH	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	92%	90%	93%	87%	98%	98%	100%	96%	91%	89%
No	8%	10%	7%	13%	2%	2%	<1%	4%	9%	11%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	550	94	42	125	38	60	24	24	84	48

Table A1-IL22

INDOOR LIGHTING: Control, Dimmer Switch/Daylighting Controls

PERCENT OF REGIONAL INDOOR WATTAGE

CONTROL, DIMMER SWITCH/DAYLIGHTING CONTROLS	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	6%	1%	5%	7%	5%	2%	<1%	<1%	14%	7%
No	94%	99%	95%	93%	95%	98%	100%	100%	86%	93%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	559	97	33	108	33	71	25	24	107	51

Table A1-IL23

INDOOR LIGHTING: Control, Other

PERCENT OF REGIONAL INDOOR WATTAGE

CONTROL, OTHER	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	6%	8%	6%	9%	<1%	<1%	<1%	2%	8%	5%
No	94%	92%	94%	91%	100%	100%	100%	98%	92%	95%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	554	96	33	105	32	71	25	24	107	51

Table A1-OL1

OUTDOOR LIGHTING: Watts Per Indoor Square Foot by Year Constructed, Cohort

WATTS PER INDOOR SQUARE FOOT BY YEAR CONSTRUCTED, COHORT	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
1987 and earlier	0.2	0.2	0.2	0.1	0.6	0.1	0.1	0.4	0.2	0.2
1988 to 1994	0.1	0.1	0.2	0.1	0.7	0.1	0.6	0.1	0.1	0.1
1995 to 2001	0.4	0.5	0.7	0.1	1.3	0.1	0.1	0.2	0.7	0.1
# Observations	564	92	44	127	39	62	26	24	94	42

Table A1-OL2

OUTDOOR LIGHTING: Lamp Type

PERCENT OF REGIONAL OUTDOOR LIGHTING WATTAGE

LAMP TYPE	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Fluorescent	15%	27%	16%	13%	22%	1%	17%	4%	14%	1%
HID	56%	62%	80%	73%	37%	86%	62%	35%	40%	92%
Incandescent	13%	10%	4%	14%	36%	14%	21%	57%	6%	6%
Neon	<1%	1%	<1%	<1%	2%	<1%	<1%	<1%	<1%	<1%
Other	15%	<1%	<1%	<1%	3%	<1%	1%	4%	40%	1%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	498	83	31	98	30	61	25	24	91	41

Table A1-OL3

OUTDOOR LIGHTING: Lamp Type

PERCENT OF REGIONAL FLOOR AREA

LAMP TYPE	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Fluorescent	19%	21%	34%	26%	27%	2%	34%	14%	16%	14%
Incandescent	17%	25%	1%	19%	26%	10%	14%	35%	17%	5%
Neon	1%	4%	5%	<1%	10%	<1%	<1%	<1%	<1%	<1%
HID	61%	49%	59%	54%	35%	88%	52%	47%	66%	73%
Other	2%	<1%	<1%	<1%	2%	<1%	1%	3%	2%	8%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	542	88	34	110	31	69	28	27	96	45

Table A1-OL4

OUTDOOR LIGHTING: Predominant Lamp Type

PERCENT OF REGIONAL BUILDINGS

PREDOMINANT LAMP TYPE	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Fluorescent	19%	30%	39%	26%	32%	1%	4%	5%	17%	4%
HID	64%	55%	52%	56%	53%	96%	47%	31%	71%	79%
Incandescent	15%	15%	6%	17%	12%	4%	48%	52%	10%	11%
Neon	<1%	<1%	3%	<1%	3%	<1%	<1%	<1%	<1%	<1%
Other	2%	<1%	<1%	1%	<1%	<1%	<1%	12%	2%	6%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	545	87	35	110	31	69	28	27	98	46
TOTAL (Buildings)	173,752	28,254	5,448	22,803	8,310	14,080	4,518	8,940	57,915	9,964
Building type % of TOTAL	100.0%	16.3%	3.1%	13.1%	4.8%	8.1%	2.6%	5.1%	33.3%	5.7%

Table A1-OL5

OUTDOOR LIGHTING: Control, Timeclock (On/Off)

PERCENT OF REGIONAL OUTDOOR LIGHTING WATTAGE

CONTROL, TIMECLOCK (ON/OFF)	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	14%	17%	24%	15%	4%	1%	6%	59%	7%	8%
No	86%	83%	76%	85%	96%	99%	94%	41%	93%	92%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	468	64	37	105	31	52	25	22	78	41

Table A1-OL6

OUTDOOR LIGHTING: Control, Timeclock (On/Off)

PERCENT OF REGIONAL BUILDINGS

CONTROL, TIMECLOCK (ON/OFF)	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	13%	17%	4%	25%	16%	1%	19%	56%	3%	4%
No	87%	83%	96%	75%	84%	99%	81%	44%	97%	96%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	533	74	40	124	36	61	27	27	86	44
TOTAL (Buildings)	173,752	28,254	5,448	22,803	8,310	14,080	4,518	8,940	57,915	9,964
Building type % of TOTAL	100.0%	16.3%	3.1%	13.1%	4.8%	8.1%	2.6%	5.1%	33.3%	5.7%

Table A1-OL7
OUTDOOR LIGHTING: Control, EMCS
PERCENT OF REGIONAL OUTDOOR LIGHTING WATTAGE

CONTROL, EMCS	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	1%	1%	<1%	7%	<1%	1%	<1%	<1%	<1%	4%
No	99%	99%	100%	93%	100%	99%	100%	100%	100%	96%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	468	64	37	105	31	52	25	22	78	41

Table A1-OL8
OUTDOOR LIGHTING: Control, EMCS
PERCENT OF REGIONAL BUILDINGS

CONTROL, EMCS	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	1%	<1%	<1%	2%	<1%	2%	<1%	<1%	<1%	3%
No	99%	100%	100%	98%	100%	98%	100%	100%	100%	97%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	533	74	40	124	36	61	27	27	86	44
TOTAL (Buildings)	173,752	28,254	5,448	22,803	8,310	14,080	4,518	8,940	57,915	9,964
Building type % of TOTAL	100.0%	16.3%	3.1%	13.1%	4.8%	8.1%	2.6%	5.1%	33.3%	5.7%

Table A1-OL9

OUTDOOR LIGHTING: Control, Photocell

PERCENT OF REGIONAL OUTDOOR LIGHTING WATTAGE

CONTROL, PHOTOCELL	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	55%	78%	49%	61%	47%	72%	63%	45%	38%	63%
No	45%	22%	51%	39%	53%	28%	37%	55%	62%	37%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	468	64	37	105	31	52	25	22	78	41

Table A1-OL10

OUTDOOR LIGHTING: Control, Photocell

PERCENT OF REGIONAL BUILDINGS

CONTROL, PHOTOCELL	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	58%	77%	64%	55%	53%	89%	53%	27%	63%	15%
No	42%	23%	36%	45%	47%	11%	47%	73%	37%	85%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	533	74	40	124	36	61	27	27	86	44
TOTAL (Buildings)	173,752	28,254	5,448	22,803	8,310	14,080	4,518	8,940	57,915	9,964
Building type % of TOTAL	100.0%	16.3%	3.1%	13.1%	4.8%	8.1%	2.6%	5.1%	33.3%	5.7%

Table A1-OL11

OUTDOOR LIGHTING: Control, Occupancy Sensors

PERCENT OF REGIONAL OUTDOOR LIGHTING WATTAGE

CONTROL, OCCUPANCY SENSORS	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	2%	<1%	5%	<1%	<1%	8%	<1%	11%	1%	<1%
No	98%	100%	95%	100%	100%	92%	100%	89%	99%	100%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	407	58	24	76	23	51	25	22	75	40

Table A1-OL12

OUTDOOR LIGHTING: Control, Occupancy Sensors

PERCENT OF REGIONAL BUILDINGS

CONTROL, OCCUPANCY SENSORS	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	3%	<1%	8%	1%	<1%	2%	<1%	2%	5%	3%
No	97%	100%	92%	99%	100%	98%	100%	98%	95%	97%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	450	61	26	91	24	59	27	26	82	41
TOTAL (Buildings)	173,752	28,254	5,448	22,803	8,310	14,080	4,518	8,940	57,915	9,964
Building type % of TOTAL	100.0%	16.3%	3.1%	13.1%	4.8%	8.1%	2.6%	5.1%	33.3%	5.7%

Table A1-OL13

OUTDOOR LIGHTING: Control, On/Off Switch

PERCENT OF REGIONAL OUTDOOR LIGHTING WATTAGE

CONTROL, ON/OFF SWITCH	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	22%	25%	28%	8%	77%	36%	8%	19%	7%	55%
No	78%	75%	72%	92%	23%	64%	92%	81%	93%	45%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	468	64	37	105	31	52	25	22	78	41

Table A1-OL14

OUTDOOR LIGHTING: Control, On/Off Switch

PERCENT OF REGIONAL BUILDINGS

CONTROL, ON/OFF SWITCH	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	22%	21%	22%	16%	52%	19%	38%	26%	27%	1%
No	78%	79%	78%	84%	48%	81%	62%	74%	73%	99%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	533	74	40	124	36	61	27	27	86	44
TOTAL (Buildings)	173,752	28,254	5,448	22,803	8,310	14,080	4,518	8,940	57,915	9,964
Building type % of TOTAL	100.0%	16.3%	3.1%	13.1%	4.8%	8.1%	2.6%	5.1%	33.3%	5.7%

Table A1-OL15
OUTDOOR LIGHTING: Control, Timeclock/Photocell
PERCENT OF REGIONAL OUTDOOR LIGHTING WATTAGE

CONTROL, TIMECLOCK/PHOTOCELL	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	17%	15%	32%	23%	10%	23%	29%	13%	10%	26%
No	83%	85%	68%	77%	90%	77%	71%	87%	90%	74%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	468	64	37	105	31	52	25	22	78	41

Table A1-OL16
OUTDOOR LIGHTING: Control, Timeclock/Photocell
PERCENT OF REGIONAL BUILDINGS

CONTROL, TIMECLOCK/PHOTOCELL	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	23%	17%	29%	10%	6%	4%	10%	13%	26%	66%
No	77%	83%	71%	90%	94%	96%	90%	87%	74%	34%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	533	74	40	124	36	61	27	27	86	44
TOTAL (Buildings)	173,752	28,254	5,448	22,803	8,310	14,080	4,518	8,940	57,915	9,964
Building type % of TOTAL	100.0%	16.3%	3.1%	13.1%	4.8%	8.1%	2.6%	5.1%	33.3%	5.7%

Table A1-EQ1

MISCELLANEOUS EQUIPMENT: Number of Terminals (Cash registers)

PER SQUARE FOOT (1000s), BASE=HAVE TERMINAL(S)

NUMBER OF TERMINALS (CASH REGISTERS)	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Per square foot (1000s)	0.40	0.55	0.32	0.20	0.39	0.16	0.04	s	0.24	s
# Observations	112	53	23	8	10	5	5	1	5	1

Table A1-EQ2

MISCELLANEOUS EQUIPMENT: Number of PCs

PER SQUARE FOOT (1000s), BASE=HAVE PC(S)

NUMBER OF PCS	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Per square foot (1000s)	1.48	0.73	0.32	2.95	0.36	0.35	0.12	1.37	0.43	2.02
# Observations	261	36	9	81	11	27	11	18	43	24

Table A1-EQ3

MISCELLANEOUS EQUIPMENT: Number of Servers

PER SQUARE FOOT (1000s), BASE=HAVE SERVER(S)

NUMBER OF SERVERS	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Per square foot (1000s)	0.12	0.06	s	0.22	s	0.04	s	0.11	0.03	0.05
# Observations	146	14	4	70	2	11	3	12	15	15

Table A1-EQ4

MISCELLANEOUS EQUIPMENT: Number of Refrigerators

PER SQUARE FOOT (1000s), BASE=HAVE REFRIGERATION

NUMBER OF REFRIGERATORS	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Per square foot (1000s)	0.27	0.44	0.22	0.18	0.74	0.08	1.41	0.27	0.15	0.13
# Observations	206	32	7	71	6	21	9	12	37	11

Table A1-EQ5

MISCELLANEOUS EQUIPMENT: Number of Auxiliary Pumps

PER SQUARE FOOT (1000s), BASE=HAVE AUXILIARY PUMP(S)

NUMBER OF AUXILIARY PUMPS	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Per square foot (1000s)	0.10	0.04	0.16	0.04	s	s	0.09	0.22	0.11	0.06
# Observations	95	6	5	16	4	3	6	13	13	19

Table A1-EQ6

MISCELLANEOUS EQUIPMENT: Other Health, Lab

PERCENT OF REGIONAL FLOOR AREA

OTHER HEALTH, LAB	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	11%	s	s	<1%	s	s	s	s	s	s
No	89%	s	s	100%	s	s	s	s	s	s
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	20	0	3	7	0	0	0	1	1	4

Table A1-EQ7

FULL KITCHEN EQUIPMENT: Number of Broilers

PER SQUARE FOOT (1000s), BASE=HAVE BROILER(S)

NUMBER OF BROILERS	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Per square foot (1000s)	0.09	s	s	s	1.00	s	0.02	s	s	s
# Observations	23	2	2	3	7	0	6	0	3	0

Table A1-EQ8

FULL KITCHEN EQUIPMENT: Broiler Fuel Elec

PERCENT OF REGIONAL FLOOR AREA WITH BROILER(S)

BROILER FUEL ELEC	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	30%	s	s	s	19%	s	16%	s	s	s
No	70%	s	s	s	81%	s	84%	s	s	s
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	27	2	3	4	8	0	5	0	4	1

Table A1-EQ9

FULL KITCHEN EQUIPMENT: Number of Fryers

PER SQUARE FOOT (1000s), BASE=HAVE FRYER(S)

NUMBER OF FRYERS	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Per square foot (1000s)	0.06	0.04	0.07	0.01	0.50	s	0.02	s	0.04	0.01
# Observations	80	7	12	11	21	0	7	1	11	10

Table A1-EQ10

FULL KITCHEN EQUIPMENT: Fryer Fuel Elec

PERCENT OF REGIONAL FLOOR AREA WITH FRYER(S)

FRYER FUEL ELEC	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	54%	20%	78%	75%	44%	s	37%	s	51%	62%
No	46%	80%	22%	25%	56%	s	63%	s	49%	38%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	83	6	14	12	21	0	6	1	12	11

Table A1-EQ11

FULL KITCHEN EQUIPMENT: Number of Griddle/Grills

PER SQUARE FOOT (1000s), BASE=HAVE GRIDDLE/GRILL(S)

NUMBER OF GRIDDLE/GRILLS	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Per square foot (1000s)	0.10	s	0.05	0.01	0.85	s	0.04	s	0.13	0.04
# Observations	86	4	6	17	19	0	9	4	15	12

Table A1-EQ12

FULL KITCHEN EQUIPMENT: Griddle/Grill Fuel Elec

PERCENT OF REGIONAL FLOOR AREA WITH GRIDDLE/GRILL(S)

GRIDDLE/GRILL FUEL ELEC	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	56%	s	81%	75%	20%	s	6%	s	66%	64%
No	44%	s	19%	25%	80%	s	94%	s	34%	36%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	88	4	6	18	19	0	8	4	16	13

Table A1-EQ13
FULL KITCHEN EQUIPMENT: Number of Ovens
PER SQUARE FOOT (1000s), BASE=HAVE OVEN(S)

NUMBER OF OVENS	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Per square foot (1000s)	0.60	0.67	0.36	0.07	1.81	s	0.35	0.23	1.33	0.18
# Observations	143	12	15	21	24	2	12	6	28	23

Table A1-EQ14
FULL KITCHEN EQUIPMENT: Oven Fuel Elec
PERCENT OF REGIONAL FLOOR AREA WITH OVEN(S)

OVEN FUEL ELEC	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	61%	29%	43%	72%	36%	s	21%	47%	62%	87%
No	39%	71%	57%	28%	64%	s	79%	53%	38%	13%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	138	10	16	20	24	0	11	6	27	24

Table A1-EQ15
FULL KITCHEN EQUIPMENT: Number of Range Tops
PER SQUARE FOOT (1000s), BASE=HAVE RANGE TOP(S)

NUMBER OF RANGE TOPS	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Per square foot (1000s)	0.21	0.24	s	0.03	1.27	s	0.14	s	0.24	0.09
# Observations	87	6	4	11	18	2	10	4	22	10

Table A1-EQ16

FULL KITCHEN EQUIPMENT: Range Fuel Elec

PERCENT OF REGIONAL FLOOR AREA WITH RANGE(S)

RANGE FUEL ELEC	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	46%	7%	s	36%	1%	s	17%	s	59%	83%
No	54%	93%	s	64%	99%	s	83%	s	41%	17%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	83	6	4	11	17	0	9	4	21	11

Table A1-EQ17

LAUNDRY EQUIPMENT: Number of Dryers

PER SQUARE FOOT (1000s), BASE=HAVE DRYER(S)

NUMBER OF DRYERS	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Per square foot (1000s)	0.14	s	s	0.03	s	s	0.09	0.11	0.42	0.02
# Observations	74	2	3	6	1	0	28	8	13	11

Table A1-EQ18

LAUNDRY EQUIPMENT: Dryer Fuel Elec

PERCENT OF REGIONAL FLOOR AREA WITH DRYER(S)

DRYER FUEL ELEC	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	59%	s	s	77%	s	s	19%	50%	80%	92%
No	41%	s	s	23%	s	s	81%	50%	20%	8%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	69	2	0	6	1	0	26	8	13	11

Table A1-EQ19

LAUNDRY EQUIPMENT: Number of Washers

PER SQUARE FOOT (1000s), BASE=HAVE WASHER(S)

NUMBER OF WASHERS	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Per square foot (1000s)	0.15	s	s	0.03	s	s	0.09	0.10	0.39	0.02
# Observations	74	2	3	6	1	0	28	8	14	10

Table A1-EQ20

LAUNDRY EQUIPMENT: Washer Fuel Elec

PERCENT OF REGIONAL FLOOR AREA WITH WASHER(S)

WASHER FUEL ELEC	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	95%	s	s	100%	s	s	83%	100%	100%	100%
No	5%	s	s	<1%	s	s	17%	<1%	<1%	<1%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	72	2	3	6	1	0	26	8	14	10

Table A1-RF1

REFRIGERATION COMPRESSORS: Compressor Temperatures

PERCENT OF REGIONAL FLOOR AREA WITH REFRIGERATION

COMPRESSOR TEMPERATURES	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Low	36%	32%	28%	32%	37%	s	39%	53%	34%	37%
Medium	61%	62%	62%	68%	59%	s	61%	47%	60%	61%
High	3%	6%	10%	<1%	4%	s	<1%	<1%	6%	2%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	136	14	33	16	32	3	8	5	8	17

Table A1-RF2

REFRIGERATION COMPRESSORS: Floating Head Pressure Control

PERCENT OF REGIONAL FLOOR AREA WITH REFRIGERATION

FLOATING HEAD PRESSURE CONTROL	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	15%	25%	42%	4%	1%	s	40%	s	<1%	<1%
No	85%	75%	58%	96%	99%	s	60%	s	100%	100%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	102	9	28	13	24	2	6	3	7	10

Table A1-RF3

REFRIGERATION COMPRESSORS: Refrigeration Heat Recovery

PERCENT OF REGIONAL FLOOR AREA WITH REFRIGERATION

REFRIGERATION HEAT RECOVERY	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	9%	7%	50%	<1%	5%	<1%	30%	16%	<1%	<1%
No	91%	93%	50%	100%	95%	100%	70%	84%	100%	100%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	284	30	39	54	27	18	17	12	41	35

Table A1-RF4

REFRIGERATION CONDENSERS: Predominant Condenser type

PERCENT OF REGIONAL FLOOR AREA WITH REFRIGERATION

PREDOMINANT CONDENSER TYPE	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Air-cooled	88%	100%	95%	83%	95%	s	83%	s	100%	78%
Evap-cooled	2%	<1%	5%	<1%	<1%	s	<1%	s	<1%	<1%
Water-cooled	10%	<1%	<1%	17%	5%	s	17%	s	<1%	22%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	116	11	32	14	25	2	8	4	7	13

Table A1-RF5

REFRIGERATION EQUIPMENT USE: Display Case

PERCENT OF REGIONAL FLOOR AREA WITH REFRIGERATION

DISPLAY CASE	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	91%	100%	99%	s	84%	s	s	s	s	s
No	9%	<1%	1%	s	16%	s	s	s	s	s
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	76	13	36	4	14	0	0	3	3	3

Table A1-RF6

REFRIGERATION EQUIPMENT USE: Cases With Doors

PERCENT OF REGIONAL FLOOR AREA WITH REFRIGERATION

CASES WITH DOORS	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	85%	74%	81%	s	86%	s	s	s	s	s
No	15%	26%	19%	s	14%	s	s	s	s	s
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	75	12	36	4	14	0	0	3	3	3

Table A1-PS1

POOLS AND SPAS: Pool

PERCENT OF REGIONAL FLOOR AREA

POOL	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	4%	<1%	<1%	1%	2%	<1%	52%	2%	<1%	7%
No	96%	100%	100%	99%	98%	100%	48%	98%	100%	93%
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	1,069	161	68	237	65	112	42	53	152	73

Table A1-PS2

POOLS AND SPAS: Pool Cover

PERCENT OF REGIONAL FLOOR AREA WITH POOL(S)

POOL COVER	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	34%	s	s	s	s	s	25%	s	s	s
No	66%	s	s	s	s	s	75%	s	s	s
--Total--	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
# Observations	23	0	0	0	1	0	13	1	1	2

A.2 RESULTS BY COHORT

Table A2-GB13

GENERAL BUILDING INFORMATION: Heating Fuel

PERCENT OF REGIONAL HEATED FLOOR AREA

HEATING FUEL	Total	COHORT		
		1987 and earlier	1988 to 1994	1995 to 2001
Electricity	29%	33%	23%	20%
Natural gas	65%	61%	74%	74%
Fuel oil	1%	1%	<1%	<1%
Heat recovery	<1%	<1%	<1%	<1%
LPG	1%	<1%	3%	4%
Purchased HW, steam	2%	3%	<1%	2%
Other	<1%	<1%	<1%	<1%
Unknown	<1%	<1%	<1%	<1%
--Total--	100%	100%	100%	100%
# Observations	973	446	246	281
HEATED FLOOR AREA (Millions of Sq. Ft.)	2,053.2	1,468.1	212.9	372.2
Building type % of HEATED FLOOR AREA	100.0%	71.5%	10.4%	18.1%

Table A2-HS8

HVAC SYSTEM SUMMARY: HVAC System Upgrades Within Last 5 Years

PERCENT OF REGIONAL CONDITIONED FLOOR AREA

HVAC SYSTEM UPGRADES WITHIN LAST 5 YEARS	Total	COHORT		
		1987 and earlier	1988 to 1994	1995 to 2001
Yes	30%	31%	17%	14%
No	70%	69%	83%	86%
--Total--	100%	100%	100%	100%
# Observations	423	309	95	19

Table A2-HS20

HVAC SYSTEM SUMMARY: Distribution with Economizers

PERCENT OF REGIONAL CONDITIONED FLOOR AREA

DISTRIBUTION WITH ECONOMIZERS	Total	COHORT		
		1987 and earlier	1988 to 1994	1995 to 2001
Yes	42%	28%	34%	63%
No	58%	72%	66%	37%
--Total--	100%	100%	100%	100%
# Observations	599	177	148	274

B 2001 ENERGY-USE INTENSITIES TABLES

Notes:

- "s" in the tables: The number of observations on a "question" for a particular building type (or the total) is less than five, the results have been suppressed.
- "m" in the tables: There are no observations in a "response category" for a particular building type (or the total).
- The total column in each of the tables reflects all of the data from all building types, not just the building types presented in the table.

Table B-EA1

ELECTRIC ACTUAL EUI RESULTS

(kWh Per Square Foot)

	Total	BUILDING TYPE											
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hospital	Hotel/ Motel	Other Health	Other	School	Univer-sity	Vacant
EUI	16	15	53	16	49	7	s	18	33	15	7	19	4
# Observations	649	103	41	166	47	80	4	32	38	78	38	10	12

Table B-EA2

ELECTRIC ACTUAL EUI RESULTS: Building Floor Area

(kWh Per Square Foot)

BUILDING FLOOR AREA	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Less than 5,000 SF	17	15	63	11	58	6	6	13	13	4
5,000 to 19,999 SF	19	11	73	14	37	6	20	59	18	26
20,000 to 49,999 SF	18	10	52	18	m	7	23	20	15	7
50,000 to 99,999 SF	13	20	44	18	m	5	13	20	15	9
100,000 to 499,999 SF	16	20	m	16	m	11	18	11	15	6
500,000 SF or more	16	17	m	16	m	m	17	m	m	m
# Observations	649	103	41	166	47	80	32	38	78	38

Table B-EA3

ELECTRIC ACTUAL EUI RESULTS: Year Constructed, Detailed

(kWh Per Square Foot)

YEAR CONSTRUCTED, DETAILED	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Before 1950	10	11	m	15	18	2	12	16	7	4
1950 to 1969	13	14	35	15	34	7	17	24	15	8
1970 to 1979	14	11	47	18	59	3	22	17	11	7
1980 to 1987	17	13	51	15	56	8	19	10	19	m
1988 to 1994	21	22	53	19	68	11	14	13	14	9
1995 to 2001	29	21	66	14	91	14	13	76	32	9
Unknown	10	11	22	21	51	4	28	7	7	m
# Observations	649	103	41	166	47	80	32	38	78	38

Table B-EA4

ELECTRIC ACTUAL EUI RESULTS: Year Constructed, Cohort

(kWh Per Square Foot)

YEAR CONSTRUCTED, COHORT	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
1987 and earlier	14	12	47	16	42	5	18	16	13	7
1988 to 1994	21	22	53	19	68	11	14	13	14	9
1995 to 2001	29	21	66	14	91	14	13	76	32	9
# Observations	649	103	41	166	47	80	32	38	78	38

Table B-EA5

ELECTRIC ACTUAL EUI RESULTS: Heating/Cooling Combination

(kWh Per Square Foot)

HEATING/COOLING COMBINATION	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Electric main heat and cooling	17	15	65	17	33	8	19	12	20	12
Electric supplemental heat only and cooling	20	16	49	20	m	19	m	48	12	13
Electric main heat and no cooling	9	11	37	m	m	2	m	m	9	8
Electric supplemental heat only and no cooling	m	m	m	m	m	m	m	m	m	m
Electric cooling and no heating	19	17	55	15	55	8	17	45	17	7
No electric heating or cooling	8	3	32	10	16	13	6	7	11	6
# Observations	536	85	35	145	40	53	28	32	62	36

Table B-EA6

ELECTRIC ACTUAL EUI RESULTS: Heating Fuel

(kWh Per Square Foot)

HEATING FUEL	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Electric	16	15	60	17	33	7	19	12	14	10
Not electric	17	15	53	14	56	8	16	43	16	7
# Observations	601	99	37	160	43	61	32	36	72	38

Table B-EA7

ELECTRIC ACTUAL EUI RESULTS: Whether Or Not Cool

(kWh Per Square Foot)

WHETHER OR NOT COOL	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Cool	18	16	55	16	47	9	19	34	17	8
No cooling	7	3	35	10	16	4	6	7	11	6
# Observations	569	88	37	149	43	71	28	33	64	36

Table B-EA8

ELECTRIC ACTUAL EUI RESULTS: Month

(kWh Per Square Foot)

MONTH	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
January	1.42	1.22	4.34	1.37	3.96	0.59	1.62	2.70	1.39	0.70
February	1.34	1.15	4.10	1.30	3.69	0.55	1.56	2.46	1.32	0.68
March	1.39	1.22	4.28	1.34	3.82	0.58	1.54	2.65	1.35	0.72
April	1.29	1.17	4.21	1.23	3.77	0.54	1.36	2.50	1.22	0.64
May	1.32	1.20	4.42	1.27	3.99	0.55	1.35	2.62	1.19	0.63
June	1.36	1.26	4.56	1.29	4.28	0.58	1.46	2.81	1.23	0.50
July	1.44	1.35	4.76	1.38	4.47	0.62	1.54	3.21	1.33	0.40
August	1.44	1.38	4.76	1.39	4.45	0.62	1.47	3.06	1.34	0.46
September	1.35	1.25	4.48	1.28	4.07	0.55	1.32	2.83	1.23	0.59
October	1.33	1.19	4.42	1.26	3.90	0.55	1.40	2.67	1.20	0.66
November	1.35	1.18	4.33	1.29	3.97	0.57	1.47	2.55	1.31	0.69
December	1.41	1.24	4.48	1.34	4.17	0.58	1.55	2.66	1.37	0.67
# Observations	649	103	41	166	47	80	32	38	78	38

Table B-GA1

GAS ACTUAL EUI RESULTS

(Therms Per Square Foot)

	Total	BUILDING TYPE											
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hospital	Hotel/ Motel	Other Health	Other	School	Univer-sity	Vacant
EUI	0.42	0.26	0.70	0.25	2.76	0.15	s	1.17	0.36	0.47	0.28	s	s
# Observations	192	37	11	45	24	26	2	7	8	17	7	4	4

Table B-GA2

GAS ACTUAL EUI RESULTS: Building Floor Area

(Therms Per Square Foot)

BUILDING FLOOR AREA	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Less than 5,000 SF	1.42	0.13	0.22	0.32	2.84	m	m	0.83	m	m
5,000 to 19,999 SF	0.53	0.28	0.93	0.42	2.64	0.20	1.25	0.23	0.54	m
20,000 to 49,999 SF	0.27	0.24	0.96	0.14	m	0.14	1.00	m	0.47	m
50,000 to 99,999 SF	0.32	0.33	0.22	0.37	m	0.15	3.01	0.44	0.44	0.20
100,000 to 499,999 SF	0.34	0.25	m	0.18	m	0.12	0.80	m	0.13	0.47
500,000 SF or more	0.42	0.17	m	<0.01	m	m	0.72	m	m	m
# Observations	192	37	11	45	24	26	7	8	17	7

Table B-GA3

GAS ACTUAL EUI RESULTS: Year Constructed, Detailed

(Therms Per Square Foot)

YEAR CONSTRUCTED, DETAILED	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Before 1950	0.35	0.38	m	0.33	1.00	0.16	0.88	m	0.29	m
1950 to 1969	0.43	0.22	0.21	0.14	1.38	0.12	1.26	m	0.30	0.27
1970 to 1979	0.54	0.18	m	0.20	4.39	0.12	m	m	1.71	m
1980 to 1987	0.42	0.16	0.23	0.22	1.85	0.25	1.08	m	m	m
1988 to 1994	0.30	0.20	0.61	0.18	2.34	0.20	m	0.40	0.45	0.38
1995 to 2001	0.54	0.25	1.15	0.48	4.54	0.11	m	0.43	0.41	m
Unknown	0.22	0.13	m	0.20	1.48	0.09	m	0.07	0.24	m
# Observations	192	37	11	45	24	26	7	8	17	7

Table B-GA4

GAS ACTUAL EUI RESULTS: Year Constructed, Cohort

(Therms Per Square Foot)

YEAR CONSTRUCTED, COHORT	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
1987 and earlier	0.41	0.28	0.22	0.24	2.39	0.15	1.17	0.07	0.48	0.27
1988 to 1994	0.30	0.20	0.61	0.18	2.34	0.20	m	0.40	0.45	0.38
1995 to 2001	0.54	0.25	1.15	0.48	4.54	0.11	m	0.43	0.41	m
# Observations	192	37	11	45	24	26	7	8	17	7

Table B-GA5
GAS ACTUAL EUI RESULTS: Heating
(Therms Per Square Foot)

HEATING	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Gas main heat	0.38	0.26	0.70	0.25	2.37	0.15	0.81	0.37	0.60	0.28
Gas supplemental heat only	0.38	m	m	0.13	2.02	m	m	0.26	0.10	m
No gas heat	0.67	0.28	m	0.24	6.23	0.16	1.39	m	0.19	m
# Observations	182	36	11	41	24	26	7	6	16	7

Table B-GA6
GAS ACTUAL EUI RESULTS: Heating Fuel
(Therms Per Square Foot)

HEATING FUEL	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Electric	0.63	0.33	m	0.23	2.83	0.16	1.39	0.26	0.15	m
Not electric	0.38	0.25	0.70	0.25	2.75	0.15	0.81	0.37	0.60	0.28
# Observations	182	36	11	41	24	26	7	6	16	7

Table B-GA7

GAS ACTUAL EUI RESULTS: Whether Or Not Cool

(Therms Per Square Foot)

WHETHER OR NOT COOL	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Cool	0.42	0.29	0.67	0.23	2.62	0.15	1.17	0.21	0.26	0.29
No cooling	0.41	0.17	1.08	0.14	1.00	0.20	m	0.07	1.17	0.13
# Observations	162	28	11	39	21	24	7	5	12	7

Table B-GA8

GAS ACTUAL EUI RESULTS: Month

(Therms Per Square Foot)

MONTH	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
January	0.060	0.048	0.094	0.040	0.343	0.027	0.105	0.051	0.073	0.043
February	0.054	0.046	0.106	0.038	0.261	0.027	0.105	0.046	0.066	0.039
March	0.052	0.040	0.083	0.034	0.288	0.025	0.114	0.046	0.065	0.038
April	0.037	0.023	0.069	0.025	0.236	0.014	0.105	0.034	0.041	0.025
May	0.029	0.014	0.066	0.017	0.212	0.008	0.104	0.028	0.029	0.018
June	0.019	0.006	0.038	0.010	0.180	0.003	0.090	0.018	0.014	0.006
July	0.016	0.005	0.028	0.006	0.168	0.002	0.083	0.015	0.009	0.004
August	0.016	0.004	0.025	0.005	0.167	0.002	0.088	0.015	0.009	0.004
September	0.018	0.005	0.027	0.007	0.174	0.003	0.084	0.015	0.014	0.008
October	0.027	0.013	0.036	0.012	0.204	0.006	0.092	0.020	0.032	0.018
November	0.040	0.025	0.059	0.022	0.239	0.013	0.099	0.030	0.050	0.032
December	0.051	0.037	0.075	0.032	0.284	0.022	0.098	0.042	0.065	0.042
# Observations	192	37	11	45	24	26	7	8	17	7

Table B-EN1

ELECTRIC WEATHER NORMALIZED EUI RESULTS

(kWh Per Square Foot)

	Total	BUILDING TYPE											
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hospital	Hotel/ Motel	Other Health	Other	School	Univer-sity	Vacant
EUI	16	15	54	16	49	7	s	18	33	15	7	19	4
# Observations	651	103	41	166	47	80	4	32	38	80	38	10	12

Table B-EN2

ELECTRIC WEATHER NORMALIZED EUI RESULTS: Building Floor Area

(kWh Per Square Foot)

BUILDING FLOOR AREA	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Less than 5,000 SF	17	15	65	11	58	6	6	13	13	4
5,000 to 19,999 SF	19	10	74	14	37	6	20	59	17	27
20,000 to 49,999 SF	18	10	52	18	m	7	23	20	14	7
50,000 to 99,999 SF	13	20	44	18	m	5	13	20	15	9
100,000 to 499,999 SF	16	20	m	16	m	10	18	11	15	6
500,000 SF or more	16	18	m	16	m	m	17	m	m	m
# Observations	651	103	41	166	47	80	32	38	80	38

Table B-EN3

ELECTRIC WEATHER NORMALIZED EUI RESULTS: Year Constructed, Detailed

(kWh Per Square Foot)

YEAR CONSTRUCTED, DETAILED	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Before 1950	10	11	m	15	18	2	12	16	6	4
1950 to 1969	13	14	35	15	34	7	17	24	15	8
1970 to 1979	14	11	47	18	59	3	22	18	11	7
1980 to 1987	17	13	51	15	56	8	19	10	19	m
1988 to 1994	21	22	53	19	68	11	14	13	14	9
1995 to 2001	29	21	67	14	92	14	13	76	30	9
Unknown	10	11	22	21	51	4	30	7	7	m
# Observations	651	103	41	166	47	80	32	38	80	38

Table B-EN4

ELECTRIC WEATHER NORMALIZED EUI RESULTS: Year Constructed, Cohort

(kWh Per Square Foot)

YEAR CONSTRUCTED, COHORT	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
1987 and earlier	14	12	47	16	42	5	18	16	13	7
1988 to 1994	21	22	53	19	68	11	14	13	14	9
1995 to 2001	29	21	67	14	92	14	13	76	30	9
# Observations	651	103	41	166	47	80	32	38	80	38

Table B-EN5

ELECTRIC WEATHER NORMALIZED EUI RESULTS: Heating/Cooling Combination

(kWh Per Square Foot)

HEATING/COOLING COMBINATION	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Electric main heat and cooling	17	15	67	17	33	8	19	12	20	12
Electric supplemental heat only and cooling	20	15	49	20	m	19	m	48	12	13
Electric main heat and no cooling	9	10	37	m	m	2	m	m	9	8
Electric supplemental heat only and no cooling	m	m	m	m	m	m	m	m	m	m
Electric cooling and no heating	19	17	55	15	55	8	17	45	16	7
No electric heating or cooling	7	3	31	10	16	13	6	7	11	6
# Observations	537	85	35	145	40	53	28	32	63	36

Table B-EN6

ELECTRIC WEATHER NORMALIZED EUI RESULTS: Heating Fuel

(kWh Per Square Foot)

HEATING FUEL	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Electric	16	15	62	17	33	7	19	12	14	10
Not electric	17	15	53	14	56	8	16	43	15	7
# Observations	602	99	37	160	43	61	32	36	73	38

Table B-EN7

ELECTRIC WEATHER NORMALIZED EUI RESULTS: Whether Or Not Cool

(kWh Per Square Foot)

WHETHER OR NOT COOL	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Cool	18	16	55	16	47	9	19	34	17	8
No cooling	7	3	34	10	16	4	6	7	11	6
# Observations	571	88	37	149	43	71	28	33	66	36

Table B-EN8

ELECTRIC WEATHER NORMALIZED EUI RESULTS: Month

(kWh Per Square Foot)

MONTH	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
January	1.50	1.29	4.70	1.45	4.19	0.63	1.70	2.80	1.45	0.70
February	1.39	1.20	4.34	1.33	3.95	0.58	1.55	2.65	1.35	0.68
March	1.34	1.18	4.28	1.28	3.88	0.56	1.45	2.54	1.29	0.66
April	1.30	1.17	4.27	1.24	3.79	0.54	1.34	2.54	1.24	0.62
May	1.30	1.19	4.36	1.25	3.91	0.54	1.33	2.64	1.20	0.58
June	1.35	1.25	4.50	1.29	4.15	0.57	1.40	2.82	1.22	0.54
July	1.42	1.34	4.67	1.35	4.43	0.60	1.49	3.05	1.31	0.52
August	1.43	1.35	4.67	1.37	4.41	0.60	1.48	3.06	1.31	0.52
September	1.35	1.26	4.51	1.28	4.06	0.57	1.35	2.87	1.23	0.56
October	1.30	1.19	4.37	1.24	3.79	0.55	1.34	2.53	1.19	0.61
November	1.34	1.18	4.33	1.27	3.90	0.56	1.50	2.51	1.26	0.66
December	1.44	1.22	4.52	1.39	4.09	0.63	1.67	2.71	1.40	0.70
# Observations	649	103	41	166	47	80	32	38	78	38

Table B-GN1

GAS WEATHER NORMALIZED EUI RESULTS

(Therms Per Square Foot)

	Total	BUILDING TYPE											
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hospital	Hotel/ Motel	Other Health	Other	School	Univer-sity	Vacant
EUI	0.44	0.29	0.73	0.27	2.81	0.17	s	1.18	0.38	0.50	0.29	s	s
# Observations	190	37	11	44	24	25	2	7	8	17	7	4	4

Table B-GN2

GAS WEATHER NORMALIZED EUI RESULTS: Building Floor Area

(Therms Per Square Foot)

BUILDING FLOOR AREA	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Less than 5,000 SF	1.45	0.13	0.22	0.34	2.89	m	m	0.85	m	m
5,000 to 19,999 SF	0.56	0.31	0.95	0.45	2.69	0.22	1.25	0.27	0.58	m
20,000 to 49,999 SF	0.29	0.26	1.00	0.15	m	0.15	1.02	m	0.48	m
50,000 to 99,999 SF	0.34	0.35	0.22	0.40	m	0.17	3.06	0.45	0.47	0.21
100,000 to 499,999 SF	0.36	0.28	m	0.19	m	0.13	0.81	m	0.14	0.50
500,000 SF or more	0.42	0.19	m	<0.01	m	m	0.73	m	m	m
# Observations	190	37	11	44	24	25	7	8	17	7

Table B-GN3

GAS WEATHER NORMALIZED EUI RESULTS: Year Constructed

(Therms Per Square Foot)

YEAR CONSTRUCTED	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Before 1950	0.38	0.43	m	0.36	1.02	0.17	0.88	m	0.31	m
1950 to 1969	0.44	0.24	0.21	0.16	1.44	0.12	1.28	m	0.32	0.29
1970 to 1979	0.58	0.18	m	0.22	4.44	0.14	m	m	1.80	m
1980 to 1987	0.44	0.18	0.25	0.23	1.87	0.29	1.09	m	m	m
1988 to 1994	0.32	0.21	0.62	0.20	2.40	0.21	m	0.43	0.46	0.41
1995 to 2001	0.56	0.26	1.21	0.50	4.67	0.12	m	0.46	0.43	m
Unknown	0.24	0.13	m	0.22	1.48	0.10	m	0.09	0.29	m
# Observations	190	37	11	44	24	25	7	8	17	7

Table B-GN4

GAS WEATHER NORMALIZED EUI RESULTS: Year Constructed, Cohort

(Therms Per Square Foot)

YEAR CONSTRUCTED, COHORT	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
1987 and earlier	0.44	0.31	0.22	0.26	2.42	0.17	1.18	0.09	0.51	0.29
1988 to 1994	0.32	0.21	0.62	0.20	2.40	0.21	m	0.43	0.46	0.41
1995 to 2001	0.56	0.26	1.21	0.50	4.67	0.12	m	0.46	0.43	m
# Observations	190	37	11	44	24	25	7	8	17	7

Table B-GN5

GAS WEATHER NORMALIZED EUI RESULTS: Heating

(Therms Per Square Foot)

HEATING	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Gas main heat	0.40	0.28	0.73	0.27	2.43	0.17	0.82	0.40	0.64	0.29
Gas supplemental heat only	0.39	m	m	0.14	2.02	m	m	0.30	0.11	m
No gas heat	0.69	0.31	m	0.25	6.23	0.19	1.40	m	0.20	m
# Observations	180	36	11	40	24	25	7	6	16	7

Table B-GN6

GAS WEATHER NORMALIZED EUI RESULTS: Heating Fuel

(Therms Per Square Foot)

HEATING FUEL	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Electric	0.65	0.37	m	0.24	2.83	0.19	1.40	0.30	0.16	m
Not electric	0.41	0.27	0.73	0.27	2.81	0.17	0.82	0.40	0.64	0.29
# Observations	180	36	11	40	24	25	7	6	16	7

Table B-GN7

GAS WEATHER NORMALIZED EUI RESULTS: Whether Or Not Cool

(Therms Per Square Foot)

WHETHER OR NOT COOL	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Cool	0.44	0.32	0.69	0.25	2.67	0.17	1.18	0.24	0.28	0.31
No cooling	0.45	0.18	1.14	0.16	1.02	0.21	m	0.09	1.24	0.13
# Observations	160	28	11	38	21	23	7	5	12	7

Table B-GN8

GAS WEATHER NORMALIZED EUI RESULTS: Month

(Therms Per Square Foot)

MONTH	Total	BUILDING TYPE								
		Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
January	0.067	0.055	0.101	0.044	0.359	0.031	0.120	0.060	0.083	0.047
February	0.061	0.050	0.098	0.041	0.298	0.029	0.117	0.057	0.075	0.043
March	0.050	0.037	0.082	0.034	0.273	0.024	0.110	0.043	0.059	0.037
April	0.038	0.024	0.069	0.026	0.240	0.015	0.104	0.034	0.043	0.028
May	0.026	0.012	0.054	0.016	0.208	0.008	0.095	0.024	0.027	0.016
June	0.019	0.006	0.037	0.008	0.179	0.004	0.085	0.018	0.012	0.006
July	0.018	0.006	0.033	0.006	0.174	0.004	0.081	0.016	0.011	0.005
August	0.017	0.006	0.032	0.007	0.173	0.004	0.081	0.016	0.011	0.003
September	0.018	0.006	0.033	0.008	0.177	0.004	0.081	0.016	0.012	0.006
October	0.025	0.010	0.037	0.013	0.197	0.006	0.088	0.018	0.029	0.019
November	0.043	0.030	0.066	0.026	0.242	0.014	0.103	0.029	0.057	0.035
December	0.059	0.047	0.089	0.037	0.288	0.023	0.114	0.051	0.077	0.047
# Observations	190	37	11	44	24	25	7	8	17	7

C

CHANGES IN 1987 BUILDING STOCK CHARACTERISTICS FROM 1987 TO 2001

Note:

- Results were obtained employing observations for which we have both 2001 and 1987 data.

Table C-GB4

GENERAL BUILDING INFORMATION: Conditioned Floor Area

CONDITIONED FLOOR AREA				BUILDING TYPE								
	Total			Dry Goods Retail			Office			All Other		
	1987	2001	Change	1987	2001	Change	1987	2001	Change	1987	2001	Change
Square feet (millions)	1,364.8	1,452.3	87.5	293.1	266.8	-26.4	258.3	300.2	42.0	813.4	884.2	70.8
Percent of total	85%	87%	2%	88%	85%	-3%	86%	90%	4%	83%	87%	3%
# Observations	486	407	407	75	66	65	100	94	90	311	247	252
TOTAL FLOOR AREA	1,611.6	1,667.7	1,611.6	332.4	313.1	332.4	301.9	334.7	301.9	977.3	1,019.9	977.3

Table C-GB5

GENERAL BUILDING INFORMATION: Heated Floor Area

HEATED FLOOR AREA				BUILDING TYPE								
	Total			Dry Goods Retail			Office			All Other		
	1987	2001	Change	1987	2001	Change	1987	2001	Change	1987	2001	Change
Square feet (millions)	1,344.2	1,437.6	93.4	288.8	264.7	-24.1	254.8	299.0	44.2	800.6	872.6	72.0
Percent of total	83%	86%	3%	87%	85%	-2%	84%	89%	5%	82%	86%	4%
Percent conditioned	98%	99%	|<1%|	99%	99%	1%	99%	100%	1%	98%	99%	|<1%|
# Observations	461	405	383	69	65	59	92	94	83	300	246	241
TOTAL FLOOR AREA	1,611.6	1,667.7	1,611.6	332.4	313.1	332.4	301.9	334.7	301.9	977.3	1,019.9	977.3

Table C-GB6

GENERAL BUILDING INFORMATION: Cooled Floor Area

COOLED FLOOR AREA				BUILDING TYPE								
	Total			Dry Goods Retail			Office			All Other		
	1987	2001	Change	1987	2001	Change	1987	2001	Change	1987	2001	Change
Square feet (millions)	848.5	973.6	125.1	217.3	200.7	-16.6	238.6	283.2	44.7	395.2	479.7	84.5
Percent of total	53%	58%	6%	65%	64%	-1%	79%	85%	6%	40%	47%	7%
Percent conditioned	62%	67%	5%	74%	75%	1%	92%	94%	2%	49%	54%	6%
# Observations	461	403	381	69	64	58	92	94	83	300	245	240
TOTAL FLOOR AREA	1,611.6	1,667.7	1,611.6	332.4	313.1	332.4	301.9	334.7	301.9	977.3	1,019.9	977.3

Table C-GB7

GENERAL BUILDING INFORMATION: Unconditioned Floor Area

UNCONDITIONED FLOOR AREA				BUILDING TYPE								
	Total			Dry Goods Retail			Office			All Other		
	1987	2001	Change	1987	2001	Change	1987	2001	Change	1987	2001	Change
Square feet (millions)	246.8	215.3	-31.4	39.3	46.3	7.0	43.7	34.5	-9.2	163.8	135.6	-28.2
Percent of total	15%	13%	-2%	12%	15%	3%	14%	10%	-4%	17%	13%	-3%
# Observations	486	407	407	75	66	65	100	94	90	311	247	252
TOTAL FLOOR AREA	1,611.6	1,667.7	1,611.6	332.4	313.1	332.4	301.9	334.7	301.9	977.3	1,019.9	977.3

Table C-GB8

GENERAL BUILDING INFORMATION: Refrigerated Floor Area

REFRIGERATED FLOOR AREA				BUILDING TYPE								
	Total			Dry Goods Retail			Office			All Other		
	1987	2001	Change	1987	2001	Change	1987	2001	Change	1987	2001	Change
Square feet (millions)	11.6	9.6	-1.9	1.5	2.3	0.8	0.2	0.2	|<0.1|	9.9	7.3	-2.5
Percent of total	1%	1%	|<1%|	<1%	1%	|<1%|	<1%	<1%	|<1%|	1%	1%	|<1%|
# Observations	486	391	391	75	61	60	100	92	88	311	238	243
TOTAL FLOOR AREA	1,611.6	1,667.7	1,611.6	332.4	313.1	332.4	301.9	334.7	301.9	977.3	1,019.9	977.3

Table C-GB9

GENERAL BUILDING INFORMATION: Vacant Floor Area

VACANT FLOOR AREA				BUILDING TYPE								
	Total			Dry Goods Retail			Office			All Other		
	1987	2001	Change	1987	2001	Change	1987	2001	Change	1987	2001	Change
Square feet (millions)	90.9	112.6	21.6	26.5	17.7	-8.9	27.3	19.4	-7.9	37.1	75.1	38.0
Percent of total	6%	7%	1%	8%	6%	-2%	9%	6%	-3%	4%	7%	4%
# Observations	486	359	359	75	57	58	100	80	76	311	222	225
TOTAL FLOOR AREA	1,611.6	1,667.7	1,611.6	332.4	313.1	332.4	301.9	334.7	301.9	977.3	1,019.9	977.3

Table C-GB13
GENERAL BUILDING INFORMATION: Heating Fuel
PERCENT OF REGIONAL HEATED FLOOR AREA

HEATING FUEL				BUILDING TYPE								
	Total			Dry Goods Retail			Office			All Other		
	1987	2001	Change	1987	2001	Change	1987	2001	Change	1987	2001	Change
Electricity	38%	34%	-4%	39%	25%	-14%	64%	55%	-9%	29%	28%	-1%
Natural gas	50%	61%	11%	54%	71%	17%	29%	38%	10%	55%	66%	11%
Fuel oil	6%	2%	-4%	7%	4%	-3%	<1%	<1%	|<1%|	7%	1%	-6%
Heat recovery	1%	<1%	|<1%|	<1%	<1%	|<1%|	<1%	<1%	|<1%|	1%	1%	-1%
LPG	<1%	1%	1%	<1%	<1%	|<1%|	<1%	1%	1%	<1%	1%	1%
Purchased HW, steam	2%	2%	1%	1%	<1%	|<1%|	8%	6%	-1%	1%	1%	1%
Other	<1%	<1%	|<1%|	<1%	<1%	|<1%|	<1%	<1%	|<1%|	1%	1%	|<1%|
Unknown	4%	<1%	-3%	<1%	<1%	|<1%|	<1%	<1%	|<1%|	6%	1%	-5%
# Observations	423	375	346	68	63	57	91	94	82	264	218	207
HEATED FLOOR AREA (Millions of Sq. Ft.)	1,344.2	1,437.6	1,344.2	288.8	264.7	288.8	254.8	299.0	254.8	800.6	872.6	800.6
Building type % of HEATED FLOOR AREA	100.0%	100.0%	100.0%	21.5%	18.4%	21.5%	19.0%	20.8%	19.0%	59.6%	60.7%	59.6%

Table C-GB16

GENERAL BUILDING INFORMATION: Business Ownership

PERCENT OF REGIONAL FLOOR AREA

BUSINESS OWNERSHIP				BUILDING TYPE								
	Total			Dry Goods Retail			Office			All Other		
	1987	2001	Change	1987	2001	Change	1987	2001	Change	1987	2001	Change
Individual	21%	22%	|<1%|	37%	36%	-2%	7%	14%	8%	21%	21%	|<1%|
Corporation	53%	49%	-5%	59%	62%	4%	80%	70%	-10%	43%	38%	-5%
Private university/college	2%	3%	1%	<1%	<1%	|<1%|	<1%	<1%	|<1%|	4%	4%	1%
Religious	4%	4%	|<1%|	<1%	<1%	|<1%|	<1%	<1%	|<1%|	6%	6%	|<1%|
Federal gov't	16%	2%	-13%	<1%	<1%	|<1%|	10%	5%	-5%	23%	2%	-21%
Local/state gov't	<1%	17%	17%	<1%	<1%	|<1%|	<1%	7%	7%	<1%	24%	24%
Other	2%	4%	2%	1%	2%	1%	1%	4%	3%	2%	4%	2%
# Observations	486	381	381	75	54	54	100	88	85	311	239	242
TOTAL FLOOR AREA	1,611.6	1,667.7	1,611.6	332.4	313.1	332.4	301.9	334.7	301.9	977.3	1,019.9	977.3
Building type % of TOTAL	100.0%	100.0%	100.0%	20.6%	18.8%	20.6%	18.7%	20.1%	18.7%	60.6%	61.2%	60.6%

Table C-SC1

TYPICAL OPERATING WEEK SCHEDULE INFORMATION: Weekly Hours Of Operation

PERCENT OF REGIONAL FLOOR AREA

WEEKLY HOURS OF OPERATION				BUILDING TYPE								
	Total			Dry Goods Retail			Office			All Other		
	1987	2001	Change	1987	2001	Change	1987	2001	Change	1987	2001	Change
Less than 40	8%	9%	1%	7%	3%	-4%	2%	<1%	-2%	11%	14%	3%
40 to 49	29%	21%	-8%	17%	21%	4%	61%	34%	-26%	23%	16%	-7%
50 to 59	18%	22%	4%	22%	23%	1%	29%	31%	2%	13%	18%	5%
60 to 79	14%	14%	|<1%|	37%	29%	-8%	6%	26%	21%	9%	7%	-3%
80 to 119	12%	10%	-1%	18%	24%	6%	1%	3%	3%	13%	9%	-4%
120 to 167	3%	6%	3%	<1%	<1%	|<1%|	2%	<1%	-2%	4%	9%	5%
168 (always open)	16%	17%	1%	<1%	<1%	|<1%|	<1%	5%	5%	26%	26%	|<1%|
# Observations	470	371	358	74	53	54	99	83	78	297	235	226
TOTAL FLOOR AREA	1,611.6	1,667.7	1,611.6	332.4	313.1	332.4	301.9	334.7	301.9	977.3	1,019.9	977.3
Building type % of TOTAL	100.0%	100.0%	100.0%	20.6%	18.8%	20.6%	18.7%	20.1%	18.7%	60.6%	61.2%	60.6%

Table C-HS9

HVAC SYSTEM SUMMARY: Primary HVAC, Equipment

PERCENT OF REGIONAL CONDITIONED FLOOR AREA

PRIMARY HVAC, EQUIPMENT				BUILDING TYPE								
	Total			Dry Goods Retail			Office			All Other		
	1987	2001	Change	1987	2001	Change	1987	2001	Change	1987	2001	Change
Boiler/chiller	14%	14%	1%	12%	6%	-6%	25%	26%	1%	<1%	12%	12%
Duct heat/chiller	8%	3%	-5%	8%	<1%	-8%	14%	11%	-3%	<1%	1%	1%
Water loop ht pump	4%	4%	|<1%|	5%	8%	3%	7%	10%	3%	<1%	<1%	|<1%|
Boiler only	4%	14%	10%	4%	1%	-3%	5%	5%	-1%	2%	24%	22%
Chiller only	<1%	<1%	|<1%|	<1%	<1%	|<1%|	<1%	<1%	|<1%|	<1%	<1%	|<1%|
Pkg heat/DX cool	29%	33%	4%	38%	51%	13%	20%	30%	10%	26%	27%	1%
Duct heat/DX cool	2%	3%	1%	1%	<1%	-1%	1%	3%	2%	3%	4%	2%
Air-air ht pump	13%	8%	-5%	8%	9%	1%	24%	11%	-12%	6%	6%	|<1%|
Pkg heat only	7%	6%	-2%	11%	10%	-1%	<1%	<1%	|<1%|	11%	7%	-4%
DX cool only	1%	<1%	-1%	1%	<1%	-1%	<1%	<1%	|<1%|	1%	<1%	|<1%|
Evap cool only	<1%	<1%	|<1%|	<1%	<1%	|<1%|	<1%	<1%	|<1%|	<1%	<1%	|<1%|
Pkg heat/evap cool	<1%	<1%	|<1%|	<1%	<1%	|<1%|	<1%	<1%	|<1%|	<1%	<1%	|<1%|
Heat rec/DX cool	1%	1%	-1%	<1%	<1%	|<1%|	<1%	<1%	|<1%|	5%	1%	-4%
Unit heat/cool	<1%	2%	2%	<1%	<1%	|<1%|	1%	<1%	-1%	<1%	4%	3%
Unit heat only	15%	12%	-3%	8%	14%	7%	1%	3%	2%	45%	15%	-30%
Boiler/DX cool	2%	<1%	-1%	2%	<1%	-2%	2%	2%	-1%	<1%	<1%	|<1%|
# Observations	310	314	222	68	54	48	96	83	76	146	177	98
CONDITIONED FLOOR AREA (Millions of Sq. Ft.)	1,364.8	1,452.3	1,364.8	293.1	266.8	293.1	258.3	300.2	258.3	813.4	884.2	813.4
Building type % of CONDITIONED FLOOR AREA	100.0%	100.0%	100.0%	21.5%	18.4%	21.5%	18.9%	20.7%	18.9%	59.6%	60.9%	59.6%

Table C-HS10

HVAC SYSTEM SUMMARY: Primary HVAC, Heat Fuel

PERCENT OF REGIONAL CONDITIONED FLOOR AREA

PRIMARY HVAC, HEAT FUEL				BUILDING TYPE								
	Total			Dry Goods Retail			Office			All Other		
	1987	2001	Change	1987	2001	Change	1987	2001	Change	1987	2001	Change
Electricity	43%	34%	-9%	37%	26%	-11%	67%	55%	-12%	18%	26%	9%
Natural gas	51%	61%	11%	57%	69%	12%	27%	40%	13%	75%	69%	-6%
Heat recovery	2%	1%	-1%	<1%	<1%	|<1%|	<1%	<1%	|<1%|	6%	1%	-5%
Fuel oil	2%	1%	-2%	6%	4%	-2%	<1%	<1%	|<1%|	1%	<1%	-1%
LPG	<1%	1%	1%	<1%	<1%	|<1%|	<1%	1%	1%	<1%	1%	1%
Pur. HW, steam	2%	2%	|<1%|	1%	<1%	|<1%|	6%	5%	-1%	<1%	2%	2%
None	<1%	<1%	|<1%|	<1%	<1%	|<1%|	<1%	<1%	|<1%|	1%	<1%	|<1%|
Other	<1%	<1%	|<1%|	<1%	<1%	|<1%|	<1%	<1%	|<1%|	<1%	1%	|<1%|
# Observations	313	314	224	68	54	48	96	83	76	149	177	100
CONDITIONED FLOOR AREA (Millions of Sq. Ft.)	1,364.8	1,452.3	1,364.8	293.1	266.8	293.1	258.3	300.2	258.3	813.4	884.2	813.4
Building type % of CONDITIONED FLOOR AREA	100.0%	100.0%	100.0%	21.5%	18.4%	21.5%	18.9%	20.7%	18.9%	59.6%	60.9%	59.6%

Table C-HS14

HVAC SYSTEM SUMMARY: Primary HVAC, Distribution

PERCENT OF REGIONAL CONDITIONED FLOOR AREA

PRIMARY HVAC, DISTRIBUTION				BUILDING TYPE								
	Total			Dry Goods Retail			Office			All Other		
	1987	2001	Change	1987	2001	Change	1987	2001	Change	1987	2001	Change
AIR single duct, constant volume	62%	53%	-9%	73%	82%	9%	58%	54%	-4%	53%	41%	-11%
AIR dual duct, constant volume	3%	1%	-1%	<1%	<1%	|<1%|	7%	5%	-3%	<1%	<1%	|<1%|
AIR multi-zone, constant volume	<1%	4%	4%	<1%	3%	3%	<1%	1%	1%	<1%	5%	5%
AIR single duct, variable volume	9%	12%	4%	7%	<1%	-7%	16%	25%	9%	<1%	11%	11%
AIR dual duct, variable volume	3%	2%	-1%	<1%	<1%	|<1%|	8%	4%	-3%	<1%	1%	1%
AIR variable volume, variable temperature	1%	1%	-1%	<1%	<1%	|<1%|	4%	2%	-2%	<1%	<1%	|<1%|
2 Pipe, fan coil	1%	3%	2%	2%	<1%	-2%	1%	1%	|<1%|	1%	6%	5%
Radiator	2%	10%	8%	3%	1%	-2%	3%	5%	2%	<1%	17%	17%
Unitary	16%	14%	-2%	8%	14%	7%	2%	3%	2%	46%	19%	-27%
Hydronic baseboard system	<1%	<1%	|<1%|	<1%	<1%	|<1%|	<1%	<1%	|<1%|	<1%	<1%	|<1%|
4 Pipe, fan coil	3%	<1%	-3%	7%	<1%	-7%	<1%	<1%	|<1%|	<1%	<1%	|<1%|
Distribution system not listed	<1%	<1%	|<1%|	<1%	<1%	|<1%|	<1%	<1%	|<1%|	<1%	<1%	|<1%|
# Observations	310	312	222	68	54	48	96	83	76	146	175	98
CONDITIONED FLOOR AREA (Millions of Sq. Ft.)	1,364.8	1,452.3	1,364.8	293.1	266.8	293.1	258.3	300.2	258.3	813.4	884.2	813.4
Building type % of CONDITIONED FLOOR AREA	100.0%	100.0%	100.0%	21.5%	18.4%	21.5%	18.9%	20.7%	18.9%	59.6%	60.9%	59.6%

Table C-IL1
INDOOR LIGHTING: Watts
PER SQUARE FOOT

WATTS				BUILDING TYPE								
	Total			Dry Goods Retail			Office			All Other		
	1987	2001	Change	1987	2001	Change	1987	2001	Change	1987	2001	Change
Per square foot	1.5	1.2	-0.3	1.9	1.5	-0.4	1.6	1.4	-0.1	1.1	1.1	|<0.1|
# Observations	310	180	39	64	38	6	93	34	5	153	108	28

Table C-IL6
INDOOR LIGHTING: Lamp Type
PERCENT OF REGIONAL INDOOR LIGHTING WATTAGE

LAMP TYPE				BUILDING TYPE								
	Total			Dry Goods Retail			Office			All Other		
	1987	2001	Change	1987	2001	Change	1987	2001	Change	1987	2001	Change
Fluorescent	71%	73%	2%	63%	81%	18%	81%	90%	9%	73%	64%	-10%
Incandescent	27%	20%	-7%	35%	14%	-21%	18%	9%	-8%	24%	26%	2%
HID	2%	5%	4%	1%	2%	1%	1%	1%	|<1%|	2%	9%	6%
Miscellaneous	<1%	2%	2%	<1%	3%	3%	<1%	<1%	|<1%|	<1%	2%	2%
# Observations	270	167	107	54	35	28	74	30	22	142	102	57

Table C-IL17
INDOOR LIGHTING: Control, Timeclock (On/Off)
PERCENT OF REGIONAL INDOOR WATTAGE

CONTROL, TIMECLOCK (ON/OFF)				BUILDING TYPE								
	Total			Dry Goods Retail			Office			All Other		
	1987	2001	Change	1987	2001	Change	1987	2001	Change	1987	2001	Change
Yes	13%	5%	-8%	24%	8%	-17%	9%	9%	|<1%|	1%	3%	1%
No	87%	95%	8%	76%	92%	17%	91%	91%	|<1%|	99%	97%	-1%
# Observations	310	168	112	64	31	24	93	33	28	153	104	60

Table C-IL18
INDOOR LIGHTING: Control, EMCS
PERCENT OF REGIONAL INDOOR WATTAGE

CONTROL, EMCS				BUILDING TYPE								
	Total			Dry Goods Retail			Office			All Other		
	1987	2001	Change	1987	2001	Change	1987	2001	Change	1987	2001	Change
Yes	3%	6%	3%	<1%	<1%	|<1%|	8%	13%	5%	2%	5%	3%
No	97%	94%	-3%	100%	100%	|<1%|	92%	87%	-5%	98%	95%	-3%
# Observations	310	168	112	64	31	24	93	33	28	153	104	60

Table C-IL19
INDOOR LIGHTING: Control, Photocell
PERCENT OF REGIONAL INDOOR WATTAGE

CONTROL, PHOTOCELL				BUILDING TYPE								
	Total			Dry Goods Retail			Office			All Other		
	1987	2001	Change	1987	2001	Change	1987	2001	Change	1987	2001	Change
Yes	<1%	1%	|<1%|	<1%	<1%	|<1%|	1%	1%	|<1%|	<1%	1%	1%
No	100%	99%	|<1%|	100%	100%	|<1%|	99%	99%	|<1%|	100%	99%	-1%
# Observations	310	168	112	64	31	24	93	33	28	153	104	60

Table C-IL20
INDOOR LIGHTING: Control, Occupancy Sensors
PERCENT OF REGIONAL INDOOR WATTAGE

CONTROL, OCCUPANCY SENSORS				BUILDING TYPE								
	Total			Dry Goods Retail			Office			All Other		
	1987	2001	Change	1987	2001	Change	1987	2001	Change	1987	2001	Change
Yes	1%	5%	4%	<1%	<1%	|<1%|	4%	6%	2%	<1%	7%	7%
No	99%	95%	-4%	100%	100%	|<1%|	96%	94%	-2%	100%	93%	-7%
# Observations	310	168	112	64	31	24	93	33	28	153	104	60

Table C-IL21

INDOOR LIGHTING: Control, On/Off Switch

PERCENT OF REGIONAL INDOOR WATTAGE

CONTROL, ON/OFF SWITCH				BUILDING TYPE								
	Total			Dry Goods Retail			Office			All Other		
	1987	2001	Change	1987	2001	Change	1987	2001	Change	1987	2001	Change
Yes	100%	96%	-4%	100%	100%	|<1%|	99%	91%	-7%	100%	96%	-4%
No	<1%	4%	4%	<1%	<1%	|<1%|	1%	9%	7%	<1%	4%	4%
# Observations	310	168	112	64	31	24	93	33	28	153	104	60

Table C-IL22

INDOOR LIGHTING: Control, Dimmer Switch/Daylighting Controls

PERCENT OF REGIONAL INDOOR WATTAGE

CONTROL, DIMMER SWITCH/DAYLIGHTING CONTROLS				BUILDING TYPE								
	Total			Dry Goods Retail			Office			All Other		
	1987	2001	Change	1987	2001	Change	1987	2001	Change	1987	2001	Change
Yes	8%	4%	-4%	1%	2%	1%	22%	1%	-21%	1%	7%	5%
No	92%	96%	4%	99%	98%	-1%	78%	99%	21%	99%	93%	-5%
# Observations	310	168	112	64	31	24	93	33	28	153	104	60

Table C-IL23

INDOOR LIGHTING: Control, Other

PERCENT OF REGIONAL INDOOR WATTAGE

CONTROL, OTHER				BUILDING TYPE								
	Total			Dry Goods Retail			Office			All Other		
	1987	2001	Change	1987	2001	Change	1987	2001	Change	1987	2001	Change
Yes	<1%	2%	1%	<1%	<1%	|<1%|	<1%	5%	5%	1%	1%	|<1%|
No	100%	98%	-1%	100%	100%	|<1%|	100%	95%	-5%	99%	99%	|<1%|
# Observations	310	168	112	64	31	24	93	33	28	153	104	60

Table C-OL2
OUTDOOR LIGHTING: Lamp Type
PERCENT OF REGIONAL OUTDOOR LIGHTING WATTAGE

LAMP TYPE				BUILDING TYPE								
	Total			Dry Goods Retail			Office			All Other		
	1987	2001	Change	1987	2001	Change	1987	2001	Change	1987	2001	Change
Fluorescent	33%	26%	-8%	40%	32%	-8%	22%	16%	-6%	32%	25%	-7%
HID	28%	51%	23%	32%	49%	17%	36%	68%	32%	18%	48%	30%
Incandescent	33%	22%	-11%	22%	17%	-5%	42%	17%	-25%	40%	25%	-15%
Neon	6%	1%	-5%	5%	1%	-4%	1%	<1%	-1%	10%	<1%	-9%
Other	<1%	1%	1%	<1%	<1%	|<1%|	<1%	<1%	|<1%|	<1%	2%	2%
# Observations	253	204	116	49	39	28	89	44	37	115	121	51

Table C-OL5
OUTDOOR LIGHTING: Control, Timeclock (On/Off)
PERCENT OF REGIONAL OUTDOOR LIGHTING WATTAGE

CONTROL, TIMECLOCK (ON/OFF)				BUILDING TYPE								
	Total			Dry Goods Retail			Office			All Other		
	1987	2001	Change	1987	2001	Change	1987	2001	Change	1987	2001	Change
Yes	37%	23%	-14%	37%	22%	-15%	38%	23%	-15%	35%	23%	-12%
No	63%	77%	14%	63%	78%	15%	62%	77%	15%	65%	77%	12%
# Observations	288	161	92	52	25	15	92	30	23	144	106	54

Table C-OL7
OUTDOOR LIGHTING: Control, EMCS
PERCENT OF REGIONAL OUTDOOR LIGHTING WATTAGE

CONTROL, EMCS				BUILDING TYPE								
	Total			Dry Goods Retail			Office			All Other		
	1987	2001	Change	1987	2001	Change	1987	2001	Change	1987	2001	Change
Yes	<1%	1%	|<1%|	<1%	<1%	|<1%|	1%	2%	1%	<1%	1%	1%
No	100%	99%	|<1%|	100%	100%	|<1%|	99%	98%	-1%	100%	99%	-1%
# Observations	288	161	92	52	25	15	92	30	23	144	106	54

Table C-OL9
OUTDOOR LIGHTING: Control, Photocell
PERCENT OF REGIONAL OUTDOOR LIGHTING WATTAGE

CONTROL, PHOTOCELL				BUILDING TYPE								
	Total			Dry Goods Retail			Office			All Other		
	1987	2001	Change	1987	2001	Change	1987	2001	Change	1987	2001	Change
Yes	48%	66%	18%	56%	73%	18%	52%	67%	15%	39%	63%	24%
No	52%	34%	-18%	44%	27%	-18%	48%	33%	-15%	61%	37%	-24%
# Observations	288	161	92	52	25	15	92	30	23	144	106	54

Table C-OL11
OUTDOOR LIGHTING: Control, Occupancy Sensors
PERCENT OF REGIONAL OUTDOOR LIGHTING WATTAGE

CONTROL, OCCUPANCY SENSORS				BUILDING TYPE								
	Total			Dry Goods Retail			Office			All Other		
	1987	2001	Change	1987	2001	Change	1987	2001	Change	1987	2001	Change
Yes	<1%	3%	3%	<1%	<1%	|<1%|	<1%	<1%	|<1%|	<1%	4%	4%
No	100%	97%	-3%	100%	100%	|<1%|	100%	100%	|<1%|	100%	96%	-4%
# Observations	288	161	92	52	25	15	92	30	23	144	106	54

Table C-OL13
OUTDOOR LIGHTING: Control, On/Off Switch
PERCENT OF REGIONAL OUTDOOR LIGHTING WATTAGE

CONTROL, ON/OFF SWITCH				BUILDING TYPE								
	Total			Dry Goods Retail			Office			All Other		
	1987	2001	Change	1987	2001	Change	1987	2001	Change	1987	2001	Change
Yes	54%	30%	-24%	61%	32%	-29%	31%	8%	-24%	61%	34%	-27%
No	46%	70%	24%	39%	68%	29%	69%	92%	24%	39%	66%	27%
# Observations	288	161	92	52	25	15	92	30	23	144	106	54

Table C-OL15

OUTDOOR LIGHTING: Control, Timeclock/Photocell

PERCENT OF REGIONAL OUTDOOR LIGHTING WATTAGE

CONTROL, TIMECLOCK/PHOTOCELL				BUILDING TYPE								
	Total			Dry Goods Retail			Office			All Other		
	1987	2001	Change	1987	2001	Change	1987	2001	Change	1987	2001	Change
Yes	9%	25%	17%	15%	22%	7%	7%	22%	14%	3%	27%	24%
No	91%	75%	-17%	85%	78%	-7%	93%	78%	-14%	97%	73%	-24%
# Observations	288	161	92	52	25	15	92	30	23	144	106	54

D

2001 BUILDING CHARACTERISTICS TABLES—STANDARD ERRORS

Notes:

- "s" in the tables: The number of observations on a "question" for a particular building type (or the total) is less than five, the results have been suppressed.
- "m" in the tables: There are no observations in a "response category" for a particular building type (or the total).
- The total column in each of the tables reflects all of the data from all building types, not just the building types presented in the table.
- See Section 4.4.4 for an explanation of the use of these standard errors to calculate statistical confidence intervals.

D.1 RESULTS BY BUILDING TYPE

Table D1-GB1

GENERAL BUILDING INFORMATION: Total Floor Area

(Millions of Square Feet)

	STANDARD ERROR												
		BUILDING TYPE											
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hospital	Hotel/ Motel	Other Health	Other	School	Univer-sity	Vacant
Total square feet (millions)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	0.01	<0.01	<0.01	<0.01	0.01	<0.01
# Observations	1,157	177	73	247	72	125	13	43	54	180	79	59	35

Table D1-GB2
GENERAL BUILDING INFORMATION: Building Floor Area
PERCENT OF REGIONAL FLOOR AREA

BUILDING FLOOR AREA	STANDARD ERROR												
		BUILDING TYPE											
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hospital	Hotel/ Motel	Other Health	Other	School	Univer-sity	Vacant
Less than 5,000 SF	1.6%	3.9%	2.7%	2.5%	7.6%	2.2%	0.6%	4.3%	4.3%	5.3%	5.5%	1.3%	13.3%
5,000 to 19,999 SF	1.8%	4.9%	8.6%	2.9%	7.6%	4.5%	6.0%	9.7%	7.8%	5.3%	1.9%	1.3%	12.3%
20,000 to 49,999 SF	1.6%	2.6%	7.9%	3.1%	<0.1%	4.4%	3.7%	5.4%	8.1%	3.8%	7.5%	9.2%	3.4%
50,000 to 99,999 SF	1.6%	3.4%	6.8%	2.7%	<0.1%	5.0%	<0.1%	4.2%	4.3%	4.3%	7.7%	10.2%	10.0%
100,000 to 499,999 SF	2.1%	6.6%	1.2%	4.1%	<0.1%	4.5%	19.0%	7.9%	5.7%	3.9%	7.8%	14.6%	9.0%
500,000 SF or more	0.7%	0.5%	<0.1%	2.5%	<0.1%	<0.1%	19.9%	6.4%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%
# Observations	1,157	177	73	247	72	125	13	43	54	180	79	59	35

Table D1-GB3
GENERAL BUILDING INFORMATION: Building Floor Area
MEAN PER BUILDING (Square Feet)

BUILDING FLOOR AREA	STANDARD ERROR												
		BUILDING TYPE											
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hospital	Hotel/ Motel	Other Health	Other	School	Univer-sity	Vacant
Mean per building	239.7	1,367.0	1,240.3	1,726.7	366.4	1,009.0	6,151.1	1,994.2	609.3	575.1	1,352.6	3,314.0	2,262.1
# Observations	1,157	177	73	247	72	125	13	43	54	180	79	59	35

Table D1-GB4

GENERAL BUILDING INFORMATION: Conditioned Floor Area

CONDITIONED FLOOR AREA	STANDARD ERROR												
		BUILDING TYPE											
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hospital	Hotel/ Motel	Other Health	Other	School	Univer-sity	Vacant
Percent of total	1.0%	2.5%	1.1%	1.2%	3.3%	4.1%	2.1%	1.8%	1.3%	3.1%	0.3%	2.0%	9.8%
# Observations	1,029	161	63	227	66	114	13	39	48	158	72	57	11

Table D1-GB5

GENERAL BUILDING INFORMATION: Heated Floor Area

HEATED FLOOR AREA	STANDARD ERROR												
		BUILDING TYPE											
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hospital	Hotel/ Motel	Other Health	Other	School	Univer-sity	Vacant
Percent of total	1.0%	2.6%	2.8%	1.3%	3.2%	4.3%	2.1%	1.8%	1.3%	3.3%	0.6%	2.0%	9.8%
# Observations	1,018	160	63	224	65	112	13	39	48	154	72	57	11

Table D1-GB6

GENERAL BUILDING INFORMATION: Cooled Floor Area

COOLED FLOOR AREA	STANDARD ERROR												
		BUILDING TYPE											
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hospital	Hotel/ Motel	Other Health	Other	School	Univer-sity	Vacant
Percent of total	2.0%	4.3%	3.2%	1.5%	6.4%	4.1%	5.4%	5.0%	3.1%	5.5%	8.0%	5.9%	14.5%
# Observations	930	143	58	212	57	99	13	38	47	130	66	56	11

Table D1-GB7

GENERAL BUILDING INFORMATION: Unconditioned Floor Area

UNCONDITIONED FLOOR AREA	STANDARD ERROR												
		BUILDING TYPE											
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hospital	Hotel/ Motel	Other Health	Other	School	Univer-sity	Vacant
Percent of total	1.0%	2.5%	1.1%	1.2%	3.3%	4.1%	2.1%	1.8%	1.3%	3.1%	0.3%	2.0%	9.8%
# Observations	1,029	161	63	227	66	114	13	39	48	158	72	57	11

Table D1-GB8

GENERAL BUILDING INFORMATION: Refrigerated Floor Area

REFRIGERATED FLOOR AREA	STANDARD ERROR												
		BUILDING TYPE											
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hospital	Hotel/ Motel	Other Health	Other	School	Univer-sity	Vacant
Percent of total	0.2%	0.3%	1.1%	0.1%	0.4%	1.6%	<0.1%	<0.1%	0.2%	0.3%	0.1%	<0.1%	0.3%
# Observations	703	105	49	150	57	77	10	28	36	92	41	48	10

Table D1-GB9

GENERAL BUILDING INFORMATION: Vacant Floor Area

VACANT FLOOR AREA	STANDARD ERROR												
		BUILDING TYPE											
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hospital	Hotel/ Motel	Other Health	Other	School	Univer-sity	Vacant
Percent of total	0.8%	1.1%	1.3%	0.9%	<0.1%	2.1%	<0.1%	1.4%	1.8%	0.5%	<0.1%	<0.1%	3.4%
# Observations	865	131	44	171	44	98	13	36	43	144	65	57	19

Table D1-GB10
GENERAL BUILDING INFORMATION: Number Of Stories
PERCENT OF REGIONAL FLOOR AREA

NUMBER OF STORIES	STANDARD ERROR												
		BUILDING TYPE											
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hospital	Hotel/ Motel	Other Health	Other	School	Univer-sity	Vacant
1	2.2%	6.3%	7.3%	3.2%	7.9%	4.6%	6.1%	5.3%	8.2%	5.8%	7.3%	13.8%	12.4%
2 to 3	2.2%	6.2%	7.3%	3.4%	7.9%	4.6%	18.2%	9.3%	8.2%	5.8%	7.3%	9.3%	13.2%
4 to 7	1.1%	1.8%	<0.1%	3.4%	<0.1%	<0.1%	15.3%	4.8%	2.3%	2.1%	0.6%	10.3%	6.1%
8 or more	1.5%	4.6%	<0.1%	4.2%	<0.1%	<0.1%	19.9%	8.7%	1.6%	1.2%	<0.1%	7.2%	<0.1%
# Observations	1,157	177	73	247	72	125	13	43	54	180	79	59	35

Table D1-GB11
GENERAL BUILDING INFORMATION: Number Of Stories

NUMBER OF STORIES	STANDARD ERROR												
		BUILDING TYPE											
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hospital	Hotel/ Motel	Other Health	Other	School	Univer-sity	Vacant
Mean per building	0.05	0.07	0.03	0.11	0.11	0.05	0.10	0.21	0.11	0.12	0.03	0.29	0.19
# Observations	1,157	177	73	247	72	125	13	43	54	180	79	59	35

Table D1-GB12
GENERAL BUILDING INFORMATION: Multiple/Single Building
PERCENT OF REGIONAL FLOOR AREA

MULTIPLE/SINGLE BUILDING	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Multiple	2.0%	5.6%	1.1%	2.0%	4.0%	4.6%	9.0%	5.1%	5.4%	8.3%
Single	2.0%	5.6%	1.1%	2.0%	4.0%	4.6%	9.0%	5.1%	5.4%	8.3%
# Observations	1,141	175	71	244	72	124	43	53	175	78

Table D1-GB13
GENERAL BUILDING INFORMATION: Heating Fuel
PERCENT OF REGIONAL HEATED FLOOR AREA

HEATING FUEL	STANDARD ERROR												
		BUILDING TYPE											
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hospital	Hotel/ Motel	Other Health	Other	School	Univer-sity	Vacant
Electricity	2.2%	5.5%	8.3%	4.5%	7.4%	1.6%	0.6%	8.8%	8.2%	6.4%	3.4%	2.2%	21.1%
Natural gas	2.3%	5.6%	8.7%	4.5%	7.6%	2.3%	19.4%	8.3%	8.4%	6.4%	4.0%	3.0%	21.0%
Fuel oil	0.4%	1.8%	1.5%	<0.1%	<0.1%	<0.1%	13.4%	<0.1%	1.8%	<0.1%	<0.1%	<0.1%	<0.1%
Heat recovery	0.2%	<0.1%	5.9%	<0.1%	2.3%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%
LPG	0.3%	0.4%	2.2%	0.5%	1.8%	0.2%	<0.1%	<0.1%	1.9%	0.8%	1.7%	<0.1%	<0.1%
Purchased HW, steam	0.7%	0.3%	<0.1%	1.7%	<0.1%	<0.1%	20.0%	4.0%	2.6%	<0.1%	0.6%	1.7%	<0.1%
Other	0.2%	<0.1%	2.4%	<0.1%	<0.1%	1.8%	<0.1%	<0.1%	<0.1%	0.3%	<0.1%	<0.1%	<0.1%
Unknown	0.3%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	22.2%
# Observations	973	155	61	220	62	91	11	39	47	149	72	56	10

Table D1-GB14
GENERAL BUILDING INFORMATION: Cooling Fuel
PERCENT OF REGIONAL COOLED FLOOR AREA

COOLING FUEL	STANDARD ERROR												
		BUILDING TYPE											
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hospital	Hotel/ Motel	Other Health	Other	School	Univer-sity	Vacant
Electricity	0.2%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	s	<0.1%	<0.1%	<0.1%	1.3%	16.9%	s
Other	0.2%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	s	<0.1%	<0.1%	<0.1%	1.3%	16.9%	s
# Observations	692	119	50	196	45	61	4	29	37	90	48	10	3

Table D1-GB15
GENERAL BUILDING INFORMATION: Secondary Fuel Type
PERCENT OF REGIONAL CONDITIONED FLOOR AREA WITH A SECONDARY FUEL

SECONDARY FUEL TYPE	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Electricity	5.1%	10.9%	11.7%	9.7%	11.7%	6.2%	<0.1%	15.1%	15.1%	10.7%
Natural gas	5.1%	8.5%	14.3%	9.0%	17.3%	6.2%	13.7%	1.0%	16.9%	8.9%
Fuel oil	4.0%	2.9%	5.2%	7.8%	<0.1%	<0.1%	13.1%	12.9%	6.8%	19.0%
LPG	3.4%	4.1%	4.3%	3.7%	<0.1%	<0.1%	<0.1%	17.0%	0.5%	18.8%
Pur. HW or steam	1.6%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	6.6%	2.3%
Heat recovery	1.4%	5.4%	9.2%	<0.1%	11.7%	<0.1%	6.7%	<0.1%	<0.1%	3.8%
Other	1.1%	6.9%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%
# Observations	209	34	21	40	7	15	17	12	36	22

Table D1-GB16

GENERAL BUILDING INFORMATION: Business Ownership

PERCENT OF REGIONAL FLOOR AREA

BUSINESS OWNERSHIP	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Individual	2.1%	6.9%	13.4%	3.7%	9.9%	4.2%	11.0%	9.3%	6.0%	2.6%
Corporation	2.9%	7.0%	13.4%	5.3%	8.6%	4.4%	11.0%	9.3%	7.2%	<0.1%
Private university/college	0.8%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%
Religious	1.6%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	6.5%	8.0%
Federal gov't	0.7%	<0.1%	<0.1%	2.3%	<0.1%	0.9%	<0.1%	<0.1%	1.9%	<0.1%
Local/state gov't	2.6%	<0.1%	<0.1%	3.0%	<0.1%	0.8%	<0.1%	0.5%	7.7%	9.5%
Other	1.1%	1.9%	<0.1%	3.3%	6.7%	0.6%	<0.1%	<0.1%	2.5%	6.1%
# Observations	659	97	35	137	41	78	28	38	86	40

Table D1-GB17

GENERAL BUILDING INFORMATION: Climate Zone

PERCENT OF REGIONAL FLOOR AREA

CLIMATE ZONE	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Zone 1: 4000 to 6000 HDD	1.5%	5.0%	6.6%	2.0%	6.4%	3.8%	7.2%	6.5%	2.7%	5.9%
Zone 2: 6001 to 8000 HDD	1.4%	4.8%	5.3%	1.7%	6.1%	3.8%	7.2%	6.5%	2.6%	5.7%
Zone 3: More than 8000 HDD	0.5%	1.5%	4.6%	1.0%	2.2%	0.6%	<0.1%	<0.1%	0.9%	1.7%
# Observations	1,157	177	73	247	72	125	43	54	180	79

Table D1-OM1
BUILDING OCCUPANCY AND MANAGEMENT: Year Constructed
PERCENT OF REGIONAL FLOOR AREA

YEAR CONSTRUCTED	STANDARD ERROR												
		BUILDING TYPE											
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hospital	Hotel/ Motel	Other Health	Other	School	Univer-sity	Vacant
Before 1950	1.7%	5.4%	1.8%	2.8%	7.9%	2.4%	13.6%	5.8%	4.0%	4.8%	6.6%	6.3%	7.2%
1950 to 1969	1.8%	4.1%	8.7%	2.3%	4.1%	2.1%	19.3%	6.9%	5.8%	3.7%	8.5%	12.0%	11.7%
1970 to 1979	2.0%	5.7%	6.6%	3.5%	7.9%	4.3%	16.8%	8.5%	7.4%	5.0%	6.4%	14.1%	10.8%
1980 to 1987	1.8%	4.7%	6.5%	4.2%	4.6%	4.3%	<0.1%	8.8%	6.6%	4.9%	0.2%	<0.1%	4.4%
1988 to 1994	0.9%	1.8%	3.9%	1.2%	1.9%	3.6%	<0.1%	4.1%	5.2%	2.7%	3.8%	2.8%	1.2%
1995 to 2001	1.3%	2.6%	5.5%	2.8%	3.5%	4.8%	4.7%	4.1%	6.6%	4.0%	3.9%	3.0%	<0.1%
Unknown	0.9%	2.3%	1.0%	1.2%	4.4%	3.5%	2.1%	0.2%	1.5%	1.9%	<0.1%	<0.1%	13.2%
# Observations	1,157	177	73	247	72	125	13	43	54	180	79	59	35

Table D1-OM2
BUILDING OCCUPANCY AND MANAGEMENT: Year Constructed
MEAN PER BUILDING

YEAR CONSTRUCTED	STANDARD ERROR												
		BUILDING TYPE											
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hospital	Hotel/ Motel	Other Health	Other	School	Univer-sity	Vacant
Mean per building	1.9	4.5	2.9	2.5	4.5	1.6	5.9	1.1	1.9	4.9	0.7	2.1	3.3
# Observations	1,116	167	71	244	67	118	11	42	53	175	79	59	30

Table D1-OM3
BUILDING OCCUPANCY AND MANAGEMENT: Building Age

BUILDING AGE	STANDARD ERROR												
		BUILDING TYPE											
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hospital	Hotel/ Motel	Other Health	Other	School	Univer-sity	Vacant
Mean per building	1.9	4.5	2.9	2.5	4.5	1.6	5.9	1.1	1.9	4.9	0.7	2.1	3.3
# Observations	1,116	167	71	244	67	118	11	42	53	175	79	59	30

Table D1-OM4
BUILDING OCCUPANCY AND MANAGEMENT: Tenants Own
PERCENT OF REGIONAL FLOOR AREA

TENANTS OWN	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	2.7%	6.3%	4.9%	4.7%	10.1%	6.6%	4.4%	10.3%	4.5%	<0.1%
No	2.7%	6.3%	4.9%	4.7%	10.1%	6.6%	4.4%	10.3%	4.5%	<0.1%
# Observations	613	100	35	130	44	76	29	32	96	43

Table D1-OM5
BUILDING OCCUPANCY AND MANAGEMENT: Tenants Lease
PERCENT OF REGIONAL FLOOR AREA

TENANTS LEASE	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	2.7%	7.0%	4.9%	4.8%	10.1%	6.6%	3.0%	10.3%	4.5%	<0.1%
No	2.7%	7.0%	4.9%	4.8%	10.1%	6.6%	3.0%	10.3%	4.5%	<0.1%
# Observations	605	98	35	128	44	76	27	32	95	42

Table D1-SP1
SPACE INFORMATION: Number Of Tenants
PERCENT OF REGIONAL FLOOR AREA

NUMBER OF TENANTS	STANDARD ERROR												
		BUILDING TYPE											
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hospital	Hotel/ Motel	Other Health	Other	School	Univer-sity	Vacant
1	3.0%	9.1%	10.6%	7.9%	12.4%	6.3%	s	<0.1%	12.5%	2.3%	<0.1%	s	s
2 to 4	1.2%	3.1%	<0.1%	2.7%	12.4%	3.6%	s	<0.1%	8.8%	2.0%	<0.1%	s	s
5 to 9	1.8%	5.9%	10.6%	5.5%	<0.1%	5.2%	s	<0.1%	8.6%	0.1%	<0.1%	s	s
10 or more	2.3%	7.7%	<0.1%	7.4%	<0.1%	<0.1%	s	<0.1%	7.3%	1.1%	<0.1%	s	s
# Observations	344	57	27	84	39	28	0	15	18	55	19	0	2

Table D1-SP2
SPACE INFORMATION: Number Of Tenants
MEAN PER BUILDING

NUMBER OF TENANTS	STANDARD ERROR												
		BUILDING TYPE											
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hospital	Hotel/ Motel	Other Health	Other	School	Univer-sity	Vacant
Mean per building	0.09	0.39	0.59	0.38	0.10	0.10	s	0.00	0.62	0.03	0.00	s	s
# Observations	344	57	27	84	39	28	0	15	18	55	19	0	2

Table D1-SP3

SPACE INFORMATION: Average Lease Length

PERCENT OF REGIONAL FLOOR AREA

AVERAGE LEASE LENGTH	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Less than 6 months	4.1%	7.1%	<0.1%	6.7%	28.5%	13.1%	s	7.5%	7.1%	s
6 months to 2 years	4.1%	10.7%	28.4%	2.3%	30.1%	9.4%	s	15.9%	13.3%	s
More than 2, less than 5 years	3.9%	9.9%	<0.1%	5.9%	1.2%	<0.1%	s	<0.1%	20.4%	s
5 years	6.2%	15.5%	28.4%	8.4%	1.0%	11.9%	s	13.9%	11.9%	s
More than 5 years	2.5%	3.2%	<0.1%	1.4%	19.1%	6.4%	s	<0.1%	15.6%	s
# Observations	120	24	5	47	5	19	1	7	11	1

Table D1-SP4

SPACE INFORMATION: Lease Includes Electric Utilities

PERCENT OF REGIONAL FLOOR AREA

LEASE INCLUDES ELECTRIC UTILITIES	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	4.7%	10.2%	3.8%	7.3%	7.8%	8.9%	s	10.4%	13.5%	s
No	4.7%	10.2%	3.8%	7.3%	7.8%	8.9%	s	10.4%	13.5%	s
# Observations	211	42	11	60	11	41	4	14	22	4

Table D1-SP5

SPACE INFORMATION: Lease Includes Gas Utilities

PERCENT OF REGIONAL FLOOR AREA

LEASE INCLUDES GAS UTILITIES	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	4.8%	10.4%	3.7%	8.0%	7.8%	7.5%	s	10.2%	13.3%	s
No	4.8%	10.4%	3.7%	8.0%	7.8%	7.5%	s	10.2%	13.3%	s
# Observations	182	42	10	52	11	27	3	13	18	4

Table D1-SP6

SPACE INFORMATION: Lease Includes Heating

PERCENT OF REGIONAL FLOOR AREA

LEASE INCLUDES HEATING	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	6.5%	8.4%	1.1%	8.2%	1.9%	15.2%	s	19.5%	24.0%	s
No	6.5%	8.4%	1.1%	8.2%	1.9%	15.2%	s	19.5%	24.0%	s
# Observations	112	20	5	49	8	13	0	7	10	0

Table D1-SP7

SPACE INFORMATION: Lease Includes Cooling

PERCENT OF REGIONAL FLOOR AREA

LEASE INCLUDES COOLING	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	6.5%	8.9%	1.1%	8.2%	2.2%	15.4%	s	19.5%	24.2%	s
No	6.5%	8.9%	1.1%	8.2%	2.2%	15.4%	s	19.5%	24.2%	s
# Observations	108	18	5	49	7	13	0	7	9	0

Table D1-SP8

SPACE INFORMATION: Lease Includes Hot Water

PERCENT OF REGIONAL FLOOR AREA

LEASE INCLUDES HOT WATER	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	6.4%	9.7%	1.1%	8.2%	1.9%	15.2%	s	19.5%	24.0%	s
No	6.4%	9.7%	1.1%	8.2%	1.9%	15.2%	s	19.5%	24.0%	s
# Observations	112	20	5	49	8	13	0	7	10	0

Table D1-SP9

SPACE INFORMATION: Lease includes Indoor Lighting

PERCENT OF REGIONAL FLOOR AREA

LEASE INCLUDES INDOOR LIGHTING	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	5.7%	8.4%	1.1%	8.2%	1.9%	9.5%	s	18.8%	3.0%	s
No	5.7%	8.4%	1.1%	8.2%	1.9%	9.5%	s	18.8%	3.0%	s
# Observations	127	20	5	49	8	27	0	7	11	0

Table D1-SP10

SPACE INFORMATION: Lease includes Outdoor Lighting

PERCENT OF REGIONAL FLOOR AREA

LEASE INCLUDES OUTDOOR LIGHTING	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	5.7%	11.3%	8.0%	8.2%	1.9%	16.2%	s	20.7%	5.7%	s
No	5.7%	11.3%	8.0%	8.2%	1.9%	16.2%	s	20.7%	5.7%	s
# Observations	114	21	5	49	8	12	1	7	10	0

Table D1-SP11

SPACE INFORMATION: Tenants, Manual Heating

PERCENT OF REGIONAL FLOOR AREA

TENANTS, MANUAL HEATING	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	3.8%	7.6%	14.9%	6.2%	6.8%	7.9%	9.0%	11.1%	10.9%	3.7%
No	3.8%	7.6%	14.9%	6.2%	6.8%	7.9%	9.0%	11.1%	10.9%	3.7%
# Observations	376	51	19	84	22	37	20	18	47	26

Table D1-SP12

SPACE INFORMATION: Tenants, Manual Cooling

PERCENT OF REGIONAL FLOOR AREA

TENANTS, MANUAL COOLING	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	4.2%	8.0%	14.6%	6.2%	8.0%	12.4%	7.1%	11.1%	12.5%	1.0%
No	4.2%	8.0%	14.6%	6.2%	8.0%	12.4%	7.1%	11.1%	12.5%	1.0%
# Observations	298	47	20	84	19	24	18	18	40	19

Table D1-SP13

SPACE INFORMATION: Franchise

PERCENT OF REGIONAL FLOOR AREA

FRANCHISE	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	0.9%	3.2%	5.5%	1.6%	3.6%	0.9%	<0.1%	<0.1%	2.0%	<0.1%
No	0.9%	3.2%	5.5%	1.6%	3.6%	0.9%	<0.1%	<0.1%	2.0%	<0.1%
# Observations	571	97	39	120	45	79	27	36	87	30

Table D1-SP14

SPACE INFORMATION: Chain

PERCENT OF REGIONAL FLOOR AREA

CHAIN	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	2.7%	7.8%	11.5%	5.0%	7.6%	6.8%	10.8%	6.7%	4.0%	7.1%
No	2.7%	7.8%	11.5%	5.0%	7.6%	6.8%	10.8%	6.7%	4.0%	7.1%
# Observations	571	97	39	120	45	79	27	36	87	30

Table D1-SP15

SPACE INFORMATION: Functional Use

PERCENT OF REGIONAL FLOOR AREA

Standard errors not available.

Table D1-SC1

TYPICAL OPERATING WEEK SCHEDULE INFORMATION: Weekly Hours Of Operation

PERCENT OF REGIONAL FLOOR AREA

WEEKLY HOURS OF OPERATION	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Less than 40	1.6%	1.7%	1.1%	1.7%	0.6%	2.4%	<0.1%	<0.1%	4.3%	<0.1%
40 to 49	2.3%	6.5%	<0.1%	5.0%	0.6%	6.6%	<0.1%	9.1%	6.4%	10.2%
50 to 59	2.4%	5.7%	2.0%	5.0%	4.6%	6.9%	<0.1%	7.8%	7.4%	11.0%
60 to 79	1.9%	7.0%	2.6%	4.4%	7.3%	1.5%	3.0%	8.6%	1.0%	8.3%
80 to 119	1.8%	6.0%	11.3%	2.5%	8.7%	3.9%	<0.1%	6.3%	5.0%	6.2%
120 to 167	1.7%	<0.1%	7.5%	1.1%	3.5%	5.0%	4.9%	<0.1%	7.3%	<0.1%
168 (always open)	2.0%	0.1%	9.0%	2.5%	3.5%	2.3%	5.7%	8.6%	7.0%	<0.1%
# Observations	705	105	47	160	52	75	27	33	79	37

Table D1-SC2

TYPICAL OPERATING WEEK SCHEDULE INFORMATION: Weekly Hours of Operation, Average

WEEKLY HOURS OF OPERATION, AVERAGE	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Average (weight bldg sqft)	2.7	2.7	6.0	3.2	4.3	4.8	3.3	9.9	8.7	3.0
# Observations	705	105	47	160	52	75	27	33	79	37

Table D1-SC3

TYPICAL OPERATING WEEK SCHEDULE INFORMATION: Primary Schedule, Open 24 Hr

PERCENT OF REGIONAL FLOOR AREA

PRIMARY SCHEDULE, OPEN 24 HR	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	2.0%	0.2%	9.0%	2.6%	3.5%	2.6%	3.1%	8.5%	7.1%	<0.1%
No	2.0%	0.2%	9.0%	2.6%	3.5%	2.6%	3.1%	8.5%	7.1%	<0.1%
# Observations	705	105	47	160	52	75	27	33	79	37

Table D1-SC4

TYPICAL OPERATING WEEK SCHEDULE INFORMATION: Primary Schedule, Open Saturday

PERCENT OF REGIONAL FLOOR AREA

PRIMARY SCHEDULE, OPEN SATURDAY	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	2.8%	6.2%	<0.1%	5.0%	3.6%	6.2%	3.0%	10.1%	7.1%	5.8%
No	2.8%	6.2%	<0.1%	5.0%	3.6%	6.2%	3.0%	10.1%	7.1%	5.8%
# Observations	703	105	47	159	52	75	27	32	79	37

Table D1-SC5

TYPICAL OPERATING WEEK SCHEDULE INFORMATION: Primary Schedule, Open Sunday

PERCENT OF REGIONAL FLOOR AREA

PRIMARY SCHEDULE, OPEN SUNDAY	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	2.7%	7.2%	11.7%	3.8%	6.6%	5.8%	3.0%	9.7%	7.0%	1.3%
No	2.7%	7.2%	11.7%	3.8%	6.6%	5.8%	3.0%	9.7%	7.0%	1.3%
# Observations	702	104	47	159	52	75	27	32	79	37

Table D1-EN1

ENVELOPE INFORMATION: Wall Construction Type

PERCENT OF REGIONAL WALL AREA

WALL CONSTRUCTION TYPE	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Concrete	4.3%	9.6%	6.0%	9.6%	17.8%	13.6%	s	s	7.7%	4.4%
Concrete block	4.6%	9.4%	10.4%	8.2%	12.8%	14.3%	s	s	8.4%	15.7%
Brick	3.1%	5.0%	7.6%	6.9%	14.6%	<0.1%	s	s	2.4%	15.3%
Metal	4.3%	3.6%	5.8%	12.2%	<0.1%	8.9%	s	s	8.3%	4.2%
Wood	1.4%	0.3%	<0.1%	0.7%	3.9%	<0.1%	s	s	2.9%	13.3%
# Observations	208	34	23	52	16	22	0	4	41	13

Table D1-EN2

ENVELOPE INFORMATION: Primary Wall Framing type

PERCENT OF REGIONAL WALL AREA

PRIMARY WALL FRAMING TYPE	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Metal	3.9%	8.4%	13.0%	7.3%	16.5%	12.8%	14.5%	7.1%	6.3%	11.4%
Wood	3.9%	8.4%	13.0%	7.3%	16.5%	12.8%	14.5%	7.1%	6.3%	11.4%
# Observations	209	22	7	49	12	24	10	7	46	24

Table D1-EN3

ENVELOPE INFORMATION: Average Layers of Window Glazing

PERCENT OF REGIONAL WINDOW AREA

AVERAGE LAYERS OF WINDOW GLAZING	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
1 layer	3.1%	9.2%	11.3%	4.9%	6.5%	20.3%	<0.1%	<0.1%	6.6%	1.1%
2 layers	3.1%	9.2%	11.3%	4.9%	6.5%	20.3%	<0.1%	<0.1%	6.6%	1.1%
3 layers	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%
# Observations	287	35	23	69	19	27	10	8	59	28

Table D1-EN4

ENVELOPE INFORMATION: Window Glaze Type

PERCENT OF REGIONAL WINDOW AREA

WINDOW GLAZE TYPE	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Clear	2.9%	12.2%	11.3%	4.0%	9.8%	9.7%	16.8%	11.1%	5.6%	12.5%
Reflective	3.3%	<0.1%	6.7%	7.7%	<0.1%	2.0%	<0.1%	<0.1%	1.5%	1.2%
Tinted	4.0%	12.2%	12.0%	7.9%	9.8%	10.7%	16.8%	11.1%	5.9%	12.6%
Opaque	0.2%	<0.1%	<0.1%	<0.1%	<0.1%	2.5%	<0.1%	<0.1%	<0.1%	<0.1%
# Observations	281	34	22	69	20	27	9	9	55	27

Table D1-EN5

ENVELOPE INFORMATION: Predominant Window Glazing Low E/Gas Type

PERCENT OF REGIONAL WINDOW AREA

PREDOMINANT WINDOW GLAZING LOW E/GAS TYPE	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Gas-filled	6.8%	18.9%	20.4%	10.9%	<0.1%	13.6%	23.9%	s	13.4%	16.8%
Low-E	5.0%	18.1%	<0.1%	9.8%	<0.1%	<0.1%	25.6%	s	9.7%	14.5%
Neither	5.7%	18.2%	20.4%	5.6%	<0.1%	13.6%	9.9%	s	11.3%	20.5%
# Observations	123	10	5	27	7	13	6	3	33	14

Table D1-EN6

ENVELOPE INFORMATION: Predominant Window Frame Type

PERCENT OF REGIONAL WINDOW AREA

PREDOMINANT WINDOW FRAME TYPE	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Metal	2.1%	8.4%	6.5%	1.7%	13.3%	2.8%	14.6%	8.9%	3.9%	5.6%
Vinyl	2.0%	8.3%	<0.1%	1.4%	9.8%	2.8%	14.6%	8.9%	3.9%	4.4%
Wood	0.6%	1.0%	6.5%	1.0%	10.6%	<0.1%	<0.1%	<0.1%	0.2%	3.3%
# Observations	288	35	23	68	20	27	10	9	59	28

Table D1-EN7

ENVELOPE INFORMATION: Window Type

PERCENT OF REGIONAL WINDOW AREA

WINDOW TYPE	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Fixed	1.3%	8.5%	<0.1%	1.9%	3.2%	0.8%	s	s	0.3%	3.0%
Operable	1.3%	8.5%	<0.1%	1.9%	3.2%	0.8%	s	s	0.3%	3.0%
# Observations	162	25	18	43	19	13	1	2	30	9

Table D1-EN8

ENVELOPE INFORMATION: Primary Roof Surface Construction Code

PERCENT OF REGIONAL FLOOR AREA

PRIMARY ROOF SURFACE CONSTRUCTION CODE	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Built-up	2.9%	8.1%	10.2%	5.4%	10.7%	6.8%	11.4%	8.6%	8.0%	8.4%
Cool roof	0.3%	<0.1%	<0.1%	<0.1%	<0.1%	0.4%	<0.1%	<0.1%	0.7%	1.7%
Membrane	2.2%	8.2%	2.2%	3.6%	<0.1%	3.9%	5.9%	4.0%	3.8%	8.6%
Metal	2.7%	7.9%	10.1%	5.1%	8.5%	6.3%	9.6%	8.5%	7.1%	8.4%
Shingles/felt	2.5%	3.9%	1.6%	2.7%	10.0%	1.5%	9.3%	8.8%	7.5%	10.2%
# Observations	610	79	47	156	39	76	26	41	84	45

Table D1-EN9

ENVELOPE INFORMATION: Skylights

PERCENT OF REGIONAL FLOOR AREA

SKYLIGHTS	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	2.5%	6.2%	6.4%	4.5%	5.3%	5.6%	9.7%	8.9%	7.6%	6.3%
No	2.5%	6.2%	6.4%	4.5%	5.3%	5.6%	9.7%	8.9%	7.6%	6.3%
# Observations	653	106	39	148	44	91	26	39	94	45

Table D1-EN10

ENVELOPE INFORMATION: Floor Construction Type

PERCENT OF REGIONAL FLOOR AREA

FLOOR CONSTRUCTION TYPE	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Basement	1.6%	2.6%	<0.1%	4.7%	2.4%	<0.1%	8.4%	6.6%	3.5%	5.0%
Crawl	1.1%	1.2%	5.7%	2.1%	6.2%	1.4%	1.4%	6.4%	2.9%	4.4%
Slab	1.9%	3.0%	5.7%	4.8%	7.0%	1.4%	8.4%	8.4%	4.6%	6.4%
Unconditioned	0.4%	0.9%	<0.1%	0.8%	3.3%	<0.1%	<0.1%	2.5%	1.6%	<0.1%
# Observations	861	131	60	201	62	96	35	44	141	65

Table D1-EN11

ENVELOPE INFORMATION: Wall Area:Gross Floor Area

	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
WALL AREA:GROSS FLOOR AREA	0.034	0.040	0.023	0.047	0.078	0.204	0.070	0.084	0.044	0.049
# Observations	341	49	29	83	20	31	10	10	65	31

Table D1-EN12

ENVELOPE INFORMATION: Window Area:Wall Area

	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
WINDOW AREA:WALL AREA	0.007	0.012	0.010	0.015	0.017	0.011	0.007	0.022	0.012	0.017
# Observations	286	35	23	68	19	27	10	8	59	28

Table D1-HS1

HVAC SYSTEM SUMMARY: Central Air Handler Age (Oldest Air Handler)

PERCENT OF REGIONAL CONDITIONED FLOOR AREA SERVED BY A CENTRAL AIR HANDLER

CENTRAL AIR HANDLER AGE (OLDEST AIR HANDLER)	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
1 to 4 years	4.2%	9.3%	11.3%	6.5%	11.0%	19.0%	14.8%	14.5%	10.0%	11.1%
5 to 9 years	3.5%	9.3%	10.0%	3.7%	11.0%	19.0%	5.2%	8.5%	8.6%	10.7%
10 to 19 years	1.7%	1.5%	7.9%	3.7%	<0.1%	<0.1%	9.4%	<0.1%	4.8%	1.2%
20 to 29 years	4.3%	<0.1%	<0.1%	7.2%	<0.1%	<0.1%	12.0%	13.1%	13.3%	5.4%
30+ years	3.4%	<0.1%	<0.1%	3.1%	<0.1%	<0.1%	18.5%	<0.1%	6.8%	11.7%
# Observations	291	35	20	90	8	12	11	11	51	41

Table D1-HS2

HVAC SYSTEM SUMMARY: Central Chiller Age (Oldest Chiller)

PERCENT OF REGIONAL COOLED FLOOR AREA SERVED BY A CENTRAL CHILLER

CENTRAL CHILLER AGE (OLDEST CHILLER)	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
1 to 4 years	7.2%	s	<0.1%	9.7%	s	s	14.0%	24.9%	15.8%	17.6%
5 to 9 years	2.1%	s	<0.1%	<0.1%	s	s	7.0%	<0.1%	1.1%	17.6%
10 to 19 years	5.3%	s	<0.1%	7.0%	s	s	19.6%	24.9%	15.7%	<0.1%
20 to 29 years	7.4%	s	<0.1%	9.8%	s	s	<0.1%	<0.1%	<0.1%	<0.1%
30+ years	4.0%	s	<0.1%	4.7%	s	s	21.9%	<0.1%	<0.1%	<0.1%
# Observations	78	2	5	37	0	0	6	5	8	8

Table D1-HS3

HVAC SYSTEM SUMMARY: Boiler Age (Oldest Boiler)

PERCENT OF REGIONAL HEATED FLOOR AREA SERVED BY A BOILER

BOILER AGE (OLDEST BOILER)	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
1 to 4 years	6.4%	s	s	8.5%	s	s	16.0%	20.9%	15.2%	10.8%
5 to 9 years	4.7%	s	s	5.9%	s	s	<0.1%	<0.1%	9.5%	10.7%
10 to 19 years	5.3%	s	s	7.5%	s	s	8.1%	20.9%	8.2%	12.2%
20 to 29 years	4.6%	s	s	6.8%	s	s	17.4%	<0.1%	9.7%	<0.1%
30+ years	4.0%	s	s	5.4%	s	s	<0.1%	<0.1%	9.4%	8.5%
# Observations	131	3	0	47	0	1	6	6	22	37

Table D1-HS4

HVAC SYSTEM SUMMARY: Central Boiler Fuel

PERCENT OF REGIONAL HEATED FLOOR AREA SERVED BY A BOILER

CENTRAL BOILER FUEL	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Electricity	4.2%	31.0%	s	8.5%	s	s	17.4%	13.1%	<0.1%	0.9%
Natural gas	4.3%	30.6%	s	8.5%	s	s	17.4%	16.2%	0.4%	2.6%
Fuel oil	0.5%	<0.1%	s	1.8%	s	s	<0.1%	<0.1%	<0.1%	<0.1%
LPG	0.9%	2.9%	s	0.3%	s	s	<0.1%	9.0%	0.4%	2.4%
Other	0.4%	<0.1%	s	<0.1%	s	s	<0.1%	7.3%	<0.1%	<0.1%
# Observations	160	6	1	58	0	1	11	8	27	44

Table D1-HS5

HVAC SYSTEM SUMMARY: Total Boiler Capacity (MMBTU)

PERCENT OF REGIONAL HEATED FLOOR AREA SERVED BY A BOILER

TOTAL BOILER CAPACITY (MMBTU)	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Less than 500 MMBTU	1.9%	s	s	4.3%	s	s	<0.1%	s	2.5%	3.3%
500 to 999 MMBTU	4.1%	s	s	10.3%	s	s	8.4%	s	9.7%	2.8%
1000 to 1999 MMBTU	6.0%	s	s	8.1%	s	s	16.5%	s	1.5%	11.7%
2000 to 3999 MMBTU	7.5%	s	s	7.9%	s	s	18.3%	s	20.4%	9.6%
4000 to 6999 MMBTU	6.4%	s	s	7.6%	s	s	<0.1%	s	4.3%	12.4%
7000 or more MMBTU	5.0%	s	s	7.4%	s	s	<0.1%	s	16.7%	4.6%
# Observations	100	1	0	32	0	1	5	4	18	36

Table D1-HS6

HVAC SYSTEM SUMMARY: Average (weight sqft) Packaged HVAC System Vintage

PERCENT OF REGIONAL CONDITIONED FLOOR AREA SERVED BY A PACKAGED SYSTEM

AVERAGE (WEIGHT SQFT) PACKAGED HVAC SYSTEM VINTAGE	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
4 years or less	2.4%	5.1%	8.8%	5.4%	3.5%	6.8%	9.6%	8.4%	5.6%	5.8%
5 to 9 years	3.2%	7.3%	9.1%	3.4%	10.7%	8.2%	14.8%	9.3%	7.2%	12.7%
10 to 14 years	3.5%	5.1%	5.3%	5.3%	10.7%	5.2%	9.0%	12.9%	10.3%	11.8%
15 to 19 years	1.9%	4.1%	14.1%	4.2%	<0.1%	5.8%	13.1%	<0.1%	2.5%	<0.1%
20 or more years	2.1%	4.6%	2.2%	6.0%	9.4%	7.1%	<0.1%	7.4%	3.3%	4.5%
# Observations	519	82	38	136	34	57	19	22	91	36

Table D1-HS7

HVAC SYSTEM SUMMARY: Average (weight tons) Packaged HVAC System Vintage

PERCENT OF REGIONAL CONDITIONED FLOOR AREA SERVED BY A PACKAGED SYSTEM

AVERAGE (WEIGHT TONS) PACKAGED HVAC SYSTEM VINTAGE	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
4 years or less	3.2%	5.9%	9.1%	5.7%	9.4%	8.3%	10.3%	11.6%	9.5%	6.5%
5 to 9 years	3.5%	7.0%	9.4%	4.1%	12.1%	9.7%	15.4%	14.2%	7.9%	14.8%
10 to 14 years	3.0%	3.3%	5.3%	5.5%	6.5%	4.4%	12.8%	9.9%	4.9%	14.9%
15 to 19 years	3.0%	2.3%	14.4%	2.0%	<0.1%	9.2%	11.6%	<0.1%	10.4%	2.6%
20 or more years	2.0%	0.4%	<0.1%	6.4%	10.4%	4.3%	<0.1%	6.1%	2.4%	<0.1%
# Observations	455	70	36	128	27	42	18	19	83	28

Table D1-HS8

HVAC SYSTEM SUMMARY: HVAC System Upgrades Within Last 5 Years

PERCENT OF REGIONAL CONDITIONED FLOOR AREA

HVAC SYSTEM UPGRADES WITHIN LAST 5 YEARS	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	3.5%	8.1%	16.0%	5.5%	11.3%	6.8%	12.3%	10.4%	11.9%	11.7%
No	3.5%	8.1%	16.0%	5.5%	11.3%	6.8%	12.3%	10.4%	11.9%	11.7%
# Observations	423	58	19	91	28	38	21	25	55	32

Table D1-HS9

HVAC SYSTEM SUMMARY: Primary HVAC, Equipment

PERCENT OF REGIONAL CONDITIONED FLOOR AREA

PRIMARY HVAC, EQUIPMENT	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Boiler/chiller	1.8%	3.8%	0.8%	3.7%	<0.1%	<0.1%	9.4%	8.4%	4.4%	5.8%
Duct heat/chiller	0.8%	0.7%	2.8%	2.7%	<0.1%	3.9%	<0.1%	2.9%	0.5%	<0.1%
Water loop ht pump	1.2%	5.0%	<0.1%	3.1%	<0.1%	<0.1%	<0.1%	1.6%	1.1%	2.1%
Boiler only	2.1%	0.7%	<0.1%	2.1%	<0.1%	1.1%	8.5%	4.1%	3.8%	8.9%
Chiller only	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%
Pkg heat/DX cool	2.4%	6.3%	8.4%	4.1%	8.8%	6.1%	4.7%	9.5%	6.0%	7.5%
Duct heat/DX cool	1.5%	1.4%	1.3%	3.0%	<0.1%	<0.1%	<0.1%	3.5%	5.9%	1.8%
Air-air ht pump	1.1%	2.5%	5.8%	2.8%	7.7%	1.7%	8.4%	3.2%	2.3%	1.9%
Pkg heat only	1.4%	3.7%	1.4%	<0.1%	1.1%	0.9%	4.9%	<0.1%	5.4%	0.9%
DX cool only	0.2%	0.6%	1.0%	0.6%	0.1%	<0.1%	<0.1%	0.2%	<0.1%	<0.1%
Evap cool only	<0.1%	<0.1%	0.1%	<0.1%	1.3%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%
Pkg heat/evap cool	0.1%	0.6%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	0.3%	<0.1%
Heat rec/DX cool	0.3%	<0.1%	6.0%	<0.1%	2.8%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%
Unit heat/cool	0.6%	<0.1%	<0.1%	<0.1%	<0.1%	0.5%	8.7%	5.3%	1.4%	<0.1%
Unit heat only	1.5%	3.7%	2.3%	1.1%	5.8%	6.8%	0.4%	2.1%	4.7%	1.5%
Boiler/DX cool	0.4%	0.3%	<0.1%	1.3%	<0.1%	<0.1%	<0.1%	<0.1%	1.2%	0.3%
# Observations	889	149	60	216	58	106	32	38	142	70

Table D1-HS10

HVAC SYSTEM SUMMARY: Primary HVAC, Heat Fuel

PERCENT OF REGIONAL CONDITIONED FLOOR AREA

PRIMARY HVAC, HEAT FUEL	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Electricity	2.4%	5.8%	9.8%	4.6%	8.5%	4.5%	10.0%	8.0%	6.5%	3.4%
Natural gas	2.5%	5.8%	9.3%	4.6%	8.6%	4.8%	9.5%	8.5%	6.5%	4.1%
Heat recovery	0.3%	<0.1%	6.0%	<0.1%	2.8%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%
Fuel oil	0.3%	1.8%	1.5%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%
LPG	0.4%	0.4%	2.3%	0.5%	1.8%	0.2%	<0.1%	2.6%	0.8%	1.8%
Pur. HW, steam	0.5%	0.3%	<0.1%	1.4%	<0.1%	<0.1%	5.1%	3.2%	<0.1%	0.6%
None	0.2%	0.6%	1.0%	0.6%	1.3%	<0.1%	<0.1%	0.2%	<0.1%	<0.1%
Other	0.2%	<0.1%	<0.1%	<0.1%	<0.1%	1.8%	<0.1%	<0.1%	0.3%	<0.1%
# Observations	889	149	60	216	58	106	32	38	142	70

Table D1-HS11

HVAC SYSTEM SUMMARY: Primary HVAC, Cool Fuel

PERCENT OF REGIONAL CONDITIONED FLOOR AREA

PRIMARY HVAC, COOL FUEL	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Electricity	2.5%	4.9%	2.7%	2.7%	5.9%	6.8%	9.3%	4.5%	6.8%	8.8%
None	2.5%	4.9%	2.7%	2.7%	5.9%	6.8%	9.3%	4.5%	6.8%	8.8%
Other	0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	0.6%
# Observations	889	149	60	216	58	106	32	38	142	70

Table D1-HS12
HVAC SYSTEM SUMMARY: Pri HVAC Sys, Heat Eqpt
PERCENT OF REGIONAL HEATED FLOOR AREA

PRI HVAC SYS, HEAT EQPT	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Space heating not listed	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	0.4%	<0.1%	<0.1%	<0.1%	<0.1%
Electric baseboard	0.1%	<0.1%	<0.1%	0.4%	<0.1%	0.9%	<0.1%	<0.1%	<0.1%	<0.1%
Water boiler	2.2%	3.9%	0.8%	3.6%	<0.1%	<0.1%	8.5%	7.7%	5.1%	9.2%
Steam boiler	2.3%	0.3%	<0.1%	2.7%	<0.1%	<0.1%	3.6%	5.6%	5.7%	19.7%
Furnace	2.6%	6.3%	8.3%	4.3%	9.1%	6.4%	6.5%	9.5%	7.0%	7.5%
Resistance heater	0.3%	<0.1%	<0.1%	0.5%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	2.7%
Duct heater	1.6%	1.5%	2.9%	3.6%	<0.1%	4.2%	<0.1%	4.5%	6.0%	1.8%
Infrared heater	0.3%	<0.1%	<0.1%	<0.1%	<0.1%	6.9%	<0.1%	<0.1%	<0.1%	<0.1%
Unit heater	2.2%	5.5%	1.2%	1.1%	7.6%	39.0%	0.4%	2.2%	10.0%	0.9%
Unit ventilator	0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	1.2%
Steam/heat recovery heat exchanger	0.6%	0.3%	6.4%	1.5%	2.7%	<0.1%	5.1%	3.1%	<0.1%	<0.1%
No heating system	0.2%	<0.1%	<0.1%	0.6%	1.5%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%
Water-source heat pump	1.7%	6.7%	<0.1%	3.3%	<0.1%	<0.1%	<0.1%	1.7%	2.3%	4.1%
Heat/cool wall/window unit	0.7%	<0.1%	<0.1%	<0.1%	<0.1%	0.5%	8.8%	5.3%	1.4%	<0.1%
Air-source heat pump	1.1%	2.5%	5.8%	2.9%	8.0%	1.1%	8.5%	3.2%	2.4%	1.9%
Boiler: type unknown	0.5%	<0.1%	<0.1%	0.1%	<0.1%	<0.1%	8.5%	<0.1%	<0.1%	0.6%
# Observations	878	148	60	213	57	104	32	38	138	70

Table D1-HS13
HVAC SYSTEM SUMMARY: Pri HVAC Sys, Cool Eqpt
PERCENT OF REGIONAL COOLED FLOOR AREA

PRI HVAC SYS, COOL EQPT	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Air-source heat pump	1.6%	3.3%	6.6%	3.0%	7.0%	5.1%	9.1%	3.4%	4.3%	3.9%
Water-source heat pump	1.7%	6.6%	<0.1%	3.3%	<0.1%	<0.1%	<0.1%	1.7%	0.9%	4.0%
Heat/cool wall/window unit	0.9%	<0.1%	<0.1%	<0.1%	<0.1%	1.6%	9.4%	5.5%	2.6%	<0.1%
Evaporative cooler	0.2%	0.8%	0.1%	<0.1%	1.6%	<0.1%	<0.1%	<0.1%	0.6%	<0.1%
Window/thru wall unit	0.2%	<0.1%	<0.1%	<0.1%	0.1%	<0.1%	<0.1%	<0.1%	1.2%	<0.1%
Direct expansion unit	2.9%	7.6%	7.4%	4.8%	7.1%	9.8%	4.8%	9.7%	9.2%	11.6%
Centrifugal chiller	2.0%	5.1%	0.9%	4.2%	<0.1%	11.3%	8.6%	3.3%	3.9%	3.5%
Reciprocating chiller	1.4%	1.0%	2.6%	2.0%	<0.1%	<0.1%	7.2%	7.3%	5.7%	3.4%
Double bundle chiller	0.3%	<0.1%	<0.1%	1.0%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%
nocool	1.8%	3.2%	1.1%	2.1%	<0.1%	9.8%	9.1%	4.6%	6.3%	9.3%
Chiller: type unknown	0.6%	<0.1%	1.2%	0.7%	<0.1%	<0.1%	<0.1%	6.1%	<0.1%	1.3%
# Observations	793	133	55	201	49	91	31	37	115	64

Table D1-HS14

HVAC SYSTEM SUMMARY: Primary HVAC, Distribution

PERCENT OF REGIONAL CONDITIONED FLOOR AREA

PRIMARY HVAC, DISTRIBUTION	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
AIR single duct, constant volume	2.6%	4.4%	3.8%	4.6%	5.9%	6.8%	10.1%	9.1%	7.0%	8.0%
AIR dual duct, constant volume	0.4%	<0.1%	<0.1%	1.8%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%
AIR multi-zone, constant volume	1.2%	1.9%	2.7%	0.7%	0.4%	0.6%	6.8%	<0.1%	4.0%	5.0%
AIR single duct, variable volume	1.9%	1.4%	1.3%	4.3%	<0.1%	2.6%	5.6%	5.5%	6.2%	5.6%
AIR dual duct, variable volume	0.4%	<0.1%	<0.1%	1.3%	<0.1%	<0.1%	4.3%	<0.1%	<0.1%	<0.1%
AIR variable volume, variable temperature	0.4%	<0.1%	<0.1%	1.3%	<0.1%	<0.1%	<0.1%	3.3%	<0.1%	<0.1%
2 Pipe, fan coil	1.2%	<0.1%	<0.1%	0.5%	<0.1%	<0.1%	5.9%	4.0%	0.3%	7.3%
Radiator	1.6%	0.8%	<0.1%	2.5%	<0.1%	<0.1%	2.0%	4.3%	2.7%	8.8%
Unitary	1.7%	3.7%	2.3%	1.1%	5.9%	7.0%	9.2%	6.3%	4.9%	1.5%
Hydronic baseboard system	0.1%	<0.1%	<0.1%	<0.1%	<0.1%	1.1%	<0.1%	<0.1%	0.5%	<0.1%
4 Pipe, fan coil	0.3%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	3.4%	<0.1%	0.5%	1.3%
Distribution system not listed	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%
# Observations	887	149	60	216	58	106	31	37	142	70

Table D1-HS15

HVAC SYSTEM SUMMARY: Secondary HVAC, Equipment

PERCENT OF REGIONAL CONDITIONED FLOOR AREA WITH A SECONDARY HVAC SYSTEM

SECONDARY HVAC, EQUIPMENT	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Boiler/chiller	0.4%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	7.7%	<0.1%	<0.1%	<0.1%
Duct heat/chiller	0.3%	0.4%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	7.2%	<0.1%	<0.1%
Water loop ht pump	1.5%	3.4%	<0.1%	5.0%	<0.1%	<0.1%	9.0%	1.9%	3.5%	3.1%
Boiler only	2.3%	<0.1%	<0.1%	3.6%	<0.1%	<0.1%	<0.1%	<0.1%	8.8%	1.6%
Chiller only	0.2%	<0.1%	<0.1%	1.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%
Pkg heat/DX cool	3.5%	5.7%	9.9%	5.9%	8.3%	7.5%	14.7%	13.2%	8.8%	12.3%
Duct heat/DX cool	0.2%	<0.1%	<0.1%	0.4%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	1.3%
Air-air ht pump	2.1%	3.1%	8.7%	5.2%	6.7%	3.4%	15.5%	3.9%	4.0%	10.3%
Pkg heat only	1.1%	1.4%	3.6%	1.0%	<0.1%	5.2%	<0.1%	<0.1%	3.1%	2.0%
DX cool only	1.3%	4.0%	<0.1%	2.4%	18.3%	2.6%	<0.1%	<0.1%	3.3%	0.7%
Evap cool only	2.3%	2.6%	1.7%	1.5%	12.1%	<0.1%	3.5%	<0.1%	8.5%	<0.1%
Pkg heat/evap cool	0.4%	<0.1%	2.9%	<0.1%	7.5%	<0.1%	<0.1%	<0.1%	1.8%	<0.1%
Heat rec/DX cool	0.6%	<0.1%	5.8%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	2.3%	<0.1%
Unit heat/cool	1.3%	2.5%	<0.1%	4.3%	<0.1%	0.3%	<0.1%	12.4%	3.3%	<0.1%
Unit heat only	2.8%	7.5%	9.6%	5.3%	9.6%	5.0%	3.0%	11.8%	4.5%	8.2%
Boiler/DX cool	0.4%	<0.1%	<0.1%	2.6%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%
# Observations	416	84	32	82	16	59	18	14	70	35

Table D1-HS16

HVAC SYSTEM SUMMARY: Secondary HVAC, Heat Fuel

PERCENT OF REGIONAL CONDITIONED FLOOR AREA WITH A SECONDARY HVAC SYSTEM

SECONDARY HVAC, HEAT FUEL	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Electricity	3.3%	7.9%	8.9%	6.8%	7.4%	4.4%	15.7%	14.5%	7.4%	10.6%
Fuel oil	0.5%	1.0%	4.7%	1.5%	<0.1%	<0.1%	<0.1%	5.3%	<0.1%	<0.1%
Heat recovery	1.0%	1.8%	7.5%	<0.1%	2.3%	<0.1%	6.2%	13.2%	2.3%	1.6%
Pur. HW, steam	0.8%	0.4%	<0.1%	1.8%	<0.1%	<0.1%	<0.1%	<0.1%	3.0%	1.1%
LPG	0.1%	<0.1%	<0.1%	<0.1%	6.3%	<0.1%	<0.1%	<0.1%	0.2%	<0.1%
Natural gas	3.7%	7.5%	10.7%	6.6%	12.3%	5.1%	15.1%	14.2%	9.7%	10.7%
Other	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%
None	2.5%	4.7%	1.7%	3.0%	15.5%	2.6%	3.5%	<0.1%	8.6%	0.7%
Unknown	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%
# Observations	416	84	32	82	16	59	18	14	70	35

Table D1-HS17

HVAC SYSTEM SUMMARY: Secondary HVAC, Cool Fuel

PERCENT OF REGIONAL CONDITIONED FLOOR AREA WITH A SECONDARY HVAC SYSTEM

SECONDARY HVAC, COOL FUEL	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Electricity	3.6%	7.5%	10.7%	6.0%	10.1%	6.8%	7.3%	14.7%	9.9%	9.0%
Natural gas	1.8%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	7.3%	<0.1%
None	3.4%	7.5%	10.7%	6.0%	10.1%	6.8%	7.3%	14.7%	9.0%	9.0%
# Observations	416	84	32	82	16	59	18	14	70	35

Table D1-HS18

HVAC SYSTEM SUMMARY: Supplemental Heat

PERCENT OF REGIONAL FLOOR AREA

SUPPLEMENTAL HEAT	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	5.9%	6.6%	s	5.1%	s	s	s	s	12.5%	22.1%
No	5.9%	6.6%	s	5.1%	s	s	s	s	12.5%	22.1%
# Observations	66	6	4	24	3	4	3	4	10	8

Table D1-HS19

HVAC SYSTEM SUMMARY: Supplemental Heating Fuel

PERCENT OF REGIONAL FLOOR AREA WITH SUPPLEMENTAL HEAT

SUPPLEMENTAL HEATING FUEL	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Electricity	6.4%	26.4%	s	8.5%	s	s	s	s	7.5%	22.0%
Natural Gas	5.7%	26.4%	s	7.3%	s	s	s	s	7.5%	11.6%
Pur. HW, steam	1.8%	<0.1%	s	4.6%	s	s	s	s	<0.1%	<0.1%
LPG	2.6%	<0.1%	s	<0.1%	s	s	s	s	<0.1%	21.2%
# Observations	65	6	4	24	3	3	3	4	10	8

Table D1-HS20
HVAC SYSTEM SUMMARY: Distribution with Economizers
PERCENT OF REGIONAL CONDITIONED FLOOR AREA

DISTRIBUTION WITH ECONOMIZERS	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	2.9%	6.9%	6.8%	5.2%	8.3%	7.3%	8.3%	8.8%	7.6%	9.6%
No	2.9%	6.9%	6.8%	5.2%	8.3%	7.3%	8.3%	8.8%	7.6%	9.6%
# Observations	599	85	43	153	38	54	26	27	105	52

Table D1-HC1
HEATING AND COOLING EQUIPMENT: Electric Baseboard
PERCENT OF REGIONAL HEATED FLOOR AREA

ELECTRIC BASEBOARD	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	0.5%	1.3%	2.5%	0.8%	0.1%	2.6%	1.3%	<0.1%	1.4%	1.8%
No	0.5%	1.3%	2.5%	0.8%	0.1%	2.6%	1.3%	<0.1%	1.4%	1.8%
# Observations	800	131	54	195	49	82	32	37	131	70

Table D1-HC2
HEATING AND COOLING EQUIPMENT: Water Boiler
PERCENT OF REGIONAL HEATED FLOOR AREA

WATER BOILER	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	2.6%	4.2%	<0.1%	4.6%	<0.1%	0.4%	9.6%	8.2%	7.0%	9.2%
No	2.6%	4.2%	<0.1%	4.6%	<0.1%	0.4%	9.6%	8.2%	7.0%	9.2%
# Observations	797	131	55	195	52	82	32	34	128	68

Table D1-HC3
HEATING AND COOLING EQUIPMENT: Steam Boiler
PERCENT OF REGIONAL HEATED FLOOR AREA

STEAM BOILER	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	1.6%	0.3%	<0.1%	2.6%	<0.1%	<0.1%	5.0%	6.3%	2.9%	8.2%
No	1.6%	0.3%	<0.1%	2.6%	<0.1%	<0.1%	5.0%	6.3%	2.9%	8.2%
# Observations	798	131	55	195	52	82	32	35	128	68

Table D1-HC4
HEATING AND COOLING EQUIPMENT: Furnace
PERCENT OF REGIONAL HEATED FLOOR AREA

FURNACE	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	2.6%	4.8%	3.3%	4.9%	9.5%	5.1%	10.1%	9.1%	6.0%	9.2%
No	2.6%	4.8%	3.3%	4.9%	9.5%	5.1%	10.1%	9.1%	6.0%	9.2%
# Observations	788	130	52	194	49	82	32	33	128	69

Table D1-DC1
DISTRIBUTION CONTROLS: EMCS
PERCENT OF REGIONAL CONDITIONED FLOOR AREA

EMCS	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	2.9%	4.7%	9.2%	5.1%	2.1%	1.9%	8.5%	9.4%	7.6%	8.5%
No	2.9%	4.7%	9.2%	5.1%	2.1%	1.9%	8.5%	9.4%	7.6%	8.5%
# Observations	704	102	49	181	45	68	31	32	119	63

Table D1-DC2

DISTRIBUTION CONTROLS: Thermostatic (Programmable) w/Night Set-Back

PERCENT OF REGIONAL CONDITIONED FLOOR AREA

THERMOSTATIC (PROGRAMMABLE) W/NIGHT SET-BACK	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	2.6%	6.6%	9.3%	4.8%	9.3%	6.8%	10.2%	10.1%	5.7%	7.6%
No	2.6%	6.6%	9.3%	4.8%	9.3%	6.8%	10.2%	10.1%	5.7%	7.6%
# Observations	704	102	49	181	45	68	31	32	119	63

Table D1-DC3

DISTRIBUTION CONTROLS: Thermostatic (Manual)

PERCENT OF REGIONAL CONDITIONED FLOOR AREA

THERMOSTATIC (MANUAL)	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	2.8%	6.2%	10.8%	3.6%	8.5%	7.8%	10.4%	10.6%	7.5%	7.9%
No	2.8%	6.2%	10.8%	3.6%	8.5%	7.8%	10.4%	10.6%	7.5%	7.9%
# Observations	704	102	49	181	45	68	31	32	119	63

Table D1-DC4

DISTRIBUTION CONTROLS: Timeclock (on/off)

PERCENT OF REGIONAL CONDITIONED FLOOR AREA

TIMECLOCK (ON/OFF)	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	1.4%	<0.1%	<0.1%	1.8%	3.0%	3.9%	<0.1%	<0.1%	<0.1%	6.9%
No	1.4%	<0.1%	<0.1%	1.8%	3.0%	3.9%	<0.1%	<0.1%	<0.1%	6.9%
# Observations	443	65	34	129	37	40	21	23	58	34

Table D1-DC5
DISTRIBUTION CONTROLS: On/Off Switch
PERCENT OF REGIONAL CONDITIONED FLOOR AREA

ON/OFF SWITCH	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	1.7%	3.6%	1.9%	0.6%	5.8%	3.0%	4.3%	7.4%	6.6%	<0.1%
No	1.7%	3.6%	1.9%	0.6%	5.8%	3.0%	4.3%	7.4%	6.6%	<0.1%
# Observations	704	102	49	181	45	68	31	32	119	63

Table D1-WH1
WATER HEATING: Predominant Service Hot Water Eqpt Type
PERCENT OF REGIONAL FLOOR AREA

PREDOMINANT SERVICE HOT WATER EQPT TYPE	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Heat pump	0.5%	0.4%	6.3%	0.7%	5.1%	3.1%	<0.1%	<0.1%	0.9%	1.0%
Heat recovery	0.9%	1.3%	3.9%	1.5%	<0.1%	1.5%	5.8%	6.1%	3.4%	0.7%
Instantaneous (tankless)	0.4%	<0.1%	<0.1%	0.5%	3.6%	2.6%	4.0%	<0.1%	<0.1%	<0.1%
Self-contained	2.3%	5.8%	7.7%	4.5%	7.2%	4.2%	10.0%	10.9%	5.8%	7.4%
Storage tank (central boiler)	2.1%	5.7%	2.9%	4.3%	4.4%	<0.1%	8.6%	10.4%	4.3%	7.3%
Other	0.5%	<0.1%	<0.1%	1.2%	<0.1%	<0.1%	<0.1%	<0.1%	2.3%	<0.1%
# Observations	583	81	41	156	41	58	31	29	85	49

Table D1-WH2

WATER HEATING: Predominant Service Hot Water Fuel

PERCENT OF REGIONAL FLOOR AREA

PREDOMINANT SERVICE HOT WATER FUEL	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Electricity	3.0%	8.6%	11.5%	4.2%	9.2%	5.6%	10.3%	9.8%	7.9%	10.2%
Natural gas	3.0%	8.6%	11.3%	4.1%	9.2%	5.5%	10.2%	9.9%	7.9%	10.2%
LPG	0.4%	0.2%	2.2%	0.6%	<0.1%	0.2%	1.4%	2.8%	0.7%	2.0%
Pur. HW or steam	0.4%	0.5%	<0.1%	1.5%	<0.1%	<0.1%	3.3%	2.2%	0.1%	<0.1%
Other	0.1%	<0.1%	2.1%	<0.1%	<0.1%	1.1%	<0.1%	<0.1%	0.1%	<0.1%
# Observations	654	95	49	165	45	69	35	35	101	50

Table D1-WH3

WATER HEATING: Secondary Service Hot Water Eqpt Type

PERCENT OF REGIONAL FLOOR AREA WITH SECONDARY SERVICE HOT WATER EQPT

SECONDARY SERVICE HOT WATER EQPT TYPE	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Heat recovery	0.9%	<0.1%	s	<0.1%	s	s	s	s	s	<0.1%
Instantaneous (tankless)	10.9%	23.5%	s	18.0%	s	s	s	s	s	17.6%
Self-contained	10.8%	23.5%	s	18.0%	s	s	s	s	s	16.5%
Other	0.8%	<0.1%	s	<0.1%	s	s	s	s	s	3.7%
# Observations	35	5	4	10	1	1	3	4	2	5

Table D1-WH4

WATER HEATING: Additional tank wrap

PERCENT OF REGIONAL FLOOR AREA

ADDITIONAL TANK WRAP	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	3.6%	8.4%	10.5%	6.2%	6.7%	6.8%	8.6%	12.8%	11.5%	10.9%
No	3.6%	8.4%	10.5%	6.2%	6.7%	6.8%	8.6%	12.8%	11.5%	10.9%
# Observations	390	55	32	107	39	37	19	21	51	28

Table D1-WH5

WATER HEATING: Pipe Insulation

PERCENT OF REGIONAL FLOOR AREA

PIPE INSULATION	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	3.6%	7.9%	9.6%	6.1%	9.1%	8.4%	11.5%	11.6%	9.8%	11.3%
No	3.6%	7.9%	9.6%	6.1%	9.1%	8.4%	11.5%	11.6%	9.8%	11.3%
# Observations	454	61	35	123	39	36	27	25	65	37

Table D1-AF1

AUXILIARY FANS: Exhaust Fan(s)

PERCENT OF REGIONAL FLOOR AREA

EXHAUST FAN(S)	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	1.9%	6.5%	5.2%	4.6%	4.6%	7.3%	6.6%	5.4%	4.4%	3.5%
No	1.9%	6.5%	5.2%	4.6%	4.6%	7.3%	6.6%	5.4%	4.4%	3.5%
# Observations	334	38	30	82	34	28	14	17	53	27

Table D1-AF2

AUXILIARY FANS: Lab Hood Fan(s)

PERCENT OF REGIONAL FLOOR AREA

LAB HOOD FAN(S)	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	0.3%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	4.6%	0.1%	<0.1%
No	0.3%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	4.6%	0.1%	<0.1%
# Observations	325	37	29	80	33	28	12	17	52	26

Table D1-AF3

AUXILIARY FANS: Make-up-air Fan(s)

PERCENT OF REGIONAL FLOOR AREA

MAKE-UP-AIR FAN(S)	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	1.5%	6.4%	5.2%	2.5%	3.7%	3.4%	6.1%	3.4%	4.1%	1.7%
No	1.5%	6.4%	5.2%	2.5%	3.7%	3.4%	6.1%	3.4%	4.1%	1.7%
# Observations	330	37	30	82	33	28	14	17	51	27

Table D1-AF4

AUXILIARY FANS: Other Fans

PERCENT OF REGIONAL FLOOR AREA

OTHER FANS	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	1.4%	1.8%	1.1%	3.6%	3.3%	6.9%	4.0%	<0.1%	3.1%	3.3%
No	1.4%	1.8%	1.1%	3.6%	3.3%	6.9%	4.0%	<0.1%	3.1%	3.3%
# Observations	330	38	29	82	34	28	12	17	53	26

Table D1-AF5

AUXILIARY FANS: Total Supply Fan HP

PERCENT OF REGIONAL FLOOR AREA WITH SUPPLY FAN(S)

TOTAL SUPPLY FAN HP	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Less than 10 HP	<0.1%	s	<0.1%	<0.1%	s	s	s	s	<0.1%	<0.1%
10 to 29 HP	4.5%	s	14.9%	4.8%	s	s	s	s	7.3%	17.0%
30 to 59 HP	6.7%	s	14.5%	15.8%	s	s	s	s	6.6%	<0.1%
60 to 99 HP	7.9%	s	<0.1%	12.1%	s	s	s	s	19.0%	<0.1%
100 or more HP	7.7%	s	<0.1%	14.7%	s	s	s	s	17.9%	8.9%
# Observations	53	2	8	17	0	1	0	1	10	9

Table D1-AF6

AUXILIARY FANS: Total Supply Fan HP

PER SQUARE FOOT (1000s), BASE=HAVE SUPPLY FAN(S)

TOTAL SUPPLY FAN HP	STANDARD ERROR												
		BUILDING TYPE											
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hospital	Hotel/ Motel	Other Health	Other	School	Univer-sity	Vacant
Per square foot (1000s)	<0.001	s	<0.001	<0.001	s	s	s	s	s	<0.001	<0.001	0.001	s
# Observations	53	2	8	17	0	1	0	0	1	10	9	5	0

Table D1-AF7

AUXILIARY FANS: Total Return Fan HP

PERCENT OF REGIONAL FLOOR AREA WITH RETURN FAN(S)

TOTAL RETURN FAN HP	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Less than 0.25 HP	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	s	s	s	<0.1%	<0.1%
0.26 to 0.50 HP	5.1%	11.9%	17.0%	4.2%	<0.1%	s	s	s	16.3%	16.4%
0.51 to 1 HP	2.7%	8.7%	13.1%	2.7%	17.1%	s	s	s	<0.1%	13.0%
1.1 to 10 HP	4.9%	16.4%	10.1%	5.5%	17.8%	s	s	s	6.7%	5.9%
11 to 20 HP	6.9%	7.4%	14.3%	12.0%	<0.1%	s	s	s	<0.1%	27.4%
21 or more HP	8.2%	<0.1%	<0.1%	12.9%	<0.1%	s	s	s	18.1%	13.9%
# Observations	92	13	10	34	11	2	0	3	8	6

Table D1-AF8

AUXILIARY FANS: Total Return Fan HP

PER SQUARE FOOT (1000s), BASE=HAVE RETURN FAN(S)

TOTAL RETURN FAN HP	STANDARD ERROR												
		BUILDING TYPE											
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hospital	Hotel/ Motel	Other Health	Other	School	Univer-sity	Vacant
Per square foot (1000s)	<0.001	<0.001	<0.001	<0.001	<0.001	s	s	s	s	<0.001	<0.001	s	s
# Observations	92	13	10	34	11	2	1	0	3	8	6	4	0

Table D1-IL1
INDOOR LIGHTING: Watts
PER SQUARE FOOT

WATTS	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Per square foot	0.05	0.06	0.15	0.08	0.10	0.08	0.20	0.88	0.06	0.10
# Observations	663	120	51	141	46	74	25	25	112	57

Table D1-IL2
INDOOR LIGHTING: Watts Per Square Foot by Building Floor Area

WATTS PER SQUARE FOOT BY BUILDING FLOOR AREA	STANDARD ERROR												
		BUILDING TYPE											
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hospital	Hotel/ Motel	Other Health	Other	School	Univer-sity	Vacant
Less than 5,000 SF	0.19	0.14	0.17	0.35	0.12	0.37	s	0.00	0.37	0.37	0.53	m	s
5,000 to 19,999 SF	0.18	0.13	1.20	0.09	0.15	0.18	s	0.37	3.38	0.13	0.81	0.00	s
20,000 to 49,999 SF	0.06	0.11	0.12	0.13	m	0.03	s	0.27	0.13	0.11	0.13	0.00	s
50,000 to 99,999 SF	0.05	0.10	0.07	0.10	m	0.17	s	0.23	0.17	0.13	0.06	0.31	s
100,000 to 499,999 SF	0.05	0.11	m	0.08	m	0.09	s	0.14	0.13	0.11	0.23	0.44	s
500,000 SF or more	0.08	0.00	m	0.11	m	m	s	0.16	m	m	m	m	s
# Observations	663	120	51	141	46	74	3	25	25	112	57	8	1

Table D1-IL3

INDOOR LIGHTING: Watts Per Square Foot by Year Constructed, Detailed

WATTS PER SQUARE FOOT BY YEAR CONSTRUCTED, DETAILED	STANDARD ERROR												
		BUILDING TYPE											
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hospital	Hotel/ Motel	Other Health	Other	School	Univer-sity	Vacant
Before 1950	0.09	0.08	m	0.09	0.24	1.10	s	0.00	0.00	0.24	0.16	m	s
1950 to 1969	0.11	0.19	0.03	0.56	m	0.08	s	0.18	0.24	0.14	0.13	m	s
1970 to 1979	0.10	0.23	0.00	0.14	0.25	0.03	s	0.25	0.31	0.27	0.03	m	s
1980 to 1987	0.11	0.13	0.12	0.15	0.27	0.08	s	0.55	0.00	0.15	m	m	s
1988 to 1994	0.05	0.12	0.11	0.10	0.16	0.10	s	0.00	0.30	0.08	0.17	m	s
1995 to 2001	0.13	0.09	0.35	0.11	0.14	0.15	s	0.11	1.78	0.08	0.22	0.22	s
Unknown	0.14	0.18	0.14	0.11	0.07	0.19	s	m	m	m	m	m	s
# Observations	663	120	51	141	46	74	3	25	25	112	57	8	1

Table D1-IL4

INDOOR LIGHTING: Watts Per Square Foot by Year Constructed, Cohort

WATTS PER SQUARE FOOT BY YEAR CONSTRUCTED, COHORT	STANDARD ERROR												
		BUILDING TYPE											
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hospital	Hotel/ Motel	Other Health	Other	School	Univer-sity	Vacant
1987 and earlier	0.05	0.09	0.12	0.12	0.14	0.08	s	0.26	0.29	0.11	0.09	m	s
1988 to 1994	0.05	0.12	0.11	0.10	0.16	0.10	s	0.00	0.30	0.08	0.17	m	s
1995 to 2001	0.13	0.09	0.35	0.11	0.14	0.15	s	0.11	1.78	0.08	0.22	0.22	s
# Observations	663	120	51	141	46	74	3	25	25	112	57	8	1

Table D1-IL5

INDOOR LIGHTING: Watts Per Square Foot

PERCENT OF REGIONAL FLOOR AREA

WATTS PER SQUARE FOOT	STANDARD ERROR												
		BUILDING TYPE											
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hospital	Hotel/ Motel	Other Health	Other	School	Univer-sity	Vacant
Less than 0.4 watts/sqft	1.4%	0.2%	0.8%	2.9%	<0.1%	5.4%	s	3.1%	4.2%	4.5%	1.9%	<0.1%	s
0.5 to 0.8 watts/sqft	2.8%	3.8%	2.7%	4.3%	9.6%	6.5%	s	11.6%	11.2%	5.6%	10.6%	<0.1%	s
0.9 to 1.2 watts/sqft	2.8%	6.1%	4.1%	5.6%	8.3%	3.8%	s	9.7%	10.9%	7.6%	8.9%	19.0%	s
1.3 to 1.6 watts/sqft	2.1%	5.4%	7.7%	3.9%	12.4%	2.1%	s	5.9%	9.8%	5.5%	5.9%	19.0%	s
1.7 to 2.0 watts/sqft	1.5%	4.7%	8.4%	4.4%	8.7%	1.5%	s	10.5%	<0.1%	1.0%	0.8%	<0.1%	s
2.1 to 2.4 watts/sqft	0.9%	2.8%	6.3%	2.5%	1.3%	0.4%	s	2.4%	6.4%	0.5%	3.3%	<0.1%	s
2.5 to 2.8 watts/sqft	0.6%	2.7%	2.1%	0.3%	0.6%	<0.1%	s	3.6%	4.2%	<0.1%	<0.1%	<0.1%	s
More than 2.8 watts/sqft	0.8%	0.6%	<0.1%	2.7%	<0.1%	<0.1%	s	9.4%	2.1%	<0.1%	0.6%	<0.1%	s
# Observations	663	120	51	141	46	74	3	25	25	112	57	8	1

Table D1-IL6

INDOOR LIGHTING: Lamp Type

PERCENT OF REGIONAL INDOOR LIGHTING WATTAGE

LAMP TYPE	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Fluorescent	2.3%	3.9%	4.8%	1.7%	5.6%	4.6%	7.2%	6.5%	4.9%	2.4%
Incandescent	1.8%	2.7%	1.5%	1.4%	6.6%	4.3%	7.3%	4.3%	2.4%	1.7%
HID	1.7%	2.7%	4.6%	1.3%	2.8%	4.8%	0.4%	0.1%	5.4%	2.3%
Miscellaneous	0.5%	1.5%	<0.1%	0.4%	2.3%	0.2%	0.1%	3.9%	0.7%	<0.1%
# Observations	504	95	31	93	27	69	21	19	97	44

Table D1-IL7

INDOOR LIGHTING: Lamp Type

PERCENT OF REGIONAL FLOOR AREA

LAMP TYPE	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Fluorescent T12	2.4%	5.7%	9.0%	6.1%	6.6%	6.1%	5.4%	8.8%	6.2%	4.2%
Fluorescent T8 energy efficient	2.7%	4.7%	8.9%	5.7%	4.0%	5.7%	3.6%	10.0%	6.6%	4.2%
Fluorescent other	0.6%	0.9%	0.2%	1.3%	3.8%	0.5%	6.7%	1.7%	1.1%	1.0%
Incandescent	1.3%	2.2%	1.3%	0.8%	5.9%	4.5%	7.6%	4.7%	1.6%	0.6%
HID	1.1%	1.8%	1.3%	0.2%	3.4%	2.6%	0.2%	0.1%	4.9%	0.4%
Misc	0.2%	0.8%	0.4%	0.2%	2.3%	0.4%	0.3%	1.8%	0.4%	<0.1%
# Observations	501	98	33	98	31	66	20	17	84	46

Table D1-IL8

INDOOR LIGHTING: Fluorescent T12 # Feet

PERCENT OF REGIONAL FLUORESCENT T12 INDOOR LIGHTING WATTAGE

FLUORESCENT T12 # FEET	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
4 feet	4.2%	7.9%	7.0%	3.1%	11.3%	8.2%	8.9%	4.3%	8.5%	20.9%
8 feet	4.2%	8.0%	9.3%	2.4%	10.1%	8.6%	0.4%	1.9%	8.0%	21.0%
Other # feet	1.1%	0.9%	7.4%	1.8%	2.1%	5.5%	8.7%	3.9%	3.5%	0.2%
# Observations	288	70	21	44	19	39	14	12	54	12

Table D1-IL9

INDOOR LIGHTING: Fluorescent T12 # Feet

PERCENT OF REGIONAL FLOOR AREA SERVED BY FLUORESCENT T12

FLUORESCENT T12 # FEET	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
4 feet	3.0%	6.2%	10.6%	2.7%	16.1%	6.9%	12.2%	5.5%	6.9%	13.3%
8 feet	3.0%	6.2%	10.8%	2.1%	14.4%	7.1%	0.4%	0.9%	6.6%	13.8%
Other # feet	1.1%	1.1%	2.9%	1.7%	2.7%	3.9%	12.0%	5.4%	2.8%	1.7%
# Observations	336	79	26	56	23	41	15	14	62	17

Table D1-IL10

INDOOR LIGHTING: Fluorescent T12 # Lamps

PERCENT OF REGIONAL FLUORESCENT T12 INDOOR LIGHTING WATTAGE

FLUORESCENT T12 # LAMPS	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
1 lamp	1.0%	0.7%	12.9%	0.1%	0.3%	2.3%	14.7%	0.8%	0.9%	4.0%
2 lamps	5.8%	10.7%	11.1%	9.7%	18.0%	7.5%	18.8%	18.3%	6.4%	10.5%
3 lamps	1.5%	1.0%	2.5%	4.6%	3.5%	1.9%	15.7%	1.0%	1.2%	4.1%
4 lamps	6.2%	10.8%	2.6%	11.4%	18.3%	7.0%	2.5%	18.7%	6.2%	5.9%
5+ lamps	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%
# Observations	245	52	16	34	14	34	14	12	54	12

Table D1-IL11

INDOOR LIGHTING: Fluorescent T12 # Lamps

PERCENT OF REGIONAL FLOOR AREA SERVED BY FLUORESCENT T12

FLUORESCENT T12 # LAMPS	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
1 lamp	0.8%	0.6%	4.6%	0.3%	0.6%	4.0%	9.3%	0.8%	1.0%	3.6%
2 lamps	4.0%	7.6%	5.0%	8.4%	12.9%	8.9%	17.3%	13.2%	7.2%	13.4%
3 lamps	2.0%	5.9%	5.3%	5.1%	4.6%	6.6%	17.7%	0.9%	1.1%	6.2%
4 lamps	4.0%	7.0%	2.3%	9.8%	11.3%	7.2%	2.5%	13.2%	7.3%	11.3%
5+ lamps	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%
# Observations	293	62	21	46	17	36	15	14	62	17

Table D1-IL12

INDOOR LIGHTING: Fluorescent T8 # Lamps

PERCENT OF REGIONAL FLUORESCENT T8 INDOOR LIGHTING WATTAGE

FLUORESCENT T8 # LAMPS	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
1 lamp	4.1%	1.1%	2.4%	5.7%	3.1%	<0.1%	12.7%	11.0%	5.3%	0.8%
2 lamps	3.8%	6.4%	7.6%	6.8%	17.9%	16.2%	9.6%	6.8%	7.5%	8.0%
3 lamps	3.6%	4.7%	8.1%	6.8%	14.3%	15.1%	6.5%	3.0%	4.3%	8.6%
4 lamps	2.7%	6.4%	15.7%	4.4%	4.6%	21.4%	10.9%	6.4%	4.9%	4.0%
5+ lamps	1.3%	2.6%	8.7%	0.4%	<0.1%	0.1%	<0.1%	1.4%	4.8%	2.6%
# Observations	300	49	21	62	7	27	11	10	66	39

Table D1-IL13

INDOOR LIGHTING: Fluorescent T8 # Lamps

PERCENT OF REGIONAL FLOOR AREA SERVED BY FLUORESCENT T8

FLUORESCENT T8 # LAMPS	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
1 lamp	1.3%	1.2%	3.1%	3.9%	2.3%	0.2%	12.2%	5.3%	3.6%	1.3%
2 lamps	3.2%	5.9%	5.9%	6.0%	15.6%	9.3%	9.0%	8.3%	5.9%	8.8%
3 lamps	3.2%	5.9%	5.7%	5.9%	12.2%	10.3%	5.5%	8.7%	3.8%	8.8%
4 lamps	1.8%	5.2%	6.6%	4.1%	12.0%	4.6%	11.0%	5.5%	4.0%	3.2%
5+ lamps	0.9%	2.1%	6.1%	0.3%	<0.1%	0.1%	<0.1%	2.5%	3.5%	1.4%
# Observations	371	60	28	85	10	28	14	14	73	48

Table D1-IL14

INDOOR LIGHTING: Electronic Ballast Measure

PERCENT OF REGIONAL INDOOR LIGHTING WATTAGE

ELECTRONIC BALLAST MEASURE	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	2.9%	4.7%	8.5%	5.6%	5.1%	5.6%	4.7%	14.4%	4.3%	4.3%
No	2.9%	4.7%	8.5%	5.6%	5.1%	5.6%	4.7%	14.4%	4.3%	4.3%
# Observations	551	102	37	110	27	58	25	23	105	53

Table D1-IL15

INDOOR LIGHTING: Electronic Ballast Measure

PERCENT OF REGIONAL FLOOR AREA

ELECTRONIC BALLAST MEASURE	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	2.4%	4.3%	8.2%	4.6%	6.1%	6.2%	7.5%	9.6%	5.4%	4.4%
No	2.4%	4.3%	8.2%	4.6%	6.1%	6.2%	7.5%	9.6%	5.4%	4.4%
# Observations	603	114	40	129	37	60	25	24	108	55

Table D1-IL16

INDOOR LIGHTING: Main HID Type

PERCENT OF REGIONAL INDOOR HID WATTAGE

MAIN HID TYPE	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
High pressure sodium	3.1%	2.6%	<0.1%	20.3%	<0.1%	6.6%	10.9%	s	1.8%	17.5%
Low pressure sodium	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	s	<0.1%	<0.1%
Metal halide	5.3%	9.2%	21.2%	20.1%	24.9%	7.2%	10.9%	s	4.0%	16.5%
Mercury vapor	2.1%	1.9%	<0.1%	0.9%	<0.1%	2.7%	<0.1%	s	3.1%	13.7%
Neon	1.7%	8.7%	21.2%	0.3%	24.9%	<0.1%	<0.1%	s	<0.1%	<0.1%
# Observations	225	43	13	36	7	35	6	3	54	26

Table D1-IL17

INDOOR LIGHTING: Control, Timeclock (On/Off)

PERCENT OF REGIONAL INDOOR WATTAGE

CONTROL, TIMECLOCK (ON/OFF)	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	1.4%	4.0%	10.8%	4.0%	7.6%	1.9%	2.9%	<0.1%	0.4%	0.7%
No	1.4%	4.0%	10.8%	4.0%	7.6%	1.9%	2.9%	<0.1%	0.4%	0.7%
# Observations	418	82	36	99	37	46	15	17	53	29

Table D1-IL18

INDOOR LIGHTING: Control, EMCS

PERCENT OF REGIONAL INDOOR WATTAGE

CONTROL, EMCS	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	1.6%	3.5%	<0.1%	4.6%	<0.1%	<0.1%	5.3%	<0.1%	5.3%	4.1%
No	1.6%	3.5%	<0.1%	4.6%	<0.1%	<0.1%	5.3%	<0.1%	5.3%	4.1%
# Observations	550	94	42	125	38	60	24	24	84	48

Table D1-IL19

INDOOR LIGHTING: Control, Photocell

PERCENT OF REGIONAL INDOOR WATTAGE

CONTROL, PHOTOCELL	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	0.4%	<0.1%	<0.1%	1.0%	1.6%	2.6%	<0.1%	<0.1%	1.3%	<0.1%
No	0.4%	<0.1%	<0.1%	1.0%	1.6%	2.6%	<0.1%	<0.1%	1.3%	<0.1%
# Observations	545	93	42	122	37	60	24	24	84	48

Table D1-IL20

INDOOR LIGHTING: Control, Occupancy Sensors

PERCENT OF REGIONAL INDOOR WATTAGE

CONTROL, OCCUPANCY SENSORS	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	1.6%	0.6%	1.5%	4.3%	<0.1%	3.7%	<0.1%	2.4%	2.6%	8.1%
No	1.6%	0.6%	1.5%	4.3%	<0.1%	3.7%	<0.1%	2.4%	2.6%	8.1%
# Observations	559	97	33	108	33	71	25	24	107	51

Table D1-IL21

INDOOR LIGHTING: Control, On/Off Switch

PERCENT OF REGIONAL INDOOR WATTAGE

CONTROL, ON/OFF SWITCH	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	1.5%	3.6%	4.3%	3.8%	1.6%	1.7%	<0.1%	3.3%	3.9%	5.5%
No	1.5%	3.6%	4.3%	3.8%	1.6%	1.7%	<0.1%	3.3%	3.9%	5.5%
# Observations	550	94	42	125	38	60	24	24	84	48

Table D1-IL22

INDOOR LIGHTING: Control, Dimmer Switch/Daylighting Controls

PERCENT OF REGIONAL INDOOR WATTAGE

CONTROL, DIMMER SWITCH/DAYLIGHTING CONTROLS	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	1.9%	1.2%	3.4%	2.9%	3.5%	1.6%	<0.1%	<0.1%	7.9%	2.9%
No	1.9%	1.2%	3.4%	2.9%	3.5%	1.6%	<0.1%	<0.1%	7.9%	2.9%
# Observations	559	97	33	108	33	71	25	24	107	51

Table D1-IL23

INDOOR LIGHTING: Control, Other

PERCENT OF REGIONAL INDOOR WATTAGE

CONTROL, OTHER	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	1.3%	3.0%	4.0%	3.1%	<0.1%	0.5%	<0.1%	2.2%	4.6%	3.3%
No	1.3%	3.0%	4.0%	3.1%	<0.1%	0.5%	<0.1%	2.2%	4.6%	3.3%
# Observations	554	96	33	105	32	71	25	24	107	51

Table D1-OL1

OUTDOOR LIGHTING: Watts Per Indoor Square Foot by Year Constructed, Cohort

WATTS PER INDOOR SQUARE FOOT BY YEAR CONSTRUCTED, COHORT	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
1987 and earlier	0.03	0.04	0.06	0.02	0.17	0.01	0.04	0.09	0.09	0.09
1988 to 1994	0.02	0.02	0.05	0.02	0.33	0.04	0.00	0.02	0.02	0.04
1995 to 2001	0.15	0.27	0.28	0.02	0.57	0.01	0.02	0.04	0.51	0.02
# Observations	564	92	44	127	39	62	26	24	94	42

Table D1-OL2

OUTDOOR LIGHTING: Lamp Type

PERCENT OF REGIONAL OUTDOOR LIGHTING WATTAGE

LAMP TYPE	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Fluorescent	4.4%	6.7%	5.6%	3.0%	10.5%	0.4%	7.1%	2.0%	11.3%	0.8%
HID	8.6%	7.4%	7.0%	5.2%	13.5%	5.8%	5.9%	10.7%	15.8%	5.9%
Incandescent	3.0%	3.3%	3.0%	4.4%	19.1%	5.8%	9.6%	12.0%	3.1%	5.2%
Neon	0.2%	0.6%	0.2%	<0.1%	2.2%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%
Other	12.1%	0.2%	0.3%	0.3%	2.6%	<0.1%	0.7%	3.4%	24.6%	0.8%
# Observations	498	83	31	98	30	61	25	24	91	41

Table D1-OL3
OUTDOOR LIGHTING: Lamp Type
PERCENT OF REGIONAL FLOOR AREA

LAMP TYPE	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Fluorescent	2.1%	4.9%	11.7%	5.0%	7.2%	1.0%	9.3%	6.7%	5.0%	6.7%
Incandescent	2.0%	6.9%	1.3%	4.3%	8.9%	3.0%	5.3%	9.2%	3.8%	3.1%
Neon	0.4%	2.3%	3.7%	0.2%	5.1%	<0.1%	<0.1%	0.3%	<0.1%	<0.1%
HID	2.5%	6.5%	11.4%	5.4%	8.9%	3.1%	9.0%	9.5%	5.2%	9.3%
Other	1.0%	0.1%	<0.1%	0.3%	1.9%	<0.1%	0.4%	2.1%	1.6%	7.4%
# Observations	542	88	34	110	31	69	28	27	96	45

Table D1-OL4
OUTDOOR LIGHTING: Predominant Lamp Type
PERCENT OF REGIONAL BUILDINGS

PREDOMINANT LAMP TYPE	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Fluorescent	4.4%	9.7%	12.5%	12.5%	10.1%	0.6%	3.2%	4.9%	10.8%	2.6%
HID	4.9%	11.4%	12.3%	12.0%	10.9%	2.2%	16.7%	10.4%	11.1%	10.2%
Incandescent	2.7%	5.7%	6.1%	9.2%	6.1%	2.1%	16.8%	12.9%	4.1%	9.2%
Neon	0.2%	<0.1%	2.6%	<0.1%	2.3%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%
Other	0.9%	<0.1%	<0.1%	1.4%	<0.1%	<0.1%	0.4%	10.0%	1.7%	5.8%
# Observations	545	87	35	110	31	69	28	27	98	46

Table D1-OL5
OUTDOOR LIGHTING: Control, Timeclock (On/Off)
PERCENT OF REGIONAL OUTDOOR LIGHTING WATTAGE

CONTROL, TIMECLOCK (ON/OFF)	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	4.0%	6.9%	16.5%	7.4%	3.2%	0.6%	4.3%	14.3%	6.2%	7.4%
No	4.0%	6.9%	16.5%	7.4%	3.2%	0.6%	4.3%	14.3%	6.2%	7.4%
# Observations	468	64	37	105	31	52	25	22	78	41

Table D1-OL6
OUTDOOR LIGHTING: Control, Timeclock (On/Off)
PERCENT OF REGIONAL BUILDINGS

CONTROL, TIMECLOCK (ON/OFF)	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	3.2%	7.5%	2.1%	14.8%	8.5%	0.7%	14.2%	13.0%	1.7%	4.5%
No	3.2%	7.5%	2.1%	14.8%	8.5%	0.7%	14.2%	13.0%	1.7%	4.5%
# Observations	533	74	40	124	36	61	27	27	86	44

Table D1-OL7
OUTDOOR LIGHTING: Control, EMCS
PERCENT OF REGIONAL OUTDOOR LIGHTING WATTAGE

CONTROL, EMCS	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	0.5%	0.8%	<0.1%	3.9%	<0.1%	0.5%	<0.1%	<0.1%	<0.1%	3.4%
No	0.5%	0.8%	<0.1%	3.9%	<0.1%	0.5%	<0.1%	<0.1%	<0.1%	3.4%
# Observations	468	64	37	105	31	52	25	22	78	41

Table D1-OL8
OUTDOOR LIGHTING: Control, EMCS
PERCENT OF REGIONAL BUILDINGS

CONTROL, EMCS	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	0.4%	0.3%	<0.1%	0.8%	<0.1%	1.9%	<0.1%	<0.1%	<0.1%	3.1%
No	0.4%	0.3%	<0.1%	0.8%	<0.1%	1.9%	<0.1%	<0.1%	<0.1%	3.1%
# Observations	533	74	40	124	36	61	27	27	86	44

Table D1-OL9
OUTDOOR LIGHTING: Control, Photocell
PERCENT OF REGIONAL OUTDOOR LIGHTING WATTAGE

CONTROL, PHOTOCELL	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	10.6%	7.9%	13.9%	8.7%	18.6%	11.5%	17.9%	15.5%	21.2%	20.9%
No	10.6%	7.9%	13.9%	8.7%	18.6%	11.5%	17.9%	15.5%	21.2%	20.9%
# Observations	468	64	37	105	31	52	25	22	78	41

Table D1-OL10
OUTDOOR LIGHTING: Control, Photocell
PERCENT OF REGIONAL BUILDINGS

CONTROL, PHOTOCELL	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	6.1%	7.7%	11.6%	12.7%	10.8%	4.1%	16.9%	11.6%	13.1%	8.5%
No	6.1%	7.7%	11.6%	12.7%	10.8%	4.1%	16.9%	11.6%	13.1%	8.5%
# Observations	533	74	40	124	36	61	27	27	86	44

Table D1-OL11

OUTDOOR LIGHTING: Control, Occupancy Sensors

PERCENT OF REGIONAL OUTDOOR LIGHTING WATTAGE

CONTROL, OCCUPANCY SENSORS	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	1.0%	<0.1%	4.6%	0.1%	<0.1%	6.1%	<0.1%	10.0%	0.9%	0.5%
No	1.0%	<0.1%	4.6%	0.1%	<0.1%	6.1%	<0.1%	10.0%	0.9%	0.5%
# Observations	407	58	24	76	23	51	25	22	75	40

Table D1-OL12

OUTDOOR LIGHTING: Control, Occupancy Sensors

PERCENT OF REGIONAL BUILDINGS

CONTROL, OCCUPANCY SENSORS	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	1.1%	<0.1%	7.5%	1.3%	<0.1%	2.0%	<0.1%	2.2%	3.0%	3.1%
No	1.1%	<0.1%	7.5%	1.3%	<0.1%	2.0%	<0.1%	2.2%	3.0%	3.1%
# Observations	450	61	26	91	24	59	27	26	82	41

Table D1-OL13

OUTDOOR LIGHTING: Control, On/Off Switch

PERCENT OF REGIONAL OUTDOOR LIGHTING WATTAGE

CONTROL, ON/OFF SWITCH	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	6.3%	9.5%	11.4%	3.4%	11.1%	11.5%	4.4%	10.8%	5.5%	24.3%
No	6.3%	9.5%	11.4%	3.4%	11.1%	11.5%	4.4%	10.8%	5.5%	24.3%
# Observations	468	64	37	105	31	52	25	22	78	41

Table D1-OL14
OUTDOOR LIGHTING: Control, On/Off Switch
PERCENT OF REGIONAL BUILDINGS

CONTROL, ON/OFF SWITCH	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	4.8%	8.0%	9.6%	10.9%	10.9%	8.4%	17.1%	11.8%	13.0%	0.9%
No	4.8%	8.0%	9.6%	10.9%	10.9%	8.4%	17.1%	11.8%	13.0%	0.9%
# Observations	533	74	40	124	36	61	27	27	86	44

Table D1-OL15
OUTDOOR LIGHTING: Control, Timeclock/Photocell
PERCENT OF REGIONAL OUTDOOR LIGHTING WATTAGE

CONTROL, TIMECLOCK/PHOTOCELL	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	4.3%	6.3%	12.3%	8.0%	6.7%	11.4%	18.2%	9.1%	7.5%	16.3%
No	4.3%	6.3%	12.3%	8.0%	6.7%	11.4%	18.2%	9.1%	7.5%	16.3%
# Observations	468	64	37	105	31	52	25	22	78	41

Table D1-OL16
OUTDOOR LIGHTING: Control, Timeclock/Photocell
PERCENT OF REGIONAL BUILDINGS

CONTROL, TIMECLOCK/PHOTOCELL	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	6.4%	7.0%	11.3%	4.0%	3.2%	2.0%	7.2%	7.4%	12.9%	19.3%
No	6.4%	7.0%	11.3%	4.0%	3.2%	2.0%	7.2%	7.4%	12.9%	19.3%
# Observations	533	74	40	124	36	61	27	27	86	44

Table D1-EQ1

MISCELLANEOUS EQUIPMENT: Number of Terminals (Cash registers)

PER SQUARE FOOT (1000s), BASE=HAVE TERMINAL(S)

NUMBER OF TERMINALS (CASH REGISTERS)	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Per square foot (1000s)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	s	<0.001	s
# Observations	112	53	23	8	10	5	5	1	5	1

Table D1-EQ2

MISCELLANEOUS EQUIPMENT: Number of PCs

PER SQUARE FOOT (1000s), BASE=HAVE PC(S)

NUMBER OF PCS	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Per square foot (1000s)	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
# Observations	261	36	9	81	11	27	11	18	43	24

Table D1-EQ3

MISCELLANEOUS EQUIPMENT: Number of Servers

PER SQUARE FOOT (1000s), BASE=HAVE SERVER(S)

NUMBER OF SERVERS	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Per square foot (1000s)	<0.001	<0.001	s	<0.001	s	<0.001	s	<0.001	<0.001	<0.001
# Observations	146	14	4	70	2	11	3	12	15	15

Table D1-EQ4
MISCELLANEOUS EQUIPMENT: Number of Refrigerators
PER SQUARE FOOT (1000s), BASE=HAVE REFRIGERATION

NUMBER OF REFRIGERATORS	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Per square foot (1000s)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001
# Observations	206	32	7	71	6	21	9	12	37	11

Table D1-EQ5
MISCELLANEOUS EQUIPMENT: Number of Auxiliary Pumps
PER SQUARE FOOT (1000s), BASE=HAVE AUXILIARY PUMP(S)

NUMBER OF AUXILIARY PUMPS	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Per square foot (1000s)	<0.001	<0.001	<0.001	<0.001	s	s	<0.001	<0.001	<0.001	<0.001
# Observations	95	6	5	16	4	3	6	13	13	19

Table D1-EQ6
MISCELLANEOUS EQUIPMENT: Other Health, Lab
PERCENT OF REGIONAL FLOOR AREA

OTHER HEALTH, LAB	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	8.1%	s	s	<0.1%	s	s	s	s	s	s
No	8.1%	s	s	<0.1%	s	s	s	s	s	s
# Observations	20	0	3	7	0	0	0	1	1	4

Table D1-EQ7

FULL KITCHEN EQUIPMENT: Number of Broilers

PER SQUARE FOOT (1000s), BASE=HAVE BROILER(S)

NUMBER OF BROILERS	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Per square foot (1000s)	<0.001	s	s	s	0.001	s	<0.001	s	s	s
# Observations	23	2	2	3	7	0	6	0	3	0

Table D1-EQ8

FULL KITCHEN EQUIPMENT: Broiler Fuel Elec

PERCENT OF REGIONAL FLOOR AREA WITH BROILER(S)

BROILER FUEL ELEC	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	11.3%	s	s	s	14.8%	s	15.2%	s	s	s
No	11.3%	s	s	s	14.8%	s	15.2%	s	s	s
# Observations	27	2	3	4	8	0	5	0	4	1

Table D1-EQ9

FULL KITCHEN EQUIPMENT: Number of Fryers

PER SQUARE FOOT (1000s), BASE=HAVE FRYER(S)

NUMBER OF FRYERS	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Per square foot (1000s)	<0.001	<0.001	<0.001	<0.001	<0.001	s	<0.001	s	<0.001	<0.001
# Observations	80	7	12	11	21	0	7	1	11	10

Table D1-EQ10

FULL KITCHEN EQUIPMENT: Fryer Fuel Elec

PERCENT OF REGIONAL FLOOR AREA WITH FRYER(S)

FRYER FUEL ELEC	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	8.1%	14.9%	10.4%	14.3%	12.9%	s	21.3%	s	21.5%	17.0%
No	8.1%	14.9%	10.4%	14.3%	12.9%	s	21.3%	s	21.5%	17.0%
# Observations	83	6	14	12	21	0	6	1	12	11

Table D1-EQ11

FULL KITCHEN EQUIPMENT: Number of Griddle/Grills

PER SQUARE FOOT (1000s), BASE=HAVE GRIDDLE/GRILL(S)

NUMBER OF GRIDDLE/GRILLS	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Per square foot (1000s)	<0.001	s	<0.001	<0.001	<0.001	s	<0.001	s	<0.001	<0.001
# Observations	86	4	6	17	19	0	9	4	15	12

Table D1-EQ12

FULL KITCHEN EQUIPMENT: Griddle/Grill Fuel Elec

PERCENT OF REGIONAL FLOOR AREA WITH GRIDDLE/GRILL(S)

GRIDDLE/GRILL FUEL ELEC	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	7.3%	s	14.4%	11.2%	11.9%	s	5.6%	s	14.6%	17.6%
No	7.3%	s	14.4%	11.2%	11.9%	s	5.6%	s	14.6%	17.6%
# Observations	88	4	6	18	19	0	8	4	16	13

Table D1-EQ13

FULL KITCHEN EQUIPMENT: Number of Ovens

PER SQUARE FOOT (1000s), BASE=HAVE OVEN(S)

NUMBER OF OVENS	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Per square foot (1000s)	<0.001	<0.001	<0.001	<0.001	0.001	s	<0.001	<0.001	<0.001	<0.001
# Observations	143	12	15	21	24	2	12	6	28	23

Table D1-EQ14

FULL KITCHEN EQUIPMENT: Oven Fuel Elec

PERCENT OF REGIONAL FLOOR AREA WITH OVEN(S)

OVEN FUEL ELEC	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	5.2%	17.0%	11.4%	10.9%	10.7%	s	10.6%	19.0%	10.7%	5.4%
No	5.2%	17.0%	11.4%	10.9%	10.7%	s	10.6%	19.0%	10.7%	5.4%
# Observations	138	10	16	20	24	0	11	6	27	24

Table D1-EQ15

FULL KITCHEN EQUIPMENT: Number of Range Tops

PER SQUARE FOOT (1000s), BASE=HAVE RANGE TOP(S)

NUMBER OF RANGE TOPS	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Per square foot (1000s)	<0.001	<0.001	s	<0.001	<0.001	s	<0.001	s	<0.001	<0.001
# Observations	87	6	4	11	18	2	10	4	22	10

Table D1-EQ16

FULL KITCHEN EQUIPMENT: Range Fuel Elec

PERCENT OF REGIONAL FLOOR AREA WITH RANGE(S)

RANGE FUEL ELEC	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	8.3%	7.5%	s	15.6%	0.8%	s	11.3%	s	16.7%	9.6%
No	8.3%	7.5%	s	15.6%	0.8%	s	11.3%	s	16.7%	9.6%
# Observations	83	6	4	11	17	0	9	4	21	11

Table D1-EQ17

LAUNDRY EQUIPMENT: Number of Dryers

PER SQUARE FOOT (1000s), BASE=HAVE DRYER(S)

NUMBER OF DRYERS	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Per square foot (1000s)	<0.001	s	s	<0.001	s	s	<0.001	<0.001	<0.001	<0.001
# Observations	74	2	3	6	1	0	28	8	13	11

Table D1-EQ18

LAUNDRY EQUIPMENT: Dryer Fuel Elec

PERCENT OF REGIONAL FLOOR AREA WITH DRYER(S)

DRYER FUEL ELEC	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	7.7%	s	s	19.9%	s	s	10.0%	17.1%	13.6%	6.7%
No	7.7%	s	s	19.9%	s	s	10.0%	17.1%	13.6%	6.7%
# Observations	69	2	0	6	1	0	26	8	13	11

Table D1-EQ19

LAUNDRY EQUIPMENT: Number of Washers

PER SQUARE FOOT (1000s), BASE=HAVE WASHER(S)

NUMBER OF WASHERS	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Per square foot (1000s)	<0.001	s	s	<0.001	s	s	<0.001	<0.001	<0.001	<0.001
# Observations	74	2	3	6	1	0	28	8	14	10

Table D1-EQ20

LAUNDRY EQUIPMENT: Washer Fuel Elec

PERCENT OF REGIONAL FLOOR AREA WITH WASHER(S)

WASHER FUEL ELEC	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	2.4%	s	s	<0.1%	s	s	7.8%	<0.1%	<0.1%	<0.1%
No	2.4%	s	s	<0.1%	s	s	7.8%	<0.1%	<0.1%	<0.1%
# Observations	72	2	3	6	1	0	26	8	14	10

Table D1-RF1

REFRIGERATION COMPRESSORS: Compressor Temperatures

PERCENT OF REGIONAL FLOOR AREA WITH REFRIGERATION

COMPRESSOR TEMPERATURES	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Low	3.1%	8.5%	6.7%	7.6%	6.6%	s	5.7%	13.5%	4.5%	7.5%
Medium	3.3%	9.5%	9.2%	7.6%	7.0%	s	5.7%	13.5%	6.2%	7.7%
High	1.2%	3.6%	5.1%	<0.1%	2.2%	s	<0.1%	<0.1%	6.5%	1.6%
# Observations	136	14	33	16	32	3	8	5	8	17

Table D1-RF2

REFRIGERATION COMPRESSORS: Floating Head Pressure Control

PERCENT OF REGIONAL FLOOR AREA WITH REFRIGERATION

FLOATING HEAD PRESSURE CONTROL	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	4.4%	21.0%	13.9%	4.2%	1.3%	s	22.1%	s	<0.1%	<0.1%
No	4.4%	21.0%	13.9%	4.2%	1.3%	s	22.1%	s	<0.1%	<0.1%
# Observations	102	9	28	13	24	2	6	3	7	10

Table D1-RF3

REFRIGERATION COMPRESSORS: Refrigeration Heat Recovery

PERCENT OF REGIONAL FLOOR AREA WITH REFRIGERATION

REFRIGERATION HEAT RECOVERY	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	2.2%	5.2%	12.2%	<0.1%	5.0%	<0.1%	14.1%	13.9%	<0.1%	<0.1%
No	2.2%	5.2%	12.2%	<0.1%	5.0%	<0.1%	14.1%	13.9%	<0.1%	<0.1%
# Observations	284	30	39	54	27	18	17	12	41	35

Table D1-RF4

REFRIGERATION CONDENSERS: Predominant Condenser type

PERCENT OF REGIONAL FLOOR AREA WITH REFRIGERATION

PREDOMINANT CONDENSER TYPE	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Air-cooled	4.9%	<0.1%	3.2%	13.1%	5.1%	s	15.3%	s	<0.1%	15.3%
Evap-cooled	1.0%	<0.1%	3.2%	<0.1%	<0.1%	s	<0.1%	s	<0.1%	<0.1%
Water-cooled	4.8%	<0.1%	<0.1%	13.1%	5.1%	s	15.3%	s	<0.1%	15.3%
# Observations	116	11	32	14	25	2	8	4	7	13

Table D1-RF5
REFRIGERATION EQUIPMENT USE: Display Case
PERCENT OF REGIONAL FLOOR AREA WITH REFRIGERATION

DISPLAY CASE	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	4.8%	<0.1%	0.4%	s	7.6%	s	s	s	s	s
No	4.8%	<0.1%	0.4%	s	7.6%	s	s	s	s	s
# Observations	76	13	36	4	14	0	0	3	3	3

Table D1-RF6
REFRIGERATION EQUIPMENT USE: Cases With Doors
PERCENT OF REGIONAL FLOOR AREA WITH REFRIGERATION

CASES WITH DOORS	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	4.3%	9.0%	8.6%	s	12.5%	s	s	s	s	s
No	4.3%	9.0%	8.6%	s	12.5%	s	s	s	s	s
# Observations	75	12	36	4	14	0	0	3	3	3

Table D1-PS1
POOLS AND SPAS: Pool
PERCENT OF REGIONAL FLOOR AREA

POOL	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	0.9%	0.2%	<0.1%	0.5%	2.0%	<0.1%	9.3%	2.2%	0.1%	5.2%
No	0.9%	0.2%	<0.1%	0.5%	2.0%	<0.1%	9.3%	2.2%	0.1%	5.2%
# Observations	1,069	161	68	237	65	112	42	53	152	73

Table D1-PS2

POOLS AND SPAS: Pool Cover

PERCENT OF REGIONAL FLOOR AREA WITH POOL(S)

POOL COVER	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Yes	14.0%	s	s	s	s	s	13.8%	s	s	s
No	14.0%	s	s	s	s	s	13.8%	s	s	s
# Observations	23	0	0	0	1	0	13	1	1	2

D.2 RESULTS BY COHORT

Table D2-GB13

GENERAL BUILDING INFORMATION: Heating Fuel

PERCENT OF REGIONAL HEATED FLOOR AREA

HEATING FUEL	STANDARD ERROR			
		COHORT		
	Total	1987 and earlier	1988 to 1994	1995 to 2001
Electricity	2.2%	3.0%	4.0%	2.8%
Natural gas	2.3%	3.2%	4.1%	3.0%
Fuel oil	0.4%	0.6%	<0.1%	<0.1%
Heat recovery	0.2%	0.3%	0.2%	0.3%
LPG	0.3%	0.3%	1.1%	1.1%
Purchased HW, steam	0.7%	1.0%	<0.1%	0.9%
Other	0.2%	0.2%	<0.1%	<0.1%
Unknown	0.3%	0.4%	<0.1%	<0.1%
# Observations	973	446	246	281

Table D2-HS8

HVAC SYSTEM SUMMARY: HVAC System Upgrades Within Last 5 Years

PERCENT OF REGIONAL CONDITIONED FLOOR AREA

HVAC SYSTEM UPGRADES WITHIN LAST 5 YEARS	STANDARD ERROR			
		COHORT		
	Total	1987 and earlier	1988 to 1994	1995 to 2001
Yes	3.5%	3.9%	6.8%	8.8%
No	3.5%	3.9%	6.8%	8.8%
# Observations	423	309	95	19

Table D2-HS20

HVAC SYSTEM SUMMARY: Distribution with Economizers

PERCENT OF REGIONAL CONDITIONED FLOOR AREA

	STANDARD ERROR			
		COHORT		
DISTRIBUTION WITH ECONOMIZERS	Total	1987 and earlier	1988 to 1994	1995 to 2001
Yes	2.9%	4.9%	4.9%	3.2%
No	2.9%	4.9%	4.9%	3.2%
# Observations	599	177	148	274

E

2001 ENERGY-USE INTENSITIES TABLES—STANDARD ERRORS

Notes:

- "s" in the tables: The number of observations on a "question" for a particular building type (or the total) is less than five, the results have been suppressed.
- "m" in the tables: There are no observations in a "response category" for a particular building type (or the total).
- The total column in each of the tables reflects all of the data from all building types, not just the building types presented in the table.
- See Section 4.4.4 for an explanation of the use of these standard errors to calculate statistical confidence intervals.

Table E-EA1

ELECTRIC ACTUAL EUI RESULTS

(kWh Per Square Foot)

	STANDARD ERROR												
		BUILDING TYPE											
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hospital	Hotel/ Motel	Other Health	Other	School	Univer-sity	Vacant
EUI	1.2	1.4	4.4	0.7	6.9	0.8	s	1.5	16.1	2.4	0.9	9.6	1.3
# Observations	649	103	41	166	47	80	4	32	38	78	38	10	12

Table E-EA2

ELECTRIC ACTUAL EUI RESULTS: Building Floor Area

(kWh Per Square Foot)

BUILDING FLOOR AREA	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Less than 5,000 SF	2.3	5.0	10.0	1.8	6.9	2.3	0.0	1.4	2.9	0.1
5,000 to 19,999 SF	4.1	1.8	29.2	1.0	9.8	1.8	3.8	41.2	5.4	0.0
20,000 to 49,999 SF	1.9	1.8	2.9	2.8	m	1.2	2.9	3.4	4.0	1.1
50,000 to 99,999 SF	1.3	2.9	4.2	1.2	m	1.1	1.7	1.2	2.1	1.5
100,000 to 499,999 SF	1.2	3.7	m	1.0	m	2.4	1.4	1.4	2.3	1.8
500,000 SF or more	1.0	2.9	m	1.3	m	m	1.1	m	m	m
# Observations	649	103	41	166	47	80	32	38	78	38

Table E-EA3

ELECTRIC ACTUAL EUI RESULTS: Year Constructed, Detailed

(kWh Per Square Foot)

YEAR CONSTRUCTED, DETAILED	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Before 1950	1.2	2.5	m	1.6	9.6	0.8	3.1	5.9	0.7	1.2
1950 to 1969	1.8	3.8	2.3	2.6	1.4	4.2	1.3	7.8	6.8	1.4
1970 to 1979	1.4	2.1	6.8	2.1	8.9	0.6	4.7	1.9	1.2	2.4
1980 to 1987	1.1	3.9	7.2	0.9	6.9	1.0	2.1	3.1	3.3	m
1988 to 1994	2.2	1.8	4.2	1.6	5.6	1.9	1.1	2.5	1.7	1.9
1995 to 2001	7.2	1.9	12.5	1.6	18.4	4.7	0.3	53.6	11.8	1.8
Unknown	2.5	4.7	0.0	0.0	13.3	1.1	0.0	0.0	3.0	m
# Observations	649	103	41	166	47	80	32	38	78	38

Table E-EA4

ELECTRIC ACTUAL EUI RESULTS: Year Constructed, Cohort

(kWh Per Square Foot)

YEAR CONSTRUCTED, COHORT	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
1987 and earlier	0.7	1.8	4.4	0.8	7.1	0.6	1.8	2.1	2.2	1.1
1988 to 1994	2.2	1.8	4.2	1.6	5.6	1.9	1.1	2.5	1.7	1.9
1995 to 2001	7.2	1.9	12.5	1.6	18.4	4.7	0.3	53.6	11.8	1.8
# Observations	649	103	41	166	47	80	32	38	78	38

Table E-EA5

ELECTRIC ACTUAL EUI RESULTS: Heating/Cooling Combination

(kWh Per Square Foot)

HEATING/COOLING COMBINATION	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Electric main heat and cooling	1.1	2.8	8.0	1.1	12.6	2.5	2.2	2.4	9.2	0.6
Electric supplemental heat only and cooling	3.8	4.2	3.4	3.2	m	5.7	m	0.0	4.5	0.1
Electric main heat and no cooling	2.3	0.0	0.0	m	m	0.5	m	m	2.3	0.0
Electric supplemental heat only and no cooling	m	m	m	m	m	m	m	m	m	m
Electric cooling and no heating	2.3	1.9	6.3	0.9	5.9	1.2	1.4	27.5	3.9	1.0
No electric heating or cooling	1.2	0.4	0.0	1.0	0.0	7.7	0.0	0.0	5.6	1.7
# Observations	536	85	35	145	40	53	28	32	62	36

Table E-EA6

ELECTRIC ACTUAL EUI RESULTS: Heating Fuel

(kWh Per Square Foot)

HEATING FUEL	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Electric	1.0	2.3	7.9	1.0	12.6	2.0	2.0	2.3	5.1	1.1
Not electric	1.7	1.7	5.0	0.9	6.2	1.1	1.8	24.1	3.0	1.0
# Observations	601	99	37	160	43	61	32	36	72	38

Table E-EA7

ELECTRIC ACTUAL EUI RESULTS: Whether Or Not Cool

(kWh Per Square Foot)

WHETHER OR NOT COOL	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Cool	1.5	1.6	4.9	0.7	7.2	1.2	1.6	17.4	3.4	1.1
No cooling	0.9	0.3	1.9	1.0	0.0	1.2	0.0	0.0	2.6	1.7
# Observations	569	88	37	149	43	71	28	33	64	36

Table E-EA8

ELECTRIC ACTUAL EUI RESULTS: Month

(kWh Per Square Foot)

MONTH	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
January	0.093	0.107	0.388	0.063	0.549	0.065	0.154	1.235	0.184	0.084
February	0.087	0.104	0.351	0.060	0.517	0.064	0.168	1.124	0.183	0.086
March	0.093	0.110	0.352	0.063	0.530	0.068	0.132	1.251	0.185	0.092
April	0.091	0.111	0.341	0.060	0.524	0.067	0.112	1.232	0.178	0.080
May	0.097	0.115	0.364	0.057	0.574	0.071	0.118	1.345	0.187	0.079
June	0.106	0.122	0.374	0.058	0.631	0.077	0.155	1.471	0.210	0.071
July	0.120	0.133	0.394	0.062	0.699	0.085	0.146	1.691	0.241	0.061
August	0.115	0.135	0.391	0.062	0.690	0.081	0.132	1.580	0.267	0.069
September	0.104	0.124	0.370	0.057	0.603	0.072	0.102	1.440	0.233	0.079
October	0.097	0.118	0.371	0.059	0.559	0.070	0.110	1.317	0.209	0.082
November	0.091	0.114	0.358	0.066	0.544	0.066	0.130	1.184	0.208	0.087
December	0.094	0.117	0.369	0.065	0.569	0.066	0.133	1.230	0.197	0.081
# Observations	649	103	41	166	47	80	32	38	78	38

Table E-GA1

GAS ACTUAL EUI RESULTS

(Therms Per Square Foot)

	STANDARD ERROR												
		BUILDING TYPE											
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hospital	Hotel/ Motel	Other Health	Other	School	Univer-sity	Vacant
EUI	0.043	0.042	0.158	0.043	0.466	0.029	s	0.219	0.165	0.160	0.087	s	s
# Observations	192	37	11	45	24	26	2	7	8	17	7	4	4

Table E-GA2

GAS ACTUAL EUI RESULTS: Building Floor Area

(Therms Per Square Foot)

BUILDING FLOOR AREA	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Less than 5,000 SF	0.487	0.001	0.008	0.133	0.704	m	m	0.357	m	m
5,000 to 19,999 SF	0.102	0.107	0.431	0.092	0.521	0.044	0.000	0.101	0.257	m
20,000 to 49,999 SF	0.052	0.052	0.115	0.044	m	0.019	0.000	m	0.177	m
50,000 to 99,999 SF	0.088	0.059	0.065	0.078	m	0.060	0.000	0.306	0.044	0.084
100,000 to 499,999 SF	0.049	0.041	m	0.042	m	0.078	0.045	m	0.045	0.000
500,000 SF or more	0.223	0.000	m	<0.001	m	m	0.000	m	m	m
# Observations	192	37	11	45	24	26	7	8	17	7

Table E-GA3

GAS ACTUAL EUI RESULTS: Year Constructed, Detailed

(Therms Per Square Foot)

YEAR CONSTRUCTED, DETAILED	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Before 1950	0.054	0.098	m	0.081	0.000	0.000	0.000	m	0.085	m
1950 to 1969	0.091	0.070	0.000	0.000	0.223	0.061	0.391	m	0.081	0.091
1970 to 1979	0.151	0.075	m	0.065	1.258	0.017	m	m	0.000	m
1980 to 1987	0.126	0.063	0.000	0.097	0.125	0.074	0.168	m	m	m
1988 to 1994	0.046	0.055	0.182	0.042	0.679	0.076	m	0.185	0.166	0.039
1995 to 2001	0.139	0.084	0.177	0.103	0.431	0.043	m	0.219	0.119	m
Unknown	0.091	0.000	m	0.000	0.742	0.052	m	0.000	0.000	m
# Observations	192	37	11	45	24	26	7	8	17	7

Table E-GA4

GAS ACTUAL EUI RESULTS: Year Constructed, Cohort

(Therms Per Square Foot)

YEAR CONSTRUCTED, COHORT	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
1987 and earlier	0.051	0.052	0.008	0.053	0.555	0.038	0.219	0.000	0.185	0.091
1988 to 1994	0.046	0.055	0.182	0.042	0.679	0.076	m	0.185	0.166	0.039
1995 to 2001	0.139	0.084	0.177	0.103	0.431	0.043	m	0.219	0.119	m
# Observations	192	37	11	45	24	26	7	8	17	7

Table E-GA5
GAS ACTUAL EUI RESULTS: Heating
(Therms Per Square Foot)

HEATING	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Gas main heat	0.036	0.028	0.158	0.038	0.384	0.030	0.038	0.181	0.207	0.087
Gas supplemental heat only	0.295	m	m	0.063	0.000	m	m	0.000	0.000	m
No gas heat	0.197	0.193	m	0.168	1.206	0.000	0.317	m	0.000	m
# Observations	182	36	11	41	24	26	7	6	16	7

Table E-GA6
GAS ACTUAL EUI RESULTS: Heating Fuel
(Therms Per Square Foot)

HEATING FUEL	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Electric	0.180	0.236	m	0.157	0.713	0.000	0.317	0.000	0.031	m
Not electric	0.039	0.029	0.158	0.038	0.519	0.030	0.038	0.181	0.207	0.087
# Observations	182	36	11	41	24	26	7	6	16	7

Table E-GA7

GAS ACTUAL EUI RESULTS: Whether Or Not Cool

(Therms Per Square Foot)

WHETHER OR NOT COOL	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Cool	0.053	0.079	0.171	0.046	0.527	0.036	0.219	0.112	0.041	0.094
No cooling	0.117	0.026	0.000	0.000	0.000	0.025	m	0.000	0.432	0.000
# Observations	162	28	11	39	21	24	7	5	12	7

Table E-GA8

GAS ACTUAL EUI RESULTS: Month

(Therms Per Square Foot)

MONTH	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
January	0.0058	0.0092	0.0226	0.0057	0.0873	0.0046	0.0236	0.0205	0.0242	0.0146
February	0.0049	0.0086	0.0264	0.0060	0.0492	0.0058	0.0237	0.0189	0.0233	0.0134
March	0.0048	0.0072	0.0230	0.0054	0.0512	0.0044	0.0288	0.0207	0.0219	0.0128
April	0.0039	0.0040	0.0156	0.0047	0.0413	0.0027	0.0210	0.0183	0.0129	0.0089
May	0.0039	0.0033	0.0177	0.0036	0.0372	0.0018	0.0212	0.0145	0.0092	0.0068
June	0.0032	0.0015	0.0095	0.0024	0.0307	0.0013	0.0156	0.0093	0.0041	0.0015
July	0.0030	0.0012	0.0059	0.0015	0.0281	0.0008	0.0161	0.0077	0.0032	0.0015
August	0.0032	0.0011	0.0059	0.0016	0.0288	0.0006	0.0178	0.0075	0.0035	0.0017
September	0.0031	0.0011	0.0064	0.0024	0.0291	0.0009	0.0169	0.0077	0.0064	0.0025
October	0.0035	0.0024	0.0084	0.0040	0.0285	0.0016	0.0194	0.0109	0.0143	0.0060
November	0.0042	0.0046	0.0134	0.0046	0.0349	0.0031	0.0185	0.0149	0.0195	0.0112
December	0.0045	0.0062	0.0188	0.0050	0.0406	0.0048	0.0193	0.0183	0.0204	0.0126
# Observations	192	37	11	45	24	26	7	8	17	7

Table E-EN1

ELECTRIC WEATHER NORMALIZED EUI RESULTS

(kWh Per Square Foot)

	STANDARD ERROR												
		BUILDING TYPE											
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hospital	Hotel/ Motel	Other Health	Other	School	Univer-sity	Vacant
EUI	1.2	1.4	4.5	0.7	7.0	0.9	s	1.5	16.1	2.4	0.9	9.5	1.4
# Observations	651	103	41	166	47	80	4	32	38	80	38	10	12

Table E-EN2

ELECTRIC WEATHER NORMALIZED EUI RESULTS: Building Floor Area

(kWh Per Square Foot)

BUILDING FLOOR AREA	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Less than 5,000 SF	2.3	5.0	10.6	1.8	6.9	2.4	0.0	1.3	3.0	0.1
5,000 to 19,999 SF	4.1	1.8	29.8	1.0	9.8	1.8	3.8	41.1	5.2	0.0
20,000 to 49,999 SF	1.9	1.7	2.8	2.8	m	1.2	2.9	3.4	4.1	1.1
50,000 to 99,999 SF	1.3	2.8	4.3	1.2	m	1.2	1.8	1.3	2.1	1.5
100,000 to 499,999 SF	1.2	3.8	m	0.9	m	2.4	1.4	1.5	2.2	1.8
500,000 SF or more	1.0	3.3	m	1.3	m	m	1.1	m	m	m
# Observations	651	103	41	166	47	80	32	38	80	38

Table E-EN3

ELECTRIC WEATHER NORMALIZED EUI RESULTS: Year Constructed, Detailed

(kWh Per Square Foot)

YEAR CONSTRUCTED, DETAILED	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Before 1950	1.2	2.5	m	1.6	9.7	0.8	3.1	5.9	0.7	1.3
1950 to 1969	1.7	3.8	1.9	2.6	1.3	4.1	1.4	7.8	6.8	1.4
1970 to 1979	1.4	2.1	6.7	2.1	9.0	0.6	4.7	2.0	1.2	2.4
1980 to 1987	1.1	3.8	7.6	1.0	6.9	1.1	2.0	3.1	3.3	m
1988 to 1994	2.2	1.8	4.3	1.6	5.7	1.9	1.2	2.6	1.6	1.9
1995 to 2001	7.1	1.9	12.8	1.6	18.7	4.7	0.3	53.5	11.0	1.8
Unknown	2.5	4.7	0.0	0.0	13.4	1.1	0.0	0.0	3.0	m
# Observations	651	103	41	166	47	80	32	38	80	38

Table E-EN4

ELECTRIC WEATHER NORMALIZED EUI RESULTS: Year Constructed, Cohort

(kWh Per Square Foot)

YEAR CONSTRUCTED, COHORT	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
1987 and earlier	0.7	1.8	4.4	0.8	7.2	0.6	1.8	2.1	2.2	1.1
1988 to 1994	2.2	1.8	4.3	1.6	5.7	1.9	1.2	2.6	1.6	1.9
1995 to 2001	7.1	1.9	12.8	1.6	18.7	4.7	0.3	53.5	11.0	1.8
# Observations	651	103	41	166	47	80	32	38	80	38

Table E-EN5

ELECTRIC WEATHER NORMALIZED EUI RESULTS: Heating/Cooling Combination

(kWh Per Square Foot)

HEATING/COOLING COMBINATION	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Electric main heat and cooling	1.2	2.8	8.9	1.1	12.8	2.5	2.2	2.4	9.3	0.6
Electric supplemental heat only and cooling	3.7	4.3	3.9	3.2	m	5.7	m	0.0	4.5	0.1
Electric main heat and no cooling	2.4	0.0	0.0	m	m	0.5	m	m	2.3	0.0
Electric supplemental heat only and no cooling	m	m	m	m	m	m	m	m	m	m
Electric cooling and no heating	2.3	1.9	6.4	0.9	5.9	1.2	1.4	27.5	3.8	1.0
No electric heating or cooling	1.1	0.4	0.0	1.0	0.0	7.7	0.0	0.0	5.4	1.7
# Observations	537	85	35	145	40	53	28	32	63	36

Table E-EN6

ELECTRIC WEATHER NORMALIZED EUI RESULTS: Heating Fuel

(kWh Per Square Foot)

HEATING FUEL	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Electric	1.0	2.3	8.6	1.0	12.8	2.0	2.0	2.3	5.1	1.1
Not electric	1.7	1.7	5.1	0.9	6.2	1.1	1.8	24.0	2.9	1.0
# Observations	602	99	37	160	43	61	32	36	73	38

Table E-EN7

ELECTRIC WEATHER NORMALIZED EUI RESULTS: Whether Or Not Cool

(kWh Per Square Foot)

WHETHER OR NOT COOL	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Cool	1.5	1.6	5.1	0.7	7.3	1.2	1.6	17.4	3.3	1.1
No cooling	0.9	0.3	2.0	1.0	0.0	1.2	0.0	0.0	2.6	1.7
# Observations	571	88	37	149	43	71	28	33	66	36

Table E-EN8

ELECTRIC WEATHER NORMALIZED EUI RESULTS: Month

(kWh Per Square Foot)

MONTH	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
January	0.097	0.121	0.454	0.067	0.587	0.073	0.166	1.271	0.187	0.088
February	0.093	0.107	0.382	0.061	0.537	0.065	0.141	1.231	0.187	0.085
March	0.090	0.109	0.351	0.059	0.535	0.065	0.118	1.189	0.188	0.082
April	0.091	0.112	0.351	0.057	0.533	0.066	0.107	1.228	0.191	0.079
May	0.097	0.116	0.355	0.056	0.562	0.071	0.110	1.337	0.198	0.075
June	0.105	0.124	0.370	0.057	0.612	0.076	0.129	1.459	0.215	0.074
July	0.113	0.130	0.385	0.061	0.670	0.081	0.143	1.586	0.238	0.074
August	0.114	0.130	0.393	0.062	0.677	0.081	0.137	1.586	0.244	0.074
September	0.106	0.124	0.386	0.057	0.622	0.076	0.110	1.477	0.227	0.074
October	0.092	0.115	0.373	0.057	0.563	0.071	0.106	1.241	0.201	0.077
November	0.091	0.111	0.358	0.059	0.552	0.066	0.138	1.199	0.190	0.083
December	0.095	0.110	0.392	0.063	0.565	0.076	0.171	1.257	0.185	0.088
# Observations	649	103	41	166	47	80	32	38	78	38

Table E-GN1

GAS WEATHER NORMALIZED EUI RESULTS

(Therms Per Square Foot)

	STANDARD ERROR												
		BUILDING TYPE											
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hospital	Hotel/ Motel	Other Health	Other	School	Univer-sity	Vacant
EUI	0.044	0.048	0.163	0.045	0.470	0.034	s	0.221	0.168	0.167	0.092	s	s
# Observations	190	37	11	44	24	25	2	7	8	17	7	4	4

Table E-GN2

GAS WEATHER NORMALIZED EUI RESULTS: Building Floor Area

(Therms Per Square Foot)

BUILDING FLOOR AREA	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Less than 5,000 SF	0.492	0.001	0.014	0.131	0.709	m	m	0.346	m	m
5,000 to 19,999 SF	0.104	0.122	0.441	0.093	0.528	0.052	0.000	0.115	0.269	m
20,000 to 49,999 SF	0.054	0.053	0.116	0.048	m	0.015	0.000	m	0.176	m
50,000 to 99,999 SF	0.090	0.055	0.062	0.084	m	0.069	0.000	0.312	0.043	0.089
100,000 to 499,999 SF	0.052	0.047	m	0.044	m	0.082	0.045	m	0.048	0.000
500,000 SF or more	0.225	0.000	m	<0.001	m	m	0.000	m	m	m
# Observations	190	37	11	44	24	25	7	8	17	7

Table E-GN3

GAS WEATHER NORMALIZED EUI RESULTS: Year Constructed

(Therms Per Square Foot)

YEAR CONSTRUCTED	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Before 1950	0.060	0.114	m	0.084	0.000	0.000	0.000	m	0.089	m
1950 to 1969	0.092	0.077	0.000	0.000	0.250	0.061	0.397	m	0.083	0.096
1970 to 1979	0.158	0.077	m	0.070	1.244	0.017	m	m	0.000	m
1980 to 1987	0.125	0.063	0.000	0.100	0.109	0.086	0.163	m	m	m
1988 to 1994	0.048	0.058	0.187	0.046	0.677	0.079	m	0.181	0.176	0.036
1995 to 2001	0.144	0.085	0.152	0.098	0.462	0.043	m	0.224	0.119	m
Unknown	0.095	0.000	m	0.000	0.742	0.062	m	0.000	0.000	m
# Observations	190	37	11	44	24	25	7	8	17	7

Table E-GN4

GAS WEATHER NORMALIZED EUI RESULTS: Year Constructed, Cohort

(Therms Per Square Foot)

YEAR CONSTRUCTED, COHORT	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
1987 and earlier	0.052	0.059	0.014	0.055	0.555	0.044	0.221	0.000	0.194	0.096
1988 to 1994	0.048	0.058	0.187	0.046	0.677	0.079	m	0.181	0.176	0.036
1995 to 2001	0.144	0.085	0.152	0.098	0.462	0.043	m	0.224	0.119	m
# Observations	190	37	11	44	24	25	7	8	17	7

Table E-GN5

GAS WEATHER NORMALIZED EUI RESULTS: Heating

(Therms Per Square Foot)

HEATING	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Gas main heat	0.038	0.031	0.163	0.040	0.395	0.034	0.040	0.185	0.216	0.092
Gas supplemental heat only	0.294	m	m	0.071	0.000	m	m	0.000	0.000	m
No gas heat	0.200	0.221	m	0.175	1.206	0.000	0.323	m	0.000	m
# Observations	180	36	11	40	24	25	7	6	16	7

Table E-GN6

GAS WEATHER NORMALIZED EUI RESULTS: Heating Fuel

(Therms Per Square Foot)

HEATING FUEL	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Electric	0.183	0.271	m	0.163	0.713	0.000	0.323	0.000	0.031	m
Not electric	0.041	0.032	0.163	0.040	0.523	0.034	0.040	0.185	0.216	0.092
# Observations	180	36	11	40	24	25	7	6	16	7

Table E-GN7

GAS WEATHER NORMALIZED EUI RESULTS: Whether Or Not Cool

(Therms Per Square Foot)

WHETHER OR NOT COOL	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
Cool	0.054	0.090	0.177	0.048	0.530	0.041	0.221	0.130	0.045	0.099
No cooling	0.124	0.022	0.000	0.000	0.000	0.035	m	0.000	0.452	0.000
# Observations	160	28	11	38	21	23	7	5	12	7

Table E-GN8

GAS WEATHER NORMALIZED EUI RESULTS: Month

(Therms Per Square Foot)

MONTH	STANDARD ERROR									
		BUILDING TYPE								
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hotel/ Motel	Other Health	Other	School
January	0.0065	0.0107	0.0263	0.0063	0.0879	0.0065	0.0256	0.0233	0.0270	0.0161
February	0.0054	0.0096	0.0264	0.0060	0.0504	0.0063	0.0243	0.0230	0.0235	0.0146
March	0.0046	0.0069	0.0205	0.0052	0.0493	0.0049	0.0228	0.0191	0.0184	0.0125
April	0.0040	0.0051	0.0169	0.0041	0.0416	0.0036	0.0210	0.0173	0.0142	0.0093
May	0.0035	0.0029	0.0133	0.0031	0.0373	0.0018	0.0177	0.0140	0.0087	0.0053
June	0.0030	0.0013	0.0079	0.0019	0.0313	0.0014	0.0153	0.0097	0.0038	0.0014
July	0.0029	0.0013	0.0070	0.0017	0.0295	0.0014	0.0146	0.0076	0.0039	0.0015
August	0.0029	0.0013	0.0070	0.0018	0.0288	0.0014	0.0148	0.0076	0.0039	0.0016
September	0.0030	0.0013	0.0072	0.0027	0.0298	0.0014	0.0147	0.0076	0.0047	0.0018
October	0.0034	0.0016	0.0087	0.0040	0.0271	0.0016	0.0156	0.0092	0.0141	0.0072
November	0.0044	0.0060	0.0158	0.0052	0.0345	0.0032	0.0196	0.0148	0.0217	0.0119
December	0.0056	0.0091	0.0232	0.0058	0.0414	0.0054	0.0239	0.0208	0.0262	0.0140
# Observations	190	37	11	44	24	25	7	8	17	7

F

2001 VERSUS 1987 BUILDING CHARACTERISTICS CHANGE TABLES—STANDARD ERRORS

Note:

- See Section 4.4.4 for an explanation of the use of these standard errors to calculate statistical confidence intervals.

Table F-GB4

GENERAL BUILDING INFORMATION: Conditioned Floor Area

CONDITIONED FLOOR AREA	STANDARD ERROR			
	Total	BUILDING TYPE		
		Dry Goods Retail	Office	All Other
Percent of total	1.8%	1.3%	1.7%	2.9%
# Observations	407	65	90	252

Table F-GB5

GENERAL BUILDING INFORMATION: Heated Floor Area

HEATED FLOOR AREA	STANDARD ERROR			
	Total	BUILDING TYPE		
		Dry Goods Retail	Office	All Other
Percent of total	2.0%	1.7%	1.9%	3.2%
# Observations	383	59	83	241

Table F-GB6

GENERAL BUILDING INFORMATION: Cooled Floor Area

COOLED FLOOR AREA	STANDARD ERROR			
	Total	BUILDING TYPE		
		Dry Goods Retail	Office	All Other
Percent of total	2.3%	2.9%	2.4%	3.7%
# Observations	381	58	83	240

Table F-GB7

GENERAL BUILDING INFORMATION: Unconditioned Floor Area

UNCONDITIONED FLOOR AREA	STANDARD ERROR			
	Total	BUILDING TYPE		
		Dry Goods Retail	Office	All Other
Percent of total	0.9%	1.1%	1.0%	1.5%
# Observations	407	65	90	252

Table F-GB8

GENERAL BUILDING INFORMATION: Refrigerated Floor Area

REFRIGERATED FLOOR AREA	STANDARD ERROR			
		BUILDING TYPE		
	Total	Dry Goods Retail	Office	All Other
Percent of total	0.2%	0.2%	<0.1%	0.3%
# Observations	391	60	88	243

Table F-GB9

GENERAL BUILDING INFORMATION: Vacant Floor Area

VACANT FLOOR AREA	STANDARD ERROR			
		BUILDING TYPE		
	Total	Dry Goods Retail	Office	All Other
Percent of total	1.4%	4.8%	1.6%	1.6%
# Observations	359	58	76	225

Table F-GB13

GENERAL BUILDING INFORMATION: Heating Fuel

PERCENT OF REGIONAL HEATED FLOOR AREA

HEATING FUEL	STANDARD ERROR			
		BUILDING TYPE		
	Total	Dry Goods Retail	Office	All Other
Electricity	2.6%	5.7%	4.9%	3.4%
Natural gas	3.5%	5.5%	5.5%	5.3%
Fuel oil	1.9%	3.5%	<0.1%	2.9%
Heat recovery	0.6%	2.1%	<0.1%	0.6%
LPG	0.4%	<0.1%	0.8%	0.7%
Purchased HW, steam	0.8%	<0.1%	2.3%	1.0%
Other	0.2%	<0.1%	<0.1%	0.3%
Unknown	2.0%	<0.1%	<0.1%	3.3%
# Observations	346	57	82	207

Table F-GB16

GENERAL BUILDING INFORMATION: Business Ownership

PERCENT OF REGIONAL FLOOR AREA

BUSINESS OWNERSHIP	STANDARD ERROR			
	Total	BUILDING TYPE		
		Dry Goods Retail	Office	All Other
Individual	2.9%	8.8%	3.7%	3.7%
Corporation	3.2%	9.1%	5.1%	4.1%
Private university/college	<0.1%	<0.1%	<0.1%	0.1%
Religious	0.4%	<0.1%	<0.1%	0.7%
Federal gov't	3.2%	<0.1%	2.9%	4.7%
Local/state gov't	3.8%	<0.1%	3.7%	5.8%
Other	1.6%	2.0%	1.3%	2.5%
# Observations	381	54	85	242

Table F-SC1

TYPICAL OPERATING WEEK SCHEDULE INFORMATION: Weekly Hours Of Operation

PERCENT OF REGIONAL FLOOR AREA

WEEKLY HOURS OF OPERATION	STANDARD ERROR			
	Total	BUILDING TYPE		
		Dry Goods Retail	Office	All Other
Less than 40	2.9%	8.7%	0.7%	3.8%
40 to 49	4.1%	8.8%	8.5%	5.4%
50 to 59	4.1%	7.5%	8.2%	5.5%
60 to 79	3.1%	8.9%	5.3%	3.9%
80 to 119	3.0%	7.9%	3.4%	4.1%
120 to 167	2.7%	<0.1%	2.4%	4.4%
168 (always open)	1.7%	2.7%	1.9%	2.7%
# Observations	358	54	78	226

Table F-HS9

HVAC SYSTEM SUMMARY: Primary HVAC, Equipment

PERCENT OF REGIONAL CONDITIONED FLOOR AREA

PRIMARY HVAC, EQUIPMENT	STANDARD ERROR			
		BUILDING TYPE		
	Total	Dry Goods Retail	Office	All Other
Boiler/chiller	1.2%	0.4%	2.9%	<0.1%
Duct heat/chiller	0.3%	<0.1%	0.7%	<0.1%
Water loop ht pump	0.5%	<0.1%	1.2%	<0.1%
Boiler only	2.1%	4.6%	1.8%	4.7%
Chiller only	<0.1%	<0.1%	<0.1%	<0.1%
Pkg heat/DX cool	3.8%	7.5%	5.2%	6.8%
Duct heat/DX cool	1.0%	2.3%	1.5%	0.9%
Air-air ht pump	2.0%	3.0%	4.1%	1.0%
Pkg heat only	1.7%	4.7%	<0.1%	1.4%
DX cool only	0.8%	2.1%	<0.1%	0.4%
Evap cool only	<0.1%	<0.1%	<0.1%	<0.1%
Pkg heat/evap cool	<0.1%	<0.1%	<0.1%	<0.1%
Heat rec/DX cool	1.2%	2.5%	<0.1%	3.1%
Unit heat/cool	0.3%	<0.1%	0.7%	0.6%
Unit heat only	2.7%	4.8%	2.3%	7.3%
Boiler/DX cool	1.3%	3.4%	1.0%	<0.1%
# Observations	222	48	76	98

Table F-HS10

HVAC SYSTEM SUMMARY: Primary HVAC, Heat Fuel

PERCENT OF REGIONAL CONDITIONED FLOOR AREA

PRIMARY HVAC, HEAT FUEL	STANDARD ERROR			
		BUILDING TYPE		
	Total	Dry Goods Retail	Office	All Other
Electricity	2.9%	4.8%	5.0%	4.7%
Natural gas	3.3%	5.5%	5.5%	5.4%
Heat recovery	1.2%	2.5%	<0.1%	3.0%
Fuel oil	1.1%	2.9%	<0.1%	1.1%
LPG	0.4%	<0.1%	0.8%	0.5%
Pur. HW, steam	1.1%	<0.1%	2.8%	<0.1%
None	0.1%	<0.1%	<0.1%	0.4%
Other	0.1%	<0.1%	<0.1%	0.5%
# Observations	224	48	76	100

Table F-HS14
HVAC SYSTEM SUMMARY: Primary HVAC, Distribution
PERCENT OF REGIONAL CONDITIONED FLOOR AREA

PRIMARY HVAC, DISTRIBUTION	STANDARD ERROR			
	Total	BUILDING TYPE		
		Dry Goods Retail	Office	All Other
AIR single duct, constant volume	3.6%	7.5%	4.8%	5.7%
AIR dual duct, constant volume	0.5%	<0.1%	1.3%	<0.1%
AIR multi-zone, constant volume	1.1%	2.7%	0.9%	0.2%
AIR single duct, variable volume	2.1%	0.4%	4.8%	<0.1%
AIR dual duct, variable volume	0.9%	<0.1%	2.2%	<0.1%
AIR variable volume, variable temperature	0.9%	<0.1%	2.2%	<0.1%
2 Pipe, fan coil	0.4%	0.4%	1.0%	<0.1%
Radiator	2.1%	4.6%	1.9%	4.6%
Unitary	2.7%	4.8%	2.4%	7.3%
Hydronic baseboard system	<0.1%	<0.1%	<0.1%	<0.1%
4 Pipe, fan coil	<0.1%	<0.1%	<0.1%	<0.1%
Distribution system not listed	<0.1%	<0.1%	<0.1%	<0.1%
# Observations	222	48	76	98

Table F-IL1
INDOOR LIGHTING: Watts
PER SQUARE FOOT

WATTS	STANDARD ERROR			
	Total	BUILDING TYPE		
		Dry Goods Retail	Office	All Other
Per square foot	0.06	0.08	0.14	0.09
# Observations	39	6	5	28

Table F-IL6
INDOOR LIGHTING: Lamp Type
PERCENT OF REGIONAL INDOOR LIGHTING WATTAGE

LAMP TYPE	STANDARD ERROR			
	Total	BUILDING TYPE		
		Dry Goods Retail	Office	All Other
Fluorescent	3.2%	4.7%	6.5%	5.4%
Incandescent	1.6%	2.0%	2.1%	4.7%
HID	0.6%	0.8%	1.4%	0.4%
Miscellaneous	0.2%	0.2%	<0.1%	0.6%
# Observations	107	28	22	57

Table F-IL17
INDOOR LIGHTING: Control, Timeclock (On/Off)
PERCENT OF REGIONAL INDOOR WATTAGE

CONTROL, TIMECLOCK (ON/OFF)	STANDARD ERROR			
	Total	BUILDING TYPE		
		Dry Goods Retail	Office	All Other
Yes	3.3%	7.1%	1.8%	6.4%
No	3.3%	7.1%	1.8%	6.4%
# Observations	112	24	28	60

Table F-IL18
INDOOR LIGHTING: Control, EMCS
PERCENT OF REGIONAL INDOOR WATTAGE

CONTROL, EMCS	STANDARD ERROR			
	Total	BUILDING TYPE		
		Dry Goods Retail	Office	All Other
Yes	2.6%	<0.1%	6.6%	1.4%
No	2.6%	<0.1%	6.6%	1.4%
# Observations	112	24	28	60

Table F-IL19
INDOOR LIGHTING: Control, Photocell
PERCENT OF REGIONAL INDOOR WATTAGE

CONTROL, PHOTOCELL	STANDARD ERROR			
	Total	BUILDING TYPE		
		Dry Goods Retail	Office	All Other
Yes	0.8%	<0.1%	1.3%	2.7%
No	0.8%	<0.1%	1.3%	2.7%
# Observations	112	24	28	60

Table F-IL20
INDOOR LIGHTING: Control, Occupancy Sensors
PERCENT OF REGIONAL INDOOR WATTAGE

CONTROL, OCCUPANCY SENSORS	STANDARD ERROR			
	Total	BUILDING TYPE		
		Dry Goods Retail	Office	All Other
Yes	2.1%	<0.1%	5.4%	<0.1%
No	2.1%	<0.1%	5.4%	<0.1%
# Observations	112	24	28	60

Table F-IL21
INDOOR LIGHTING: Control, On/Off Switch
PERCENT OF REGIONAL INDOOR WATTAGE

CONTROL, ON/OFF SWITCH	STANDARD ERROR			
	Total	BUILDING TYPE		
		Dry Goods Retail	Office	All Other
Yes	4.4%	5.9%	9.3%	6.1%
No	4.4%	5.9%	9.3%	6.1%
# Observations	112	24	28	60

Table F-IL22
INDOOR LIGHTING: Control, Dimmer Switch/Daylighting Controls
PERCENT OF REGIONAL INDOOR WATTAGE

CONTROL, DIMMER SWITCH/DAYLIGHTING CONTROLS	STANDARD ERROR			
		BUILDING TYPE		
	Total	Dry Goods Retail	Office	All Other
Yes	3.8%	0.9%	9.3%	<0.1%
No	3.8%	0.9%	9.3%	<0.1%
# Observations	112	24	28	60

Table F-IL23
INDOOR LIGHTING: Control, Other
PERCENT OF REGIONAL INDOOR WATTAGE

CONTROL, OTHER	STANDARD ERROR			
		BUILDING TYPE		
	Total	Dry Goods Retail	Office	All Other
Yes	1.6%	<0.1%	4.0%	<0.1%
No	1.6%	<0.1%	4.0%	<0.1%
# Observations	112	24	28	60

Table F-OL2
OUTDOOR LIGHTING: Lamp Type
PERCENT OF REGIONAL OUTDOOR LIGHTING WATTAGE

LAMP TYPE	STANDARD ERROR			
		BUILDING TYPE		
	Total	Dry Goods Retail	Office	All Other
Fluorescent	8.2%	14.8%	14.8%	12.3%
HID	13.2%	21.4%	20.4%	13.5%
Incandescent	5.6%	10.4%	8.7%	5.7%
Neon	3.6%	1.7%	1.6%	10.3%
Other	0.1%	<0.1%	<0.1%	0.2%
# Observations	116	28	37	51

Table F-OL5
OUTDOOR LIGHTING: Control, Timeclock (On/Off)
PERCENT OF REGIONAL OUTDOOR LIGHTING WATTAGE

CONTROL, TIMECLOCK (ON/OFF)	STANDARD ERROR			
		BUILDING TYPE		
	Total	Dry Goods Retail	Office	All Other
Yes	8.0%	19.5%	18.0%	9.8%
No	8.0%	19.5%	18.0%	9.8%
# Observations	92	15	23	54

Table F-OL7
OUTDOOR LIGHTING: Control, EMCS
PERCENT OF REGIONAL OUTDOOR LIGHTING WATTAGE

CONTROL, EMCS	STANDARD ERROR			
		BUILDING TYPE		
	Total	Dry Goods Retail	Office	All Other
Yes	0.5%	<0.1%	2.0%	<0.1%
No	0.5%	<0.1%	2.0%	<0.1%
# Observations	92	15	23	54

Table F-OL9
OUTDOOR LIGHTING: Control, Photocell
PERCENT OF REGIONAL OUTDOOR LIGHTING WATTAGE

CONTROL, PHOTOCELL	STANDARD ERROR			
		BUILDING TYPE		
	Total	Dry Goods Retail	Office	All Other
Yes	18.7%	41.5%	27.1%	23.6%
No	18.7%	41.5%	27.1%	23.6%
# Observations	92	15	23	54

Table F-OL11
OUTDOOR LIGHTING: Control, Occupancy Sensors
PERCENT OF REGIONAL OUTDOOR LIGHTING WATTAGE

CONTROL, OCCUPANCY SENSORS	STANDARD ERROR			
		BUILDING TYPE		
	Total	Dry Goods Retail	Office	All Other
Yes	1.7%	<0.1%	<0.1%	3.3%
No	1.7%	<0.1%	<0.1%	3.3%
# Observations	92	15	23	54

Table F-OL13
OUTDOOR LIGHTING: Control, On/Off Switch
PERCENT OF REGIONAL OUTDOOR LIGHTING WATTAGE

CONTROL, ON/OFF SWITCH	STANDARD ERROR			
		BUILDING TYPE		
	Total	Dry Goods Retail	Office	All Other
Yes	16.5%	25.1%	21.6%	21.6%
No	16.5%	25.1%	21.6%	21.6%
# Observations	92	15	23	54

Table F-OL15
OUTDOOR LIGHTING: Control, Timeclock/Photocell
PERCENT OF REGIONAL OUTDOOR LIGHTING WATTAGE

CONTROL, TIMECLOCK/PHOTOCELL	STANDARD ERROR			
		BUILDING TYPE		
	Total	Dry Goods Retail	Office	All Other
Yes	13.4%	43.2%	22.7%	10.2%
No	13.4%	43.2%	22.7%	10.2%
# Observations	92	15	23	54

G CALCULATION OF EXPANSION WEIGHTS

G.1 BACKGROUND

As described in Section 2, this study uses data from several different studies, conducted at different times and places within the Pacific Northwest. We cannot easily (or at all) reconstruct the original sampling weights. Therefore, we develop new expansion factors by cell, where a cell is defined by the combination of building type, size category, and vintage cohort. Essentially, these are expansions on a per-unit-of floorspace basis within each cell.

The data are grouped into three age cohorts based on year built:

- 1987 or earlier,
- 1988 through 1994, and
- 1995 through 2001.

Analysis is of interest by these three cohorts as well as overall.

For most sites in the study, the age cohort is the same as the sample cohort, which indicates the year in which the study was conducted. This is because most of the post-1987 studies were of new construction. In some cases, however, the later sample cohorts included buildings from earlier age cohorts.

G.1.1 Population totals available

From F.W. Dodge data provided by the Alliance, we have the total square foot built each year from 1988 through 2002 by

- Year,
- Building type (11 corresponding to the PNNonRES categories),
- Building size category (square feet), and
- State.

For floorspace built prior to 1988, we have this same information by groups of years rather than by individual year.

G.1.2 Data available for each premise

For each building in the combined samples, we have the following information for use in the expansion factors:

- Year of the study,
- Building type when observed in the original study,
- Building square feet,
- Building location, and
- Whether the building still existing in 2002.

The resulting expansion factors are used to develop population estimates for various variables collected in the study, such as annual energy use or HVAC system type.

G.2 Determining the 2001 Population Floorspace Totals

The expansion weights for each expansion cell are the ratio of the 2001 population floorspace to the sample floorspace in each cell. Thus, the first step in calculating these weights is to determine the population floorspace.

The floorspace in existence in 1987 is estimated from the PNNonRES study. For purposes of this expansion, these estimates are treated as known quantities.

The floorspace built in subsequent years is known for each year from Dodge. We need to estimate how much of the floorspace from each period survived to 2001. To determine these fractions surviving, we develop a survival function and apply this function to the known population totals. Steps in the process are as follows.

1. Fit a survival function to the data for which we have known 2001 status. This function is:

   $S(t)$ = fraction of premises still in existence after t years from last being observed
   = f(vintage, building type, size; t)

2. For each cell defined by cohort, size category, building type, use the fitted model from Step 1 to calculate the fraction of premises from that cell still in existence in 2001.
3. Apply the fractions from Step 2 to the Dodge construction floorspace totals by the same cells to determine the total floorspace from each year still in existence in 2001.

G.3 Developing Population Estimates from the Current Data

G.3.1 Notation

The following notation is used below.

c cohort
b building type
z size category
y_{cbzj} = value of characteristic y for building j in cohort c, building type b, size z
x_{cbzj} = floorspace of building j in cohort c, building type b, size z
X_{cbz} = total population floorspace in cell cbz from Part 2.

G.3.2 Basic Ratio Estimators by Cell

For each cell defined by cohort, building type, and size category, calculate the ratio of (unweighted) average value of y to (unweighted) average value of x:

$$R_{cbz} = \overline{y}_{cbz} / \overline{x}_{cbz} .$$

G.3.3 Overall Estimate of Population Totals

The total amount of y in any given cell is given by

$$Y_{cbz} = R_{cbz} X_{cbz}.$$

The total of y over the entire population is therefore given simply by summing over the cells included in the population

$$Y_{Tot} = \Sigma_{\text{cbz}} Y_{cbz}.$$

This calculation can be done for the full population or for any single cohort, building type, size category, or combination of interest.

G.3.4 Overall Population Ratios

Overall population ratios of y per square foot are provided by dividing the total of y by the total square footage.

$$\begin{aligned} R_{Tot} &= Y_{Tot}/X_{Tot} \\ &= \Sigma_{\text{cbz}} Y_{cbz} / \Sigma_{\text{cbz}} X_{cbz} \\ &= \Sigma_{\text{cbz}} R_{cbz} X_{cbz} / \Sigma_{\text{cbz}} X_{cbz}. \end{aligned}$$

Thus, the overall ratio R_{TOT} is the weighted average of the cell-wise ratios R_{cbz}, with the known floorspace totals X_{cbz} as weights.

As for the totals, these population ratios can be calculated across any group of cells of interest.

G.4 EQUIVALENT EXPRESSION USING WEIGHTS

The ratio expansion described above can be expressed equivalently as a weighted sum of the sample cases. The calculation of the expansion weight for each cell is as follows.

G.4.1 Totals as Weighted Sums

For a total across the entire population, we can write

$$
\begin{aligned}
Y_{Tot} &= \Sigma_{\text{cbz}}\, Y_{cbz} \\
&= \Sigma_{\text{cbz}}\, R_{cbz}\, X_{cbz} \\
&= \Sigma_{\text{cbz}}\, (\,\overline{y}_{cbz} / \overline{x}_{cbz}\,)\, X_{cbz} \\
&= \sum_{cbz}\left[\left(\frac{1}{n_{cbz}}\sum_{j} y_{cbzj}\right) / \left(\frac{1}{n_{cbz}}\sum_{j} x_{cbzj}\right) X_{cbz}\right] \\
&= \sum_{cbzj} y_{cbzj}\left[\left(\frac{1}{n_{cbz}}\right) X_{cbz} / \overline{x}_{cbz}\right]
\end{aligned}
$$

Thus we have

$$Y_{TOT} = \sum_{cbzj} y_{cbzj} w_{cbz}$$

where

$$
\begin{aligned}
w_{cbz} &= \left[\left(\frac{1}{n_{cbz}}\right) X_{cbz} / \overline{x}_{cbz}\right] \\
&= \frac{X_{cbz}}{n_{cbz}\overline{x}_{cbz}}
\end{aligned}
$$

Thus, we can calculate any total of interest as the weighted sum of the individual observations y_{cbzj} in the data set, with weights (constant within a cell *cbz*) w_{cbz}. The weight w_{cbz} is the amount of floorspace in the population represented by each square foot of a building in cell *cbz*. This is the ratio of the known population total floorspace for the cell X_{cbz} to the total floorspace of buildings in the sample $n_{cbz}\overline{x}_{cbz}$.

These relationships work no matter what set of cells we're aggregating over, so we don't need different weights depending on whether you want totals overall, by cohort, by size, or by building type. However, if we want totals by state, the population totals X_{cbz} need to be state-level totals, not regional totals, as described in Section 4.

G.4.2 Population Ratios Using Weights

Overall population ratios per square foot are given in I.3.3 as

$$R_{Tot} = Y_{Tot}/X_{Tot}$$
$$= \Sigma_{cbz}\, Y_{cbz} / \Sigma_{cbz}\, X_{cbz}.$$

This expression is equivalent to taking the ratio of the weighted sum of y to the weighted sum of x:

$$R_{TOT} = Y_{TOT} / X_{TOT} = \frac{\sum_{cbzj} y_{cbzj} w_{cbz}}{\sum_{cbzj} x_{cbzj} w_{cbz}}$$

because

$$\sum_{cbzj} x_{cbzj} w_{cbz} = \sum_{cbzj} x_{cbzj} X_{cbz} / \left(n_{cbz} \bar{x}_{cbz} \right) = \sum_{cbz} X_{cbz} = X_{TOT}\,.$$

Thus, we can look at the basic ratio estimator R_{TOT} as the ratio of weighted sums.

Likewise, any other ratio of interest can be expressed either as the ratio of ratios

$$R_{TOTy:z} = Y_{TOT}/U_{TOT} = (Y_{TOT}/ X_{TOT})/(U_{TOT}/ X_{TOT})$$

or as the ratio of weighted sums:

$$R_{TOTy:u} = \left(\frac{\sum_{cbzj} y_{cbzj} w_{cbz}}{\sum_{cbzj} x_{cbzj} w_{cbz}} \right) / \left(\frac{\sum_{cbzj} u_{cbzj} w_{cbz}}{\sum_{cbzj} x_{cbzj} w_{cbz}} \right) = \frac{\sum_{cbzj} y_{cbzj} w_{cbz}}{\sum_{cbzj} u_{cbzj} w_{cbz}}\,.$$

G.4.3 Population Rates Per Building Using Weights

Since our expansion approach is based on known floorspace rather than on known building counts, estimates in terms of numbers of buildings may be unreliable. However, for some types of estimates only averages per building are intuitively meaningful. We therefore provide a few of these estimates, with the caveat that this expansion procedure is not well suited to providing accurate per-building averages.

To calculate an average of y per building rather than per square foot, we simply set the variable $y2$ identically equal to 1, and calculate the weighted ratio of y to $y2$. This gives the ordinary weighted average of the y values:

$$R_{TOTy:1} = \frac{\sum_{cbzj} y_{cbzj} w_{cbz}}{\sum_{cbzj} w_{cbz}}.$$

Now, the denominator is

$$\sum_{cbzj} w_{cbz} = \sum_{cbzj} X_{cbz} / \left(n_{cbz} \bar{x}_{cbz} \right) = \sum_{cbz} X_{cbz} / \bar{x}_{cbz}$$

and we can think of the ratio

$$N_{cbz} = X_{cbz} / \bar{x}_{cbz}$$

as an estimate of the number of buildings in cell *cbz,* given the observed average size $\bar{x}_{cbz}$ in the sample and the total known floorspace X_{cbz}. Thus, the ratio can also be expressed as

$$R_{TOTy:1} = Y_{TOT}/N_{TOT}$$

where

$$N_{TOT} = \Sigma_{\mathrm{cbz}} N_{cbz}$$

is the estimated total number of buildings.

G.5 VARIANCES

G.5.1 General Formula

Since we don't know the original sampling frames, we cannot calculate an exact variance for our expansion method. Nevertheless it is useful to calculate an approximate variance that reflects the variation found within the sample.

The population totals and ratios per square foot are all weighted sums and averages of cellwise ratios R_{cbz}, with the known population floorspace X_{cbz} as weights. The ratios for individual cells R_{cbz} are assumed to be independent. We, therefore, calculate the variance of each ratio as a standard ratio estimator.

$$V_{cbz} = Var(R_{cbz}) = D_{cbz}{}^2/n_{cbz}$$

where

$$D_{cbz}^2 = \sqrt{\sum_{j=1}^{n_{cbz}} \left(y_{cbzj} - R_{cbz} x_{cbzj} \right)^2 / (n_{cbz} - 1)}\ .$$

The variance of a total is therefore

$$Var(Y_{TOT}) = \Sigma_{cbz} X_{cbz}^2 D_{cbz}^2.$$

The variance of the overall ratio per square foot is

$$Var(R_{TOT}) = \Sigma_{cbz} (X_{cbz}/X_{TOT})^2 D_{cbz}^2.$$

The standard error is simply the square root of the variance of the estimate.

These variance and standard error calculations are approximate since they do not correspond to the actual sample design. Their use assumes that within each of our expansion cells, there is no bias as to which units are included in the sample and which are not. That is, within a cell, the buildings in the sample can be regarded as a random sample from the full population. These buildings have no systematic differences from the general population with regard to the characteristics we are estimating.

Without such an assumption, we cannot draw any conclusions about the population from the sample. The assumption is plausible for many characteristics. For some, such as type of utility company, it is clearly unreasonable because several of the post-1987 samples were utility- or state-specific. Population estimates are not provided here for such characteristics.

G.5.2 Variance Formula for Change Estimates

The variance formula above applies to any "snapshot" estimate. For change estimates, we have a somewhat more complicated situation. Because the 2001 sample is a re-survey of an earlier sample, the estimates for the original study and the current study are not independent.

Each of the snapshot estimates can be expressed as a ratio estimator, such as the ratio of the average y to the average x, as described above. The change is calculated as the difference in these two ratios:

$$\Delta = y_1/x_1 - y_2/x_2.$$

To estimate the standard error of the change, we use the approximation

$$\Delta^{\sim} = (y_1 - y_2)/x_1.$$

We then calculate the variance of this approximation and use that variance as an approximation to the variance of the true change Δ.

G.6 SPECIAL CASE OF INTEREST: EUIS

To calculate an EUI, we simply set the variable y_{cbzj} equal to the long-term average annual consumption for site $cbzj$. In this case, the ratio R_{cbz} which is the ratio of the mean y

(consumption) to mean *x* (floorspace) in cell *cbz* is the cell-wise EUI. The overall ratio R_{TOT} is the ratio of the overall total consumption to the overall total floorspace. Likewise, aggregating across a particular cohort, building type, and/or size category gives the EUIs specific to those groups. Applying the same formulas using the state-level weights gives the state-level EUIs.

H

SAMPLE DISTRIBUTION (REVISED)

Table H-1
Distribution of 2001 Sample

		BUILDING TYPE											
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hospital	Hotel/ Motel	Other Health	Other	School	Univer-sity	Vacant
	n	n	n	n	n	n	n	n	n	n	n	n	n
TOTAL (Sites surveyed)	1157	177	73	247	72	125	13	43	54	180	79	59	35
SURVEY SCOPE													
Scheduled	551	77	39	134	30	48	3	22	21	108	59	9	1
Walk-in	216	45	15	61	22	18	0	12	13	24	3	0	3
Drive-by	251	40	13	39	17	50	0	5	18	29	13	0	27
Hospital/university	62	0	0	0	0	0	10	0	0	0	0	49	3
Phone only	77	15	6	13	3	9	0	4	2	19	4	1	1
STATE													
Idaho	105	16	5	14	2	9	1	5	8	26	11	4	4
Montana/Wyoming	49	5	1	7	1	2	6	3	1	9	6	6	2
Oregon	373	55	31	95	34	45	5	13	12	48	19	2	14
Washington	630	101	36	131	35	69	1	22	33	97	43	47	15
BUILDING FLOOR AREA													
Less than 20,000 SF	537	77	27	93	72	57	6	9	32	101	14	24	25
20,000 to 100,000 SF	392	62	45	64	0	44	1	18	17	53	50	31	7
Over 100,000 SF	228	38	1	90	0	24	6	16	5	26	15	4	3
UTILITY TYPE													
Investor owned	740	116	50	151	54	73	6	29	36	106	52	47	20
Public	417	61	23	96	18	52	7	14	18	74	27	12	15
YEAR CONSTRUCTED													
Before 1950	98	17	1	17	7	7	2	5	3	19	4	9	7
1950 to 1969	140	16	9	14	6	8	3	7	6	17	16	29	9
1970 to 1979	146	19	6	31	13	29	3	8	11	13	3	5	5
1980 to 1987	134	19	11	46	7	17	0	8	7	14	1	0	4
1988 to 1994	312	55	27	81	26	26	0	3	14	47	24	4	5
1995 to 2001	286	41	17	55	8	31	3	11	12	65	31	12	0
Unknown	41	10	2	3	5	7	2	1	1	5	0	0	5

Table H-2
Distribution of 2001 versus 1987 Sample

		BUILDING TYPE											
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hospital	Hotel/ Motel	Other Health	Other	School	Univer-sity	Vacant
	n	n	n	n	n	n	n	n	n	n	n	n	n
TOTAL (Sites surveyed)	486	77	28	106	35	65	8	26	28	60	15	8	30
2001 SURVEY SCOPE													
Scheduled	101	12	4	25	7	8	0	8	7	20	10	0	0
Walk-in	146	25	11	50	11	13	0	11	8	14	0	0	3
Drive-by	172	29	9	22	14	37	0	5	13	18	2	0	23
Hospital/university	19	0	0	0	0	0	8	0	0	0	0	8	3
Phone only	48	11	4	9	3	7	0	2	0	8	3	0	1
STATE													
Idaho	30	6	1	5	1	3	0	0	3	5	1	1	4
Montana/Wyoming	15	1	1	1	1	0	4	0	0	2	0	3	2
Oregon	144	23	8	31	13	23	4	9	3	15	3	1	11
Washington	297	47	18	69	20	39	0	17	22	38	11	3	13
BUILDING FLOOR AREA													
Less than 20,000 SF	246	39	17	25	35	37	4	7	18	40	1	1	22
20,000 to 100,000 SF	134	30	11	28	0	23	0	4	7	10	11	5	5
Over 100,000 SF	106	8	0	53	0	5	4	15	3	10	3	2	3
UTILITY TYPE													
Investor owned	289	51	19	57	24	36	4	18	17	32	9	4	18
Public	197	26	9	49	11	29	4	8	11	28	6	4	12
YEAR CONSTRUCTED													
Before 1950	83	15	1	16	6	7	2	5	3	18	2	1	7
1950 to 1969	102	16	9	13	5	7	2	5	6	14	11	5	9
1970 to 1979	135	19	5	30	12	29	2	8	11	11	1	2	5
1980 to 1987	130	18	11	45	7	17	0	7	7	13	1	0	4
1988 to 1994	0	0	0	0	0	0	0	0	0	0	0	0	0
1995 to 2001	0	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	36	9	2	2	5	5	2	1	1	4	0	0	5

Table H-3
Distribution of 2001 versus 1990-1992 Sample

		BUILDING TYPE											
	Total	Dry Goods Retail	Grocery	Office	Restau-rant	Ware-house	Hospital	Hotel/ Motel	Other Health	Other	School	Univer-sity	Vacant
	n	n	n	n	n	n	n	n	n	n	n	n	n
TOTAL (Sites surveyed)	222	40	13	48	14	23	0	3	12	41	22	2	4
2001 SURVEY SCOPE													
Scheduled	65	12	3	17	3	7	0	0	1	12	10	0	0
Walk-in	57	15	4	10	9	3	0	1	4	9	2	0	0
Drive-by	73	11	4	17	2	11	0	0	5	10	9	0	4
Hospital/university	1	0	0	0	0	0	0	0	0	0	0	1	0
Phone only	26	2	2	4	0	2	0	2	2	10	1	1	0
STATE													
Idaho	23	5	1	4	0	4	0	1	0	8	0	0	0
Montana/Wyoming	0	0	0	0	0	0	0	0	0	0	0	0	0
Oregon	70	12	5	13	7	9	0	0	4	13	5	0	2
Washington	129	23	7	31	7	10	0	2	8	20	17	2	2
BUILDING FLOOR AREA													
Less than 20,000 SF	107	16	4	26	14	9	0	1	9	25	1	0	2
20,000 to 100,000 SF	78	13	8	10	0	8	0	1	3	14	17	2	2
Over 100,000 SF	37	11	1	12	0	6	0	1	0	2	4	0	0
UTILITY TYPE													
Investor owned	143	27	9	35	10	15	0	1	8	21	15	1	1
Public	79	13	4	13	4	8	0	2	4	20	7	1	3
YEAR CONSTRUCTED													
Before 1950	2	0	0	1	0	0	0	0	0	1	0	0	0
1950 to 1969	0	0	0	0	0	0	0	0	0	0	0	0	0
1970 to 1979	1	0	0	0	0	0	0	0	0	0	1	0	0
1980 to 1987	0	0	0	0	0	0	0	0	0	0	0	0	0
1988 to 1994	219	40	13	47	14	23	0	3	12	40	21	2	4
1995 to 2001	0	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0	0

Table H-4
2001 Population and Sample Floorspace
By Cohort, Building Type, and Size Category

Building Type	Area Category	Year Built Category	Population Square Feet	Percent Non-Demolished	Area Non-Demolished	Sample Count	Sample Area	weight
1. Dry_Goods_Retail	1. <5,000	1. pre 88	51,758,683	88%	45,625,816	8	25,771	1,770.4
1. Dry_Goods_Retail	2. 5,000-20,000	1. pre 88	122,361,878	93%	113,945,004	30	357,372	318.8
1. Dry_Goods_Retail	3. 20,000-50,000	1. pre 88	39,605,558	96%	37,826,587	21	629,803	60.1
1. Dry_Goods_Retail	4. 50,000-100,000	1. pre 88	48,562,376	97%	46,947,449	10	678,429	69.2
1. Dry_Goods_Retail	5. 100,000-500,000	1. pre 88	86,854,038	98%	84,980,317	7	1,680,927	50.6
1. Dry_Goods_Retail	6. >500,000	1. pre 88	3,145,382	99%	3,101,455	4	3,053,030	1.0
10. Colleges/Universities	1. <5,000	1. pre 88	2,297,832	88%	2,025,563	4	15,888	127.5
10. Colleges/Universities	1. <5,000	2. 1988-1994	296,300	92%	273,225	.	.	0.0
10. Colleges/Universities	1. <5,000	3. 1995-2001	336,100	96%	324,205	.	.	0.0
10. Colleges/Universities	2. 5,000-20,000	1. pre 88	1,346,525	93%	1,253,902	16	189,806	6.6
10. Colleges/Universities	2. 5,000-20,000	2. 1988-1994	751,619	96%	717,961	2	30,559	23.5
10. Colleges/Universities	2. 5,000-20,000	3. 1995-2001	852,581	98%	835,396	2	24,657	33.9
10. Colleges/Universities	3. 20,000-50,000	1. pre 88	24,080,915	96%	22,999,267	13	367,946	62.5
10. Colleges/Universities	3. 20,000-50,000	2. 1988-1994	1,851,780	97%	1,797,871	1	33,717	53.3
10. Colleges/Universities	3. 20,000-50,000	3. 1995-2001	2,100,520	99%	2,073,119	2	73,575	28.2
10. Colleges/Universities	4. 50,000-100,000	1. pre 88	25,951,432	97%	25,088,425	8	571,436	43.9
10. Colleges/Universities	4. 50,000-100,000	2. 1988-1994	1,452,403	98%	1,421,166	1	98,254	14.5
10. Colleges/Universities	4. 50,000-100,000	3. 1995-2001	1,647,497	99%	1,631,654	5	345,290	4.7
10. Colleges/Universities	5. 100,000-500,000	1. pre 88	21,347,032	98%	20,886,508	2	321,244	65.0
10. Colleges/Universities	5. 100,000-500,000	2. 1988-1994	1,660,478	99%	1,637,360	.	.	0.0
10. Colleges/Universities	5. 100,000-500,000	3. 1995-2001	1,883,522	99%	1,871,822	3	291,968	6.4
10. Colleges/Universities	6. >500,000	2. 1988-1994	281,119	99%	278,589	.	.	0.0
10. Colleges/Universities	6. >500,000	3. 1995-2001	318,881	100%	317,602	.	.	0.0
11. Other	1. <5,000	1. pre 88	112,481,087	88%	99,153,244	12	31,530	3,144.7
11. Other	1. <5,000	2. 1988-1994	4,516,243	92%	4,164,534	6	20,849	199.7
11. Other	1. <5,000	3. 1995-2001	9,414,057	96%	9,080,871	8	24,650	368.4
11. Other	2. 5,000-20,000	1. pre 88	147,703,254	93%	137,543,230	33	333,935	411.9
11. Other	2. 5,000-20,000	2. 1988-1994	11,450,650	96%	10,937,881	17	180,705	60.5
11. Other	2. 5,000-20,000	3. 1995-2001	23,868,750	98%	23,387,649	22	244,646	95.6
11. Other	3. 20,000-50,000	1. pre 88	66,517,854	96%	63,530,057	8	273,170	232.6
11. Other	3. 20,000-50,000	2. 1988-1994	11,864,106	97%	11,518,721	10	299,567	38.5
11. Other	3. 20,000-50,000	3. 1995-2001	24,730,594	99%	24,407,988	20	711,963	34.3
11. Other	4. 50,000-100,000	1. pre 88	26,579,829	97%	25,695,925	10	726,659	35.4
11. Other	4. 50,000-100,000	2. 1988-1994	9,305,400	98%	9,105,270	4	258,902	35.2
11. Other	4. 50,000-100,000	3. 1995-2001	19,397,000	99%	19,210,471	5	377,483	50.9
11. Other	5. 100,000-500,000	1. pre 88	2,295,431	98%	2,245,911	11	3,079,681	0.7
11. Other	5. 100,000-500,000	2. 1988-1994	19,832,396	99%	19,556,281	4	797,014	24.5
11. Other	5. 100,000-500,000	3. 1995-2001	41,340,404	99%	41,083,603	10	1,577,689	26.0
11. Other	6. >500,000	1. pre 88	946,357	99%	933,140	.	.	0.0
11. Other	6. >500,000	2. 1988-1994	4,389,804	99%	4,350,294	.	.	0.0
11. Other	6. >500,000	3. 1995-2001	9,150,496	100%	9,113,801	.	.	0.0
12. Vacant	1. <5,000	1. pre 88	7,952,303	60%	4,735,579	3	9,882	479.2
12. Vacant	2. 5,000-20,000	1. pre 88	17,346,794	68%	11,798,443	5	34,963	337.5
12. Vacant	3. 20,000-50,000	1. pre 88	12,023,963	74%	8,845,949	6	132,689	66.7
12. Vacant	4. 50,000-100,000	1. pre 88	1,898,604	77%	1,461,326	1	13,296	109.9
12. Vacant	5. 100,000-500,000	1. pre 88	3,679,776	81%	2,987,359	1	120,000	24.9
2. Dry Goods/Grocery	1. <5,000	2. 1988-1994	1,929,243	92%	1,779,000	15	38,859	45.8
2. Dry Goods/Grocery	1. <5,000	3. 1995-2001	2,479,657	96%	2,391,896	3	8,007	298.7
2. Dry Goods/Grocery	2. 5,000-20,000	2. 1988-1994	7,582,021	96%	7,242,492	21	221,395	32.7
2. Dry Goods/Grocery	2. 5,000-20,000	3. 1995-2001	9,745,179	98%	9,548,754	10	106,805	89.4
2. Dry Goods/Grocery	3. 20,000-50,000	2. 1988-1994	12,921,843	97%	12,545,665	22	789,080	15.9
2. Dry Goods/Grocery	3. 20,000-50,000	3. 1995-2001	16,608,457	99%	16,391,803	18	626,857	26.1
2. Dry Goods/Grocery	4. 50,000-100,000	2. 1988-1994	11,836,997	98%	11,582,420	16	1,236,958	9.4
2. Dry Goods/Grocery	4. 50,000-100,000	3. 1995-2001	15,214,103	99%	15,067,798	12	759,502	19.8
2. Dry Goods/Grocery	5. 100,000-500,000	2. 1988-1994	22,081,731	99%	21,774,299	17	2,245,067	9.7
2. Dry Goods/Grocery	5. 100,000-500,000	3. 1995-2001	28,381,669	99%	28,205,366	14	2,118,822	13.3
2. Dry Goods/Grocery	6. >500,000	2. 1988-1994	1,255,064	99%	1,243,768	.	.	0.0
2. Dry Goods/Grocery	6. >500,000	3. 1995-2001	1,613,136	100%	1,606,666	1	753,753	2.1
2. Groceries	1. <5,000	1. pre 88	9,472,561	88%	8,350,160	15	38,260	218.2
2. Groceries	2. 5,000-20,000	1. pre 88	5,257,346	93%	4,895,710	5	54,883	89.2
2. Groceries	3. 20,000-50,000	1. pre 88	26,155,121	96%	24,980,306	10	376,736	66.3
2. Groceries	4. 50,000-100,000	1. pre 88	5,989,249	97%	5,790,079	2	122,265	47.4

Table H-4 (cont.)

Building Type	Area Category	Year Built Category	Population Square Feet	Percent Non-Demolished	Area Non-Demolished	Sample Count	Sample Area	weight
3. Offices	1. <5,000	1. pre 88	28,596,484	88%	25,208,097	8	22,004	1,145.6
3. Offices	1. <5,000	2. 1988-1994	3,395,063	92%	3,130,668	11	28,817	108.6
3. Offices	1. <5,000	3. 1995-2001	7,270,837	96%	7,013,504	12	42,837	163.7
3. Offices	2. 5,000-20,000	1. pre 88	58,207,665	93%	54,203,750	18	209,005	259.3
3. Offices	2. 5,000-20,000	2. 1988-1994	6,600,287	96%	6,304,720	29	322,718	19.5
3. Offices	2. 5,000-20,000	3. 1995-2001	14,135,113	98%	13,850,205	15	179,846	77.0
3. Offices	3. 20,000-50,000	1. pre 88	38,428,841	96%	36,702,725	19	600,132	61.2
3. Offices	3. 20,000-50,000	2. 1988-1994	6,393,990	97%	6,207,849	15	457,794	13.6
3. Offices	3. 20,000-50,000	3. 1995-2001	13,693,310	99%	13,514,683	7	234,343	57.7
3. Offices	4. 50,000-100,000	1. pre 88	20,448,442	97%	19,768,435	6	457,555	43.2
3. Offices	4. 50,000-100,000	2. 1988-1994	6,200,330	98%	6,066,980	10	687,752	8.8
3. Offices	4. 50,000-100,000	3. 1995-2001	13,278,570	99%	13,150,878	4	297,806	44.2
3. Offices	5. 100,000-500,000	1. pre 88	125,062,816	98%	122,364,808	36	10,150,692	12.1
3. Offices	5. 100,000-500,000	2. 1988-1994	14,191,632	99%	13,994,049	18	3,983,431	3.5
3. Offices	5. 100,000-500,000	3. 1995-2001	30,392,668	99%	30,203,873	15	3,791,167	8.0
3. Offices	6. >500,000	1. pre 88	44,288,790	99%	43,670,273	17	14,677,790	3.0
3. Offices	6. >500,000	2. 1988-1994	2,748,098	99%	2,723,364	.	.	0.0
3. Offices	6. >500,000	3. 1995-2001	5,885,302	100%	5,861,700	2	1,151,946	5.1
4. Restaurants	1. <5,000	1. pre 88	14,394,359	88%	12,688,777	20	59,976	211.6
4. Restaurants	1. <5,000	2. 1988-1994	1,732,590	92%	1,597,662	21	60,737	26.3
4. Restaurants	1. <5,000	3. 1995-2001	2,299,910	96%	2,218,510	5	13,731	161.6
4. Restaurants	2. 5,000-20,000	1. pre 88	18,475,412	93%	17,204,549	21	191,697	89.7
4. Restaurants	2. 5,000-20,000	2. 1988-1994	1,146,238	96%	1,094,908	6	45,438	24.1
4. Restaurants	2. 5,000-20,000	3. 1995-2001	1,521,562	98%	1,490,893	3	18,186	82.0
4. Restaurants	3. 20,000-50,000	2. 1988-1994	237,686	97%	230,767	.	.	0.0
4. Restaurants	3. 20,000-50,000	3. 1995-2001	315,514	99%	311,398	.	.	0.0
4. Restaurants	4. 50,000-100,000	2. 1988-1994	56,586	98%	55,369	.	.	0.0
4. Restaurants	4. 50,000-100,000	3. 1995-2001	75,114	99%	74,392	.	.	0.0
5. Warehouse	1. <5,000	1. pre 88	15,761,182	88%	13,893,646	8	23,708	586.0
5. Warehouse	1. <5,000	2. 1988-1994	1,708,759	92%	1,575,687	1	3,000	525.2
5. Warehouse	1. <5,000	3. 1995-2001	3,227,241	96%	3,113,021	2	7,870	395.6
5. Warehouse	2. 5,000-20,000	1. pre 88	63,897,742	93%	59,502,425	34	370,186	160.7
5. Warehouse	2. 5,000-20,000	2. 1988-1994	5,605,464	96%	5,354,446	10	117,435	45.6
5. Warehouse	2. 5,000-20,000	3. 1995-2001	10,586,736	98%	10,373,349	7	77,151	134.5
5. Warehouse	3. 20,000-50,000	1. pre 88	26,821,082	96%	25,616,354	21	616,071	41.6
5. Warehouse	3. 20,000-50,000	2. 1988-1994	6,969,494	97%	6,766,599	6	214,471	31.6
5. Warehouse	3. 20,000-50,000	3. 1995-2001	13,162,906	99%	12,991,199	2	78,020	166.5
5. Warehouse	4. 50,000-100,000	1. pre 88	37,799,877	97%	36,542,853	7	413,829	88.3
5. Warehouse	4. 50,000-100,000	2. 1988-1994	7,528,025	98%	7,366,121	3	179,930	40.9
5. Warehouse	4. 50,000-100,000	3. 1995-2001	14,217,775	99%	14,081,051	7	520,096	27.1
5. Warehouse	5. 100,000-500,000	1. pre 88	19,229,738	98%	18,814,890	7	742,898	25.3
5. Warehouse	5. 100,000-500,000	2. 1988-1994	12,108,579	99%	11,939,998	5	1,068,683	11.2
5. Warehouse	5. 100,000-500,000	3. 1995-2001	22,868,821	99%	22,726,763	13	2,273,716	10.0
5. Warehouse	6. >500,000	2. 1988-1994	2,818,379	99%	2,793,013	.	.	0.0
5. Warehouse	6. >500,000	3. 1995-2001	5,322,921	100%	5,301,575	.	.	0.0
6. Hospitals	1. <5,000	1. pre 88	376,421	88%	331,819	2	1,527	217.3
6. Hospitals	1. <5,000	2. 1988-1994	261,912	92%	241,515	.	.	0.0
6. Hospitals	1. <5,000	3. 1995-2001	241,188	96%	232,652	1	438	531.2
6. Hospitals	2. 5,000-20,000	1. pre 88	3,886,504	93%	3,619,164	4	35,807	101.1
6. Hospitals	2. 5,000-20,000	2. 1988-1994	996,109	96%	951,502	.	.	0.0
6. Hospitals	2. 5,000-20,000	3. 1995-2001	917,291	98%	898,802	1	8,294	108.4
6. Hospitals	3. 20,000-50,000	1. pre 88	2,406,469	96%	2,298,377	.	.	0.0
6. Hospitals	3. 20,000-50,000	2. 1988-1994	1,634,776	97%	1,587,185	.	.	0.0
6. Hospitals	3. 20,000-50,000	3. 1995-2001	1,505,424	99%	1,485,786	1	48,011	30.9
6. Hospitals	4. 50,000-100,000	1. pre 88	3,023,589	97%	2,923,041	1	86,126	33.9
6. Hospitals	4. 50,000-100,000	2. 1988-1994	1,678,662	98%	1,642,559	.	.	0.0
6. Hospitals	4. 50,000-100,000	3. 1995-2001	1,545,838	99%	1,530,973	.	.	0.0
6. Hospitals	5. 100,000-500,000	1. pre 88	22,008,929	98%	21,534,126	5	681,214	31.6
6. Hospitals	5. 100,000-500,000	2. 1988-1994	3,012,742	99%	2,970,797	.	.	0.0
6. Hospitals	5. 100,000-500,000	3. 1995-2001	2,774,358	99%	2,757,124	.	.	0.0
6. Hospitals	6. >500,000	1. pre 88	10,304,271	99%	10,160,367	1	1,100,000	9.2

Table H-4 (cont.)

Building Type	Area Category	Year Built Category	Population Square Feet	Percent Non-Demolished	Area Non-Demolished	Sample Count	Sample Area	weight
7. Other_Health	1. <5,000	1. pre 88	12,954,040	88%	11,419,120	6	20,232	564.4
7. Other_Health	1. <5,000	2. 1988-1994	707,499	92%	652,402	5	19,470	33.5
7. Other_Health	1. <5,000	3. 1995-2001	1,319,401	96%	1,272,704	1	4,500	282.8
7. Other_Health	2. 5,000-20,000	1. pre 88	34,801,095	93%	32,407,242	12	126,271	256.6
7. Other_Health	2. 5,000-20,000	2. 1988-1994	2,469,494	96%	2,358,908	5	50,019	47.2
7. Other_Health	2. 5,000-20,000	3. 1995-2001	4,605,306	98%	4,512,481	3	26,074	173.1
7. Other_Health	3. 20,000-50,000	1. pre 88	26,882,781	96%	25,675,282	6	238,483	107.7
7. Other_Health	3. 20,000-50,000	2. 1988-1994	4,278,680	97%	4,154,120	2	50,642	82.0
7. Other_Health	3. 20,000-50,000	3. 1995-2001	7,979,220	99%	7,875,133	4	142,446	55.3
7. Other_Health	4. 50,000-100,000	2. 1988-1994	3,523,570	98%	3,447,788	1	56,722	60.8
7. Other_Health	4. 50,000-100,000	3. 1995-2001	6,571,030	99%	6,507,841	3	193,614	33.6
7. Other_Health	5. 100,000-500,000	1. pre 88	3,095,226	98%	3,028,452	3	944,708	3.2
7. Other_Health	5. 100,000-500,000	2. 1988-1994	2,165,257	99%	2,135,112	1	101,144	21.1
7. Other_Health	5. 100,000-500,000	3. 1995-2001	4,037,943	99%	4,012,860	1	134,316	29.9
8. Hotel/Motels	1. <5,000	1. pre 88	5,815,803	88%	5,126,690	1	4,800	1,068.1
8. Hotel/Motels	1. <5,000	2. 1988-1994	123,112	92%	113,524	.	.	0.0
8. Hotel/Motels	1. <5,000	3. 1995-2001	206,288	96%	198,987	.	.	0.0
8. Hotel/Motels	2. 5,000-20,000	1. pre 88	30,268,229	93%	28,186,176	5	64,316	438.2
8. Hotel/Motels	2. 5,000-20,000	2. 1988-1994	807,741	96%	771,569	1	16,000	48.2
8. Hotel/Motels	2. 5,000-20,000	3. 1995-2001	1,353,459	98%	1,326,179	1	8,119	163.3
8. Hotel/Motels	3. 20,000-50,000	1. pre 88	9,018,344	96%	8,613,265	4	108,158	79.6
8. Hotel/Motels	3. 20,000-50,000	2. 1988-1994	3,933,904	97%	3,819,381	1	20,000	191.0
8. Hotel/Motels	3. 20,000-50,000	3. 1995-2001	6,591,696	99%	6,505,708	6	211,525	30.8
8. Hotel/Motels	4. 50,000-100,000	1. pre 88	6,161,740	97%	5,956,833	3	217,816	27.3
8. Hotel/Motels	4. 50,000-100,000	2. 1988-1994	3,895,707	98%	3,811,923	.	.	0.0
8. Hotel/Motels	4. 50,000-100,000	3. 1995-2001	6,527,693	99%	6,464,920	4	252,317	25.6
8. Hotel/Motels	5. 100,000-500,000	1. pre 88	27,344,306	98%	26,754,402	11	2,368,089	11.3
8. Hotel/Motels	5. 100,000-500,000	2. 1988-1994	3,063,636	99%	3,020,983	1	226,800	13.3
8. Hotel/Motels	5. 100,000-500,000	3. 1995-2001	5,133,464	99%	5,101,576	.	.	0.0
8. Hotel/Motels	6. >500,000	1. pre 88	15,918,736	99%	15,696,422	4	3,289,390	4.8
9. Schools	1. <5,000	1. pre 88	15,519,426	88%	13,680,535	1	3,120	4,384.8
9. Schools	1. <5,000	2. 1988-1994	1,041,498	92%	960,389	1	1,152	833.7
9. Schools	1. <5,000	3. 1995-2001	1,253,002	96%	1,208,656	5	17,952	67.3
9. Schools	2. 5,000-20,000	1. pre 88	411,997	93%	383,657	1	15,572	24.6
9. Schools	2. 5,000-20,000	2. 1988-1994	3,966,133	96%	3,788,526	1	10,850	349.2
9. Schools	2. 5,000-20,000	3. 1995-2001	4,771,567	98%	4,675,391	5	55,533	84.2
9. Schools	3. 20,000-50,000	1. pre 88	70,951,522	96%	67,764,578	9	323,707	209.3
9. Schools	3. 20,000-50,000	2. 1988-1994	7,515,894	97%	7,297,093	4	166,175	43.9
9. Schools	3. 20,000-50,000	3. 1995-2001	9,042,206	99%	8,924,252	4	150,309	59.4
9. Schools	4. 50,000-100,000	1. pre 88	19,414,285	97%	18,768,669	6	424,560	44.2
9. Schools	4. 50,000-100,000	2. 1988-1994	10,224,923	98%	10,005,016	14	1,010,851	9.9
9. Schools	4. 50,000-100,000	3. 1995-2001	12,301,377	99%	12,183,083	11	693,566	17.6
9. Schools	5. 100,000-500,000	1. pre 88	43,604,023	98%	42,663,344	7	765,992	55.7
9. Schools	5. 100,000-500,000	2. 1988-1994	9,580,052	99%	9,446,674	4	597,578	15.8
9. Schools	5. 100,000-500,000	3. 1995-2001	11,525,548	99%	11,453,953	6	1,171,919	9.8

I SURVIVAL MODEL

I.1 BACKGROUND

The calculation of population expansion weights requires the existing floorspace in 2001 by expansion cell. For this analysis, these cells are defined by building type, construction year, and size categories. To calculate the surviving floorspace in each cell, we begin with the known floorspace as of 1987, from the PNNonRES study, or the total constructed in a particular year, from Dodge. We multiply this prior known floorspace by the surviving fraction, determined from a survival model.

I.2 THE SURVIVAL MODEL

The survival model uses the sites from the PNNonRES survey. The status (demolished or not) of most of these buildings was determined as part of the 2001 surveys. Although it was not possible to re-survey all existing buildings from the sample, substantial effort went to determining if each building still exists.

The survival model has the following general specification:

$$\ln S(t) = f(SQFT, btype)$$

where

S(t) = fraction of buildings surviving *t* years since last observed.
SQFT = building floorspace (square feet)
btype = building type
ln indicates natural logarithm.

The model was estimated assuming an exponential distribution. After exploring alternative model specifications, the results for the final model were:

$$\ln h(t) = 1.7706 + 0.8774*\log_{10}(\text{Sqft}) - 0.4220*\text{VACANT}$$

where

t = the time duration from the first audit to the final verification of existence.
h(*t*) = hazard function of *t*, or the instantaneous probability of demolition at time *t*, given a building still exists prior to time *t*.
$log_{10}(Sqft)$ = the log of the building square feet.
VACANT = 0/1 dummy variable indicating building type is Vacant.

The relationship between the hazard function *h* and the fraction *S(t)* surviving at time *t* is

$$S(t)=EXP(-(EXP(-ßx))*t)$$

where

ßx is the linear equation for ln $h(t)$ above.

I.3 APPLICATION

The estimated survival model is used to determine the percent of surviving buildings for each combination of sampling cohort, building type, and size category.

The appropriate values to use to fit the model need explanation. The vacant dummy is straightforward. When estimating percent surviving for vacant buildings, this value is 1, otherwise it is 0.

The model is estimated with a continuous $\log_{10}$(sqft) variable. To estimate percent surviving for each size category, we use the midpoint of the $\log_{10}$ of the grouping endpoints. For example, the $\log_{10}$ of 5,000 and 20,000 is 3.69897 and 4.30103, respectively. The midpoint of these logged values is 4. For the smallest size category (<5,000) we used the midpoint of the $\log_{10}$ of 1000 and 5000, considering 1000 feet as an appropriate lower bound for building size. For the large size category (>500,000) we used 1,000,000 as the upper bound. Table K-1 shows the midpoints used for each size category.

Table I-1
Size Category Midpoints of $\log_{10}$

Area Grouping	Midpoint of $\log_{10}$ Endpoints
<5,000	3.349485
5,000-20,000	4.000000
20,000-50,000	4.500000
50,000-100,000	4.849485
100,000-500,000	5.349485
>500,000	5.849485

The parameter *t* represents years elapsed since the previously observed data. For the first sampling cohort, which was first surveyed in 1987, $t = 14$ brings the survival rate to 2001. For the other two sampling cohorts, we took the midpoints of the elapsed time to 2001. This gives $t = 9$ for the second sampling cohort and $t = 4$ for the third.

I.4 RESULTS

The tables below show the survival probabilities using the estimated survival model. There are three tables for each of the three cohorts. The first two tables within each cohort show the results by building type and size category, respectively. The third table provides results at the combined building type/size category level, the level at which the results are applied to available population data.

These model estimates of the survival percents were applied, by building type and size category, to estimates of total square feet for each sampling cohort. We use the model estimate rather than the observed for each size-type-cohort category because observed survival rates for individual cells could have few observations and give erratic results. The model leverages the full data set and should give more reliable overall results.

A final table gives the modeled 1-year and 14-year demolition rates for the 1987 floorspace, for the population as a whole, by building type, and by building size.

Table I-2
Estimated and Observed Percent Surviving
Pre-1988 Cohort, By Building Type

Building Type Grouping	Percent Surviving		n
	Model Estimate	Observed	
Retail/Groc./Hotel-Motel	94.6%	96.0%	152
Office	95.9%	96.4%	109
OtherHealth/Hospital	94.7%	93.0%	59
Education	95.8%	92.0%	49
Warehouse	94.4%	96.7%	84
Other	92.3%	86.1%	81
Restaurant	90.9%	87.3%	48
Vacant	69.5%	65.5%	26

Table I-3
Estimated and Observed Percent Surviving
Pre-1988 Cohort, By Size Category

Area Grouping	Percent Surviving		n
	Model Estimate	Observed	
<5,000	87.3%	81.9%	124
5,000-20,000	92.3%	91.7%	187
20,000-50,000	94.7%	90.9%	111
50,000-100,000	96.5%	98.1%	55
100,000-500,000	97.7%	98.9%	102
>500,000	98.6%	100.0%	29

Table I-4
Estimated and Observed Percent Surviving
Pre-1998 Cohort, By Building Type and Size Category

Building Type Grouping	Area Grouping	Percent Surviving (Area-Weighted) Model Estimate	Observed	n
Retail/Groc./Hotel-Motel	<5,000	88.2%	93.0%	36
Retail/Groc./Hotel-Motel	5,000-20,000	93.1%	95.7%	37
Retail/Groc./Hotel-Motel	20,000-50,000	95.5%	91.4%	35
Retail/Groc./Hotel-Motel	50,000-100,000	96.7%	96.7%	18
Retail/Groc./Hotel-Motel	100,000-500,000	97.8%	100.0%	18
Retail/Groc./Hotel-Motel	>500,000	98.6%	100.0%	8
Office	<5,000	88.2%	90.9%	11
Office	5,000-20,000	93.1%	85.0%	20
Office	20,000-50,000	95.5%	100.0%	18
Office	50,000-100,000	96.7%	100.0%	6
Office	100,000-500,000	97.8%	100.0%	37
Office	>500,000	98.6%	100.0%	17
OtherHealth/Hospital	<5,000	88.2%	86.2%	11
OtherHealth/Hospital	5,000-20,000	93.1%	91.8%	17
OtherHealth/Hospital	20,000-50,000	95.5%	88.6%	9
OtherHealth/Hospital	50,000-100,000	96.7%	100.0%	2
OtherHealth/Hospital	100,000-500,000	97.8%	100.0%	17
OtherHealth/Hospital	>500,000	98.6%	100.0%	3
Education	<5,000	88.2%	78.3%	9
Education	5,000-20,000	93.1%	100.0%	3
Education	20,000-50,000	95.5%	85.1%	10
Education	50,000-100,000	96.7%	100.0%	15
Education	100,000-500,000	97.8%	100.0%	12
Education	>500,000	.	.	0
Warehouse	<5,000	88.2%	100.0%	10
Warehouse	5,000-20,000	93.1%	95.0%	40
Warehouse	20,000-50,000	95.5%	100.0%	19
Warehouse	50,000-100,000	96.7%	100.0%	6
Warehouse	100,000-500,000	97.8%	88.9%	9
Warehouse	>500,000	.	.	0
Other	<5,000	88.2%	72.2%	18
Other	5,000-20,000	93.1%	91.7%	36
Other	20,000-50,000	95.5%	91.7%	12
Other	50,000-100,000	96.7%	100.0%	7
Other	100,000-500,000	97.8%	100.0%	7
Other	>500,000	.	.	1
Restaurant	<5,000	88.2%	90.0%	20
Restaurant	5,000-20,000	93.1%	85.2%	27
Restaurant	20,000-50,000	.	.	1
Restaurant	50,000-100,000	.	.	0
Restaurant	100,000-500,000	.	.	0
Restaurant	>500,000	.	.	0
Vacant	<5,000	59.5%	44.4%	9
Vacant	5,000-20,000	68.0%	71.4%	7
Vacant	20,000-50,000	73.6%	85.7%	7
Vacant	50,000-100,000	77.0%	0.0%	1
Vacant	100,000-500,000	81.2%	50.0%	2
Vacant	>500,000	.	.	0

Table I-5
Estimated and Observed Percent Surviving
1988-1994 Cohort, By Building Type

Building Type Grouping	Percent Surviving (Area-Model Estimate	Observed	n
Retail/Groc./Hotel-Motel	96.5%	96.0%	152
Office	97.3%	96.4%	109
OtherHealth/Hospital	96.5%	93.0%	59
Education	97.3%	92.0%	49
Warehouse	96.3%	96.7%	84
Other	95.0%	86.1%	81
Restaurant	94.1%	87.3%	48
Vacant	79.1%	65.5%	26

Table I-6
Estimated and Observed Percent Surviving
1988-1994 Cohort, By Size Category

Area Grouping	Percent Surviving Model Estimate	Observed	n
<5,000	91.6%	81.9%	124
5,000-20,000	94.9%	91.7%	187
20,000-50,000	96.6%	90.9%	111
50,000-100,000	97.7%	98.1%	55
100,000-500,000	98.5%	98.9%	102
>500,000	99.1%	100.0%	29

Table I-7
Estimated and Observed Percent Surviving
1988-1994 Cohort, By Building Type and Size Category

Building Type Grouping	Area Grouping	Percent Surviving (Area-Weighted) Model Estimate	Observed	n
Retail/Groc./Hotel-Motel	<5,000	92.2%	93.0%	36
Retail/Groc./Hotel-Motel	5,000-20,000	95.5%	95.7%	37
Retail/Groc./Hotel-Motel	20,000-50,000	97.1%	91.4%	35
Retail/Groc./Hotel-Motel	50,000-100,000	97.8%	96.7%	18
Retail/Groc./Hotel-Motel	100,000-500,000	98.6%	100.0%	18
Retail/Groc./Hotel-Motel	>500,000	99.1%	100.0%	8
Office	<5,000	92.2%	90.9%	11
Office	5,000-20,000	95.5%	85.0%	20
Office	20,000-50,000	97.1%	100.0%	18
Office	50,000-100,000	97.8%	100.0%	6
Office	100,000-500,000	98.6%	100.0%	37
Office	>500,000	99.1%	100.0%	17
OtherHealth/Hospital	<5,000	92.2%	86.2%	11
OtherHealth/Hospital	5,000-20,000	95.5%	91.8%	17
OtherHealth/Hospital	20,000-50,000	97.1%	88.6%	9
OtherHealth/Hospital	50,000-100,000	97.8%	100.0%	2
OtherHealth/Hospital	100,000-500,000	98.6%	100.0%	17
OtherHealth/Hospital	>500,000	99.1%	100.0%	3
Education	<5,000	92.2%	78.3%	9
Education	5,000-20,000	95.5%	100.0%	3
Education	20,000-50,000	97.1%	85.1%	10
Education	50,000-100,000	97.8%	100.0%	15
Education	100,000-500,000	98.6%	100.0%	12
Education	>500,000	.	.	0
Warehouse	<5,000	92.2%	100.0%	10
Warehouse	5,000-20,000	95.5%	95.0%	40
Warehouse	20,000-50,000	97.1%	100.0%	19
Warehouse	50,000-100,000	97.8%	100.0%	6
Warehouse	100,000-500,000	98.6%	88.9%	9
Warehouse	>500,000	.	.	0
Other	<5,000	92.2%	72.2%	18
Other	5,000-20,000	95.5%	91.7%	36
Other	20,000-50,000	97.1%	91.7%	12
Other	50,000-100,000	97.8%	100.0%	7
Other	100,000-500,000	98.6%	100.0%	7
Other	>500,000	.	.	1
Restaurant	<5,000	92.2%	90.0%	20
Restaurant	5,000-20,000	95.5%	85.2%	27
Restaurant	20,000-50,000	.	.	1
Restaurant	50,000-100,000	.	.	0
Restaurant	100,000-500,000	.	.	0
Restaurant	>500,000	.	.	0
Vacant	<5,000	71.7%	44.4%	9
Vacant	5,000-20,000	78.1%	71.4%	7
Vacant	20,000-50,000	82.1%	85.7%	7
Vacant	50,000-100,000	84.5%	0.0%	1
Vacant	100,000-500,000	87.5%	50.0%	2
Vacant	>500,000	.	.	0

Table I-8
Estimated and Observed Percent Surviving
1994-2001 Cohort, By Building Type

Building Type Grouping	Percent Surviving		n
	Model Estimate	Observed	
Retail/Groc./Hotel-Motel	98.4%	96.0%	152
Office	98.8%	96.4%	109
OtherHealth/Hospital	98.4%	93.0%	59
Education	98.8%	92.0%	49
Warehouse	98.4%	96.7%	84
Other	97.7%	86.1%	81
Restaurant	97.3%	87.3%	48
Vacant	90.1%	65.5%	26

Table I-9
Estimated and Observed Percent Surviving
1994-2001Cohort, By Size Category

Area Grouping	Percent Surviving		n
	Model Estimate	Observed	
<5,000	96.2%	81.9%	124
5,000-20,000	97.7%	91.7%	187
20,000-50,000	98.4%	90.9%	111
50,000-100,000	99.0%	98.1%	55
100,000-500,000	99.3%	98.9%	102
>500,000	99.6%	100.0%	29

Table I-10
Estimated and Observed Percent Surviving
1994-2001Cohort, By Building Type and Size Category

Building Type Grouping	Area Grouping	Percent Surviving (Area-Weighted) Model Estimate	Observed	n
Retail/Groc./Hotel-Motel	<5,000	96.5%	93.0%	36
Retail/Groc./Hotel-Motel	5,000-20,000	98.0%	95.7%	37
Retail/Groc./Hotel-Motel	20,000-50,000	98.7%	91.4%	35
Retail/Groc./Hotel-Motel	50,000-100,000	99.0%	96.7%	18
Retail/Groc./Hotel-Motel	100,000-500,000	99.4%	100.0%	18
Retail/Groc./Hotel-Motel	>500,000	99.6%	100.0%	8
Office	<5,000	96.5%	90.9%	11
Office	5,000-20,000	98.0%	85.0%	20
Office	20,000-50,000	98.7%	100.0%	18
Office	50,000-100,000	99.0%	100.0%	6
Office	100,000-500,000	99.4%	100.0%	37
Office	>500,000	99.6%	100.0%	17
OtherHealth/Hospital	<5,000	96.5%	86.2%	11
OtherHealth/Hospital	5,000-20,000	98.0%	91.8%	17
OtherHealth/Hospital	20,000-50,000	98.7%	88.6%	9
OtherHealth/Hospital	50,000-100,000	99.0%	100.0%	2
OtherHealth/Hospital	100,000-500,000	99.4%	100.0%	17
OtherHealth/Hospital	>500,000	99.6%	100.0%	3
Education	<5,000	96.5%	78.3%	9
Education	5,000-20,000	98.0%	100.0%	3
Education	20,000-50,000	98.7%	85.1%	10
Education	50,000-100,000	99.0%	100.0%	15
Education	100,000-500,000	99.4%	100.0%	12
Education	>500,000	.	.	0
Warehouse	<5,000	96.5%	100.0%	10
Warehouse	5,000-20,000	98.0%	95.0%	40
Warehouse	20,000-50,000	98.7%	100.0%	19
Warehouse	50,000-100,000	99.0%	100.0%	6
Warehouse	100,000-500,000	99.4%	88.9%	9
Warehouse	>500,000	.	.	0
Other	<5,000	96.5%	72.2%	18
Other	5,000-20,000	98.0%	91.7%	36
Other	20,000-50,000	98.7%	91.7%	12
Other	50,000-100,000	99.0%	100.0%	7
Other	100,000-500,000	99.4%	100.0%	7
Other	>500,000	.	.	1
Restaurant	<5,000	96.5%	90.0%	20
Restaurant	5,000-20,000	98.0%	85.2%	27
Restaurant	20,000-50,000	.	.	1
Restaurant	50,000-100,000	.	.	0
Restaurant	100,000-500,000	.	.	0
Restaurant	>500,000	.	.	0
Vacant	<5,000	86.2%	44.4%	9
Vacant	5,000-20,000	89.6%	71.4%	7
Vacant	20,000-50,000	91.6%	85.7%	7
Vacant	50,000-100,000	92.8%	0.0%	1
Vacant	100,000-500,000	94.2%	50.0%	2
Vacant	>500,000	.	.	0

Table I-11
Demolition Rates by Building Type and Size Category

Group	Demolition Rates	
	1 Year	14 Years
All Buildings		
	0.5%	6.2%
Building Type		
Retail-Dry Goods	0.4%	5.6%
Grocery	0.4%	6.1%
Hotel/Motel	0.3%	4.4%
Office	0.3%	4.2%
Other Health	0.5%	6.7%
Hospital	0.2%	2.7%
Colleges/University	0.3%	3.7%
School	0.3%	4.4%
Warehouse	0.4%	5.6%
Other Health	0.6%	7.7%
Restaurant	0.7%	9.1%
Vacant	2.6%	30.5%
Size		
<5,000	1.0%	12.7%
5,000-20,000	0.6%	7.7%
20,000-50,000	0.4%	5.3%
50,000-100,000	0.3%	3.5%
100,000-500,000	0.2%	2.3%
>500,000	0.1%	1.4%

2002 Pacific Northwest Commercial Building Stock Assessment Project
Phone Script

Phone Script To Obtain Contact Information On Building Site

Hello, my name is **Surveyor's Name** and I'm calling on behalf of the Northwest Power Planning Council. I am trying to find a contact at **Service Address** to update an energy use study. Do you know someone, such as the facility manager, who is familiar with the operation of the building? Or do you have a contact at the building site who might know the person I should call?

May I have the name and extension number or direct line of that person?
(Record name of person and extension number)

Reference Name: _____

Phone/Extension: _____

(Continue the chain of calls until an appropriate contact person is reached.)

Reference Name: _____

Phone/Extension: _____

Reference Name: _____

Phone/Extension: _____

Reference Name: _____

Phone/Extension: _____

Reference Name: _____

Phone/Extension: _____

Reference Name: _____

Phone/Extension: _____

Phone Script To Obtain Building Contact Authorized To Allow An Audit

Hello, my name is **Surveyor's Name** and I'm calling on behalf of the Northwest Power Planning Council. May I speak with someone in your organization such as the facilities manager or operations engineer who is familiar with the operation and energy use of the building at **Service Address**?

May I have the name and extension number or direct line of that person?
(Record name of person and extension number)

Reference Name: _____

Title: _____ Phone/Extension: _____

(Continue the chain of calls until an appropriate contact person is reached.)

Reference Name: _____

Title: _____ Phone/Extension: _____

Reference Name: _____

Title: _____ Phone/Extension: _____

Reference Name: _____

Title: _____ Phone/Extension: _____

Reference Name: _____

Title: _____ Phone/Extension: _____

- ❑ ***No Contact Information Found***
- ❑ ***Demolished***
- ❑ ***Vacant***

Phone Script To Obtain Building Information And Site Visit Permission

Hello, my name is **Surveyor's Name** and I'm calling for the Northwest Power Planning Council**.** 10 years ago, your facility participated in an energy use study of commercial buildings in the Pacific Northwest. The Council is conducting a new research study on current energy usage of the buildings in that study to understand how things have changed in the past 10 years, so that they can better plan for our future energy needs. All the information we collect for this study will be confidential and used only for statistical purposes.

May I ask you a few quick questions about the facility at **Service Address**?

Yes ⇒ Thank you. First let me update the building address:

Street Address: _____
City: _____ State: _____ Zip: _____

(Go To: Survey 1)

No ⇒ May I schedule another time to call you that would be more convenient?

Yes ⇒ Thank you, when would be a good time? ***(Record Information)***

Date: _____Time: _____
Contact Name: _____
Contact Title: _____
Phone Number: _____

No ⇒ Thank you for your time. ***(End Call)***

Ask For Site Visit

Thank you for taking the time to answer these questions. We would like to gather information on the current energy using equipment for the building or building complex at **Service Address** to compare it to the data we collected during the original study. If possible, I would like to schedule an on-site survey of your facility by one of our professional energy auditors. Again, all the information we collect is strictly confidential; we will not publish information on individual facilities.

Depending on the size of your facility, the survey will take between 2 hours and 8 hours to complete. May one of our auditors visit and survey this facility?

Yes ⇒ Thank you, we appreciate your willingness to participate in this study. Let me update your contact information, and one of our schedulers will call you in the next few weeks to schedule a convenient time for you.

(Record contact information below)

Primary Contact: _____
Contact Title: _____
Phone: _____ Fax: _____
Secondary Contact: _____
Contact Title: _____
Phone: _____ Fax: _____

(Go To: Ask Contact To Sign Utility Data Authorization Form)

No ⇒ ***(Go To: Survey 2)***

Ask Contact To Sign Utility Data Authorization Form

An important part of our research involves quantifying the energy needs of commercial buildings. To accurately do this, we would like to obtain one year of gas and electricity usage histories for this building from your local utility. We can then compare this to the building's usage history from the previous study. This information gives us a much sharper picture of commercial energy use in the Northwest and will be absolutely confidential. We will need you to sign a form that gives us permission to receive this data. May I fax that form to you?

Yes ⇒ Thank you ***(If you do not already have name, title, phone, + fax, record below).*** After signing the Utility Data Authorization Form, please fax it back to the number on the bottom of the form. Are there any other utility accounts, such as a separately metered tenant, which you do not have any access to, and, if so, who should we contact about those bills? ***(Record below)*** We appreciate your time and your contribution to this research.

(End Call & Fax Waiver)

No ⇒ ***(If "No" because this person is not authorized to sign, try to get the contact information of the person who is authorized, record below. Then: [If Site Visit OK ⇒ Go to Survey 2] – [If Site Visit Not OK] ⇒*** **End Call*)*** The building's current energy usage is necessary to properly compare it to the building's energy use at the time of the original study. Without that comparison, it is far more difficult to see how commercial energy needs have changed. All the information we gather is strictly confidential, and will be used for statistical analysis only. If you would allow us to gather this information, we would be grateful. May I fax you the form, so you can look over it. If you have any questions you should feel free to call Charles Grist of the Northwest Power Planning Council at (503) 222-5161.

Yes ⇒ ***(Go Back Up To "Yes")***
No ⇒ ***(If Site Visit OK)***

Unfortunately, without the building's energy usage history, a site visit does not make sense. Instead of a site visit, would you be willing to answer a few more questions about the building over the phone?

Yes ⇒ ***(Go To: Survey 2)***
No ⇒ Thank you very much for your time. ***(End Call)***

(If Site Visit Not OK)

We appreciate your time, and if you have any questions about our research, please don't hesitate to call Charles Grist of the Northwest Power Planning Council at (503) 222-5161. ***(End Call)***

(Record contact information for person(s) authorized to sign utility form on next page)

Utility Form Contact: _____
Title: _____
Phone: _____ Fax: _____

Utility Form Contact: _____
Title: _____
Phone: _____ Fax: _____

Utility Form Contact: _____
Title: _____
Phone: _____ Fax: _____

Utility Form Contact: _____
Title: _____
Phone: _____ Fax: _____

Utility Form Contact: _____
Title: _____
Phone: _____ Fax: _____

Utility Form Contact: _____
Title: _____
Phone: _____ Fax: _____

Utility Form Contact: _____
Title: _____
Phone: _____ Fax: _____

Utility Form Contact: _____
Title: _____
Phone: _____ Fax: _____

Utility Form Contact: _____
Title: _____
Phone: _____ Fax: _____

Survey 1

1. Is there a single stand-alone building at this address or is it a multiple building complex?

2. Who is the primary decision maker for building operations?

   - ❑ Owner
   - ❑ Tenant
   - ❑ Building/Facility Manager
   - ❑ Property Manager
   - ❑ Building Engineer
   - ❑ Other

3. Which of the following best describes the primary economic use of this building/complex? ***(Check one) (Read list)***

   - ❑ Retail
   - ❑ Grocery
   - ❑ Office
   - ❑ Restaurant
   - ❑ Warehouse
   - ❑ Hospital
   - ❑ Other Health
   - ❑ Hotel/Motel
   - ❑ School
   - ❑ University
   - ❑ Other: _____
   - ❑ Vacant

4. Is there a second economic use that accounts for at least 10% of the floor space in this building/complex?

   Yes ⇒ What is the second function? ***(Read list from question 3 if needed)***
   No ⇒ ***(Skip to question6)***

5. Is there a third economic use that accounts for at least 10% of the floor space in this building/complex?

   Yes ⇒ What is the third function? ***(Read list from question 3 if needed)***
   No ⇒ ***(Go to question 6)***

6. What is the approximate total square footage of the enclosed floor space at this building/complex? _____ft^2

7. Have there been any additions or subtractions in the last 10 to 15 years, and, if so, around what year and about how many square feet? ***(If building was demolished, enter as – square feet, then put new building as + square feet)***

   Year_____ Square Feet (+ or -) _____
   Year_____ Square Feet (+ or -) _____
   Year_____ Square Feet (+ or -) _____
   Year_____ Square Feet (+ or -) _____

8. What is the primary fuel that is used to heat this building/complex? ***(Check one)***

   - ❑ Electricity
   - ❑ Natural Gas
   - ❑ Fuel Oil
   - ❑ LPG
   - ❑ Purchased Hot Water or Steam
   - ❑ Other: _____

9. If the space is leased, does the lease include electricity? Yes No N/A

10. If the space is leased, does the lease include gas? Yes No N/A

11. Are the following systems regularly maintained and inspected, and, if so, is the work done in-house or by an outside party? ***(Check all that apply) (O&M = Operations & Maintenance, General means day-to-day tasks such as changing light bulbs, oiling doors, etc.)***

❑ General O&M	❑ In-house	❑ Outside party
❑ HVAC Equipment	❑ In-house	❑ Outside party
❑ HVAC Controls	❑ In-house	❑ Outside party
❑ Lighting	❑ In-house	❑ Outside party
❑ Refrigeration	❑ In-house	❑ Outside party

12. Have the following systems been upgraded in the last 2 years or the last 5 years, and, if so, what systems were affected? ***(Check all that apply)***

❑ Lighting	❑ 2 years	❑ 5 Years
❑ HVAC Equipment	❑ 2 years	❑ 5 Years
❑ HVAC Controls	❑ 2 years	❑ 5 Years
❑ Refrigeration	❑ 2 years	❑ 5 Years
❑ Windows	❑ 2 years	❑ 5 Years
❑ Roof	❑ 2 years	❑ 5 Years

(Go To: Ask For Site Visit)

Survey 2

May I ask you a few more questions about the facility at Service Address? This would help us fill in a few of the building details for our analysis.

Yes ⇒ Thank you. ***(Go To: Survey 2 Questions)***

No ⇒ ***(If Site Visit OK)***

Thank you very much for your time. If you have any questions about our research, please don't hesitate to call Charles Grist of the Northwest Power Planning Council at (503) 222-5161. ***(End Call)***

(If Site Visit Not OK)
(Go To: Ask Contact To Sign Utility Data Authorization Form)

Survey 2 Questions

1. How many floors are there in the building/complex? _____

2. What percentage of the building/complex is occupied by the owner and the tenants?

   Owner _____%
   Tenants _____%

3. ***(If there are tenants)*** ⇒ What is the average tenant's lease length? _____

4. Who manages the building?

   - ❑ Owner
   - ❑ Tenant
   - ❑ Property Management Company

5. Approximately what percentage of the total square footage is occupied by the primary economic use? _____ and is/are the occupant(s) of this space mostly:

   - ❑ Independent
   - ❑ Franchise
   - ❑ Local Chain
   - ❑ National Chain

6. ***(If second business function)*** ⇒ Approximately what percentage of the total square footage is occupied by the second functional use? _____ and is/are the occupant(s) of this space mostly:

   - ❑ Independent
   - ❑ Franchise
   - ❑ Local Chain
   - ❑ National Chain

7. ***(If third business function)*** ⇒ Approximately what percentage of the total square footage is occupied by the third functional use? _____ and is/are the occupant(s) of this space mostly:

   - ❑ Independent
   - ❑ Franchise
   - ❑ Local Chain
   - ❑ National Chain

8. Which of the following best describes the primary space heating system in this building/complex? ***(Check one)***

   - ❑ Resistance heaters
   - ❑ Heat pump
   - ❑ Furnace
   - ❑ Central Boiler
   - ❑ Purchased Steam / Hot Water
   - ❑ Other: _____

9. Which of the following best describes the primary space cooling system in this building/complex? ***(Check one)***

   - ❑ Central Chiller
   - ❑ Purchased Chilled Water
   - ❑ Rooftop package units
   - ❑ Window/Wall units
   - ❑ No cooling

10. What is the primary fuel used to heat hot water in the building/complex? ***(Check one)***

    - ❑ Electricity
    - ❑ Natural Gas
    - ❑ Fuel Oil
    - ❑ LPG
    - ❑ Purchased Hot Water or Steam
    - ❑ No Hot Water

If Site Visit OK ⇒ Thank you very much for your time. ***(End Call)***
If Site Visit Not OK ⇒ ***(Go To: Ask Contact To Sign Utility Data Authorization Form)***

2002 Pacific Northwest Commercial Building Stock Assessment

****Confidential: All data collected on this form is confidential and may only be used for this PNW study.*

New Site ID Number:	Surveyor Name: ID #:	Survey Date / Time /	Survey Length (hrs.) On Site _____ Total _____
Rec'd for QC: date:	QC Completed: date:	Rec'd for Data Entry: date:	Data Entry Completed: date:
Note: The "New Site ID Number" pertains to a building which may be part of a multi-building complex.			❑ Full Survey ❑ Reduced Survey

1. GENERAL BUILDING INFORMATION

Site Name			
Survey Site Address			
City/State/ZIP			

INITIAL CONTACT OR CORPORATE CONTACT FOR ACCESS TO SITE

Contact 1		Title					
Address		City		ST		ZIP	
Phone 1		Phone 2		EMAIL			

SITE CONTACT OR PRINCIPAL SOURCE OF INFORMATION ON SITE

Contact 2		Title					
Address		City		ST		ZIP	
Phone 1		Phone 2		EMAIL			

General Building/Complex Information

Is this site a **S**tand-alone building or a **M**ultiple building complex?	S M
What best describes the economic use of the building/complex? (table below)	
What best describes the ownership of the building: **I**ndividual, **C**orporation, **R**eligious, **F**ederal gov't, **L**ocal/State gov't, **S**yndicated Partnership (REIT), Other **P**artnership, **N**on-gov't Institution, Private **U**niversity/College, **O**ther	I C R F L S P N U O
Total Bldg. Floor Area (SQFT) including enclosed parking	
Heated Floor Area (%)	
Cooled Floor Area (%)	
Refrigerated Floor Area (%)	
Unconditioned Floor Area (%)	
Vacant Floor Area (%)	
Primary Heating Fuel (table below)	
Primary Cooling Fuel (table below)	
No. of Floors above grade	
No. of Floors below grade	

Economic Use Codes			
1	Retail	7	Other Health
2	Grocery	8	Hotel/Motel
3	Office	9	School
4	Restaurant	10	University
5	Warehouse	11	Other: _____
6	Hospital	12	Vacant

Fuel Type Codes	
1	Electricity
2	Natural Gas
3	Fuel Oil
4	LPG
5	Purchased HW or Steam
6	Other: _____

Building Occupancy & Management

What percentage of the building/complex is occupied by the Owner and/or Tenants?		%owner	%tenant
Who manages the building: **O**wner, **T**enant, or **P**roperty management company?		O T P	
Original Construction (Year)	Original Total Floor Area		
First significant Area change (Year)	Square Ft of Area Change (+ or -)		
Second significant Area change (Year)	Square Ft of Area Change (+ or -)		
Third significant Area change (Year)	Square Ft of Area Change (+ or -)		
Have any projects been implemented in the last 2 years?		Y N	
If Yes, what system(s)? **L**ighting, **H**VAC, HVAC **C**ontrols, **R**efrigeration, **W**indows, **Ro**of		L H C R W Ro	
What % of Floor Area was affected?	(If more than one, list in above order)		
Have any projects been implemented in the last 5 years?		Y N	
If Yes, what system(s)? **L**ighting, **H**VAC, HVAC **C**ontrols, **R**efrigeration, **W**indows, **Ro**of		L H C R W Ro	
What % of Floor Area was affected?	(If more than one, list in above order)		
Is a renovation/upgrade planned in the next 2 years?		Y N	
If Yes, what systems? **L**ighting, **H**VAC, HVAC **C**ontrols, **R**efrigeration, **W**indows, **Ro**of		L H C R W Ro	
Do you have a staff person whose duties include energy conservation and/or management?		Y N	
Does the building operator have formalized tech. training? **B**OC, **O**ther Certification, or **N**one?		B O N	
Who specs equip.: **O**wner, **T**enant, **B**ld/Facility mngr, **P**roperty mngr, Bld **E**ngineer, **V**endor, **Ot**her		O T B P E V Ot	
Who authorizes the purchase of equipment: (list on previous row)		O T B P E V Ot	

Are the following systems regularly maintained and inspected (**Y**/**N**), if so, is work done **I**n-house of by an **O**utside party:

General O&M	Y N	I O	Lighting	Y N	I O
HVAC Equipment	Y N	I O	Refrigeration	Y N	I O
HVAC Controls	Y N	I O			

Comments:

General Space Information

	Primary Space	Secondary Space	Tertiary Space	Common Space	Indoor Parking
	Space ID: 1	Space ID: 2	Space ID: 3	Space ID: C	Space ID: P
Functional Use (table below)					
Occupancy: **I**ndependent **F**ranchise **L**ocal Chain **N**ational Chain	I F N L	I F N L	I F N L	I F N L	I F N L
% Of Total Building SQFT					
Est. % of space served by inventoried HVAC					
% Of Space Cooled					
After Hours Shutoff/Setback	Y N	Y N	Y N	Y N	Y N
% Of Space Heated					
After Hours Shutoff/Setback	Y N	Y N	Y N	Y N	Y N
# Of Tenants (including owner)					
Average Length of Tenant's Lease (months)					
Does The Lease Include: Electricity	Y N n/a	Y N n/a	Y N n/a	Y N n/a	Y N n/a
Gas	Y N n/a	Y N n/a	Y N n/a	Y N n/a	Y N n/a
Heating	Y N n/a	Y N n/a	Y N n/a	Y N n/a	Y N n/a
Cooling	Y N n/a	Y N n/a	Y N n/a	Y N n/a	Y N n/a
Hot Water	Y N n/a	Y N n/a	Y N n/a	Y N n/a	Y N n/a
Indoor Lighting	Y N n/a	Y N n/a	Y N n/a	Y N n/a	Y N n/a
Outdoor Lighting	Y N n/a	Y N n/a	Y N n/a	Y N n/a	Y N n/a
Does Tenant Manually Operate Heating?	Y N n/a	Y N n/a	Y N n/a	Y N n/a	Y N n/a
Does Tenant Manually Operate Cooling?	Y N n/a	Y N n/a	Y N n/a	Y N n/a	Y N n/a

Functional Use Codes

1a	Retail - Mall	7	Other Health
1b	Retail – Strip Mall	8	Hotel/Motel
1c	Retail - Other	9a	School - Office
2a	Grocery - Large	9b	School - Classroom
2b	Grocery - Small	9c	School – Kitchen/Dining
2c	Grocery - Convenience	9d	School - Other
3	Office	10a	University - Office
4	Restaurant	10b	University - Classroom
5	Warehouse	10c	University – Kitchen/Dining
6a	Hospital - Office	10d	University - Other
6b	Hospital - Lodging	11	Other:_____
6c	Hospital – Kitchen/Dining	12	Vacant
6d	Hospital - Other		

UTILITY INFORMATION

Electric Utility Accounts	E1	E2	E3
Utility Name			
Account #			
Meter #			
Space served / % of space served	/ / / /	/ / / /	/ / / /
Other SQFT served			
Waiver obtained?	Y N	Y N	Y N
Separately metered tenant?	Y N	Y N	Y N

Electric Utility Accounts	E4	E5	E6
Utility Name			
Account #			
Meter #			
Space served / % of space served	/ / / /	/ / / /	/ / / /
Other SQFT served			
Waiver obtained?	Y N	Y N	Y N
Separately metered tenant?	Y N	Y N	Y N

Gas Utility Accounts	G1	G2	G3
Utility Name			
Account #			
Meter #			
Space served / % of space served	/ / / /	/ / / /	/ / / /
Other SQFT served			
Waiver obtained?	Y N	Y N	Y N
Separately metered tenant?	Y N	Y N	Y N

Gas Utility Accounts	G4	G5	G6
Utility Name			
Account #			
Meter #			
Space served / % of space served	/ / / /	/ / / /	/ / / /
Other SQFT served			
Waiver obtained?	Y N	Y N	Y N
Separately metered tenant?	Y N	Y N	Y N

Is another fuel used at this site?					Y N
If Yes, what Fuel Type Code? (Table below)					
Is there an on-site generator?					Y N
Rated output (kW)					
Fuel:	**D** = Diesel	**G** = Natural Gas	**L** = LPG	**O** = Other	**D G L O**
Operation:	**B** = Baseload	**E** = Emergency	**P** = Peak Shaving		**B E P**

Fuel Type Codes	
1	Electricity
2	Natural Gas
3	Fuel Oil
4	LPG
5	Purchased HW or Steam
6	Other:_____

2A. BUSINESS SCHEDULES

Primary Schedule For Space ID 1

Day Type	Business Hours	Closed All Day?	Open 24 Hours?
Sunday	from __ __ to __ __	☐	☐
Monday	from __ __ to __ __	☐	☐
Tuesday	from __ __ to __ __	☐	☐
Wednesday	from __ __ to __ __	☐	☐
Thursday	from __ __ to __ __	☐	☐
Friday	from __ __ to __ __	☐	☐
Saturday	from __ __ to __ __	☐	☐

Primary Schedule For Space ID 2

Day Type	Business Hours	Closed All Day?	Open 24 Hours?
Sunday	from __ __ to __ __	☐	☐
Monday	from __ __ to __ __	☐	☐
Tuesday	from __ __ to __ __	☐	☐
Wednesday	from __ __ to __ __	☐	☐
Thursday	from __ __ to __ __	☐	☐
Friday	from __ __ to __ __	☐	☐
Saturday	from __ __ to __ __	☐	☐

Primary Schedule For Space ID 3

Day Type	Business Hours	Closed All Day?	Open 24 Hours?
Sunday	from __ __ to __ __	☐	☐
Monday	from __ __ to __ __	☐	☐
Tuesday	from __ __ to __ __	☐	☐
Wednesday	from __ __ to __ __	☐	☐
Thursday	from __ __ to __ __	☐	☐
Friday	from __ __ to __ __	☐	☐
Saturday	from __ __ to __ __	☐	☐

2b. Seasonal Schedule For The Primary Space

Define seasonal operation periods for significant periods of time where business hours and/or equipment operation differs significantly from normal or typical business hours and/or equipment operation.

Example: If Space ID#1 has a seasonal operation period, record the start and end dates of the seasonal operation period below, with a brief description of the period (e.g. "summer vacation" or "spring break"). Also record the percentage of Space ID#1's square footage that is lighted, cooled, and/or heated during the seasonal period. Record the seasonal business schedule on the following page.

Seasonal Operation Period Primary Space	
Description_____	
Begin Month/Day	/
End Month/Day	/

% of Sq Ft Cooled	% of Sq Ft Heated	Heating Setback/ Shutoff After Hours?	Cooling Setup/ Shutoff After Hours?
		Y N	**Y N**
		Y N	**Y N**
		Y N	**Y N**

Seasonal Schedule For The Primary Space

Day Type	Business Hours	Closed All Day?	Open 24 Hours?
Sunday	from __ __ to __ __	☐	☐
Monday	from __ __ to __ __	☐	☐
Tuesday	from __ __ to __ __	☐	☐
Wednesday	from __ __ to __ __	☐	☐
Thursday	from __ __ to __ __	☐	☐
Friday	from __ __ to __ __	☐	☐
Saturday	from __ __ to __ __	☐	☐

Comments:

3. BUILDING ENVELOPE

WALLS — Wall Ref:	W1	W2	W3	Additions
Dominant Wall Type In Space ID	1	2	3	
Orientation (N, S, E, W, NE, NW, SE, SW)				
Total Wall Area (SF)				
Surface Type: **B** = Brick; **C** = Concrete; **CB** = Concrete Block; **F** = Wood; **M** = Metal	B C CB F M	B C CB F M	B C CB F M	
Framing Type: **M** = Metal; **W** = Wood	M W	M W	M W	
Insulation Type: *B = Batt/blown; R = Rigid; N = None; U = Unknown*	*B R N U*	*B R N U*	*B R N U*	

WINDOWS

% of Wall Area				
Layers of Glazing	1 2 3	1 2 3	1 2 3	
Glazing Material: **C** = Clear; **O** = Opaque; **R** = Reflective; **T** = Tinted	C O R T	C O R T	C O R T	
G = Gas-filled; **L** = Low-E	G L	G L	G L	
Frame Type: **M** = Metal; **V** = Vinyl; **W** = Wood	M V W	M V W	M V W	
Window Type: **F** = Fixed; **O** = Operable	F O	F O	F O	

ROOFS — Roof Ref:	R1	R2
Total Roof Area (SF)		
Roof Type: **F** = Flat; **P** = Pitched	F P	F P
Surface Material: **B** = Built-up; **C** = Cool Roof; **E** = Membrane; **M** = Metal; **S** = Shingles/Felt	B C E M S	B C E M S
Deck Material: **C** = Concrete; **M** = Metal; **W** = Wood	C M W	C M W
Insulation Type: *B = Batt/blown; R = Rigid; N = None; U = Unknown*	*B R N U*	*B R N U*
Skylights? Y / N	Y N	Y N

FLOORS — Floor Ref:	F1	F2
Total Floor Area (SF)		
Floor Type: **B** = Basement; **C** = Crawl; **S** = Slab; **U** = Unconditioned	B C S U	B C S U
Material Type: **C** = Concrete; **M** = Metal; **W** = Wood; **O** = Other	C M W O	C M W O
Insulation Type: *B = Batt/blown; R = Rigid; N = None*	*B R N*	*B R N*

For Auditor Use: Sketch Floor Plan (include true north arrow, dimensions, elevation view)

4. PACKAGED HVAC SYSTEM

Packaged System Ref:	PS1	PS2	PS3
Space ID (s) Served	C P 1 2 3	C P 1 2 3	C P 1 2 3
Packaged HVAC System Type (Table below)			
Maintenance: **A**nnual, **S**easonal, **M**onthly, as **N**eeded	A S M N	A S M N	A S M N
Number of Identical Units			
Age of Units (Years)			
Manufacturer			
Model Name/Number			
Rated Cooling Capacity (Tons)			
Performance Rating (Circle one)	*EER SEER*	*EER SEER*	*EER SEER*
Performance Rating Value			
Temperature Control Type (Table below)			
Compressors: Quantity			
Volts/Phase/FL Amps	/ /	/ /	/ /
Supply Fans: Volume Control: **D**ischarge Damper **I**nlet Vane **V**FD	D I V	D I V	D I V
Average HP			
Motor Efficiency (% or S,H,P)			
Return Fans: Y/N	Y N	Y N	Y N
Volume Control: **D**ischarge Dampers **I**nlet Vanes **V**FD	D I V	D I V	D I V
Average HP			
Motor Efficiency (% or S,H,P)			
Economizer: **A**ir **W**ater **N**one	A W N	A W N	A W N
Primary Heat: Fuel Type (Table below)			
Heating Type (Table below)			
Rated Efficiency (%) (may be > 100)			
Supp. Heat Fuel Type (Table below)			
Heating Type (Table below)			
Rated Efficiency (%) (may be > 100)			

If EMS Control

Startup Strategy: **O**ptimized **S**cheduled	O S	O S	O S
Operation: *Reset-**T**emp* *Reset-**P**ressure* *Reset-**S**chedule* ***C**onstant*	*T P S C*	*T P S C*	*T P S C*
Control Type: **P**neumatic **D**DC **C**ombination	P D C	P D C	P D C

Packaged HVAC System Type Codes			
1	Packaged Single Zone – A/C only	8	Heat pump, water source
2	Packaged Single Zone – A/C w/ heat	9	Split System
3	Packaged Multi Zone	10	Unit Heater
4	Packaged VAV	11	Unit Ventilator
5	Evaporative Cooler	12	Window / Wall A/C unit
6	Heat Pump, air source	13	Window / Wall Heat Pump
7	Heat Pump, ground source		

Temperature Control Type Codes	
1	Thermostat – Programmable
2	Thermostat - Manual
3	EMS
4	Always On
5	Manual on/off
6	Time clock

Fuel Type Codes		Heating Type Codes	
1	Electricity	1	Forced Air Furnace
2	Natural Gas	2	Resistance
3	Fuel Oil	3	Central Boiler
4	LPG	4	Other_____
5	Purchased HW or Steam		
6	Other:_____		

5A. CENTRAL HVAC SYSTEM – AIR HANDLER

Air Handler Ref:	**AH1**	**AH2**	**AH3**
Space ID (s) Served	C P 1 2 3	C P 1 2 3	C P 1 2 3
Served by Chiller Reference: (Sec. 5c)			
Served by Boiler Reference: (Sec. 5b)			
Air Distribution System Type (Table below)			
Maintenance: **A**nnual, **S**easonal, **M**onthly As **N**eeded	A S M N	A S M N	A S M N
Temperature Control Type (Table below)			
Supply Air Temperature Control: **C** = Constant **D** = Demand reset **O** = Outside air temp reset	C D O	C D O	C D O
Age of Air Handler (Years)			
Supply Fans: Volume Control: **D**ischarge Damper **I**nlet Vane **V**FD	D I V	D I V	D I V
Motor HP (or)			
Volts/Phase/FL Amps	/ /	/ /	/ /
Motor Efficiency *(% or S, H, P)*			
Return Fans: Y/N	Y N	Y N	Y N
Volume Control: **D**ischarge Dampers **I**nlet Vanes **V**FD	D I V	D I V	D I V
Motor HP (or)			
Volts/Phase/FL Amps			
Motor Efficiency *(% or S, H, P)*	/ /	/ /	/ /
Economizer: **A**ir **W**ater **N**one	A W N	A W N	A W N
Terminal Reheat: **E**lectric **W**ater **S**team **N**one	E S W N	E S W N	E S W N

If EMS Control

Startup Strategy: **O**ptimized, **S**cheduled	O S	O S	O S
Operation: *Reset-**T**emp* *Reset-**S**chedule* *Reset-**P**ressure* *Constant*	*T P S C*	*T P S C*	*T P S C*
Control Type: **P**neumatic, **D**DC, **C**ombination	P D C	P D C	P D C

Air Distribution System Type Codes			
1	CV - Single Zone	8	VAV – Terminal Reheat
2	CV - Multi Zone	9	VAV – Dual Duct
3	CV - Dual Duct	10	Fan Coil
4	CV - Terminal Reheat	11	Baseboard
5	FPS – Fan Powered VAV - Series	12	Heat & Vent
6	FPP – Fan Powered VAV - Parallel	13	Hydronic Heat Pump
7	VAV – Cooling Only	14	Induction

Temperature Control Type Codes	
1	Thermostat – Programmable
2	Thermostat - Manual
3	EMS
4	Always On
5	Manual on/off
6	Time clock

5B. CENTRAL HVAC SYSTEM - BOILER

Boiler Reference:	**B1**	**B2**	**B3**
Boiler Service: **S**team **H**ot Water	S H	S H	S H
Fuel Type (Table below)			
Annual Maintenance Y/N	Y N	Y N	Y N
Number of Identical Boilers			
Number of Units on Standby			
Age of Boiler(s) (years)			
Manufacturer			
Model Name/Number			
Input Capacity (kBtu/hr)			
Efficiency *(Nominal %)*			
Boiler Control: ***B**aseline* ***L**ead-lag* *On* ***D**emand* ***M**anual* ***O**ther*	*B L D M O*	*B L D M O*	*B L D M O*
Economizer: Y / N	Y N	Y N	Y N
EMS Control: Y / N	Y N	Y N	Y N

HOT WATER PUMPS

Quantity			
Motor HP			
Motor Efficiency *(% or S, H, P*			
Capacity Control: **1** speed **2** speed **V**ariable	1 2 V	1 2 V	1 2 V
EMS Control: Y / N	Y N	Y N	Y N
Number of Units on Standby			

Fuel Type Codes	
1	Electricity
2	Natural Gas
3	Fuel Oil
4	LPG
5	Purchased HW or Steam
6	Other:_____

5C. CENTRAL HVAC SYSTEM - CHILLER

Chiller Reference:	**C1**	**C2**	**C3**
Chiller Type (Table below)			
Annual Maintenance Y / N	Y N	Y N	Y N
Number of Identical Chillers			
Age of Chiller(s) (Years)			
Manufacturer			
Model Name/Number			
Rated Cooling Capacity (Tons)			
Performance Rating *(Circle one)*	*EER IPLV kW/ton*	*EER IPLV kW/ton*	*EER IPLV kW/ton*
Performance Rating Value			
Chiller Control: **B**aseline **L**ead-lag On **D**emand **M**anual **O**ther	B L D M O	B L D M O	B L D M O
Compressor: **Design Full Load kW (or)**			
Volts/Phase/FL Amps	/ /	/ /	/ /
EMS Control: Y / N	Y N	Y N	Y N

HEAT REJECTION SYSTEM

Condenser Type (Table below)			
Capacity Control: ***FI**xed Temp* ***FL**oating Temp* ***H**ead Pressure*	*FI FL H*	*FI FL H*	*FI FL H*
Fan Control: **CO**nstant **CY**cle **P**ony motor **T**wo-Speed **V**ariable Speed	CO CY P T V	CO CY P T V	CO CY P T V
Condenser Fans: Quantity			
HP			
Motor Efficiency *(% or S,H,P)*			
Water Side Economizer Y / N	Y N	Y N	Y N
Thermal Storage: **I**ce **W**ater **N**one	I W N	I W N	I W N
EMS Control: Y / N	Y N	Y N	Y N

CHILLED WATER PUMPS

Pump Use: **P**rimary **S**econdary	P S	P S	P S
Quantity			
Motor HP			
Motor Efficiency *(% or S, H, P)*			
Capacity Control: **1** speed **2** speed **V**ariable	1 2 V	1 2 V	1 2 V
EMS Control: Y / N	Y N	Y N	Y N
Number of Units on Standby			

CONDENSER WATER PUMPS

Quantity			
Motor HP			
Motor Efficiency *(% or S, H, P)*			
Capacity Control: **1** speed **2** speed **V**ariable	1 2 V	1 2 V	1 2 V
EMS Control: Y / N	Y N	Y N	Y N
Number of Units on Standby			

EMS Control

Startup Strategy: **O**ptimized **S**cheduled	O S	O S	O S
Control Type: **P**neumatic **D**DC **C**ombination	P D C	P D C	P D C

Chiller Type Codes				**Condenser Type Codes**	
1	Centrifugal	5	Absorption, hot water	1	Air Cooled Condenser
2	Reciprocating	6	Absorption, natural gas	2	Cooling Tower
3	Rotary	7	Absorption, steam	3	Evaporative Cooler
4	Scroll			4	Other

6. NON-HVAC WATER HEATING

Water Heater Ref:	WH1	WH2	WH3	WH4
Space ID (s) Served	1 2 3	1 2 3	1 2 3	1 2 3
Water Heater Type (Table below)				
Age Of Water Heater (years)				
Number of Units				
Input Capacity (kW or kBtu/hr)				
Tank Capacity (Gallons)				
Fuel Type (Table below)				
Tank Wrap? Y/N	Y N	Y N	Y N	Y N
Pipe Insulation? Y/N	Y N	Y N	Y N	Y N
Recirculation Pump HP *0 = No Pump*				
Process Water Heating: Y/N	Y N	Y N	Y N	Y N

Water Heater Type Codes	
1	Heat Pump
2	Heat Recovery
3	Instantaneous (tankless)
4	Self-Contained
5	Storage Tank (Central Boiler)
6	Other:_____

Fuel Type Codes	
1	Electricity
2	Natural Gas
3	Fuel Oil
4	LPG
5	Purchased HW or Steam
6	Other:_____

7. AUXILIARY FAN

Fan Ref:	F1	F2	F3	F4
Space ID (s) Served	C P 1 2 3	C P 1 2 3	C P 1 2 3	C P 1 2 3
Fan Use: **G**eneral Exhaust **K**itchen Exhaust **L**ab Hood **M**ake-up air **O**ther	G K L M O	G K L M O	G K L M O	G K L M O
Number of Units				
Total Motor HP or CFM	|	|	|	|
Motor Efficiency *(% or S, H, P)*				
Fan Control: **C**onstant **T**wo Speed **V**ariable	C T V	C T V	C T V	C T V

8A. INTERIOR LIGHTING GROUP #____

Use Type: **A**rea **D**isplay **T**ask E**X**it	A D T X	A D T X	A D T X	A D T X	A D T X	A D T X
FLUORESCENT						
F = Standard Tube	F	F	F	F	F	F
U = U-tube	U	U	U	U	U	U
Length (1.5′ 2′ 3′ 4′ 6′ 8′)						
Diameter (T5 T8 T10 T12)						
CF = Compact Fluorescent	CF	CF	CF	CF	CF	CF
CIR = Circline Fluorescent	CIR	CIR	CIR	CIR	CIR	CIR
	P S	P S	P S	P S	P S	P S
HID						
MV = Mercury Vapor	MV	MV	MV	MV	MV	MV
MH = Metal Halide	MH	MH	MH	MH	MH	MH
H = High Pressure Sodium	H	H	H	H	H	H
L = Low Pressure Sodium	L	L	L	L	L	L
N = Neon	N	N	N	N	N	N
MISC.						
LED = LEDs	LED	LED	LED	LED	LED	LED
ER = Self/battery powered exit signs	ER	ER	ER	ER	ER	ER
Q = Quartz/Halogen	Q	Q	Q	Q	Q	Q
I = Incandescent	I	I	I	I	I	I
CFs applicable? (Medium/screw base)	Y N	Y N	Y N	Y N	Y N	Y N
Watts per lamp (Enter 10 if Neon)						
Number of lamps per fixture (Enter 1 if Neon)						
Total number of fixtures (Total length if Neon)						
Ballast Type: **SM** = Standard Magnetic	SM	SM	SM	SM	SM	SM
ES = ES Magnetic	ES	ES	ES	ES	ES	ES
E = Electronic	E	E	E	E	E	E
Number of ballasts per fixture						
Control Type: **E** = EMS	E	E	E	E	E	E
DC = Daylighting - Continuous dimming	DC	DC	DC	DC	DC	DC
DS = Daylighting - Step dimming	DS	DS	DS	DS	DS	DS
MB = Manual – circuit breaker	MB	MB	MB	MB	MB	MB
MD = Manual - dual switch	MD	MD	MD	MD	MD	MD
MS = Manual – single switch	MS	MS	MS	MS	MS	MS
OS = Occupancy sensor	OS	OS	OS	OS	OS	OS
P = Photocell	P	P	P	P	P	P
PT = Photocell/Timeclock	PT	PT	PT	PT	PT	PT
T = Timeclock	T	T	T	T	T	T
SW = Sweeps to Timeclock	SW	SW	SW	SW	SW	SW
N = None (continuous)	N	N	N	N	N	N
Are the controls functional and used? Y / N	Y N	Y N	Y N	Y N	Y N	Y N
Task lighting used when room lighting is on?	Y N	Y N	Y N	Y N	Y N	Y N

8B. INTERIOR LIGHTING – OVERVIEW

Lighting Group #	Description	Space ID(s)	Area Surveyed (SF)	Total Area Represented (SF)
		C P 1 2 3		
		C P 1 2 3		
		C P 1 2 3		
		C P 1 2 3		
		C P 1 2 3		
		C P 1 2 3		
		C P 1 2 3		
		C P 1 2 3		
		C P 1 2 3		
		C P 1 2 3		
		C P 1 2 3		
		C P 1 2 3		
		C P 1 2 3		
		C P 1 2 3		
		C P 1 2 3		
		C P 1 2 3		
		C P 1 2 3		
		C P 1 2 3		
		C P 1 2 3		
		C P 1 2 3		
		Total		

9. OUTDOOR LIGHTING

Use type: **A**dvertising **P**arking Lot Bldg **F**açade **D**isplay **G**arage **O**ther **S**afety/Security	A P F D G O S	A P F D G O S	A P F D G O S	A P F D G O S	A P F D G O S	A P F D G O S

FLUORESCENT

F = Standard Tube	F	F	F	F	F	F
U = U-tube	U	U	U	U	U	U
Length (1.5′ 2′ 3′ 4′ 6′ 8′)						
Diameter (T5 T8 T10 T12)						
CF = Compact Fluorescent	CF	CF	CF	CF	CF	CF
CIR = Circline Fluorescent	CIR	CIR	CIR	CIR	CIR	CIR
CF/CIR Base Type: ***P****in-base* ***S****crew-base*	P S	P S	P S	P S	P S	P S

HID

MV = Mercury Vapor	MV	MV	MV	MV	MV	MV
MH = Metal Halide	MH	MH	MH	MH	MH	MH
H = High Pressure Sodium	H	H	H	H	H	H
L = Low Pressure Sodium	L	L	L	L	L	L
N = Neon	N	N	N	N	N	N

MISC.

Q = Quartz/Halogen	Q	Q	Q	Q	Q	Q
I = Incandescent	I	I	I	I	I	I
CFs applicable? (medium/screw base)	Y N	Y N	Y N	Y N	Y N	Y N

Watts per lamp (Enter 10 if Neon)						
-- If lamp watts were estimated, check box	☐	☐	☐	☐	☐	☐
Number of lamps per fixture (Enter 1 if Neon)						
Total number of fixtures (Total length if Neon)						
Ballast Type: **SM** = Standard Magnetic	SM	SM	SM	SM	SM	SM
ES = ES Magnetic	ES	ES	ES	ES	ES	ES
E = Electronic	E	E	E	E	E	E
Number of ballasts per fixture						
Control Type: **E** = EMS	E	E	E	E	E	E
MB = Manual – circuit breaker	MB	MB	MB	MB	MB	MB
MS = Manual on/off switch	MS	MS	MS	MS	MS	MS
OS = Occupancy sensor	OS	OS	OS	OS	OS	OS
P = Photocell	P	P	P	P	P	P
PT = Photocell/Timeclock	PT	PT	PT	PT	PT	PT
T = Timeclock	T	T	T	T	T	T
N = None (continuous)	N	N	N	N	N	N
Are the controls functional and used? Y / N	Y N	Y N	Y N	Y N	Y N	Y N

10. MISCELLANEOUS EQUIPMENT

Functional Use Type	Equipment		Space ID 1	Space ID 2	Space ID 3
Retail	Point-of-use terminals	(#)			
Grocery	Point-of-use terminals	(#)			
	Food Prep – Meat Dept.		Y N	Y N	Y N
	Food Prep – Deli		Y N	Y N	Y N
	Auxiliary Pumps	(#)			
Office	Occupants	(#)			
	PCs	(#)			
	Servers	(#)			
	Refrigerators	(#)			
Restaurant	Meals per day	(#)			
	Kitchen – Full Service	(if Yes, complete below)	Y N	Y N	Y N
	Kitchen – Warming		Y N	Y N	Y N
	Laundry Facility	(if Yes, complete below)	Y N	Y N	Y N
	Auxiliary Pumps	(#)			
Warehouse	Forklifts	(#)			
	Non-forklift electric vehicles	(#)			
	Auxiliary Pumps	(#)			
Other Health	Beds	(#)			
	PCs	(#)			
	Servers	(#)			
	Kitchen – Full Service	(if Yes, complete below)	Y N	Y N	Y N
	Kitchen – Warming		Y N	Y N	Y N
	Labs	(SF)			
	Laundry Facility	(if Yes, complete below)	Y N	Y N	Y N
	Auxiliary Pumps	(#)			
Lodging	Rooms	(#)			
	Average occupancy	(%)			
	Kitchen – Full Service	(if Yes, complete below)	Y N	Y N	Y N
	Kitchen – Warming		Y N	Y N	Y N
	Laundry Facility	(if Yes, complete below)	Y N	Y N	Y N
	Auxiliary Pumps	(#)			
School	Students	(#)			
	Classrooms	(#)			
	PCs	(#)			
	Servers	(#)			
	Kitchen – Full Service	(if Yes, complete below)	Y N	Y N	Y N
	Kitchen – Warming		Y N	Y N	Y N
	Laundry Facility	(if Yes, complete below)	Y N	Y N	Y N
	Auxiliary Pumps	(#)			

Additional Equipment			Electric / Gas	Space ID 1	Space ID 2	Space ID 3
If Kitchen – Full Service	Broilers	(SF)	E G			
	Fryers	(#)	E G			
	Griddle / Grill	(LF)	E G			
	Oven – Baking	(CF)	E G			
	Oven – Convection	(#)	E G			
	Oven – General	(CF)	E G			
	Range – Top	(#burners)	E G			
	Steam Kettle	(#)	E G			
	Dishwater Booster Heater	(#)	E G			
If Laundry Facility	Dryer – Commercial	(#)	E G			
	Dryer – Residential	(#)	E G			
	Washer – Commercial	(#)	E G			
	Washer – Residential	(#)	E G			

11. REFRIGERATION EQUIPMENT

	Space ID:	C P 1 2 3	C P 1 2 3	C P 1 2 3	C P 1 2 3	C P 1 2 3
Compressors	Item #:	# __	# __	# __	# __	# __
Type: **R**eciprocating **S**crew **T**wo-stage multiplex **M**ultiplex **O**ther _____		R S T M O	R S T M O	R S T M O	R S T M O	R S T M O
Type: **L**ow (0 to -10 °F) **M**edium (30 to 40 °F) **H**igh (50 to 55 °F)		L M H	L M H	L M H	L M H	L M H
Total HP						
Quantity						
Unloaders or VSD compressors?		U V NA	U V NA	U V NA	U V NA	U V NA
Sub-cooling Type: **A**mbient **M**echanical **N**one		A M N	A M N	A M N	A M N	A M N
Floating Head Pressure Control?		Y N	Y N	Y N	Y N	Y N
Heat recovery type: **N**one **S**pace heating/Reheat **W**ater heating **O**ther_____		N S W O	N S W O	N S W O	N S W O	N S W O
Serves Case or Walk-In: (# or Ltr – below)						

Condensers	Item #:	# __	# __	# __	# __	# __
Type: **A**ir-cooled Air-cooled w/**P**re-cooler **C**lose-approach **E**vap-cooled **W**ater-cooled		A P C E W	A P C E W	A P C E W	A P C E W	A P C E W
Fan Motor Efficiency	(% or S,H,P)					
Total Fan HP	(all types)					
Fan VSD?		Y N	Y N	Y N	Y N	Y N
PUMP MOTOR HP(WATER-COOLED UNITS ONLY)						
Pump VSD?		Y N	Y N	Y N	Y N	Y N
Serves Compressor #(s):	(**A** for all)					

Walk-Ins/Prep Areas	Ltr:	Ltr: __	Ltr: __	Ltr: __	Ltr: __	Ltr: __
Defrost Control Type: **D**emand Control **E**lectric Hot **G**as **T**imed-off **N**one		D E G T N	D E G T N	D E G T N	D E G T N	D E G T N
Lighting:		t12 t8 t5	t12 t8 t5	t12 t8 t5	t12 t8 t5	t12 t8 t5

Display Cases	Item #:	# __	# __	# __	# __	# __
Case Length	(LF)					
Do the cases have doors?		Y N	Y N	Y N	Y N	Y N
Anti-sweat heater control?		Y N	Y N	Y N	Y N	Y N
Defrost Control Type: **D**emand Control **E**lectric Hot **G**as **T**imed-off **N**one		D E G T N	D E G T N	D E G T N	D E G T N	D E G T N
Lighting:		t12 t8 t5	t12 t8 t5	t12 t8 t5	t12 t8 t5	t12 t8 t5

12. POOLS AND SPAS

Pool/Spa Ref. :			P1	P2	P3
Type:	**P**ool	**S**pa	P S	P S	P S
Location:	**I**ndoor	**O**utdoor	I O	P S	P S
Conditioned Space?	*Y / N*		*Y N*	*Y N*	*Y N*
Humidity Control?	*Y / N*		*Y N*	*Y N*	*Y N*
Surface Area:		(Square Ft)			
Pool/Spa Cover Used?			Y N	Y N	Y N
Heater Type		(Table below)			
If Central Boiler, enter Ref. # from sec. 5b:			B1 B2 B3	B1 B2 B3	B1 B2 B3
Fuel Type		(Table below)			
Months Heated:		Start (1…12)			
		Stop (1…12)			
Pump #1 HP					
Pump #2 HP					

Heater Type Codes		Fuel Type Codes	
1	Central Boiler	1	Electricity
2	Stand-Alone Boiler	2	Natural Gas
3	Electricity	3	Fuel Oil
4	None	4	LPG
5	Other: _____	5	Purchased HW or Steam
		6	Other: _____

K

DATABASE STRUCTURE AND DATA DICTIONARY

K.1 PRE ANALYSIS VARIABLE DEFINITIONS

Pre Analysis Data Variable Definitions

Order	Variable	Type	Label	Format
	1A. GENERAL BUILDING INFO			
1	SITEID	Char	Site identifier	
2	SURVEY	Char	Survey source	
3	SUR_TYP	Char	Survey Scope	$SURVTYP.
4	NORMHDD	Num	Normal HDD (base 65)	
5	NORMCDD	Num	Normal CDD (base 65)	
6	ZONE	Num	Climate Zone	ZONE.
7	STATUS	Char	Building Status Code	$STATUS.
8	SINGL	Char	Multiple/Single Building	$SINGL.
9	BLD_TYP	Char	Predominant Tenant Business Type	$BLDGTYP.
10	BLD_OWN	Char	Ownership of Building	$OWNER.
11	BLD_SF	Num	Gross Floor Area	
12	CODE	Char	Code for pre post sqft differences	$PRECODE.
13	TOTSQFT	Num	Total Square footage of the building	
14	HT_PCT	Num	Heated Square Feet (% of sqft)	
15	CL_PCT	Num	Cooled Square Feet (% of sqft)	
16	REF_PCT	Num	Refrigerated Area (% of sqft)	
17	UN_PCT	Num	Unconditioned Area (% of sqft)	
18	VAC_PCT	Num	Vacant Area (% of sqft)	
19	HTFUEL	Char	Predominant Heating Fuel	
20	CLFUEL	Char	Predominant Cooling Fuel	
21	FLOORAG	Num	Nbr of Floors Above Grade	
22	FLOORBG	Num	Nbr of Floors Below Grade	
23	IOU	Num	Utility Type: IOU/Public	IOU.
24	OTHFTYP	Char	Secondary Fuel Type	
213	STATE	Char	State	$STATE.
216	PREBLDT	Char	Pre Tenant Business Type	
219	COHORT	Char	Vintage cohort	$COHORT.
	1B. BUILDING OCCUPANCY AND MANAGEMENT			
25	PRDLSTYP	Char	Predominant Tenant Lease/Rent/Own Status	
26	TENPCT	Num	% Tenants: LEASE	
27	OWNPCT	Num	% Tenants: OWN	

214	ORIGYR	Num	Original Year of Construction	

1C. SPACE INFORMATION

28	FRANCHSE	Num	% Tenants: Franchises	
29	CHAIN	Num	% Tenants: Chain	
30	PRIMTYP	Char	Primary Functional Use	$FUNCUSE.
31	PRIMPCT	Num	Primary Functional Use % OF TOTAL SQFT	
32	SECTYP	Char	Secondary Functional Use	$FUNCUSE.
33	SECPCT	Num	Secondary Functional Use % OF TOTAL SQFT	
34	TERTTYP	Char	Tertiary Functional Use	$FUNCUSE.
35	TERTPCT	Num	Tertiary Functional Use % OF TOTAL SQFT	
36	COMNTYP	Char	Common Area Functional Use	$FUNCUSE.
37	COMNPCT	Num	Common Area % OF TOTAL SQFT	
38	PARKTYP	Char	Parking Functional Use	$FUNCUSE.
39	PARKPCT	Num	Parking % OF TOTAL SQFT	
40	SQFTPARK	Num	Floor area used for parking	
41	SP_TEN	Num	TOTAL Nbr of Tenants in Building	
42	SP_LSE	Num	Average Tenant Lease Length	
43	SP_ALL	Char	% Tenants: Paying all utilities	
44	SP_ELEC2	Num	% Tenants: Lease includes ELEC utilities	
45	SP_GAS2	Num	% Tenants: Lease includes GAS utilities	
46	SP_HT2	Num	% Tenants: Lease includes HEATING	
47	SP_CL2	Num	% Tenants: Lease includes COOLING	
48	SP_HW2	Num	% Tenants: Lease includes HOT WATER	
49	SP_IL2	Num	% Tenants: Lease includes INDOOR LIGHTS	
50	SP_OL2	Num	% Tenants: Lease includes OUTDR LIGHTS	
51	SP_MNHT2	Num	% Tenants: Manual Heating	
52	SP_MNCL2	Num	% Tenants: Manual Cooling	

2A. SCHEDULE INFORMATION

53	WEEKHRS	Num	Primary Schedule: Hours open per week	
54	OPENSAT	Num	Primary Schedule: Open Saturday	
55	OPENSUN	Num	Primary Schedule: Open Sunday	
56	OPEN24	Num	Primary Schedule: Open 24 Hr	

3. ENVELOPE INFORMATION: GENERAL

57	WA_SURF	Char	Primary wall surface type	$WALLSRF.
58	WA_FR	Char	Primary wall framing type	$WALLFRM.
59	WIN_LYRS	Num	Average Layers of Glazing	
60	WIN_GLZ	Char	Predominant Window Glaze Type	$WINGLAZ.
61	WIN_GLE	Char	Window Glazing Low E/Gas Type	$WINGLE.
62	WIN_FR	Char	Predominant Frame Type	$WINFRME.
63	WIN_TYP	Char	Predominant Window Type	$WINTYPE.
64	RF_SURF	Char	Primary Roof Surface Construction Code	$ROOFSRF.
65	RF_DECK	Char	Primary roof deck material	$ROOFDK.

66	SKYLIGHT	Num	Are there skylights?	YESNO.
67	FL_TYPE	Char	Primary Floor Construction Code	$FLRTYP.
68	WALLAREA	Num	Wall Area	
69	WINDAREA	Num	Window Area	

4, 5a, 5b, 5c HVAC SYSTEM SUMMARY

70	AH_AGE	Num	Central Air Handler age (Oldest)	
71	C_AGE	Num	Central Chiller Age (Oldest Chiller)	
72	B_AGE	Num	Boiler Age (Oldest Boiler)	
73	B_FUEL	Char	Central Boiler Fuel	
74	B_CAP	Num	Average Boiler Capacity	
75	AGESQFT	Num	Average Packaged HVAC SYSTEM VINTAGE	
76	AGETONWT	Num	Average Packaged HVAC SYSTEM VINTAGE	
77	HVCUPGRD	Num	HVAC SYSTEM Upgrades	YESNO.
78	HVACPLNT	Num	HVAC Served by Central Plant	YESNO.
79	PRI_HVAC	Char	Primary HVAC system	$HVAC_CD.
80	PRIHTFL	Char	Pri HVAC sys: heat fuel	
81	PRICLFL	Char	Pri HVAC sys: cool fuel	
82	PRI_HTEQ	Char	Pri HVAC sys: heat eqpt	$HEATEQ.
83	PRI_CLEQ	Char	Pri HVAC sys: cool eqpt	$COOLEQ.
84	PRI_DIST	Char	Pri HVAC sys: distribution system	$PRIDIST.
85	SEC_HVAC	Char	Secondary HVAC system	$HVAC_CD.
86	SECHTFL	Char	Sec HVAC sys: heat fuel	
87	SECCLFL	Char	Sec HVAC sys: cool fuel	
88	SUPHTFL	Char	Supplemental heat fuel	
89	SUPCLFL	Char	Supplemental cool fuel	
90	SPHTSQFT	Num	Sqft with supplemental heat	
91	SPCLSQFT	Char	Sqft with supplemental cool	
92	ECNMZRPC	Num	%Distribution with Economizers	
93	BASEBRD	Num	Yes/No: 'Electric Baseboard'	YESNO.
94	WTRBOIL	Num	Yes/No: 'Water Boiler'	YESNO.
95	STMBOIL	Num	Yes/No: 'Steam Boiler'	YESNO.
96	FURNACE	Num	Yes/No: 'Furnace'	YESNO.
97	CTL_NONE	Num	Yes/No Controls: 'None'	YESNO.
98	CTLMTHM	Num	Yes/No Controls: Thermostatic (Manual)	YESNO.
99	CTLTHRP	Num	Yes/No Controls: Thermostat (Program)	YESNO.
100	CTLTCLCK	Num	Yes/No Controls: Timeclock (on/off)	YESNO.
101	CTL_EMS	Num	Yes/No Controls: 'EMCS'	YESNO.
102	CTLONOFF	Num	Yes/No Controls: 'On/Off Switch'	YESNO.

6. WATER HEATING

103	PRIMWH	Char	Predominant Hot Water Eqpt Type	$WATRTYP.
104	PRIWHFL	Char	Predominant Hot Water Fuel	
105	OTHTYP	Char	Other Water Heating Type	$WATRTYP.

106 TANKINS	Num	Tank Insulation	YESNO.
107 PIPEINS	Num	Pipe Insulation	YESNO.

7. AUXILIARY FANS

108 EXHSTPCT	Num	% Fans Exhaust
109 FANHDPCT	Num	% Fans Lab Hood
110 MAKEUPPC	Num	% Fans Make-Up-Air
111 OTHERPCT	Num	% Fans Other
112 TOTSUPHP	Num	Total Supply Fan HP
113 TOTRETHP	Num	Total Return Fan HP

8. INDOOR LIGHTING INFO

114 ILPD	Num	Indoor Lighting Watts per Square Foot
115 ITOTWATT	Num	Total Indoor Lighting Wattage
116 IFT12WPC	Num	%WATTS: Fluorescent T12
117 IFT12NPC	Num	%COUNT%: Fluorescent T12
118 IFT8WPCT	Num	%WATTS: Fluorescent T8 Energy Efficient
119 IFT8NPCT	Num	%COUNT%: Fluorescent T8 Energy Efficient
120 IFOTHWPC	Num	%WATTS: Fluorescent Other
121 IFOTHNPC	Num	%COUNT%: Fluorescent Other
122 II_WPCT	Num	%WATTS: Incandescent
123 II_NPCT	Num	%COUNT%: Incandescent
124 IMSCWPCT	Num	%WATTS: Misc
125 IMSCNPCT	Num	%COUNT%: Misc
126 IHIDWPCT	Num	%WATTS: HID
127 IHIDNPCT	Num	%COUNT%: HID
128 F4T12WPC	Num	%WATTS: Fluorescent T12: 4FT
129 F4T12NPC	Num	%COUNT%: Fluorescent T12: 4FT
130 F8T12WPC	Num	%WATTS: Fluorescent T12: 8FT
131 F8T12NPC	Num	%COUNT%: Fluorescent T12: 8FT
132 FT121WPC	Num	%WATTS: Fluorescent T12: 1 lamp
133 FT121NPC	Num	%COUNT%: Fluorescent T12: 1 lamp
134 FT122WPC	Num	%WATTS: Fluorescent T12: 2 lamp
135 FT122NPC	Num	%COUNT%: Fluorescent T12: 2 lamp
136 FT123WPC	Num	%WATTS: Fluorescent T12: 3 lamp
137 FT123NPC	Num	%COUNT%: Fluorescent T12: 3 lamp
138 FT124WPC	Num	%WATTS: Fluorescent T12: 4 lamp
139 FT124NPC	Num	%COUNT%: Fluorescent T12: 4 lamp
140 IF81WPCT	Num	%WATTS: Fluorescent T8: 1 lamp
141 IF81NPCT	Num	%COUNT%: Fluorescent T8: 1 lamp
142 IF82WPCT	Num	%WATTS: Fluorescent T8: 2 lamp
143 IF82NPCT	Num	%COUNT%: Fluorescent T8: 2 lamp
144 IF83WPCT	Num	%WATTS: Fluorescent T8: 3 lamp
145 IF83NPCT	Num	%COUNT%: Fluorescent T8: 3 lamp

146 IF84WPCT	Num	%WATTS: Fluorescent T8: 4 lamp	
147 IF84NPCT	Num	%COUNT%: Fluorescent T8: 4 lamp	
148 IELBLSW	Num	%WATTS: Solid State Ballast measure	
149 IELBLSN	Num	%COUNT%: Solid State Ballast measure	
150 HIDTYP	Char	%MAIN HID TYPE (% COUNT)	$HIDTYPE.
151 ICTLTCLK	Num	Yes/No: Timeclock (on/off)	YESNO.
152 ICNTLEMS	Num	Yes/No: EMCS	YESNO.
153 ICTPHOTO	Num	Yes/No: Photocell	YESNO.
154 ICTLOSNS	Num	Yes/No: Occupancy Sensors	YESNO.
155 ICTONOFF	Num	Yes/No: On/Off Switch	YESNO.
156 ICTLDAY	Num	Yes/No: Dimmer / Daylighting	YESNO.
157 ICTLOTHR	Num	Yes/No: Other Controls	YESNO.

9. OUTDOOR LIGHTING INFO

158 OTOTWATT	Num	Total Kilowatts Outdoor Lighting	
159 OUTLIGHT	Num	Building has Outdoor Lighting?	YESNO.
160 OF_WPCT	Num	%WATTS: Fluorescent	
161 OF_NPCT	Num	%COUNT%: Fluorescent	
162 OI_WPCT	Num	%WATTS: Incandescent	
163 OI_NPCT	Num	%COUNT%: Incandescent	
164 ONEONWPC	Num	%WATTS: Neon	
165 ONEONNPC	Num	%COUNT%: Neon	
166 OHIDWPCT	Num	%WATTS: HID	
167 OHIDNPCT	Num	%COUNT%: HID	
168 OOTHWPCT	Num	%WATTS: Other	
169 OOTHNPCT	Num	%COUNT%: Other	
170 OCTLTCLK	Num	Yes/No: Timeclock (on/off)	YESNO.
171 OCNTLEMS	Num	Yes/No: EMCS	YESNO.
172 OCTPHOTO	Num	Yes/No: Photocell	YESNO.
173 OCTLTIME	Num	Yes/No: Timeclock/Photocell	YESNO.
174 OCTLOSNS	Num	Yes/No: Occupancy Sensors	YESNO.
175 OCTONOFF	Num	Yes/No: On/Off Switch	YESNO.

10. MISCELLANEOUS EQUIPMENT

176 REGISTER	Num	Total # Terminals (Cash registers)
177 PCS	Num	Total # PCs
178 SERVERS	Num	Total # Servers
179 REFRIG	Num	Total # Refrigerators
180 LAUNDRY	Num	Laundry Facility?
181 AUXPMP	Num	Total # Auxiliary Pumps
182 CHARGERS	Num	Forklifts? + Electric Vehicles (YES/NO)
183 LAB	Num	Other Health: Lab Yes/No
184 BROIL	Num	Kitchen Full: Broiler Count
185 BROILEL	Num	Kitchen Full: Broiler Fuel: Elec %

186	FRYER	Num	Kitchen Full: Total # of Fryers	
187	FRYEREL	Num	Kitchen Full: Fryer Fuel Elec%	
188	GRIDGRIL	Num	Kitchen Full: Griddle/Grill Count	
189	GRDGRLEL	Num	Kitchen Full: Griddle/Grill Fuel Elec %	
190	OVEN	Num	Kitchen Full: Oven Count	
191	OVENELEC	Num	Kitchen Full: Oven Fuel Elec %	
192	RANGE	Num	Kitchen Full: Range Top #	
193	RANGEEL	Num	Kitchen Full: Range Fuel Elec%	
194	DRYER	Num	Laundry: Dryer #	
195	DRYELEC	Num	Laundry: Dryer Fuel Elec%	
196	WASHER	Num	Laundry: Washer #	
197	WASHELEC	Num	Laundry: Washer Fuel Elec%	
	11A. REFRIGERATION COMPRESSORS			
198	PCTLOW	Num	% Compressors Low Temp	
199	PCTMED	Num	% Compressors High Temp	
200	PCTHITMP	Num	% Compressors Med Temp	
201	FLTHDCTL	Num	Floating head pressure control?	YESNO.
202	HTRECOV	Num	Heat recovery type	YESNO.
	11B. REFRIGERATION CONDENSERS			
203	CN_TYP	Char	Predominant Condenser type	$CONDTYP.
	11C. REFRIGERATION EQUIPMENT USE			
204	WALKIN	Num	Walk In Yes/No	YESNO.
205	DISPCASE	Num	Display Case Yes/No	YESNO.
206	DRPCT	Num	% Cases with doors	
	12. POOLS & SPAS			
207	PL_SPA	Char	Pool Yes/No	$POOL.
208	COVER	Char	Pool cover Yes/No	
	13. CENTRAL PLANT			
209	CMPBLD	Num	Number of buildings on campus	
210	CMPSF	Num	Square footage of buildings on campus	
211	PPCTHT	Num	Percent of sqft served by plant: heated	
212	PPCTCL	Num	Percent of sqft served by plant: cooled	
	OTHER VARIABLES & WEIGHTS			
215	PREPOST	Num	1 if PNNRES pre post analysis possible	
217	WEIGHT	Num	Post analysis - regional case weight	
218	PPWEIGHT	Num	Pre Post analysis case weight for 87	

K.2 POST ANALYSIS VARIABLE DEFINITIONS

Post Analysis Data Variable Definitions

Order	Variable	Type	Label	Format
	1A. GENERAL BUILDING INFO			
1	SITEID	Char	Site identifier	
2	WGTAREA	Char	1987 analysis weight area category	
3	AREABIN	Char	Post building size category	
4	SURVEY	Char	Survey source	
5	SUR_TYP	Char	Survey Scope	$SURVTYP.
6	STATE	Char	State	$STATE.
7	NORMHDD	Num	Normal HDD (base 65)	
8	NORMCDD	Num	Normal CDD (base 65)	
9	ZONE	Num	Climate Zone	ZONE.
10	STATUS	Char	Building Status Code	$STATUS.
11	SINGL	Char	Multiple/Single Building	$SINGL.
12	BLD_OWN	Char	Ownership of Building	$OWNER.
13	BLD_SF	Num	Gross Floor Area	
14	CODE	Char	Code for pre post sqft differences	$PSTCODE.
15	TOTSQFT	Num	Total Square footage of the building	
16	HT_PCT	Num	Heated Square Feet (% of sqft)	
17	CL_PCT	Num	Cooled Square Feet (% of sqft)	
18	REF_PCT	Num	Refrigerated Area (% of sqft)	
19	UN_PCT	Num	Unconditioned Area (% of sqft)	
20	VAC_PCT	Num	Vacant Area (% of sqft)	
21	HTFUEL	Char	Predominant Heating Fuel	
22	CLFUEL	Char	Predominant Cooling Fuel	
23	FLOORAG	Num	Nbr of Floors Above Grade	
24	FLOORBG	Num	Nbr of Floors Below Grade	
25	IOU	Num	Utility Type: IOU/Public	IOU.
26	OTHFTYP	Char	Secondary Fuel Type	
216	BLD_TYP	Char	Post Tenant Business Type	$BLDGTYP.
218	PREBLDT	Char	Pre Tenant Business Type	
221	COHORT	Char	Vintage cohort	$COHORT.
	1B. BUILDING OCCUPANCY AND MANAGEMENT			
27	PRDLSTYP	Char	Predominant Tenant Lease/Rent/Own Status	
28	TENPCT	Num	% Tenants: LEASE	
29	OWNPCT	Num	% Tenants: OWN	
30	ORIGYR	Num	Original Year of Construction	

1C. SPACE INFORMATION

31	FRANCHSE	Num	% Tenants: Franchises	
32	CHAIN	Num	%Tenants: Chain	
33	PRIMTYP	Char	Primary Functional Use	$FUNCUSE.
34	PRIMPCT	Num	Primary Functional Use % OF TOTAL SQFT	
35	SECTYP	Char	Secondary Functional Use	$FUNCUSE.
36	SECPCT	Num	Secondary Functional Use % OF TOTAL SQFT	
37	TERTTYP	Char	Tertiary Functional Use	$FUNCUSE.
38	TERTPCT	Num	Tertiary Functional Use % OF TOTAL SQFT	
39	COMNTYP	Char	Common Area Functional Use	$FUNCUSE.
40	COMNPCT	Num	Common Area % OF TOTAL SQFT	
41	PARKTYP	Char	Parking Functional Use	$FUNCUSE.
42	PARKPCT	Num	Parking % OF TOTAL SQFT	
43	SQFTPARK	Num	Floor area used for parking	
44	SP_TEN	Num	TOTAL Nbr of Tenants in Building	
45	SP_LSE	Num	Average Tenant Lease Length	
46	SP_ALL	Char	% Tenants: Paying all utilities	
47	SP_ELEC2	Num	% Tenants: Lease includes ELEC utilities	
48	SP_GAS2	Num	% Tenants Lease includes GAS utilities	
49	SP_HT2	Num	% Tenants: Lease includes HEATING	
50	SP_CL2	Num	% Tenants: Lease includes COOLING	
51	SP_HW2	Num	% Tenants: Lease includes HOT WATER	
52	SP_IL2	Num	% Tenants: Lease includes INDOOR LIGHTS	
53	SP_OL2	Num	% Tenants: Lease includes OUTDR LIGHTS	
54	SP_MNHT2	Num	%Tenants: Manual Heating	
55	SP_MNCL2	Num	%Tenants: Manual Cooling	

2A. SCHEDULE INFORMATION

56	WEEKHRS	Num	Primary Schedule: Hours open per week	
57	OPENSAT	Num	Primary Schedule: Open Saturday	
58	OPENSUN	Num	Primary Schedule: Open Sunday	
59	OPEN24	Num	Primary Schedule: Open 24 Hr	

3. ENVELOPE INFORMATION: GENERAL

60	WA_SURF	Char	Primary wall surface type	$WALLSRF.
61	WA_FR	Char	Primary wall framing type	$WALLFRM.
62	WIN_LYRS	Num	Average Layers of Glazing	
63	WIN_GLZ	Char	Predominant Window Glaze Type	$WINGLAZ.
64	WIN_GLE	Char	Window Glazing Low E/Gas Type	$WINGLE.
65	WIN_FR	Char	Predominant Frame Type	$WINFRME.
66	WIN_TYP	Char	Predominant Window Type	$WINTYPE.
67	RF_SURF	Char	Primary Roof Surface Construction Code	$ROOFSRF.
68	RF_DECK	Char	Primary roof deck material	$ROOFDK.
69	SKYLIGHT	Num	Are there skylights?	YESNO.

70	FL_TYPE	Char	Primary Floor Construction Code	$FLRTYP.
71	WALLAREA	Num	Wall Area	
72	WINDAREA	Num	Window Area	

4, 5a, 5b, 5c HVAC SYSTEM SUMMARY

73	AH_AGE	Num	Central Air Handler age (Oldest)	
74	C_AGE	Num	Central Chiller Age (Oldest Chiller)	
75	B_AGE	Num	Boiler Age (Oldest Boiler)	
76	B_FUEL	Char	Central Boiler Fuel	
77	B_CAP	Num	Average Boiler Capacity	
78	AGESQFT	Num	Average Packaged HVAC SYSTEM VINTAGE	
79	AGETONWT	Num	Average Packaged HVAC SYSTEM VINTAGE	
80	HVCUPGRD	Num	HVAC SYSTEM Upgrades	YESNO.
81	HVACPLNT	Num	HVAC Served by Central Plant	YESNO.
82	PRI_HVAC	Char	Primary HVAC system	$HVAC_CD.
83	PRIHTFL	Char	Pri HVAC sys: heat fuel	
84	PRICLFL	Char	Pri HVAC sys: cool fuel	
85	PRI_HTEQ	Char	Pri HVAC sys: heat eqpt	$HEATEQ.
86	PRI_CLEQ	Char	Pri HVAC sys: cool eqpt	$COOLEQ.
87	PRI_DIST	Char	Pri HVAC sys: distribution system	$PRIDIST.
88	SEC_HVAC	Char	Secondary HVAC system	$HVAC_CD.
89	SECHTFL	Char	Sec HVAC sys: heat fuel	
90	SECCLFL	Char	Sec HVAC sys: cool fuel	
91	SUPHTFL	Char	Supplemental heat fuel	
92	SUPCLFL	Char	Supplemental cool fuel	
93	SPHTSQFT	Num	Sqft with supplemental heat	
94	SPCLSQFT	Char	Sqft with supplemental cool	
95	ECNMZRPC	Num	%Distribution with Economizers	
96	BASEBRD	Num	Yes/No: 'Electric Baseboard'	YESNO.
97	WTRBOIL	Num	Yes/No: 'Water Boiler'	YESNO.
98	STMBOIL	Num	Yes/No: 'Steam Boiler'	YESNO.
99	FURNACE	Num	Yes/No: 'Furnace'	YESNO.
100	CTL_NONE	Num	Yes/No Controls: 'None'	YESNO.
101	CTLMTHM	Num	Yes/No Controls: Thermostatic (Manual)	YESNO.
102	CTLTHRP	Num	Yes/No Controls: Thermostat (Program)	YESNO.
103	CTLTCLCK	Num	Yes/No Controls: Timeclock (on/off)	YESNO.
104	CTL_EMS	Num	Yes/No Controls: 'EMCS'	YESNO.
105	CTLONOFF	Num	Yes/No Controls: 'On/Off Switch'	YESNO.

6. WATER HEATING

106	PRIMWH	Char	Predominant Hot Water Eqpt Type	$WATRTYP.
107	PRIWHFL	Char	Predominant Hot Water Fuel	
108	OTHTYP	Char	Other Water Heating Type	$WATRTYP.
109	TANKINS	Num	Tank Insulation	YESNO.

110	PIPEINS	Num	Pipe Insulation	YESNO.

7. AUXILIARY FANS

111	EXHSTPCT	Num	% Fans Exhaust
112	FANHDPCT	Num	% Fans Lab Hood
113	MAKEUPPC	Num	% Fans Make-Up-Air
114	OTHERPCT	Num	% Fans Other
115	TOTSUPHP	Num	Total Supply Fan HP
116	TOTRETHP	Num	Total Return Fan HP

8. INDOOR LIGHTING INFO

117	ILPD	Num	Indoor Lighting Watts per Square Foot
118	ITOTWATT	Num	Total Indoor Lighting Wattage
119	IFT12WPC	Num	%WATTS: Fluorescent T12
120	IFT12NPC	Num	%COUNT%: Fluorescent T12
121	IFT8WPCT	Num	%WATTS: Fluorescent T8 Energy Efficient
122	IFT8NPCT	Num	%COUNT%: Fluorescent T8 Energy Efficient
123	IFOTHWPC	Num	%WATTS: Fluorescent Other
124	IFOTHNPC	Num	%COUNT%: Fluorescent Other
125	II_WPCT	Num	%WATTS: Incandescent
126	II_NPCT	Num	%COUNT%: Incandescent
127	IMSCWPCT	Num	%WATTS: Misc
128	IMSCNPCT	Num	%COUNT%: Misc
129	IHIDWPCT	Num	%WATTS: HID
130	IHIDNPCT	Num	%COUNT%: HID
131	F4T12WPC	Num	%WATTS: Fluorescent T12: 4FT
132	F4T12NPC	Num	%COUNT%: Fluorescent T12: 4FT
133	F8T12WPC	Num	%WATTS: Fluorescent T12: 8FT
134	F8T12NPC	Num	%COUNT%: Fluorescent T12: 8FT
135	FT121WPC	Num	%WATTS: Fluorescent T12: 1 lamp
136	FT121NPC	Num	%COUNT%: Fluorescent T12: 1 lamp
137	FT122WPC	Num	%WATTS: Fluorescent T12: 2 lamp
138	FT122NPC	Num	%COUNT%: Fluorescent T12: 2 lamp
139	FT123WPC	Num	%WATTS: Fluorescent T12: 3 lamp
140	FT123NPC	Num	%COUNT%: Fluorescent T12: 3 lamp
141	FT124WPC	Num	%WATTS: Fluorescent T12: 4 lamp
142	FT124NPC	Num	%COUNT%: Fluorescent T12: 4 lamp
143	IF81WPCT	Num	%WATTS: Fluorescent T8: 1 lamp
144	IF81NPCT	Num	%COUNT%: Fluorescent T8: 1 lamp
145	IF82WPCT	Num	%WATTS: Fluorescent T8: 2 lamp
146	IF82NPCT	Num	%COUNT%: Fluorescent T8: 2 lamp
147	IF83WPCT	Num	%WATTS: Fluorescent T8: 3 lamp
148	IF83NPCT	Num	%COUNT%: Fluorescent T8: 3 lamp
149	IF84WPCT	Num	%WATTS: Fluorescent T8: 4 lamp

150 IF84NPCT	Num	%COUNT%: Fluorescent T8: 4 lamp	
151 IELBLSW	Num	%WATTS: Solid State Ballast measure	
152 IELBLSN	Num	%COUNT%: Solid State Ballast measure	
153 HIDTYP	Char	%MAIN HID TYPE (% COUNT)	$HIDTYPE.
154 ICTLTCLK	Num	Yes/No: Timeclock (on/off)	YESNO.
155 ICNTLEMS	Num	Yes/No: EMCS	YESNO.
156 ICTPHOTO	Num	Yes/No: Photocell	YESNO.
157 ICTLOSNS	Num	Yes/No: Occupancy Sensors	YESNO.
158 ICTONOFF	Num	Yes/No: On/Off Switch	YESNO.
159 ICTLDAY	Num	Yes/No: Dimmer / Daylighting	YESNO.
160 ICTLOTHR	Num	Yes/No: Other Controls	YESNO.

9. OUTDOOR LIGHTING INFO

161 OTOTWATT	Num	Total Kilowatts Outdoor Lighting	
162 OUTLIGHT	Num	Building has Outdoor Lighting?	YESNO.
163 OF_WPCT	Num	%WATTS: Fluorescent	
164 OF_NPCT	Num	%COUNT%: Fluorescent	
165 OI_WPCT	Num	%WATTS: Incandescent	
166 OI_NPCT	Num	%COUNT%: Incandescent	
167 ONEONWPC	Num	%WATTS: Neon	
168 ONEONNPC	Num	%COUNT%: Neon	
169 OHIDWPCT	Num	%WATTS: HID	
170 OHIDNPCT	Num	%COUNT%: HID	
171 OOTHWPCT	Num	%WATTS: Other	
172 OOTHNPCT	Num	%COUNT%: Other	
173 OCTLTCLK	Num	Yes/No: Timeclock (on/off)	YESNO.
174 OCNTLEMS	Num	Yes/No: EMCS	YESNO.
175 OCTPHOTO	Num	Yes/No: Photocell	YESNO.
176 OCTLTIME	Num	Yes/No: Timeclock/Photocell	YESNO.
177 OCTLOSNS	Num	Yes/No: Occupancy Sensors	YESNO.
178 OCTONOFF	Num	Yes/No: On/Off Switch	YESNO.

10. MISCELLANEOUS EQUIPMENT

179 REGISTER	Num	Total # Terminals (Cash registers)
180 PCS	Num	Total # PCs
181 SERVERS	Num	Total # Servers
182 REFRIG	Num	Total # Refrigerators
183 LAUNDRY	Num	Laundry Facility?
184 AUXPMP	Num	Total # Auxiliary Pumps
185 CHARGERS	Num	Forklifts? + Electric Vehicles (YES/NO)
186 LAB	Num	Other Health: Lab Yes/No
187 BROIL	Num	Kitchen Full: Broiler Count
188 BROILEL	Num	Kitchen Full: Broiler Fuel: Elec %
189 FRYER	Num	Kitchen Full: Total # of Fryers

190	FRYEREL	Num	Kitchen Full: Fryer Fuel Elec%	
191	GRIDGRIL	Num	Kitchen Full: Griddle/Grill Count	
192	GRDGRLEL	Num	Kitchen Full: Griddle/Grill Fuel Elec %	
193	OVEN	Num	Kitchen Full: Oven Count	
194	OVENELEC	Num	Kitchen Full: Oven Fuel Elec %	
195	RANGE	Num	Kitchen Full: Range Top #	
196	RANGEEL	Num	Kitchen Full: Range Fuel Elec%	
197	DRYER	Num	Laundry: Dryer #	
198	DRYELEC	Num	Laundry: Dryer Fuel Elec%	
199	WASHER	Num	Laundry: Washer #	
200	WASHELEC	Num	Laundry: Washer Fuel Elec%	
	11A. REFRIGERATION COMPRESSORS			
201	PCTLOW	Num	% Compressors Low Temp	
202	PCTMED	Num	% Compressors High Temp	
203	PCTHITMP	Num	% Compressors Med Temp	
204	FLTHDCTL	Num	Floating head pressure control?	YESNO.
205	HTRECOV	Num	Heat recovery type	YESNO.
	11B. REFRIGERATION CONDENSERS			
206	CN_TYP	Char	Predominant Condenser type	$CONDTYP.
	11C. REFRIGERATION EQUIPMENT USE			
207	WALKIN	Num	Walk In Yes/No	YESNO.
208	DISPCASE	Num	Display Case Yes/No	YESNO.
209	DRPCT	Num	% Cases with doors	
	12. POOLS & SPAS			
210	PL_SPA	Char	Pool Yes/No	$POOL.
211	COVER	Char	Pool cover Yes/No	
	13. CENTRAL PLANT			
212	CMPBLD	Num	Number of buildings on campus	
213	CMPSF	Num	Square footage of buildings on campus	
214	PPCTHT	Num	Percent of sqft served by plant: heated	
215	PPCTCL	Num	Percent of sqft served by plant: cooled	
	OTHER VARIABLES & WEIGHTS			
217	PREPOST	Num	1 if PNNRES pre post analysis possible	
219	WEIGHT	Num	Post analysis - regional case weight	
220	PPWEIGHT	Num	Pre Post analysis case weight for 87	
222	WGT2	Num	Post weight=Building Sqft*weight	

Post Billing Data Variable Definitions

1D. BILLING/EUI INFORMATION (SEPARATE FILE)

Order	Variable	Type	Label	Format
1	SITEID	Char	Site identifier	
2	KWHA	Num	Total 2002 annual electric use	
3	NORMKWHA	Num	Total 2002 weather norm electric use	
4	THMA	Num	Total 2002 annual gas use	
5	NORMTHMA	Num	Total 2002 weather normalized gas use	
6	KWH_1	Num	Monthly 2002 electric use (kWh)-Jan	
7	KWH_2	Num	Monthly 2002 electric use (kWh)-Feb	
8	KWH_3	Num	Monthly 2002 electric use (kWh)-Mar	
9	KWH_4	Num	Monthly 2002 electric use (kWh)-Apr	
10	KWH_5	Num	Monthly 2002 electric use (kWh)-May	
11	KWH_6	Num	Monthly 2002 electric use (kWh)-Jun	
12	KWH_7	Num	Monthly 2002 electric use (kWh)-Jul	
13	KWH_8	Num	Monthly 2002 electric use (kWh)-Aug	
14	KWH_9	Num	Monthly 2002 electric use (kWh)-Sep	
15	KWH_10	Num	Monthly 2002 electric use (kWh)-Oct	
16	KWH_11	Num	Monthly 2002 electric use (kWh)-Nov	
17	KWH_12	Num	Monthly 2002 electric use (kWh)-Dec	
18	NRMKWH1	Num	Monthly 2002 weather normalized kWh-Jan	
19	NRMKWH2	Num	Monthly 2002 weather normalized kWh-Feb	
20	NRMKWH3	Num	Monthly 2002 weather normalized kWh-Mar	
21	NRMKWH4	Num	Monthly 2002 weather normalized kWh-Apr	
22	NRMKWH5	Num	Monthly 2002 weather normalized kWh-May	
23	NRMKWH6	Num	Monthly 2002 weather normalized kWh-Jun	
24	NRMKWH7	Num	Monthly 2002 weather normalized kWh-Jul	
25	NRMKWH8	Num	Monthly 2002 weather normalized kWh-Aug	
26	NRMKWH9	Num	Monthly 2002 weather normalized kWh-Sep	
27	NRMKWH10	Num	Monthly 2002 weather normalized kWh-Oct	
28	NRMKWH11	Num	Monthly 2002 weather normalized kWh-Nov	
29	NRMKWH12	Num	Monthly 2002 weather normalized kWh-Dec	
30	THM_1	Num	Monthly 2002 gas use (therms)-Jan	
31	THM_2	Num	Monthly 2002 gas use (therms)-Feb	
32	THM_3	Num	Monthly 2002 gas use (therms)-Mar	
33	THM_4	Num	Monthly 2002 gas use (therms)-Apr	
34	THM_5	Num	Monthly 2002 gas use (therms)-May	
35	THM_6	Num	Monthly 2002 gas use (therms)-Jun	
36	THM_7	Num	Monthly 2002 gas use (therms)-Jul	
37	THM_8	Num	Monthly 2002 gas use (therms)-Aug	
38	THM_9	Num	Monthly 2002 gas use (therms)-Sep	

39	THM_10	Num	Monthly 2002 gas use (therms)-Oct
40	THM_11	Num	Monthly 2002 gas use (therms)-Nov
41	THM_12	Num	Monthly 2002 gas use (therms)-Dec
42	NRMTHM1	Num	Monthly 2002 weather norm gas use-Jan
43	NRMTHM2	Num	Monthly 2002 weather norm gas use-Feb
44	NRMTHM3	Num	Monthly 2002 weather norm gas use-Mar
45	NRMTHM4	Num	Monthly 2002 weather norm gas use-Apr
46	NRMTHM5	Num	Monthly 2002 weather norm gas use-May
47	NRMTHM6	Num	Monthly 2002 weather norm gas use-Jun
48	NRMTHM7	Num	Monthly 2002 weather norm gas use-Jul
49	NRMTHM8	Num	Monthly 2002 weather norm gas use-Aug
50	NRMTHM9	Num	Monthly 2002 weather norm gas use-Sep
51	NRMTHM10	Num	Monthly 2002 weather norm gas use-Oct
52	NRMTHM11	Num	Monthly 2002 weather norm gas use-Nov
53	NRMTHM12	Num	Monthly 2002 weather norm gas use-Dec

K.3 FORMAT DEFINITIONS

ALPHABETICAL FORMAT LIST

Value in Database	Description
bldgtyp	
1 DGR	Dry Goods Retail
2 GRO	Grocery
3 OFF	Office
4 RES	Restaurant
5 WAR	Warehouse
6 HOS	Hospital
7 OHE	Other Health
8 HTM	Hotel/Motel
9 SCH	School
10 UNI	University
11 OTH	Other
12 VAC	Vacant
cohort	
pre-88	Building in pre-88 cohort
1988-1994	Building in 1988-1994 cohort
1995-2001	Building in 1995-2001 cohort
condtyp	
A	Air-cooled
P	Air-cooled w/Pre-cooler
C	Close-approach
E	Evap-cooled
W	Water-cooled
cooleq	
MIX-NTLST	Mixed HVAC Not Listed
AIRS-HTPMP	Air-source Heat Pump
WATS-HTPMP	Water-source Heat Pump
H&C-WUNIT	Heat/Cool Wall/Window Unit
COOL-NTLST	Space Cooling Not Listed
EVAP-COOL	Evaporative Cooler
COOL-WUNIT	Window/Thru Wall Unit
DX-UNIT	Direct Expansion Unit
????-CHILL	Chiller (Unknown type)
ABS-CHILL	Absorption Chiller

CENT-CHILL	Centrifugal Chiller
RECP-CHILL	Reciprocating Chiller
DBUN-CHILL	Double Bundle Chiller
COOL-HTEX	Purchased Chilled Water Heat Exchanger

flrtyp

B	Basement
C	Crawl
S	Slab
BC	Basement + Crawl
U	Unconditioned

funcuse

1 DGR	Dry Goods Retail
2 GRO	Grocery
3 OFF	Office
4 RES	Restaurant
5 WAR	Warehouse
6 HOS	Hospital
7 OHE	Other Health
8 HTM	Hotel/Motel
9 SCH	School
10 UNI	University
11 OTH	Other
12 VAC	Vacant
13 COM	Common Area / Lobby
14 PRK	Parking

heateq

MIX-NTLST	Mixed HVAC Not Listed
AIRS-HTPMP	Air-source Heat Pump
WATS-HTPMP	Water-source Heat Pump
H&C-WUNIT	Heat/Cool Wall/Window Unit
HEAT-NTLST	Space Heating Not Listed
ELEC-BASE	Electric Baseboard
HTW-BOIL	Water Boiler
STM-BOIL	Steam Boiler
FURNACE	Furnace
RES-HEAT	Resistance Heater
DUCT-HEAT	Duct Heater
HTON-HTPMP	Heat Only Heat Pump
INFRD-HEAT	Infrared Heater

UNIT-HEAT	Unit Heater
UNIT-VENT	Unit Ventilator
WOODSTOVE	Woodstove
HEAT-HTEX	Steam/Heat Recovery Heat Exchanger

hidtype

MV	Mercury Vapor
MH	Metal Halide
H	High Pressure Sodium
L	Low Pressure Sodium
N	Neon

hvac_cd

11	BOILER/CHILLER
12	DUCT HT/CHILLER
13	H2O LOOP HT PUMP
14	BOILER ONLY
15	CHILLER ONLY
21	PKG:HEAT/DX COOL
22	DUCT HT/DX COOL
23	AIR-AIR HT PUMP
24	PKG HEAT ONLY
25	DX COOL ONLY
26	EVAP COOL ONLY
27	PKG:HT/EVAP CL
28	HT REC/DX COOL
29	HT REC ONLY
31	UNIT HEAT/AC
32	COMBO HT/AC UNIT
33	UNIT HT ONLY
34	UNIT CL ONLY
41	BOILER/DX COOL
42	BOILER/UNIT AC
47	PKG HT/UNIT COOL
51	AIR HTPMP/BOILER
61	NO HVAC

iou

0	Public Utility
1	Private Utility (IOU)

owner

I	Individual
C	Corporation
R	Religious
F	Federal Gov
L	Local/State Gov
S	Syndicated Partnership (REIT)
P	Other Partnership
N	Non Gov Institution
U	University/College
O	Other

pool

P	Pool

pstcode

A	Pre and post both looked at the addition (pre-post are the same). Occurs where there is no pre (pre is the same as post).
P	Partial Building (pre-post CAN be done - both looked at the same part of the building - unless pre code is also P)
P2	Partial Building - Pre post can't be done (post looked at a subset of pre). Pre post can't be done even if pre code is blank.
A3	Post Addition (can run pre post except when there are codes in pre)

precode

A	Addition - pre-post can't be done
A2	Addition where pre-post can be done (pre and post surveys both looked at entire building, addition amount noted in SQFT Addition)
M	Moved cohort assignment (most of the square footage is in later cohort, pre-post not possible?)
P	Partial Building (pre-post can't be done)
R	Remodel (no pre post)

pridist

DIST-NTLST	Distribution System Not Listed
RADIATOR	Radiator
HYD-BASE	Hydronic Baseboard System
TWOP-FANC	2 Pipe, Fan Coil
TWOP-INDUC	2 Pipe, Induction Unit
TWOP-RADPL	2 Pipe, Radiant Panel
THRP-FANC	2 Pipe, Fan Coil
THRP-INDUC	2 Pipe, Induction Unit
THRP-RADPL	2 Pipe, Radiant Panel
FORP-FANC	4 Pipe, Fan Coil

FORP-INDUC	4 Pipe, Induction Unit
FORP-RADPL	4 Pipe, Radiant Panel
SDS-VARVOL	AIR Single Duct, Variable Volume
SDS-CONVOL	AIR Single Duct, Constant Volume
DDS-VARVOL	AIR Dual Duct, Variable Volume
DDS-CONVOL	AIR Dual Duct, Constant Volume
MZS-VARVOL	AIR Multi-Zone, Variable Volume
MZS-CONVOL	AIR Multi-Zone, Constant Volume
DIST-MZS	AIR Multi-Zone
DIST-VVT	AIR Variable Volume, Variable Temperature
UNITARY	UNITARY

roofdk

C	Concrete
M	Metal
W	Wood

roofsrf

B	Built-up
BM	Built-up + Metal
ME	Metal + Membrane
MS	Metal + Shingles/Felt
C	Cool Roof
E	Membrane
M	Metal
S	Shingles/Felt

singl

S	Single building
M	Multiple Buildings

state

ID	Idaho
OR	Oregon
MT	Montana
WA	Washington
WY	Wyoming

status

Func	Functional
Vac	Vacant

survtyp

Scheduled	Scheduled: A Full, Detailed Survey
Walk-In	Walk-in: A Moderately Detailed Survey
Drive-By	Drive-by: A Cursory Survey
Hos_Uni	Survey Designed For Hospital And University Complexes
Phone	Telephone Survey

wallfrm

M	Metal
W	Wood
MW	Metal + Wood

wallsrf

B	Brick
C	Concrete
CB	Concrete Block
W	Wood
BF	Brick + Wood
BM	Brick + Metal
M	Metal

watrtyp

1	Heat Pump
2	Heat Recovery
3	Instantaneous (tankless)
4	Self-Contained
5	Storage Tank (Central Boiler)
6	Other

winfrme

M	Metal
V	Vinyl
W	Wood

winglaz

C	Clear
O	Opaque
R	Reflective
T	Tinted

wingle

G	Gas-filled
L	Low-E
N	N: Neither

wintype

F	Fixed
O	Operable

yesno

0	No
1	Yes

zone

1	Zone 1: 4000-6000 HDD
2	Zone 2: 6000-8000 HDD
3	Zone 3: Over 8000 HDD