

**NRNC MARKET CHARACTERIZATION AND  
PROGRAM ACTIVITIES TRACKING REPORT  
PY2000**

**FINAL**

**Prepared for**

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## **TABLE OF CONTENTS**

| <b>Section</b>      |   | <b>Page</b> |
|---------------------|---|-------------|
| 1                   | <b>EXECUTIVE SUMMARY</b>                                      | 1-1         |
|                     | 1.1 NRNC Market Characterization                              | 1-1         |
|                     | 1.2 Savings By Design Program Tracking and Penetration        | 1-2         |
| 2                   | <b>INTRODUCTION</b>   | 2-1         |
|                     | 2.1 NRNC Data Sources   | 2-1         |
|                     | 2.2 The Savings By Design Program                             | 2-2         |
|                     | 2.3 Report Layout   | 2-2         |
| 3                   | <b>STATEWIDE NONRESIDENTIAL NEW CONSTRUCTION TRENDS</b>       | 3-1         |
|                     | 3.1 New Construction Market Characteristics in PY2000         | 3-1         |
|                     | 3.2 SBD New Construction Program Participation in PY2000      | 3-11        |
| 4                   | <b>STATEWIDE NONRESIDENTIAL ALTERATION (R&amp;R) TRENDS</b>   | 4-1         |
|                     | 4.1 Alteration (R&R) Market Characteristics in PY2000         | 4-1         |
|                     | 4.2 SBD R&R Program Participation in PY2000                   | 4-7         |
| 5                   | <b>SBD PROGRAM PENETRATION INTO THE NRNC MARKET IN PY2000</b> | 5-1         |
| 6                   | <b>NRNC MARKET AND PROGRAM TRACKING SUMMARY</b>               | 6-1         |
| 7                   | <b>MARKET PLAYERS IN PY2000</b>                               | 7-1         |
| <br><b>Appendix</b> |   |             |
| A                   | <b>GLOSSARY OF BUILDING TYPES RECORDED BY F.W. DODGE</b>      | A-1         |
| B                   | <b>CIRB NRNC PERMIT VALUE IN PY2000</b>                       | B-1         |
| C                   | <b>TITLE 24 CONSTRUCTION SPECIFICATIONS FROM Q3-4 1999</b>    | C-1         |
| D                   | <b>TITLE 24 CONSTRUCTION SPECIFICATIONS FROM Q3-4 2000</b>    | D-1         |
| E                   | <b>CEC ZIP CODE – TO – UTILITY MAPPING</b>                    | E-1         |
| F                   | <b>GLOSSARY OF MEASURES IMPLEMENTED BY SBD PARTICIPANTS</b>   | F-1         |

## **1. EXECUTIVE SUMMARY**

This section presents a summary of the results from the statewide Market Characterization and Program Activities Tracking (MCPAT) Study. The Market Characterization conducted by the MCPAT Study is an integral part of the statewide Market Assessment and Evaluation activities, and is intended to inform policymakers, regulators, stakeholders, as well as program managers, implementers and evaluators about the characteristics of the California nonresidential new construction (NRNC) market and its segments. The Program Activities Tracking part of the MCPAT study focuses on the accomplishments of the statewide NRNC Savings By Design (SBD) Program, and describes the ways in which the SBD Program fits into the NRNC market. The activities described in this report cover new construction and remodel/renovation/tenant improvement projects from calendar year 2000.

### **1.1 MARKET CHARACTERIZATION**

The market characterization part of the MCPAT Study consists of developing an understanding of the characteristics of the California NRNC market and its segments. This task requires quarterly data collection to capture and describe changes in the NRNC market. Specifically, F.W. Dodge data were collected quarterly, and reports describing nonresidential construction value and volume, building types, building size, and design team characteristics were produced statewide, and by investor owned utility (IOU) territory. These reports are meant to allow program designers, implementers, evaluators, and market participants to determine the extent to which the NRNC market changes over a given period of time, understand how energy efficient practices are implemented into the market, and if necessary, modify the SBD Program to most effectively enhance energy efficiency practices in the new construction market. A summary of statewide findings is presented in Table 1.1.

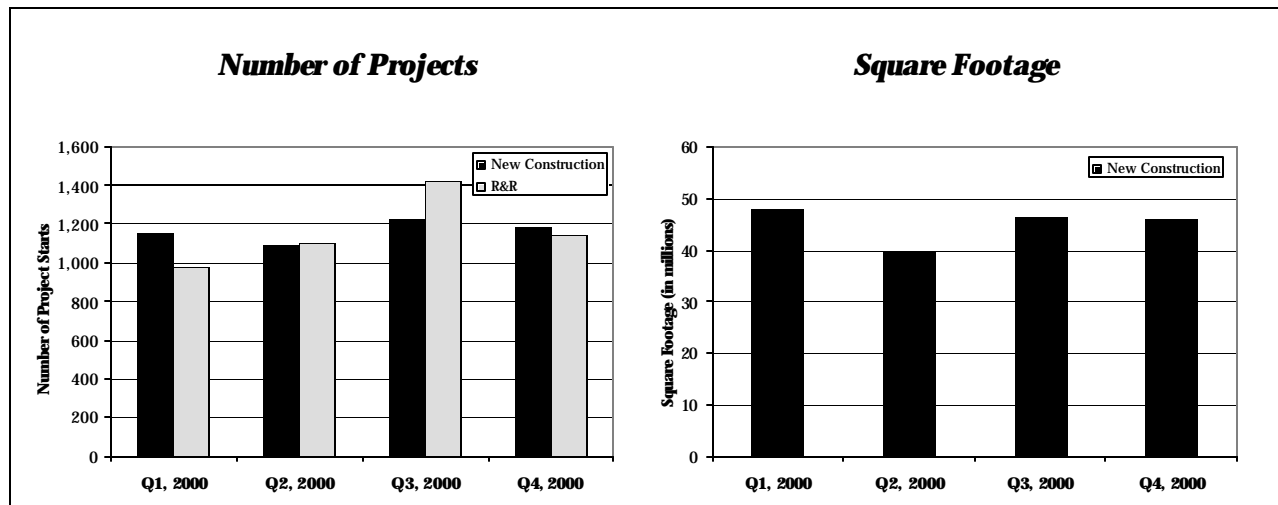
**Table 1.1 Market Summary of Project Starts in California**

| Project Type         | Quarter  | Value<br>(\$ billions) | Area<br>(millions of sqft) | Number of<br>Projects |
|----------------------|----------|------------------------|----------------------------|-----------------------|
| New and<br>additions | Q1, 2000 | 3.004                  | 48.08                      | 1,160                 |
|                      | Q2, 2000 | 2.855                  | 39.77                      | 1,096                 |
|                      | Q3, 2000 | 3.890                  | 46.31                      | 1,227                 |
|                      | Q4, 2000 | 3.500                  | 45.99                      | 1,191                 |
|                      | Subtotal | 13.249                 | 180.15                     | 4,674                 |
| Alterations          | Q1, 2000 | 0.710                  | -                          | 983                   |
|                      | Q2, 2000 | 0.958                  | -                          | 1,101                 |
|                      | Q3, 2000 | 0.959                  | -                          | 1,425                 |
|                      | Q4, 2000 | 0.813                  | -                          | 1,145                 |
|                      | Subtotal | 3.440                  | -                          | 4,654                 |
| <b>Total</b>         |          | <b>16.689</b>          | <b>-</b>                   | <b>9,328</b>          |

F.W. Dodge data indicate that there were over 9,000 nonresidential projects that started construction in California in calendar year 2000, equally divided between new construction and alteration projects. The value of new construction projects, however, was more than

four times greater than of alterations. There was little variation in the overall market activity from quarter to quarter, as well as geographically and by building type.

**Exhibit 1.1**  
**F.W. Dodge Nonresidential Project Starts by Quarter**



In addition to F.W. Dodge NRNC market data, a sample of *electronic* Title 24 compliance documentation was collected to record current construction practices and levels of energy efficiency achieved in the NRNC market. The results are representative of those designs for which compliance documentation was prepared electronically, and show that efficient lighting fixtures (CFL, T8 and T5) represent a significantly higher percentage of the total specified wattage than standard efficiency lighting fixtures. Unitary systems account for most of the cooling capacity, and gas furnaces and boilers account for a large fraction of the heating capacity specified. The ventilation systems continue to offer significant potential for energy savings, as most of the fan motors specified are standard efficiency motors. Envelope designs are almost equally distributed among wood, metal and concrete structures. Most of the glazing surface specified is tinted glass.

**1.2 SAVINGS BY DESIGN PROGRAM TRACKING AND PENETRATION**

The second objective of the MCPAT Study is to track the activities surrounding the Savings By Design (SBD) NRNC program, and to evaluate its penetration levels in the overall NRNC market. The task requires the collection and analysis of the internal tracking systems maintained by each of the IOUs. The tracking systems contain data regarding the number of participants in the SBD program, type and size of projects, geographic locations, energy savings and measures installed through the program.

Results indicate that SBD program participation is high in the building segments with significant market activity, namely office, retail and school. Among the measures installed by program participants, unitary HVAC systems and lighting measures are the most popular. However, whole building design accounts for the highest estimated energy savings in new construction projects, and daylighting and lighting measures produce the highest estimated energy savings in R&R projects.

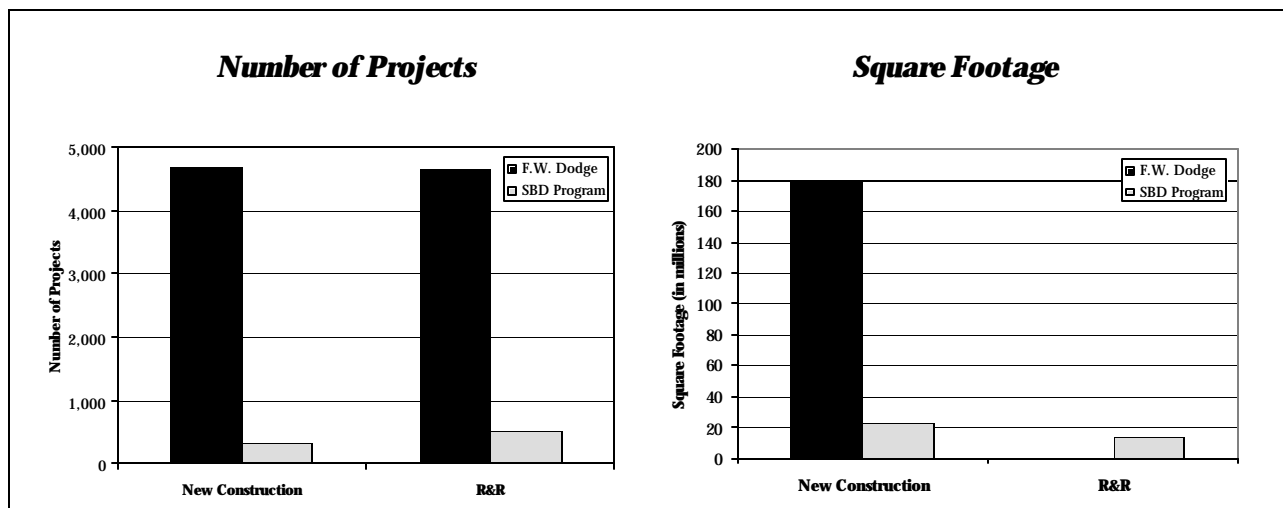
The SBD program data were used in conjunction with the NRNC market data collected in the first part of the Study to prepare quarterly SBD program tracking and penetration analysis reports. A summary of statewide program penetration is presented in Table 1.2.

**Table 1.2 Summary of Statewide SBD Program Penetration**

| Project Type         | Quarter  | Dodge Area<br>(millions of sqft) | SBD Area<br>(millions of sqft) | %Area<br>Penetration | F.W. Dodge<br>Projects | SBD<br>Participants | %Projects<br>Penetration |
|----------------------|----------|----------------------------------|--------------------------------|----------------------|------------------------|---------------------|--------------------------|
| New and<br>additions | Q1, 2000 | 48.08                            | 2.00                           | 4.2%                 | 1,160                  | 19                  | 1.6%                     |
|                      | Q2, 2000 | 39.77                            | 5.86                           | 14.7%                | 1,096                  | 70                  | 6.4%                     |
|                      | Q3, 2000 | 46.31                            | 5.22                           | 11.3%                | 1,227                  | 74                  | 6.0%                     |
|                      | Q4, 2000 | 45.99                            | 9.71                           | 21.1%                | 1,191                  | 152                 | 12.8%                    |
|                      | Subtotal | 180.15                           | 22.80                          | 12.7%                | 4,674                  | 315                 | 6.7%                     |
| Alterations<br>(R&R) | Q1, 2000 | -                                | 4.01                           | -                    | 983                    | 26                  | 2.6%                     |
|                      | Q2, 2000 | -                                | 2.69                           | -                    | 1,101                  | 36                  | 3.3%                     |
|                      | Q3, 2000 | -                                | 1.82                           | -                    | 1,425                  | 37                  | 2.6%                     |
|                      | Q4, 2000 | -                                | 4.75                           | -                    | 1,145                  | 86                  | 7.5%                     |
|                      | Subtotal | -                                | 13.27                          | -                    | 4,654                  | 185                 | 4.0%                     |
| <b>Total</b>         |          | -                                | 36.07                          | -                    | 9,328                  | 500                 | 5.4%                     |

Results for PY2000 indicate that the SBD program captured 6.7% of the nonresidential new construction projects and 4.0% of the R&R projects. By square footage, program penetration into the new construction market is 12.7%, indicating that the program is reaching relatively large buildings. Significant opportunities remain for increased program penetration into the market, for example through sustained networking with the most active designers (Chapter 7) and with building officials.

**Exhibit 1.2  
Statewide SBD Program Penetration into the CNC Market**



The remainder of this report presents detailed market and program tracking and penetration results.

## **2. INTRODUCTION**

The statewide Market Characterization and Program Activity Tracking (MCPAT) Study was commissioned to track trends in the nonresidential new construction (NRNC) market, as well as participation in the Savings By Design statewide NRNC program, in PY2000 – 2001. The publication of results on a quarterly basis allows program designers, implementers, evaluators, and market participants to determine the extent to which the NRNC market changes over a given period of time, understand how energy efficiency practices are implemented in the NRNC market, and if necessary, modify the SBD Program to most effectively enhance energy efficiency practices in the new construction market. This Final Report for PY2000 summarizes the NRNC market and SBD Program tracking and penetration results to date.

### **2.1 NRNC DATA SOURCES**

The MCPAT Study conducts the NRNC market characterization using several sources of information. The most important among these are the F.W. Dodge Reports, which provide detailed project information on construction projects that have *started* within a given time period (e.g. a quarter). F.W. Dodge Reports specify project title and location, type of project (new, addition or alteration), type of building under construction, area (square feet) of new or added space, project cost (valuation), and contact information (owner, architect, engineer, contractor, as available). Appendix A contains a glossary of building types tracked by F.W. Dodge.

Regarding project types, F.W. Dodge Reports make a clear distinction between new/addition projects, in which new building area is produced, and alteration projects (which include remodeling, renovation, tenant improvement, and retrofit projects). Even though retrofit projects do not qualify for the SBD program, the F.W. Dodge alteration data remain the best available source of information regarding the commercial remodel/renovation (R&R) market.

The building permit data that were filed with the more than 515 city and county building departments in California represent another source of NRNC data. These permit data are collected by the Construction Industry Research Board (CIRB) into a database that reports monthly permit value data by county and building type. While these data are not as complete as the F.W. Dodge Reports, they provide a framework for the value of commercial projects in California that begin construction in each quarter.

It must be noted that there are differences between the *permit* valuation reported by CIRB and the *project start* valuation reported by F.W. Dodge. Some of these differences are attributable to the time delay that naturally occurs between permit filing and construction start. Others are attributable to the fact that F.W. Dodge records publicly-bid projects, whereas some projects do not go to public bid. Appendix B summarizes the value of nonresidential *permits filed* in PY2000, by building type, as recorded by the CIRB.

In addition to F.W. Dodge and CIRB data, the MCPAT Study collected samples of electronic Title 24 documentation filed in the Second Half of 1999 and Second Half of 2000. The samples represent approximately 10% of both the new construction and remodel and renovation markets in California. Appendices C and D summarize current market practice in years 1999 and 2000 respectively, as reflected in the electronic Title 24 compliance documents.

## **2.2 THE SAVINGS BY DESIGN PROGRAM**

The Savings By Design (SBD) statewide NRNC program, currently implemented by the three California electric investor-owned utilities (IOUs) PG&E, SCE, and SDG&E, is designed to transform energy-efficiency investment behavior in the commercial construction market. The program seeks to change the design practice of professionals in the construction industry by promoting the understanding and use of energy efficient and integrated design techniques in commercial building construction; to increase awareness of building owners of the benefits associated with integrated designs; and to increase the penetration of energy efficient materials, equipment, and systems in the commercial building market.

The SBD program targets specific links in the commercial building construction decision-making chain, reflecting differences in design activities and priorities between large and small buildings and various occupancies. The Whole Building Approach is used for complex projects where the design team can work closely to integrate the energy systems. The Systems Approach is used for projects where design of the energy systems is done at different phases: where one energy system predominates, where intervention occurs late in the design, or for buildings with simple system interactions.

Within the SBD program, “new construction” program elements address the commercial new construction market segments, including the public, private, and speculative markets. Remodeling and renovation (“R&R”) program elements address the commercial remodeling and renovation market segments specific to “gut-rehabilitation” and tenant improvement projects, including the public, private, and speculative markets.

## **2.3 REPORT LAYOUT**

The core of this report starts in Chapter 3 with a characterization of the NRNC market in PY2000, as described by F.W. Dodge. Drawing on the Savings By Design program participation databases maintained by the three California electric investor-owned utilities (IOUs) PG&E, SCE, and SDG&E, the chapter then summarizes the characteristics of new construction program participants in PY2000.

Chapter 4 presents the market characteristics for alteration projects, as described by F.W. Dodge. It then describes program participation in PY2000 for the renovation/remodel/first tenant improvement (R&R) element of the SBD program.

An evaluation of SBD program penetration into the market in PY2000 is presented in Chapter 5.

Quarterly market and SBD participation data, as well as estimates for the SBD program penetration into the market from program inception in July 1999, are summarized in Chapter 6.

Based on F.W. Dodge Reports, Chapter 7 presents the most active market actors (architects and engineers) in PY2000.

### 3. STATEWIDE NONRESIDENTIAL NEW CONSTRUCTION TRENDS

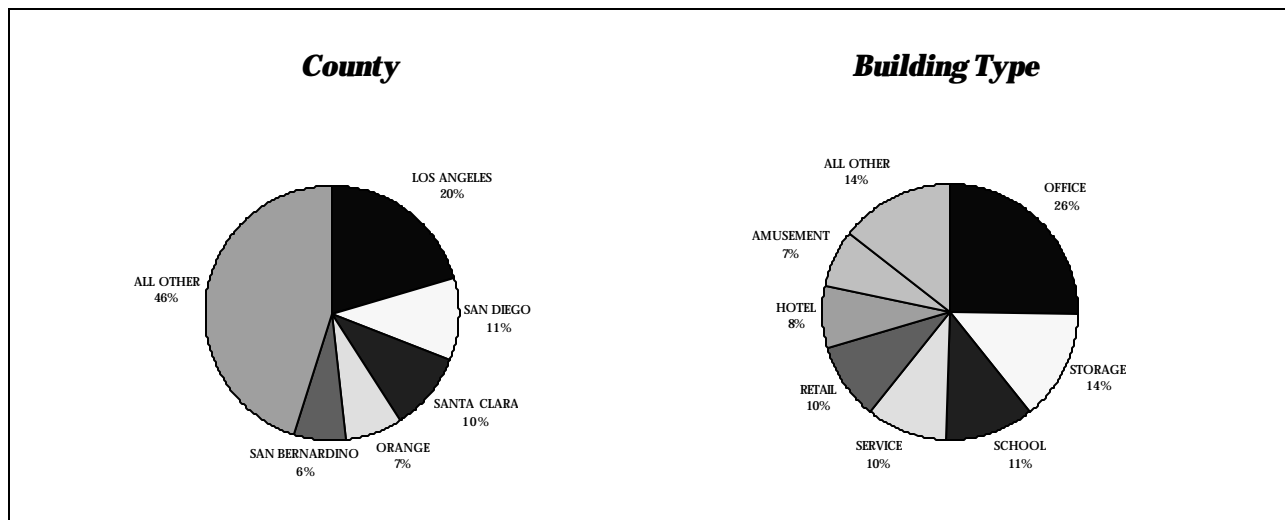
This chapter presents information on the nonresidential new construction activity that has occurred in PY2000, in the State of California. The first section covers the total valuation, the number of project starts, and the total square footage of new construction projects by county, as reported by F.W. Dodge. The second section analyzes the Savings By Design (SBD) program activity for new construction projects for which the IOUs have committed funds in PY2000.

#### 3.1 NEW CONSTRUCTION MARKET CHARACTERISTICS IN PY2000

The following exhibits present the nonresidential new construction market activity by building segment and county, in terms of valuation, number of permits, and square feet. To summarize the market activity by utility territory, project zip codes were used in conjunction with California Energy Commission's zip code-to-utility territory mapping to allocate projects to IOU and non-IOU utilities. Appendix E contains a short description of the CEC zip code-to-utility territory mapping.

Table 3.1 presents the F.W. Dodge valuation for nonresidential new construction projects that have started construction during PY2000. To emulate SBD program scope as closely as possible, additions reported by F.W. Dodge were included with new construction; this explains the higher project value reported by F.W. Dodge, as compared to the CIRB data summarized in Appendix B. As shown in Exhibit 3.1 below, Los Angeles, San Diego, Santa Clara, Orange and San Bernardino Counties account for the highest value of projects that *have started construction* in PY2000. F.W. Dodge did not report any project starts in PY2000 in Colusa, Del Norte, Glenn and Sierra Counties.

**Exhibit 3.1**  
**New Construction Market Segments with the Highest Project Start Valuation in PY2000**



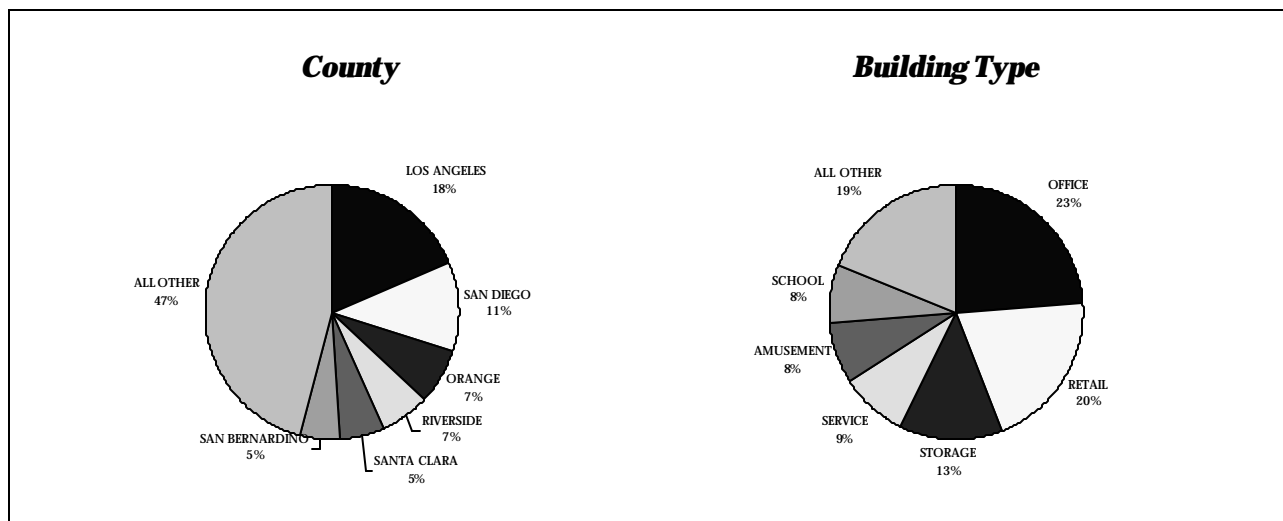


Among building types, office, storage, school and retail account for the highest project start valuation, but service, hotel and amusement also show relatively high market activity. The assembly (churches) and education (museums, libraries) segments account for the lowest project start value.

Among utility territories, PG&E accounts for the largest project start value in PY2000, a large fraction of which is concentrated in the office and school segments. SCE follows, with a large fraction of the project value concentrated in the storage and retail segments. In the SDG&E service territory, the hotel and office segments account for the highest project start value. Non-IOU areas, consisting of the service territories of multiple municipal utilities and other entities, also account for a relatively large share of the project start value. A large fraction of the Non-IOU project value is concentrated in the office and services segments.

Table 3.2 presents the number of nonresidential new construction and addition projects that have started construction in PY2000, as reported by F.W. Dodge. As shown in Exhibit 3.2, Los Angeles, San Diego, Orange, Riverside, Santa Clara and San Bernardino Counties have the highest number of new construction project starts. Among building types, office, retail and storage account for the highest number of project starts, while the education segment (museums, libraries) accounts for the lowest number of project starts in PY2000. Among utility territories, PG&E leads with the highest number of project starts, closely followed by SCE. SDG&E accounts for the smallest number of project starts. Non-IOU areas have a significant number of project starts, approximately double when compared to the number in SDG&E territory.

**Exhibit 3.2**  
**New Construction Market Segments with the Highest Number of Project Starts in PY2000**

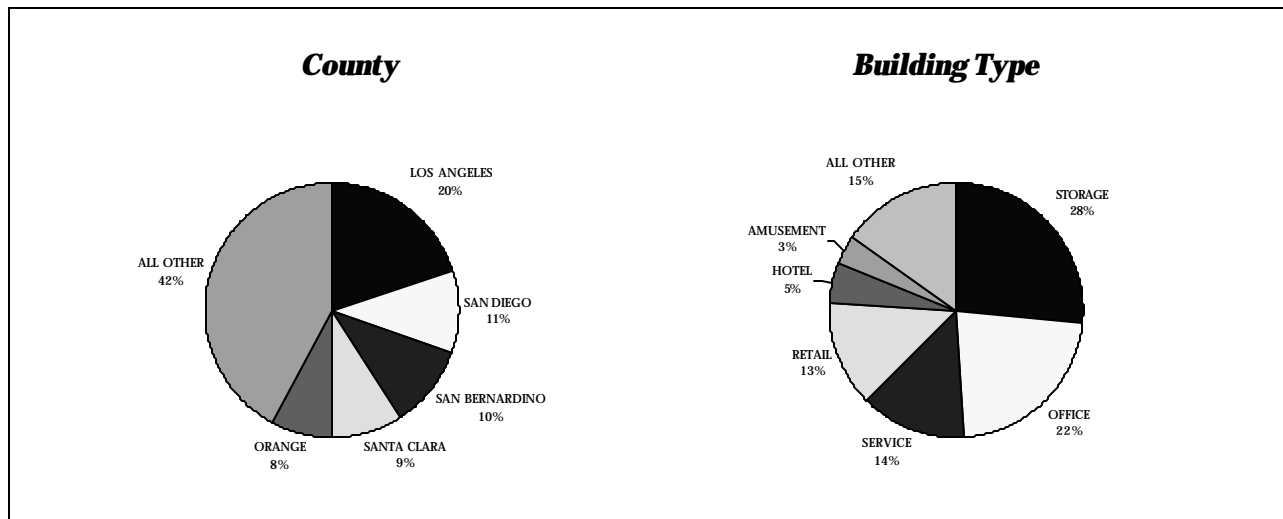


Tables 3.3 and 3.4 summarize quarterly project starts by county and building type. There is little variation from quarter to quarter in the number of project starts by segment.

Table 3.5 presents the number of square feet of nonresidential new construction and addition projects that have started construction in PY2000, as reported by F.W. Dodge. As shown in

Exhibit 3.3 below, the counties with the largest number of square feet attributable to new project starts are Los Angeles, San Diego, San Bernardino, Santa Clara and Orange. The storage, office, retail and service segments account for large square footage of new space, while the education segment accounts for the least amount of new space built in PY2000.

**Exhibit 3.3**  
**New Construction Market Segments with the Highest Square Footage in PY2000**



Among utility territories, PG&E accounts for the largest number of new square feet built in PY2000, almost half of which is concentrated in the office and service segments. SCE follows closely, with over half of the square footage concentrated in the storage segment. In the SDG&E service territory, the office, hotel and retail segments account for the highest square footage built. Non-IOU areas, consisting of the service territories of multiple municipal utilities and other entities, also account for a relatively large share of the new square footage built in PY2000. A large fraction of the Non-IOU project area is concentrated in the office, service and storage segments.

Tables 3.6 and 3.7 summarize quarterly square feet of nonresidential new construction built, by county and building type. Again, the volume of new space built does not change much from quarter to quarter, either geographically or by building type.

**Table 3.1 F.W. Dodge Valuation of New Construction Project Starts in PY2000  
by Building Type, County and Service Territory (\$1,000)**

| COUNTY          | AMUSEMENT | ASSEMBLY | EDUCATION | GOVT    | HOTEL     | MEDICAL | OFFICE    | RETAIL    | SCHOOL    | SERVICE   | STORAGE   | OTHER   | TOTAL      |
|-----------------|-----------|----------|-----------|---------|-----------|---------|-----------|-----------|-----------|-----------|-----------|---------|------------|
| ALAMEDA         | 10,669    | 5,318    | .         | 2,706   | 72,773    | 4,000   | 230,510   | 33,169    | 66,184    | 45,702    | 65,408    | 49,264  | 585,703    |
| ALPINE          | 1,500     | .        | .         | .       | .         | .       | .         | .         | .         | .         | .         | .       | 1,500      |
| AMADOR          | .         | .        | .         | 55      | .         | .       | 335       | .         | .         | 150       | 117       | 176     | 833        |
| BUTTE           | 9,659     | 750      | .         | .       | .         | 14,000  | 8,429     | 5,350     | 699       | 600       | 2,433     | 4,000   | 45,920     |
| CALAVERAS       | 665       | .        | 150       | .       | 3,000     | .       | .         | .         | .         | .         | 200       | 162     | 4,177      |
| COLUSA          | .         | .        | .         | .       | .         | .       | .         | .         | .         | .         | .         | .       | 0          |
| CONTRA COSTA    | 29,177    | 3,411    | 12,978    | 3,701   | 10,000    | 27,984  | 31,651    | 31,762    | 52,002    | 49,431    | 11,674    | 30,771  | 294,542    |
| DEL NORTE       | .         | .        | .         | .       | .         | .       | .         | .         | .         | .         | .         | .       | 0          |
| EL DORADO       | 1,494     | .        | .         | 1,760   | 65,000    | .       | 53,715    | 17,776    | 5,546     | 700       | 1,447     | 279     | 147,717    |
| FRESNO          | 12,752    | 10,586   | 1,779     | 7,417   | 3,980     | 6,330   | 14,188    | 19,604    | 44,537    | 18,914    | 29,305    | 26,878  | 196,270    |
| GLENN           | .         | .        | .         | .       | .         | .       | .         | .         | .         | .         | .         | .       | 0          |
| HUMBOLDT        | 5,000     | .        | 8,346     | .       | .         | 1,800   | .         | .         | .         | 932       | .         | .       | 16,078     |
| IMPERIAL        | 842       | 2,603    | .         | .       | 3,682     | .       | 4,699     | 815       | 1,197     | 172       | 6,739     | 2,353   | 23,102     |
| INYO            | .         | .        | .         | .       | .         | 1,500   | .         | 5,600     | .         | .         | .         | 155     | 7,255      |
| KERN            | 6,393     | 592      | .         | 5,092   | 2,503     | 19,839  | 13,909    | 14,932    | 30,223    | 3,317     | 15,944    | 2,804   | 115,548    |
| KINGS           | 8,200     | .        | 15,000    | .       | .         | 1,800   | 1,578     | .         | 6,828     | .         | 2,876     | .       | 36,282     |
| LAKE            | .         | 1,270    | .         | 375     | .         | 990     | 337       | .         | .         | 96        | 586       | 78      | 3,732      |
| LASSEN          | .         | .        | .         | .       | .         | .       | .         | .         | 1,425     | .         | .         | .       | 1,425      |
| LOS ANGELES     | 322,768   | 39,010   | 49,377    | 112,930 | 133,313   | 287,860 | 304,348   | 310,705   | 309,460   | 339,438   | 440,392   | 62,743  | 2,712,344  |
| MADERA          | 1,953     | .        | .         | 9,126   | .         | .       | 110       | 3,004     | .         | .         | 915       | .       | 15,108     |
| MARIN           | 3,500     | .        | .         | .       | 6,000     | 3,999   | 33,827    | 8,090     | 5,595     | .         | 674       | .       | 61,685     |
| MARIPOSA        | .         | .        | 1,376     | .       | .         | .       | .         | .         | .         | .         | .         | .       | 1,376      |
| MENDOCINO       | .         | 1,250    | 1,000     | .       | .         | 1,800   | .         | .         | .         | .         | 650       | .       | 4,700      |
| MERCED          | 10,294    | .        | .         | .       | .         | .       | 3,364     | 3,205     | 46,572    | 1,334     | 2,145     | 743     | 67,657     |
| MODOC           | .         | .        | .         | .       | .         | 650     | .         | .         | .         | .         | .         | .       | 650        |
| MONO            | .         | .        | .         | .       | .         | .       | .         | .         | 287       | .         | 500       | .       | 787        |
| MONTEREY        | 8,215     | 1,250    | .         | .       | 5,000     | .       | 9,950     | 4,645     | 15,181    | 800       | 6,738     | 2,989   | 54,768     |
| NAPA            | 3,558     | .        | 1,500     | .       | 17,700    | .       | 8,224     | 5,845     | .         | 750       | 4,817     | 8,510   | 50,904     |
| NEVADA          | 6,448     | 195      | 3,616     | 4,380   | .         | .       | 3,279     | 750       | 2,313     | .         | 2,029     | 977     | 23,987     |
| ORANGE          | 62,110    | 16,280   | .         | 4,689   | 109,288   | 25,722  | 273,553   | 116,765   | 80,255    | 132,577   | 114,319   | 10,331  | 945,889    |
| PLACER          | 13,979    | 6,981    | .         | .       | .         | 159     | 35,245    | 64,113    | 33,047    | 16,050    | 9,415     | 17,799  | 196,788    |
| PLUMAS          | .         | .        | .         | 1,000   | .         | .       | .         | .         | .         | 254       | 1,742     | 99      | 3,095      |
| RIVERSIDE       | 43,231    | 13,609   | 1,220     | 36,900  | 6,313     | 27,783  | 71,676    | 116,656   | 40,681    | 26,864    | 201,380   | 19,166  | 605,479    |
| SACRAMENTO      | 22,718    | 10,229   | .         | 4,662   | 22,900    | 33,777  | 378,869   | 84,263    | 79,640    | 17,382    | 45,994    | 12,432  | 712,866    |
| SAN BENITO      | .         | .        | .         | .       | .         | .       | 271       | 99        | 4,708     | .         | 3,461     | 9,098   | 17,637     |
| SAN BERNARDINO  | 28,009    | 3,686    | .         | 4,545   | 5,696     | 14,791  | 30,273    | 88,500    | 72,907    | 15,936    | 580,444   | 13,219  | 856,006    |
| SAN DIEGO       | 40,512    | 13,939   | 12,027    | 9,754   | 345,353   | 63,641  | 295,663   | 156,904   | 178,652   | 143,889   | 122,404   | 42,337  | 1,425,075  |
| SAN FRANCISCO   | 177,367   | 2,000    | .         | 37,500  | 6,099     | .       | 384,355   | 42,945    | 2,138     | 93,412    | 470       | 11,573  | 757,859    |
| SAN JOAQUIN     | 4,800     | 7,703    | .         | 7,374   | .         | 480     | 41,244    | 18,147    | 38,926    | 2,570     | 34,534    | 33,785  | 189,563    |
| SAN LUIS OBISPO | 5,355     | 4,579    | .         | .       | 14,463    | 2,007   | 8,219     | 23,549    | 10,054    | 784       | 26,246    | 10,681  | 105,937    |
| SAN MATEO       | 18,856    | 4,600    | 4,295     | 5,298   | 75,300    | 265     | 223,108   | 8,751     | 34,759    | 210,391   | 5,445     | 187     | 591,255    |
| SANTA BARBARA   | 4,227     | 6,359    | .         | .       | 4,715     | 10,170  | 22,169    | 15,009    | 30,008    | 9,175     | 14,074    | 5,845   | 121,751    |
| SANTA CLARA     | 24,428    | 7,132    | 102,000   | 5,492   | 67,355    | 32,260  | 710,827   | 19,739    | 84,550    | 186,951   | 8,459     | 78,120  | 1,327,313  |
| SANTA CRUZ      | 3,410     | 2,605    | 5,149     | 1,162   | 1,500     | .       | 358       | 150       | 33,700    | 200       | 9,375     | 2,468   | 60,077     |
| SHASTA          | 14,000    | 185      | .         | .       | .         | 5,168   | 592       | 10,679    | 1,313     | 1,510     | 3,100     | 22,456  | 59,003     |
| SIERRA          | .         | .        | .         | .       | .         | .       | .         | .         | .         | .         | .         | .       | 0          |
| SISKIYOU        | 2,300     | .        | .         | 138     | .         | .       | 5,798     | 1,025     | .         | 494       | .         | 2,000   | 11,755     |
| SOLANO          | 15,311    | 5,500    | .         | 86      | .         | 8,500   | 13,504    | 25,494    | .         | 1,050     | 10,560    | 206     | 80,211     |
| SONOMA          | 10,926    | .        | 2,346     | 13,189  | 20,397    | 2,150   | 48,285    | 11,380    | 26,717    | 301       | 16,706    | 9,404   | 161,801    |
| STANISLAUS      | 3,590     | 2,500    | .         | .       | 3,150     | 3,276   | 1,312     | 26,691    | 73,307    | 762       | 373       | 1,354   | 116,315    |
| SUTTER          | .         | .        | .         | .       | .         | .       | .         | 300       | .         | .         | .         | 248     | 548        |
| TEHAMA          | 1,120     | 900      | .         | 212     | .         | .       | 278       | 401       | 5,019     | .         | 84        | 166     | 8,180      |
| TRINITY         | .         | .        | .         | 2,645   | 500       | .       | .         | .         | 555       | .         | .         | .       | 3,700      |
| TULARE          | 1,200     | .        | .         | .       | 3,500     | 844     | 2,500     | .         | 36,475    | .         | 1,254     | 909     | 46,682     |
| TUOLUMNE        | 1,500     | 655      | .         | .       | .         | 60,500  | 185       | 624       | 6,168     | .         | 492       | 499     | 70,623     |
| VENTURA         | 17,586    | 2,533    | 1,934     | 11,767  | 2,409     | 18,750  | 60,219    | 23,205    | 8,187     | 6,747     | 24,963    | 16,500  | 194,800    |
| YOLO            | 93        | 2,530    | 100       | 6,800   | .         | 1,430   | 3,047     | 1,500     | 47,578    | 392       | 31,355    | 1,880   | 96,705     |
| YUBA            | .         | .        | .         | 8,230   | .         | .       | .         | .         | .         | .         | .         | .       | 8,230      |
| CALIFORNIA      | 957,715   | 180,740  | 224,193   | 308,985 | 1,011,889 | 684,225 | 3,334,003 | 1,322,141 | 1,517,393 | 1,330,027 | 1,862,486 | 515,396 | 13,249,193 |
| <b>UTILITY</b>  |           |          |           |         |           |         |           |           |           |           |           |         |            |
| SCE             | 203,706   | 46,702   | 43,748    | 140,876 | 99,306    | 177,892 | 491,022   | 501,564   | 394,964   | 236,650   | 1,209,065 | 95,082  | 3,640,577  |
| PG&E            | 410,555   | 81,002   | 159,635   | 120,300 | 376,714   | 199,632 | 1,872,114 | 435,737   | 742,831   | 632,120   | 309,848   | 330,214 | 5,670,702  |
| SDG&E           | 57,985    | 20,960   | 12,027    | 13,918  | 402,414   | 60,673  | 333,515   | 180,037   | 155,916   | 152,156   | 108,776   | 44,377  | 1,542,754  |
| Non-IOU         | 285,469   | 32,076   | 8,783     | 33,891  | 133,455   | 246,028 | 637,352   | 204,803   | 223,682   | 309,101   | 234,797   | 45,723  | 2,395,160  |

**Table 3.2 F.W. Dodge Number of Nonresidential New Construction Project Starts in PY2000 by Building Type, County and Service Territory**

| COUNTY          | AMUSEMENT | ASSEMBLY | EDUCATION | GOVT | HOTEL | MEDICAL | OFFICE | RETAIL | SCHOOL | SERVICE | STORAGE | OTHER | TOTAL |
|-----------------|-----------|----------|-----------|------|-------|---------|--------|--------|--------|---------|---------|-------|-------|
| ALAMEDA         | 11        | 5        | .         | 2    | 27    | 1       | 49     | 32     | 17     | 20      | 16      | 12    | 192   |
| ALPINE          | 1         | .        | .         | .    | .     | .       | .      | .      | .      | .       | .       | .     | 1     |
| AMADOR          | .         | .        | .         | 1    | .     | .       | 1      | .      | .      | 1       | 1       | 1     | 5     |
| BUTTE           | 3         | 2        | .         | .    | .     | 3       | 10     | 11     | 1      | 1       | 3       | 1     | 35    |
| CALAVERAS       | 1         | .        | 1         | .    | 2     | .       | .      | .      | .      | .       | 1       | 1     | 6     |
| COLUSA          | .         | .        | .         | .    | .     | .       | .      | .      | .      | .       | .       | .     | 0     |
| CONTRA COSTA    | 12        | 6        | 6         | 3    | 2     | 6       | 22     | 17     | 17     | 11      | 9       | 5     | 116   |
| DEL NORTE       | .         | .        | .         | .    | .     | .       | .      | .      | .      | .       | .       | .     | 0     |
| EL DORADO       | 3         | .        | .         | 1    | 3     | .       | 12     | 9      | 2      | 1       | 5       | 3     | 39    |
| FRESNO          | 10        | 7        | 1         | 4    | 1     | 7       | 19     | 21     | 10     | 4       | 15      | 2     | 101   |
| GLENN           | .         | .        | .         | .    | .     | .       | .      | .      | .      | .       | .       | .     | 0     |
| HUMBOLDT        | 1         | .        | 1         | .    | .     | 1       | .      | .      | .      | 2       | .       | .     | 5     |
| IMPERIAL        | 3         | 4        | .         | .    | 1     | .       | 10     | 4      | 2      | 1       | 13      | 5     | 43    |
| INYO            | .         | .        | .         | .    | .     | 1       | .      | 1      | .      | .       | .       | 1     | 3     |
| KERN            | 5         | 3        | .         | 3    | 2     | 4       | 19     | 12     | 11     | 8       | 29      | 13    | 109   |
| KINGS           | 3         | .        | 3         | .    | .     | 1       | 1      | .      | 2      | .       | 1       | .     | 11    |
| LAKE            | .         | 1        | .         | 1    | .     | 1       | 2      | .      | .      | 1       | 3       | 1     | 10    |
| LASSEN          | .         | .        | .         | .    | .     | .       | .      | .      | 1      | .       | .       | .     | 1     |
| LOS ANGELES     | 83        | 23       | 8         | 9    | 19    | 37      | 154    | 210    | 72     | 97      | 118     | 34    | 864   |
| MADERA          | 2         | .        | .         | 1    | .     | .       | 1      | 6      | .      | .       | 3       | .     | 13    |
| MARIN           | 1         | .        | .         | .    | 1     | 2       | 9      | 12     | 5      | .       | 2       | .     | 32    |
| MARIPOSA        | .         | .        | 1         | .    | .     | .       | .      | .      | .      | .       | .       | .     | 1     |
| MENDOCINO       | .         | 1        | 1         | .    | .     | 1       | .      | .      | .      | .       | 1       | .     | 4     |
| MERCED          | 5         | .        | .         | .    | .     | .       | 3      | 5      | 9      | 2       | 4       | 2     | 30    |
| MODOC           | .         | .        | .         | .    | .     | 1       | .      | .      | .      | .       | .       | .     | 1     |
| MONO            | .         | .        | .         | .    | .     | .       | .      | .      | 1      | .       | 1       | .     | 2     |
| MONTEREY        | 7         | 1        | .         | .    | 1     | .       | 10     | 8      | 5      | 1       | 5       | 7     | 45    |
| NAPA            | 3         | .        | 1         | .    | 2     | .       | 9      | 2      | .      | 1       | 6       | 10    | 34    |
| NEVADA          | 6         | 1        | .         | 1    | .     | .       | 9      | 1      | 1      | .       | 3       | 2     | 25    |
| ORANGE          | 27        | 12       | .         | 2    | 15    | 7       | 90     | 76     | 13     | 38      | 37      | 9     | 326   |
| PLACER          | 8         | 4        | .         | .    | .     | 1       | 29     | 47     | 11     | 14      | 6       | 4     | 124   |
| PLUMAS          | .         | .        | .         | 1    | .     | .       | .      | .      | .      | 1       | 7       | 1     | 10    |
| RIVERSIDE       | 20        | 12       | 2         | 10   | 9     | 9       | 70     | 60     | 13     | 26      | 57      | 19    | 307   |
| SACRAMENTO      | 12        | 7        | .         | 5    | 2     | 7       | 58     | 48     | 16     | 12      | 12      | 6     | 185   |
| SAN BENITO      | .         | .        | .         | .    | .     | .       | 1      | 1      | 1      | .       | 3       | 2     | 8     |
| SAN BERNARDINO  | 11        | 10       | .         | 3    | 3     | 7       | 40     | 62     | 15     | 15      | 69      | 10    | 245   |
| SAN DIEGO       | 34        | 21       | 2         | 5    | 27    | 21      | 139    | 117    | 33     | 51      | 58      | 25    | 533   |
| SAN FRANCISCO   | 8         | 1        | .         | 1    | 5     | .       | 89     | 32     | 5      | 26      | 3       | 6     | 176   |
| SAN JOAQUIN     | 2         | 4        | .         | 2    | .     | 1       | 10     | 15     | 7      | 5       | 14      | 9     | 69    |
| SAN LUIS OBISPO | 7         | 5        | .         | .    | 11    | 5       | 16     | 25     | 2      | 3       | 28      | 14    | 116   |
| SAN MATEO       | 7         | 3        | 1         | 3    | 7     | 1       | 37     | 7      | 7      | 16      | 3       | 2     | 94    |
| SANTA BARBARA   | 3         | 7        | .         | .    | 5     | 6       | 21     | 16     | 6      | 4       | 12      | 8     | 88    |
| SANTA CLARA     | 24        | 8        | 1         | 2    | 14    | 7       | 102    | 21     | 29     | 22      | 8       | 13    | 251   |
| SANTA CRUZ      | 2         | 2        | 1         | 1    | 1     | .       | 1      | 1      | 4      | 1       | 1       | 4     | 19    |
| SHASTA          | 1         | 2        | .         | .    | .     | 4       | 5      | 7      | 4      | 1       | 3       | 2     | 29    |
| SIERRA          | .         | .        | .         | .    | .     | .       | .      | .      | .      | .       | .       | .     | 0     |
| SISKIYOU        | 1         | .        | .         | 1    | .     | .       | 2      | 1      | .      | 1       | .       | 1     | 7     |
| SOLANO          | 5         | 2        | .         | 1    | .     | 2       | 9      | 15     | .      | 2       | 5       | 1     | 42    |
| SONOMA          | 9         | .        | 2         | 2    | 4     | 2       | 21     | 13     | 6      | 2       | 7       | 15    | 83    |
| STANISLAUS      | 3         | 1        | .         | .    | 2     | 2       | 3      | 13     | 5      | 1       | 2       | 5     | 37    |
| SUTTER          | .         | .        | .         | .    | .     | .       | .      | 1      | .      | .       | 1       | .     | 2     |
| TEHAMA          | 1         | 2        | .         | 1    | .     | .       | 2      | 2      | 1      | .       | 1       | 1     | 11    |
| TRINITY         | .         | .        | .         | 1    | 1     | .       | .      | .      | 2      | .       | .       | .     | 4     |
| TULARE          | 1         | .        | .         | .    | 1     | 1       | 1      | .      | 6      | .       | 4       | 4     | 18    |
| TUOLUMNE        | 1         | 1        | .         | .    | .     | 3       | 1      | 1      | 1      | .       | 4       | 3     | 15    |
| VENTURA         | 9         | 3        | 1         | 8    | 2     | 4       | 28     | 17     | 7      | 10      | 19      | 10    | 118   |
| YOLO            | 1         | 3        | 1         | 2    | .     | 2       | 4      | 2      | 2      | 2       | 6       | 3     | 28    |
| YUBA            | .         | .        | .         | 1    | .     | .       | .      | .      | .      | .       | .       | .     | 1     |
| CALIFORNIA      | 357       | 164      | 35        | 78   | 170   | 158     | 1,119  | 951    | 352    | 404     | 609     | 277   | 4,674 |
| <b>UTILITY</b>  |           |          |           |      |       |         |        |        |        |         |         |       |       |
| SCE             | 106       | 54       | 9         | 29   | 29    | 42      | 321    | 314    | 91     | 123     | 238     | 72    | 1,428 |
| PG&E            | 146       | 69       | 22        | 33   | 72    | 59      | 477    | 335    | 167    | 144     | 178     | 129   | 1,831 |
| SDG&E           | 31        | 18       | 2         | 5    | 35    | 20      | 128    | 115    | 28     | 46      | 49      | 24    | 501   |
| Non-IOU         | 74        | 23       | 2         | 11   | 34    | 37      | 193    | 187    | 66     | 91      | 144     | 52    | 914   |

**Table 3.3 F.W. Dodge Number of Nonresidential New Construction Project Starts in PY2000 by Quarter, County and Service Territory**

|                 | Q1, 2000 | Q2, 2000 | Q3, 2000 | Q4, 2000 | Total 2000 |
|-----------------|----------|----------|----------|----------|------------|
| <b>COUNTY</b>   |          |          |          |          |            |
| ALAMEDA         | 39       | 46       | 56       | 51       | 192        |
| ALPINE          | 0        | 1        | 0        | 0        | 1          |
| AMADOR          | 0        | 1        | 2        | 2        | 5          |
| BUTTE           | 9        | 7        | 11       | 8        | 35         |
| CALAVERAS       | 2        | 2        | 2        | 0        | 6          |
| COLUSA          | 0        | 0        | 0        | 0        | 0          |
| CONTRA COSTA    | 28       | 29       | 31       | 28       | 116        |
| DEL NORTE       | 0        | 0        | 0        | 0        | 0          |
| EL DORADO       | 4        | 10       | 15       | 10       | 39         |
| FRESNO          | 28       | 29       | 18       | 26       | 101        |
| GLENN           | 0        | 0        | 0        | 0        | 0          |
| HUMBOLDT        | 2        | 0        | 2        | 1        | 5          |
| IMPERIAL        | 12       | 10       | 13       | 8        | 43         |
| INYO            | 1        | 0        | 0        | 2        | 3          |
| KERN            | 20       | 28       | 34       | 27       | 109        |
| KINGS           | 3        | 1        | 1        | 6        | 11         |
| LAKE            | 1        | 3        | 3        | 3        | 10         |
| LASSEN          | 0        | 1        | 0        | 0        | 1          |
| LOS ANGELES     | 269      | 230      | 186      | 179      | 864        |
| MADERA          | 3        | 3        | 3        | 4        | 13         |
| MARIN           | 2        | 2        | 17       | 11       | 32         |
| MARIPOSA        | 1        | 0        | 0        | 0        | 1          |
| MENDOCINO       | 1        | 1        | 2        | 0        | 4          |
| MERCED          | 14       | 7        | 3        | 6        | 30         |
| MODOC           | 0        | 1        | 0        | 0        | 1          |
| MONO            | 0        | 0        | 1        | 1        | 2          |
| MONTEREY        | 7        | 14       | 10       | 14       | 45         |
| NAPA            | 8        | 10       | 6        | 10       | 34         |
| NEVADA          | 1        | 6        | 8        | 10       | 25         |
| ORANGE          | 88       | 86       | 80       | 72       | 326        |
| PLACER          | 28       | 32       | 31       | 33       | 124        |
| PLUMAS          | 0        | 1        | 1        | 8        | 10         |
| RIVERSIDE       | 83       | 85       | 72       | 67       | 307        |
| SACRAMENTO      | 30       | 31       | 62       | 62       | 185        |
| SAN BENITO      | 4        | 2        | 0        | 2        | 8          |
| SAN BERNARDINO  | 70       | 50       | 57       | 68       | 245        |
| SAN DIEGO       | 158      | 127      | 137      | 111      | 533        |
| SAN FRANCISCO   | 25       | 14       | 57       | 80       | 176        |
| SAN JOAQUIN     | 13       | 12       | 25       | 19       | 69         |
| SAN LUIS OBISPO | 33       | 27       | 36       | 20       | 116        |
| SAN MATEO       | 19       | 19       | 26       | 30       | 94         |
| SANTA BARBARA   | 24       | 24       | 21       | 19       | 88         |
| SANTA CLARA     | 43       | 47       | 83       | 78       | 251        |
| SANTA CRUZ      | 4        | 3        | 10       | 2        | 19         |
| SHASTA          | 1        | 10       | 13       | 5        | 29         |
| SIERRA          | 0        | 0        | 0        | 0        | 0          |
| SISKIYOU        | 1        | 3        | 1        | 2        | 7          |
| SOLANO          | 8        | 14       | 9        | 11       | 42         |
| SONOMA          | 13       | 9        | 25       | 36       | 83         |
| STANISLAUS      | 17       | 4        | 8        | 8        | 37         |
| SUTTER          | 0        | 1        | 0        | 1        | 2          |
| TEHAMA          | 2        | 3        | 1        | 5        | 11         |
| TRINITY         | 1        | 3        | 0        | 0        | 4          |
| TULARE          | 2        | 4        | 4        | 8        | 18         |
| TUOLUMNE        | 0        | 1        | 1        | 13       | 15         |
| VENTURA         | 31       | 37       | 28       | 22       | 118        |
| YOLO            | 7        | 5        | 14       | 2        | 28         |
| YUBA            | 0        | 0        | 1        | 0        | 1          |
| CALIFORNIA      | 1,160    | 1,096    | 1,227    | 1,191    | 4,674      |
| <b>UTILITY</b>  |          |          |          |          |            |
| SCE             | 416      | 384      | 325      | 303      | 1,428      |
| PG&E            | 371      | 392      | 536      | 532      | 1,831      |
| SDG&E           | 141      | 110      | 141      | 109      | 501        |
| Non-IOU         | 232      | 210      | 225      | 247      | 914        |

**Table 3.4 F.W. Dodge Number of Nonresidential New Construction Project Starts in PY2000  
by Quarter, Building Type and Service Territory**

|                   | AMUSEMENT | ASSEMBLY | EDUCATION | GOVT | HOTEL | MEDICAL | OFFICE | RETAIL | SCHOOL | SERVICE | STORAGE | OTHER | TOTAL |
|-------------------|-----------|----------|-----------|------|-------|---------|--------|--------|--------|---------|---------|-------|-------|
| <b>CALIFORNIA</b> |           |          |           |      |       |         |        |        |        |         |         |       |       |
| Q1, 2000          | 91        | 37       | 13        | 15   | 58    | 35      | 243    | 264    | 68     | 118     | 156     | 62    | 1,160 |
| Q2, 2000          | 84        | 46       | 10        | 23   | 43    | 48      | 243    | 219    | 102    | 83      | 149     | 46    | 1,096 |
| Q3, 2000          | 98        | 41       | 6         | 24   | 34    | 42      | 319    | 230    | 103    | 103     | 139     | 88    | 1,227 |
| Q4, 2000          | 84        | 40       | 6         | 16   | 35    | 33      | 314    | 238    | 79     | 100     | 165     | 81    | 1,191 |
| Total 2000        | 357       | 164      | 35        | 78   | 170   | 158     | 1,119  | 951    | 352    | 404     | 609     | 277   | 4,674 |
| <b>SCE</b>        |           |          |           |      |       |         |        |        |        |         |         |       |       |
| Q1, 2000          | 29        | 16       | 4         | 4    | 8     | 16      | 95     | 85     | 22     | 53      | 65      | 19    | 416   |
| Q2, 2000          | 31        | 12       | 2         | 10   | 4     | 12      | 84     | 76     | 34     | 35      | 73      | 11    | 384   |
| Q3, 2000          | 29        | 12       | 3         | 9    | 9     | 9       | 83     | 72     | 21     | 18      | 40      | 20    | 325   |
| Q4, 2000          | 17        | 14       | .         | 6    | 8     | 5       | 59     | 81     | 14     | 17      | 60      | 22    | 303   |
| Total 2000        | 106       | 54       | 9         | 29   | 29    | 42      | 321    | 314    | 91     | 123     | 238     | 72    | 1,428 |
| <b>PG&amp;E</b>   |           |          |           |      |       |         |        |        |        |         |         |       |       |
| Q1, 2000          | 30        | 14       | 9         | 7    | 20    | 7       | 84     | 83     | 28     | 25      | 44      | 20    | 371   |
| Q2, 2000          | 28        | 23       | 5         | 9    | 20    | 18      | 79     | 77     | 37     | 31      | 41      | 24    | 392   |
| Q3, 2000          | 45        | 16       | 2         | 11   | 17    | 20      | 162    | 77     | 53     | 40      | 48      | 45    | 536   |
| Q4, 2000          | 43        | 16       | 6         | 6    | 15    | 14      | 152    | 98     | 49     | 48      | 45      | 40    | 532   |
| Total 2000        | 146       | 69       | 22        | 33   | 72    | 59      | 477    | 335    | 167    | 144     | 178     | 129   | 1,831 |
| <b>SDG&amp;E</b>  |           |          |           |      |       |         |        |        |        |         |         |       |       |
| Q1, 2000          | 6         | 1        | .         | 3    | 9     | 5       | 29     | 42     | 4      | 15      | 20      | 7     | 141   |
| Q2, 2000          | 5         | 4        | 2         | 1    | 12    | 5       | 34     | 22     | 8      | 7       | 5       | 5     | 110   |
| Q3, 2000          | 12        | 7        | .         | 1    | 6     | 5       | 33     | 35     | 9      | 13      | 14      | 6     | 141   |
| Q4, 2000          | 8         | 6        | .         | .    | 8     | 5       | 32     | 16     | 7      | 11      | 10      | 6     | 109   |
| Total 2000        | 31        | 18       | 2         | 5    | 35    | 20      | 128    | 115    | 28     | 46      | 49      | 24    | 501   |
| <b>Non-IOU</b>    |           |          |           |      |       |         |        |        |        |         |         |       |       |
| Q1, 2000          | 26        | 6        | .         | 1    | 21    | 7       | 35     | 54     | 14     | 25      | 27      | 16    | 232   |
| Q2, 2000          | 20        | 7        | 1         | 3    | 7     | 13      | 46     | 44     | 23     | 10      | 30      | 6     | 210   |
| Q3, 2000          | 12        | 6        | 1         | 3    | 2     | 8       | 41     | 46     | 20     | 32      | 37      | 17    | 225   |
| Q4, 2000          | 16        | 4        | .         | 4    | 4     | 9       | 71     | 43     | 9      | 24      | 50      | 13    | 247   |
| Total 2000        | 74        | 23       | 2         | 11   | 34    | 37      | 193    | 187    | 66     | 91      | 144     | 52    | 914   |

**Table 3.5 F.W. Dodge Area of Nonresidential New Construction Project Starts in PY2000 by Building Type, County and Service Territory (1,000 sqft)**

| COUNTY          | AMUSEMENT | ASSEMBLY | EDUCATION | GOVT  | HOTEL | MEDICAL | OFFICE | RETAIL | SCHOOL | SERVICE | STORAGE | OTHER | TOTAL   |
|-----------------|-----------|----------|-----------|-------|-------|---------|--------|--------|--------|---------|---------|-------|---------|
| ALAMEDA         | 89        | 53       | .         | 11    | 729   | 56      | 2,691  | 532    | 359    | 932     | 1,531   | 488   | 7,469   |
| ALPINE          | 8         | .        | .         | .     | .     | .       | .      | .      | .      | .       | .       | .     | 8       |
| AMADOR          | .         | .        | .         | 0     | .     | .       | 2      | .      | .      | 3       | 2       | 3     | 11      |
| BUTTE           | 61        | 12       | .         | .     | .     | 248     | 140    | 81     | 6      | 9       | 59      | 50    | 665     |
| CALAVERAS       | 5         | .        | 1         | .     | 65    | .       | .      | .      | .      | .       | 6       | 3     | 80      |
| COLUSA          | .         | .        | .         | .     | .     | .       | .      | .      | .      | .       | .       | .     | 0       |
| CONTRA COSTA    | 254       | 36       | 65        | 16    | 102   | 159     | 321    | 530    | 324    | 983     | 330     | 70    | 3,191   |
| DEL NORTE       | .         | .        | .         | .     | .     | .       | .      | .      | .      | .       | .       | .     | 0       |
| EL DORADO       | 11        | .        | .         | 10    | 450   | .       | 766    | 226    | 10     | 9       | 37      | 5     | 1,522   |
| FRESNO          | 97        | 85       | 14        | 39    | 60    | 75      | 172    | 325    | 264    | 449     | 634     | 84    | 2,295   |
| GLENN           | .         | .        | .         | .     | .     | .       | .      | .      | .      | .       | .       | .     | 0       |
| HUMBOLDT        | 50        | .        | 39        | .     | .     | 27      | .      | .      | .      | 18      | .       | .     | 134     |
| IMPERIAL        | 9         | 34       | .         | .     | 60    | .       | 88     | 19     | 9      | 3       | 283     | 63    | 567     |
| INYO            | .         | .        | .         | .     | .     | 13      | .      | 100    | .      | .       | .       | 2     | 115     |
| KERN            | 56        | 9        | .         | 29    | 42    | 163     | 199    | 261    | 215    | 53      | 484     | 52    | 1,563   |
| KINGS           | 70        | .        | 69        | .     | .     | 28      | 10     | .      | 39     | .       | 20      | .     | 235     |
| LAKE            | .         | 19       | .         | 3     | .     | 11      | 4      | .      | .      | 2       | 21      | 2     | 62      |
| LASSEN          | .         | .        | .         | .     | .     | .       | .      | .      | 10     | .       | .       | .     | 10      |
| LOS ANGELES     | 1,450     | 371      | 297       | 645   | 898   | 1,828   | 3,569  | 5,087  | 1,795  | 6,684   | 12,057  | 1,124 | 35,804  |
| MADERA          | 19        | .        | .         | 45    | .     | .       | 2      | 76     | .      | .       | 27      | .     | 169     |
| MARIN           | 30        | .        | .         | .     | 28    | 34      | 375    | 124    | 37     | .       | 12      | .     | 640     |
| MARIPOSA        | .         | .        | 13        | .     | .     | .       | .      | .      | .      | .       | .       | .     | 13      |
| MENDOCINO       | .         | 19       | 3         | .     | .     | 27      | .      | .      | .      | .       | 9       | .     | 58      |
| MERCED          | 115       | .        | .         | .     | .     | .       | 29     | 31     | 321    | 16      | 74      | 14    | 599     |
| MODOC           | .         | .        | .         | .     | .     | 6       | .      | .      | .      | .       | .       | .     | 6       |
| MONO            | .         | .        | .         | .     | .     | .       | .      | .      | 3      | .       | 7       | .     | 10      |
| MONTEREY        | 65        | 16       | .         | .     | 71    | .       | 127    | 74     | 107    | 10      | 111     | 73    | 654     |
| NAPA            | 20        | .        | 8         | .     | 103   | .       | 154    | 118    | .      | 14      | 69      | 161   | 647     |
| NEVADA          | 53        | 3        | 22        | 28    | .     | .       | 54     | 14     | 10     | .       | 55      | 22    | 262     |
| ORANGE          | 449       | 172      | .         | 35    | 1,299 | 293     | 3,584  | 2,066  | 623    | 2,714   | 2,546   | 263   | 14,043  |
| PLACER          | 135       | 88       | .         | .     | .     | 2       | 634    | 1,039  | 256    | 276     | 172     | 260   | 2,861   |
| PLUMAS          | .         | .        | .         | 8     | .     | .       | .      | .      | .      | 5       | 33      | 2     | 48      |
| RIVERSIDE       | 429       | 215      | 8         | 169   | 81    | 287     | 960    | 1,868  | 299    | 347     | 5,956   | 294   | 10,912  |
| SACRAMENTO      | 206       | 169      | .         | 35    | 173   | 160     | 3,579  | 1,643  | 505    | 549     | 1,029   | 157   | 8,206   |
| SAN BENITO      | .         | .        | .         | .     | .     | .       | 3      | 2      | 67     | .       | 87      | 211   | 370     |
| SAN BERNARDINO  | 154       | 44       | .         | 36    | 80    | 131     | 511    | 1,600  | 501    | 227     | 15,153  | 308   | 18,744  |
| SAN DIEGO       | 338       | 174      | 74        | 59    | 3,078 | 697     | 4,732  | 2,960  | 1,257  | 2,673   | 2,745   | 706   | 19,492  |
| SAN FRANCISCO   | 878       | 12       | .         | 97    | 22    | .       | 3,571  | 1,970  | 29     | 1,317   | 10      | 59    | 7,964   |
| SAN JOAQUIN     | 50        | 95       | .         | 32    | .     | 6       | 774    | 408    | 288    | 48      | 873     | 724   | 3,297   |
| SAN LUIS OBISPO | 51        | 34       | .         | .     | 191   | 22      | 105    | 368    | 49     | 11      | 752     | 145   | 1,727   |
| SAN MATEO       | 120       | 44       | 18        | 15    | 717   | 2       | 2,753  | 165    | 130    | 2,845   | 104     | 4     | 6,917   |
| SANTA BARBARA   | 28        | 50       | .         | .     | 62    | 127     | 288    | 257    | 189    | 203     | 413     | 102   | 1,718   |
| SANTA CLARA     | 310       | 91       | 479       | 26    | 917   | 321     | 7,931  | 472    | 487    | 3,909   | 183     | 835   | 15,960  |
| SANTA CRUZ      | 43        | 16       | 32        | 5     | 19    | .       | 4      | 3      | 332    | 2       | 125     | 59    | 638     |
| SHASTA          | 42        | 3        | .         | .     | .     | 45      | 8      | 210    | 14     | 29      | 65      | 741   | 1,156   |
| SIERRA          | .         | .        | .         | .     | .     | .       | .      | .      | .      | .       | .       | .     | 0       |
| SISKIYOU        | 17        | .        | .         | 1     | .     | .       | 59     | 11     | .      | 5       | .       | 48    | 141     |
| SOLANO          | 96        | 69       | .         | 1     | .     | 102     | 127    | 325    | .      | 19      | 247     | 3     | 988     |
| SONOMA          | 71        | .        | 17        | 75    | 176   | 26      | 652    | 212    | 144    | 6       | 321     | 144   | 1,843   |
| STANISLAUS      | 47        | 31       | .         | .     | 47    | 35      | 16     | 494    | 421    | 14      | 12      | 32    | 1,148   |
| SUTTER          | .         | .        | .         | .     | .     | .       | .      | 5      | .      | .       | 7       | .     | 12      |
| TEHAMA          | 10        | 13       | .         | 2     | .     | .       | 4      | 7      | 42     | .       | 2       | 3     | 82      |
| TRINITY         | .         | .        | 15        | 5     | .     | .       | .      | .      | 4      | .       | .       | .     | 23      |
| TULARE          | 19        | .        | .         | .     | 38    | 9       | 25     | .      | 169    | .       | 28      | 18    | 305     |
| TUOLUMNE        | 20        | 9        | .         | .     | .     | 326     | 3      | 3      | 32     | .       | 10      | 10    | 412     |
| VENTURA         | 165       | 34       | 11        | 82    | 49    | 320     | 814    | 449    | 97     | 115     | 776     | 383   | 3,294   |
| YOLO            | 1         | 30       | 1         | 43    | .     | 17      | 34     | 24     | 123    | 8       | 727     | 17    | 1,025   |
| YUBA            | .         | .        | .         | 37    | .     | .       | .      | .      | .      | .       | .       | .     | 37      |
| CALIFORNIA      | 6,142     | 2,047    | 1,168     | 1,596 | 9,561 | 5,599   | 39,871 | 24,157 | 9,565  | 24,504  | 48,201  | 7,739 | 180,151 |
| <b>UTILITY</b>  |           |          |           |       |       |         |        |        |        |         |         |       |         |
| SCE             | 1,573     | 617      | 209       | 674   | 943   | 1,550   | 6,782  | 8,418  | 2,738  | 4,710   | 32,149  | 1,671 | 62,034  |
| PG&E            | 2,883     | 884      | 779       | 516   | 3,773 | 1,738   | 21,742 | 8,737  | 4,511  | 10,870  | 7,288   | 4,256 | 67,977  |
| SDG&E           | 412       | 231      | 74        | 89    | 3,565 | 729     | 5,144  | 3,203  | 1,104  | 2,748   | 2,718   | 775   | 20,791  |
| Non-IOU         | 1,274     | 316      | 106       | 317   | 1,281 | 1,583   | 6,203  | 3,799  | 1,211  | 6,176   | 6,045   | 1,038 | 29,349  |

**Table 3.6 F.W. Dodge Area of Nonresidential New Construction Project Starts in PY2000  
by Quarter, County and Service Territory (1,000 sqft)**

|                 | Q1, 2000 | Q2, 2000 | Q3, 2000 | Q4, 2000 | Total 2000 |
|-----------------|----------|----------|----------|----------|------------|
| <b>COUNTY</b>   |          |          |          |          |            |
| ALAMEDA         | 1,419    | 1,410    | 2,687    | 1,954    | 7,469      |
| ALPINE          | 0        | 8        | 0        | 0        | 8          |
| AMADOR          | 0        | 2        | 3        | 6        | 11         |
| BUTTE           | 93       | 158      | 320      | 94       | 665        |
| CALAVERAS       | 25       | 7        | 48       | 0        | 80         |
| COLUSA          | 0        | 0        | 0        | 0        | 0          |
| CONTRA COSTA    | 1,286    | 817      | 783      | 305      | 3,191      |
| DEL NORTE       | 0        | 0        | 0        | 0        | 0          |
| EL DORADO       | 28       | 545      | 531      | 418      | 1,522      |
| FRESNO          | 502      | 950      | 424      | 419      | 2,295      |
| GLENN           | 0        | 0        | 0        | 0        | 0          |
| HUMBOLDT        | 56       | 0        | 39       | 39       | 134        |
| IMPERIAL        | 66       | 111      | 241      | 149      | 567        |
| INYO            | 100      | 0        | 0        | 15       | 115        |
| KERN            | 337      | 370      | 458      | 399      | 1,563      |
| KINGS           | 50       | 36       | 43       | 106      | 235        |
| LAKE            | 3        | 23       | 21       | 16       | 62         |
| LASSEN          | 0        | 10       | 0        | 0        | 10         |
| LOS ANGELES     | 10,503   | 8,914    | 7,471    | 8,916    | 35,804     |
| MADERA          | 5        | 70       | 71       | 23       | 169        |
| MARIN           | 6        | 5        | 338      | 292      | 640        |
| MARIPOSA        | 13       | 0        | 0        | 0        | 13         |
| MENDOCINO       | 19       | 27       | 12       | 0        | 58         |
| MERCED          | 352      | 151      | 11       | 85       | 599        |
| MODOC           | 0        | 6        | 0        | 0        | 6          |
| MONO            | 0        | 0        | 3        | 7        | 10         |
| MONTEREY        | 82       | 144      | 166      | 262      | 654        |
| NAPA            | 96       | 305      | 65       | 180      | 647        |
| NEVADA          | 28       | 52       | 81       | 102      | 262        |
| ORANGE          | 3,406    | 4,753    | 3,686    | 2,199    | 14,043     |
| PLACER          | 430      | 730      | 905      | 797      | 2,861      |
| PLUMAS          | 0        | 8        | 2        | 38       | 48         |
| RIVERSIDE       | 4,711    | 2,832    | 1,985    | 1,384    | 10,912     |
| SACRAMENTO      | 1,631    | 2,125    | 1,981    | 2,469    | 8,206      |
| SAN BENITO      | 135      | 24       | 0        | 211      | 370        |
| SAN BERNARDINO  | 8,182    | 1,976    | 3,462    | 5,124    | 18,744     |
| SAN DIEGO       | 5,162    | 4,930    | 4,811    | 4,589    | 19,492     |
| SAN FRANCISCO   | 930      | 1,024    | 1,883    | 4,128    | 7,964      |
| SAN JOAQUIN     | 1,063    | 667      | 1,220    | 346      | 3,297      |
| SAN LUIS OBISPO | 439      | 663      | 363      | 262      | 1,727      |
| SAN MATEO       | 910      | 1,581    | 1,797    | 2,629    | 6,917      |
| SANTA BARBARA   | 587      | 499      | 431      | 201      | 1,718      |
| SANTA CLARA     | 3,092    | 1,398    | 6,437    | 5,033    | 15,960     |
| SANTA CRUZ      | 194      | 40       | 401      | 4        | 638        |
| SHASTA          | 19       | 803      | 267      | 67       | 1,156      |
| SIERRA          | 0        | 0        | 0        | 0        | 0          |
| SISKIYOU        | 48       | 70       | 5        | 18       | 141        |
| SOLANO          | 68       | 203      | 247      | 471      | 988        |
| SONOMA          | 273      | 238      | 318      | 1,015    | 1,843      |
| STANISLAUS      | 450      | 145      | 393      | 160      | 1,148      |
| SUTTER          | 0        | 5        | 0        | 7        | 12         |
| TEHAMA          | 48       | 19       | 2        | 15       | 82         |
| TRINITY         | 15       | 9        | 0        | 0        | 23         |
| TULARE          | 40       | 60       | 140      | 65       | 305        |
| TUOLUMNE        | 0        | 3        | 20       | 389      | 412        |
| VENTURA         | 1,110    | 802      | 824      | 559      | 3,294      |
| YOLO            | 69       | 45       | 886      | 25       | 1,025      |
| YUBA            | 0        | 0        | 37       | 0        | 37         |
| CALIFORNIA      | 48,078   | 39,770   | 46,315   | 45,988   | 180,151    |
| <b>UTILITY</b>  |          |          |          |          |            |
| SCE             | 23,254   | 14,151   | 13,003   | 11,625   | 62,034     |
| PG&E            | 12,999   | 13,054   | 21,363   | 20,561   | 67,977     |
| SDG&E           | 5,293    | 5,541    | 5,330    | 4,627    | 20,791     |
| Non-IOU         | 6,531    | 7,024    | 6,619    | 9,175    | 29,349     |



**Table 3.7 F.W. Dodge Area of Nonresidential New Construction Project Starts in PY2000  
by Quarter, Building Type and Service Territory (1,000 sqft)**

|                   | AMUSEMENT | ASSEMBLY | EDUCATION | GOVT  | HOTEL | MEDICAL | OFFICE | RETAIL | SCHOOL | SERVICE | STORAGE | OTHER | TOTAL   |
|-------------------|-----------|----------|-----------|-------|-------|---------|--------|--------|--------|---------|---------|-------|---------|
| <b>CALIFORNIA</b> |           |          |           |       |       |         |        |        |        |         |         |       |         |
| Q1, 2000          | 1,221     | 443      | 281       | 177   | 1,796 | 1,542   | 8,858  | 6,571  | 1,701  | 4,709   | 19,222  | 1,558 | 48,078  |
| Q2, 2000          | 1,244     | 606      | 211       | 505   | 3,594 | 1,534   | 7,046  | 5,428  | 1,915  | 5,872   | 9,715   | 2,101 | 39,770  |
| Q3, 2000          | 2,566     | 474      | 68        | 657   | 2,362 | 1,469   | 11,825 | 5,365  | 3,608  | 6,464   | 9,306   | 2,153 | 46,315  |
| Q4, 2000          | 1,112     | 524      | 609       | 259   | 1,809 | 1,055   | 12,142 | 6,794  | 2,341  | 7,459   | 9,959   | 1,927 | 45,988  |
| Total 2000        | 6,142     | 2,047    | 1,168     | 1,596 | 9,561 | 5,599   | 39,871 | 24,157 | 9,565  | 24,504  | 48,201  | 7,739 | 180,151 |
| <b>SCE</b>        |           |          |           |       |       |         |        |        |        |         |         |       |         |
| Q1, 2000          | 393       | 190      | 168       | 16    | 145   | 639     | 2,628  | 2,489  | 767    | 1,154   | 14,309  | 358   | 23,254  |
| Q2, 2000          | 439       | 181      | 13        | 379   | 258   | 497     | 1,283  | 1,660  | 391    | 2,087   | 6,380   | 584   | 14,151  |
| Q3, 2000          | 478       | 106      | 28        | 97    | 390   | 373     | 1,677  | 2,549  | 982    | 912     | 4,996   | 416   | 13,003  |
| Q4, 2000          | 263       | 140      | .         | 183   | 151   | 41      | 1,194  | 1,721  | 598    | 558     | 6,465   | 312   | 11,625  |
| Total 2000        | 1,573     | 617      | 209       | 674   | 943   | 1,550   | 6,782  | 8,418  | 2,738  | 4,710   | 32,149  | 1,671 | 62,034  |
| <b>PG&amp;E</b>   |           |          |           |       |       |         |        |        |        |         |         |       |         |
| Q1, 2000          | 359       | 159      | 113       | 75    | 652   | 191     | 4,689  | 1,648  | 688    | 1,637   | 2,234   | 554   | 12,999  |
| Q2, 2000          | 479       | 332      | 53        | 101   | 1,197 | 317     | 2,431  | 1,981  | 722    | 2,517   | 1,696   | 1,230 | 13,054  |
| Q3, 2000          | 1,409     | 158      | 4         | 290   | 1,005 | 616     | 7,812  | 1,645  | 1,865  | 3,210   | 1,840   | 1,508 | 21,363  |
| Q4, 2000          | 636       | 234      | 609       | 51    | 918   | 614     | 6,810  | 3,464  | 1,236  | 3,505   | 1,519   | 964   | 20,561  |
| Total 2000        | 2,883     | 884      | 779       | 516   | 3,773 | 1,738   | 21,742 | 8,737  | 4,511  | 10,870  | 7,288   | 4,256 | 67,977  |
| <b>SDG&amp;E</b>  |           |          |           |       |       |         |        |        |        |         |         |       |         |
| Q1, 2000          | 28        | 22       | .         | 66    | 443   | 351     | 1,102  | 997    | 82     | 1,101   | 866     | 236   | 5,293   |
| Q2, 2000          | 74        | 20       | 74        | 15    | 1,619 | 142     | 1,369  | 786    | 354    | 828     | 104     | 157   | 5,541   |
| Q3, 2000          | 241       | 110      | .         | 9     | 862   | 98      | 1,389  | 685    | 323    | 508     | 924     | 180   | 5,330   |
| Q4, 2000          | 68        | 79       | .         | .     | 641   | 138     | 1,284  | 734    | 345    | 312     | 824     | 202   | 4,627   |
| Total 2000        | 412       | 231      | 74        | 89    | 3,565 | 729     | 5,144  | 3,203  | 1,104  | 2,748   | 2,718   | 775   | 20,791  |
| <b>Non-IOU</b>    |           |          |           |       |       |         |        |        |        |         |         |       |         |
| Q1, 2000          | 440       | 72       | .         | 20    | 556   | 361     | 440    | 1,437  | 164    | 818     | 1,814   | 410   | 6,531   |
| Q2, 2000          | 252       | 74       | 70        | 10    | 521   | 578     | 1,964  | 1,001  | 448    | 441     | 1,536   | 130   | 7,024   |
| Q3, 2000          | 437       | 100      | 36        | 262   | 104   | 382     | 946    | 486    | 437    | 1,834   | 1,545   | 49    | 6,619   |
| Q4, 2000          | 145       | 71       | .         | 25    | 99    | 262     | 2,854  | 874    | 163    | 3,084   | 1,150   | 449   | 9,175   |
| Total 2000        | 1,274     | 316      | 106       | 317   | 1,281 | 1,583   | 6,203  | 3,799  | 1,211  | 6,176   | 6,045   | 1,038 | 29,349  |

### **3.2 SBD NEW CONSTRUCTION PROGRAM PARTICIPATION IN PY2000**

Savings By Design (SBD) program activity for nonresidential new construction participants for whom the IOUs have committed funds in PY2000 is summarized below. Program commitment indicates that the customer has filed an application, that the utility has reviewed it and found that it fits within the scope of the SBD program, and that an agreement was signed between the utility and the customer, detailing the conditions of participation in the program. Program commitment was established using the following dates from the tracking systems maintained by the IOUs: the “coupon issue date” for SCE participants, the “acceptance date” for PG&E participants, and the “sign date” for SDG&E participants.

The SBD program targets specific links in the commercial building construction decision-making chain, reflecting differences in design activities and priorities between large and small buildings and various occupancies. The Whole Building Approach is used for complex projects where the design team can work closely to integrate the energy systems. For participants adopting the Whole Building Approach, energy savings can be attributed to the integration of multiple energy efficient measures into the building design. The Systems Approach is used for projects where design of the energy systems is done at different phases: where one energy system predominates, where intervention occurs late in the design, or for buildings with simple system interactions. For the SBD program participants adopting the Systems Approach, energy savings can be attributed to one or more of several measure classes implemented: daylighting, HVAC, envelope, motors, etc.

The following tables summarize program participation by building type and measure. Participation is provided for the whole building approach and the systems approach separately.

Table 3.8 presents the number of new construction nonresidential participants to the SBD program for which funds were committed in PY2000.

Table 3.9 summarizes the number of square feet of new construction committed in PY2000.

Table 3.10 shows the estimated annual MWh savings attributable to new construction measures committed in PY2000.

Table 3.11 presents the frequency with which classes of measures were installed by new construction SBD participants in PY2000. A glossary of the measure classes is presented in Appendix F.

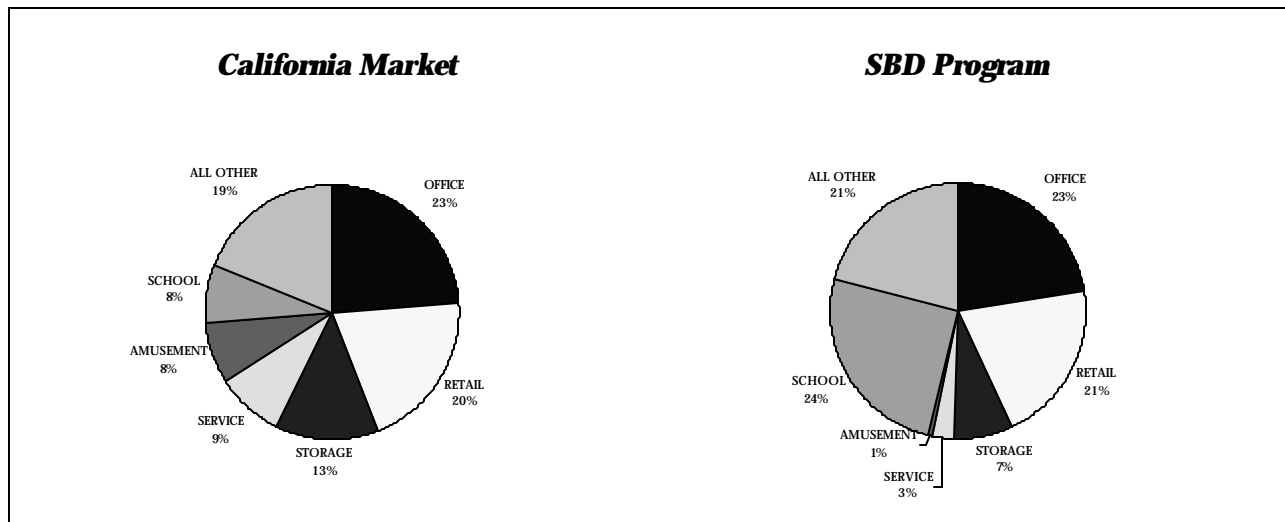
Table 3.12 summarizes the estimated annual MWh savings by measure class, in new construction committed in PY2000.

**Table 3.8 Number of Nonresidential New Construction SBD Participants in PY2000**

|                         | AMUSEMENT | ASSEMBLY | EDUCATION | GOVT | HOTEL | MEDICAL | OFFICE | RETAIL | SCHOOL | SERVICE | STORAGE | OTHER | TOTAL |
|-------------------------|-----------|----------|-----------|------|-------|---------|--------|--------|--------|---------|---------|-------|-------|
| <b>CALIFORNIA</b>       |           |          |           |      |       |         |        |        |        |         |         |       |       |
| Whole Building Approach | .         | 3        | 1         | .    | 1     | .       | 23     | .      | 14     | 2       | 2       | 2     | 48    |
| Systems Approach        | 2         | 18       | 1         | .    | 11    | 10      | 48     | 65     | 65     | 7       | 21      | 19    | 267   |
| Total                   | 2         | 21       | 2         | .    | 12    | 10      | 71     | 65     | 79     | 9       | 23      | 21    | 315   |
| <b>SCE</b>              |           |          |           |      |       |         |        |        |        |         |         |       |       |
| Whole Building Approach | .         | 3        | .         | .    | .     | .       | 2      | .      | 3      | .       | 2       | .     | 10    |
| Systems Approach        | .         | 7        | .         | .    | 3     | 3       | 9      | 20     | 16     | .       | 8       | 9     | 75    |
| Total                   | .         | 10       | .         | .    | 3     | 3       | 11     | 20     | 19     | .       | 10      | 9     | 85    |
| <b>PG&amp;E</b>         |           |          |           |      |       |         |        |        |        |         |         |       |       |
| Whole Building Approach | .         | .        | 1         | .    | .     | .       | 16     | .      | 1      | 2       | .       | .     | 20    |
| Systems Approach        | 2         | 5        | 1         | .    | 3     | 6       | 24     | 29     | 41     | 7       | 4       | 2     | 124   |
| Total                   | 2         | 5        | 2         | .    | 3     | 6       | 40     | 29     | 42     | 9       | 4       | 2     | 144   |
| <b>SDG&amp;E</b>        |           |          |           |      |       |         |        |        |        |         |         |       |       |
| Whole Building Approach | .         | .        | .         | .    | 1     | .       | 5      | .      | 10     | .       | .       | 2     | 18    |
| Systems Approach        | .         | 6        | .         | .    | 5     | 1       | 15     | 16     | 8      | .       | 9       | 8     | 68    |
| Total                   | .         | 6        | .         | .    | 6     | 1       | 20     | 16     | 18     | .       | 9       | 10    | 86    |

The majority of SBD program participants in PY2000 belong to the school, office and retail building types. High participation in these segments can be attributed to the overall high volume of new construction within these same segments (Exhibit 3.4 below), but also to the good fit between these building types and the scope of the SBD program. SBD participants in PY2000 do not include any government buildings, possibly due to differences between the SBD program requirements and FEMP regulations.

**Exhibit 3.4  
New Construction Building Segments with the Highest Number of Projects in PY2000**



**Table 3.9 Area of Nonresidential New Construction SBD Participants in PY2000  
(1,000 sqft)**

|                         | AMUSEMENT | ASSEMBLY | EDUCATION | GOVT | HOTEL | MEDICAL | OFFICE | RETAIL | SCHOOL | SERVICE | STORAGE | OTHER | TOTAL  |
|-------------------------|-----------|----------|-----------|------|-------|---------|--------|--------|--------|---------|---------|-------|--------|
| <b>CALIFORNIA</b>       |           |          |           |      |       |         |        |        |        |         |         |       |        |
| Whole Building Approach | .         | 169      | 493       | .    | 118   | .       | 5,325  | .      | 1,119  | 79      | 903     | 45    | 8,251  |
| Systems Approach        | 94        | 466      | 5         | .    | 1,007 | 623     | 3,376  | 1,910  | 1,886  | 338     | 3,252   | 1,590 | 14,546 |
| Total                   | 94        | 636      | 497       | .    | 1,125 | 623     | 8,701  | 1,910  | 3,005  | 417     | 4,155   | 1,636 | 22,797 |
| <b>SCE</b>              |           |          |           |      |       |         |        |        |        |         |         |       |        |
| Whole Building Approach | .         | 169      | .         | .    | .     | .       | 910    | .      | 697    | .       | 903     | .     | 2,680  |
| Systems Approach        | .         | 157      | .         | .    | 265   | 374     | 679    | 1,059  | 644    | .       | 2,241   | 886   | 6,306  |
| Total                   | .         | 327      | .         | .    | 265   | 374     | 1,589  | 1,059  | 1,341  | .       | 3,144   | 886   | 8,986  |
| <b>PG&amp;E</b>         |           |          |           |      |       |         |        |        |        |         |         |       |        |
| Whole Building Approach | .         | .        | 493       | .    | .     | .       | 3,851  | .      | 147    | 79      | .       | .     | 4,569  |
| Systems Approach        | 94        | 68       | 5         | .    | 303   | 149     | 1,744  | 279    | 972    | 338     | 464     | 128   | 4,544  |
| Total                   | 94        | 68       | 497       | .    | 303   | 149     | 5,594  | 279    | 1,119  | 417     | 464     | 128   | 9,113  |
| <b>SDG&amp;E</b>        |           |          |           |      |       |         |        |        |        |         |         |       |        |
| Whole Building Approach | .         | .        | .         | .    | 118   | .       | 564    | .      | 275    | .       | .       | 45    | 1,002  |
| Systems Approach        | .         | 241      | .         | .    | 439   | 99      | 953    | 572    | 270    | .       | 547     | 576   | 3,697  |
| Total                   | .         | 241      | .         | .    | 556   | 99      | 1,517  | 572    | 545    | .       | 547     | 622   | 4,699  |

The majority of SBD program activity in terms of area committed in PY2000 belongs to the office, storage and school segments. The same building types yield high estimated MWh savings.

**Table 3.10 Estimated Annual MWh Savings  
for New Construction SBD Participants in PY2000**

|                         | AMUSEMENT | ASSEMBLY | EDUCATION | GOVT | HOTEL | MEDICAL | OFFICE | RETAIL | SCHOOL | SERVICE | STORAGE | OTHER | TOTAL  |
|-------------------------|-----------|----------|-----------|------|-------|---------|--------|--------|--------|---------|---------|-------|--------|
| <b>CALIFORNIA</b>       |           |          |           |      |       |         |        |        |        |         |         |       |        |
| Whole Building Approach | .         | 2,367    | 1,614     | .    | 393   | .       | 10,934 | .      | 4,773  | 254     | 3,979   | 112   | 24,425 |
| Systems Approach        | 184       | 1,146    | 4         | .    | 1,043 | 796     | 3,812  | 9,313  | 3,491  | 185     | 8,059   | 4,667 | 32,700 |
| Total                   | 184       | 3,513    | 1,618     | .    | 1,436 | 796     | 14,745 | 9,313  | 8,264  | 439     | 12,038  | 4,779 | 57,125 |
| <b>SCE</b>              |           |          |           |      |       |         |        |        |        |         |         |       |        |
| Whole Building Approach | .         | 2,367    | .         | .    | .     | .       | 1,767  | .      | 2,223  | .       | 3,979   | .     | 10,337 |
| Systems Approach        | .         | 730      | .         | .    | 410   | 607     | 391    | 6,350  | 1,710  | .       | 6,246   | 3,316 | 19,761 |
| Total                   | .         | 3,097    | .         | .    | 410   | 607     | 2,158  | 6,350  | 3,934  | .       | 10,225  | 3,316 | 30,098 |
| <b>PG&amp;E</b>         |           |          |           |      |       |         |        |        |        |         |         |       |        |
| Whole Building Approach | .         | .        | 1,614     | .    | .     | .       | 7,087  | .      | 217    | 254     | .       | .     | 9,171  |
| Systems Approach        | 184       | 152      | 4         | .    | 103   | 135     | 2,265  | 1,027  | 1,267  | 185     | 1,448   | 51    | 6,821  |
| Total                   | 184       | 152      | 1,618     | .    | 103   | 135     | 9,351  | 1,027  | 1,484  | 439     | 1,448   | 51    | 15,992 |
| <b>SDG&amp;E</b>        |           |          |           |      |       |         |        |        |        |         |         |       |        |
| Whole Building Approach | .         | .        | .         | .    | 393   | .       | 2,080  | .      | 2,333  | .       | .       | 112   | 4,917  |
| Systems Approach        | .         | 265      | .         | .    | 530   | 54      | 1,156  | 1,935  | 514    | .       | 364     | 1,299 | 6,117  |
| Total                   | .         | 265      | .         | .    | 923   | 54      | 3,235  | 1,935  | 2,847  | .       | 364     | 1,411 | 11,034 |

**Table 3.11 Classes of Measures Installed by New Construction SBD Participants in PY2000**

|                         | WHOLE BUILDING | DAY-LIGHTING | SKYLIGHT | HVAC CHILLER | HVAC PACKAGE | HVAC CONTROLS | HVAC OTHER | MOTORS | LIGHTING | ENVELOPE | OTHER | TOTAL |
|-------------------------|----------------|--------------|----------|--------------|--------------|---------------|------------|--------|----------|----------|-------|-------|
| <b>CALIFORNIA</b>       |                |              |          |              |              |               |            |        |          |          |       |       |
| Whole Building Approach | 48             | .            | .        | .            | .            | .             | .          | .      | .        | .        | .     | 48    |
| Systems Approach        | .              | 22           | .        | 10           | 304          | 4             | 15         | 7      | 175      | 5        | 61    | 603   |
| Total                   | 48             | 22           | .        | 10           | 304          | 4             | 15         | 7      | 175      | 5        | 61    | 651   |
| <b>SCE</b>              |                |              |          |              |              |               |            |        |          |          |       |       |
| Whole Building Approach | 10             | .            | .        | .            | .            | .             | .          | .      | .        | .        | .     | 10    |
| Systems Approach        | .              | 22           | .        | 2            | 43           | .             | 7          | 5      | 38       | .        | 27    | 144   |
| Total                   | 10             | 22           | .        | 2            | 43           | .             | 7          | 5      | 38       | .        | 27    | 154   |
| <b>PG&amp;E</b>         |                |              |          |              |              |               |            |        |          |          |       |       |
| Whole Building Approach | 20             | .            | .        | .            | .            | .             | .          | .      | .        | .        | .     | 20    |
| Systems Approach        | .              | .            | .        | 2            | 88           | 4             | 1          | .      | 94       | 2        | 3     | 194   |
| Total                   | 20             | .            | .        | 2            | 88           | 4             | 1          | .      | 94       | 2        | 3     | 214   |
| <b>SDG&amp;E</b>        |                |              |          |              |              |               |            |        |          |          |       |       |
| Whole Building Approach | 18             | .            | .        | .            | .            | .             | .          | .      | .        | .        | .     | 18    |
| Systems Approach        | .              | .            | .        | 6            | 173          | .             | 7          | 2      | 43       | 3        | 31    | 265   |
| Total                   | 18             | .            | .        | 6            | 173          | .             | 7          | 2      | 43       | 3        | 31    | 283   |

The measures installed by each participant were established using the following fields from the tracking systems maintained by the IOUs: the “meas\_desc” for SCE participants, the “description” for PG&E participants, and the “msr\_desc” for SDG&E participants. Each entry into the tracking system was then assigned to one of the measure segments presented in Table 3.11, and counted as one instance in which that particular class of measures was installed through the SBD Program. Each participant that selected the whole building approach counted as one instance in which the whole building approach was adopted, regardless of the number and types of measures installed. As Table 3.11 indicates, unitary HVAC systems, lighting, and “other measures” (VSDs, refrigeration) were installed most often by SBD new construction participants, while HVAC controls, envelope measures and motors were installed very rarely.

**Table 3.12 Estimated Annual MWh Savings by Measure Class for New Construction SBD Participants in PY2000**

|                         | WHOLE BUILDING | DAY-LIGHTING | SKYLIGHT | HVAC CHILLER | HVAC PACKAGE | HVAC CONTROLS | HVAC OTHER | MOTORS | LIGHTING | ENVELOPE | OTHER | TOTAL  |
|-------------------------|----------------|--------------|----------|--------------|--------------|---------------|------------|--------|----------|----------|-------|--------|
| <b>CALIFORNIA</b>       |                |              |          |              |              |               |            |        |          |          |       |        |
| Whole Building Approach | 24,425         | .            | .        | .            | .            | .             | .          | .      | .        | .        | .     | 24,425 |
| Systems Approach        | .              | 6,116        | .        | 1,255        | 4,731        | 31            | 2,251      | 47     | 9,027    | 53       | 9,189 | 32,700 |
| Total                   | 24,425         | 6,116        | .        | 1,255        | 4,731        | 31            | 2,251      | 47     | 9,027    | 53       | 9,189 | 57,125 |
| <b>SCE</b>              |                |              |          |              |              |               |            |        |          |          |       |        |
| Whole Building Approach | 10,337         | .            | .        | .            | .            | .             | .          | .      | .        | .        | .     | 10,337 |
| Systems Approach        | .              | 6,116        | .        | 215          | 1,844        | .             | 1,855      | 46     | 3,433    | .        | 6,252 | 19,761 |
| Total                   | 10,337         | 6,116        | .        | 215          | 1,844        | .             | 1,855      | 46     | 3,433    | .        | 6,252 | 30,098 |
| <b>PG&amp;E</b>         |                |              |          |              |              |               |            |        |          |          |       |        |
| Whole Building Approach | 9,171          | .            | .        | .            | .            | .             | .          | .      | .        | .        | .     | 9,171  |
| Systems Approach        | .              | .            | .        | 687          | 964          | 31            | 1          | .      | 4,491    | 46       | 602   | 6,821  |
| Total                   | 9,171          | .            | .        | 687          | 964          | 31            | 1          | .      | 4,491    | 46       | 602   | 15,992 |
| <b>SDG&amp;E</b>        |                |              |          |              |              |               |            |        |          |          |       |        |
| Whole Building Approach | 4,917          | .            | .        | .            | .            | .             | .          | .      | .        | .        | .     | 4,917  |
| Systems Approach        | .              | .            | .        | 353          | 1,924        | .             | 394        | 1      | 1,103    | 8        | 2,335 | 6,117  |
| Total                   | 4,917          | .            | .        | 353          | 1,924        | .             | 394        | 1      | 1,103    | 8        | 2,335 | 11,034 |

The whole building design, lighting and “other measures” such as variable speed drives and refrigeration systems account for most of the committed MWh savings in new construction.

#### 4. STATEWIDE NONRESIDENTIAL ALTERATION (R&R) TRENDS

This chapter summarizes the nonresidential alterations that have occurred in PY2000 in the State of California. Similar to Chapter 2, the first section presents the total valuation and the number of project starts in the nonresidential alteration market, by county and building type (F.W. Dodge does not track square feet for alteration projects.) The second section presents the SBD program activity for tenant improvement, renovation and remodeling projects (R&R) in PY2000.

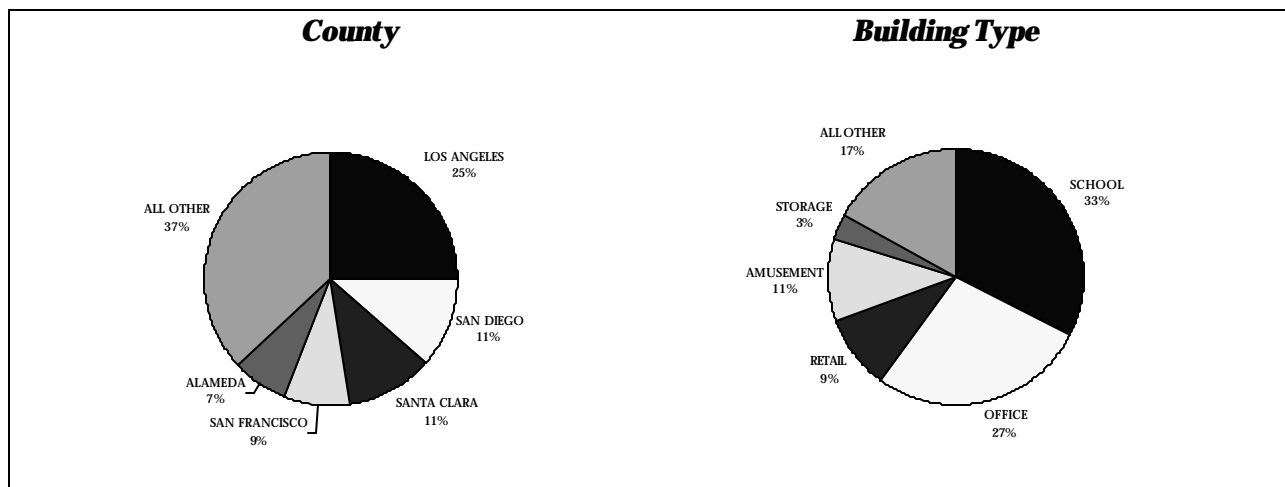
##### 4.1 ALTERATION (R&R) MARKET CHARACTERISTICS IN PY2000

PY2000 nonresidential alteration market activity by building segment and county is presented in the following tables. To summarize the market activity by utility territory, project zip codes were used in conjunction with California Energy Commission's zip code-to-utility territory mapping to allocate projects to IOU and non-IOU utilities.

Table 4.1 summarizes the F.W. Dodge valuation for the nonresidential alteration projects that started construction during PY2000. The valuation reported by F.W. Dodge is roughly half of the permit valuation reported by CIRB (Appendix B, Table B.1). One explanation is that CIRB groups addition and alteration projects together, thus reporting a larger market segment than F.W. Dodge. Another is that CIRB records only building-related projects, while leaving out permits for heating, HVAC, electrical, and other remodeling/renovation projects.

As Exhibit 4.1 shows, the counties with the most active alteration activity in terms of valuation are Los Angeles, San Diego, Santa Clara, San Francisco and Alameda. There are nine counties for which F.W. Dodge does not record any nonresidential alteration project starts: Calaveras, Del Norte, Lassen, Mendocino, Modoc, Mono, Sierra, Sutter, and Trinity.

**Exhibit 4.1**  
**R&R Market Segments with the Highest Project Start Valuation in PY2000**

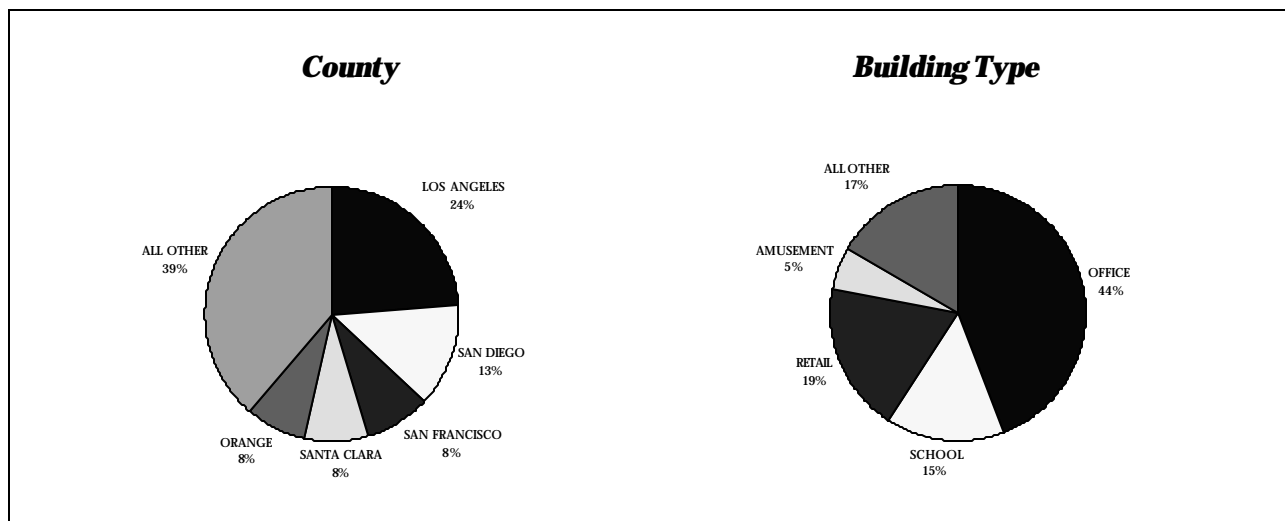


Among building types, school, office, retail and amusement account for the highest value of alteration projects that have started construction in PY2000, while assembly (churches) and service account for the lowest value in PY2000.

Among utility territories, PG&E accounts for almost half the statewide project start value in PY2000. In all three IOU territories, the school and office segments account for large fractions of the total project start valuation. In non-IOU areas, the amusement segment is also important in terms of project start valuation.

Table 4.2 presents the number of nonresidential alteration projects that started construction during PY2000. As shown in Exhibit 4.2 below, the counties with the largest number of alteration project starts are Los Angeles, San Diego, San Francisco, Santa Clara and Orange. Among building types, the office segment is by far the largest in terms of alteration project starts, followed by retail and school. The fewest alteration project starts recorded by F.W. Dodge in PY2000 occur in the education (museums, libraries) and government segments. Among utility territories, PG&E leads with the highest number of project starts, followed by SCE. SDG&E accounts for the smallest number of project starts. Non-IOU areas have a significant number of project starts, approximately double when compared to the number in SDG&E territory.

**Exhibit 4.2**  
**R&R Market Segments with the Highest Number of Project Starts in PY2000**



Tables 4.3 and 4.4 summarize quarterly alteration project starts by county and building type. Similar to the findings for the new construction and addition market, there is little variation from quarter to quarter in the number of project starts by segment.

**Table 4.1 F.W. Dodge Valuation for Nonresidential Alteration Project Starts in PY2000  
by Building Type, County and Service Territory (\$1,000)**

|                 | AMUSEMENT | ASSEMBLY | EDUCATION | GOVT   | HOTEL  | MEDICAL | OFFICE  | RETAIL  | SCHOOL    | SERVICE | STORAGE | OTHER   | TOTAL     |
|-----------------|-----------|----------|-----------|--------|--------|---------|---------|---------|-----------|---------|---------|---------|-----------|
| <b>COUNTY</b>   |           |          |           |        |        |         |         |         |           |         |         |         |           |
| ALAMEDA         | 11,863    | 1,772    | 307       | 1,420  | 596    | 1,359   | 70,260  | 19,333  | 109,015   | 400     | 6,180   | 11,927  | 234,432   |
| ALPINE          | .         | .        | .         | .      | .      | .       | .       | .       | .         | .       | .       | 181     | 181       |
| AMADOR          | 1,300     | .        | .         | .      | .      | .       | .       | .       | .         | 197     | .       | .       | 1,497     |
| BUTTE           | .         | .        | .         | .      | .      | .       | 714     | 850     | 3,356     | .       | .       | .       | 4,920     |
| CALAVERAS       | .         | .        | .         | .      | .      | .       | .       | .       | .         | .       | .       | .       | 0         |
| COLUSA          | .         | .        | .         | .      | .      | .       | .       | .       | 496       | .       | .       | .       | 496       |
| CONTRA COSTA    | 1,947     | 85       | 150       | .      | 77     | 1,298   | 11,124  | 7,993   | 28,734    | 2,500   | .       | 663     | 54,571    |
| DEL NORTE       | .         | .        | .         | .      | .      | .       | .       | .       | .         | .       | .       | .       | 0         |
| EL DORADO       | 178       | 164      | .         | .      | 300    | .       | 756     | 1,011   | 7,172     | 5,344   | .       | .       | 14,925    |
| FRESNO          | 1,003     | 530      | 450       | 1,130  | .      | 2,354   | 2,052   | 5,792   | 31,112    | 649     | 1,712   | 338     | 47,122    |
| GLENN           | .         | .        | .         | .      | .      | .       | .       | .       | 883       | .       | 596     | .       | 1,479     |
| HUMBOLDT        | .         | .        | .         | .      | .      | .       | .       | 395     | 3,722     | .       | .       | .       | 4,117     |
| IMPERIAL        | 102       | .        | .         | .      | .      | 760     | .       | 362     | 5,849     | 488     | .       | 309     | 7,870     |
| INYO            | .         | .        | .         | .      | .      | .       | .       | .       | 183       | .       | .       | .       | 183       |
| KERN            | 1,899     | 417      | .         | 79     | .      | 1,798   | 4,128   | 1,844   | 21,023    | .       | 1,790   | 1,209   | 34,187    |
| KINGS           | .         | .        | .         | .      | .      | .       | .       | .       | 9,848     | .       | .       | .       | 9,238     |
| LAKE            | .         | .        | .         | .      | .      | .       | .       | 275     | .         | .       | .       | 300     | 575       |
| LASSEN          | .         | .        | .         | .      | .      | .       | .       | .       | .         | .       | .       | .       | 0         |
| LOS ANGELES     | 177,670   | 3,318    | 2,733     | 3,901  | 4,418  | 15,702  | 169,452 | 98,568  | 305,236   | 12,190  | 30,044  | 40,020  | 863,252   |
| MADERA          | .         | .        | 850       | .      | .      | .       | .       | 133     | .         | .       | .       | 284     | 1,267     |
| MARIN           | .         | .        | 50        | .      | .      | 296     | 2,025   | 2,815   | 12,916    | .       | .       | 12,011  | 30,113    |
| MARIPOSA        | .         | .        | .         | .      | .      | .       | 85      | .       | .         | .       | .       | .       | 85        |
| MENDOCINO       | .         | .        | .         | .      | .      | .       | .       | .       | .         | .       | .       | .       | 0         |
| MERCED          | 502       | .        | .         | .      | .      | .       | 447     | 186     | 1,176     | .       | .       | 88      | 2,399     |
| MODOC           | .         | .        | .         | .      | .      | .       | .       | .       | .         | .       | .       | .       | 0         |
| MONO            | .         | .        | .         | .      | .      | .       | .       | .       | .         | .       | .       | .       | 0         |
| MONTEREY        | 1,444     | .        | .         | 2,300  | 971    | 1,495   | 2,354   | 3,383   | 4,606     | 371     | .       | 4,486   | 21,410    |
| NAPA            | 6,195     | .        | .         | 800    | 75     | 1,000   | 6,879   | 2,500   | 4,851     | .       | 259     | 1,498   | 24,057    |
| NEVADA          | .         | .        | .         | .      | .      | .       | .       | 850     | 65        | .       | .       | .       | 1,562     |
| ORANGE          | 28,718    | 2,393    | 100       | 1,749  | 18,655 | 2,743   | 77,381  | 41,570  | 12,440    | 4,358   | 6,044   | 12,381  | 208,532   |
| PLACER          | 349       | .        | .         | 563    | .      | 1,111   | 11,072  | 10,816  | 5,934     | .       | .       | 4,231   | 34,076    |
| PLUMAS          | .         | .        | .         | .      | .      | .       | 88      | .       | .         | .       | .       | .       | 88        |
| RIVERSIDE       | 3,145     | .        | 2,422     | 185    | 510    | 1,130   | 13,630  | 13,372  | 37,826    | 305     | 2,390   | 5,314   | 80,229    |
| SACRAMENTO      | 48,630    | 172      | .         | 9,585  | .      | 2,262   | 24,635  | 9,918   | 52,123    | 2,959   | 5,068   | 1,408   | 156,760   |
| SAN BENITO      | 470       | .        | .         | .      | .      | .       | .       | 897     | .         | .       | .       | .       | 1,367     |
| SAN BERNARDINO  | 2,339     | 2,220    | 150       | 5,966  | 150    | 6,360   | 7,853   | 8,071   | 14,330    | 187     | 2,341   | 2,544   | 52,511    |
| SAN DIEGO       | 10,729    | 4,669    | 7,038     | 2,612  | 1,127  | 3,492   | 128,505 | 28,063  | 122,075   | 5,059   | 19,431  | 53,093  | 385,893   |
| SAN FRANCISCO   | 19,336    | 8,429    | 67,700    | 8,146  | 23,245 | 656     | 106,115 | 15,566  | 20,664    | 3,334   | 22,119  | 2,142   | 297,452   |
| SAN JOAQUIN     | 164       | .        | .         | .      | .      | .       | 445     | 343     | 17,569    | .       | 219     | 8,162   | 26,902    |
| SAN LUIS OBISPO | 1,385     | 307      | .         | 750    | .      | 145     | 6,823   | 2,188   | 855       | 252     | 82      | 1,066   | 13,853    |
| SAN MATEO       | 334       | 890      | .         | 3,234  | 2,000  | 2,424   | 46,417  | 3,901   | 37,212    | 80      | .       | 9,532   | 106,024   |
| SANTA BARBARA   | 2,039     | 1,692    | 184       | .      | 30,110 | 485     | 21,944  | 4,998   | 6,049     | 113     | 104     | 1,144   | 68,862    |
| SANTA CLARA     | 30,468    | 2,746    | 8,907     | 886    | 246    | 9,632   | 195,882 | 10,212  | 109,613   | 1,493   | 2,074   | 11,804  | 383,963   |
| SANTA CRUZ      | 1,473     | .        | 1,000     | 3,440  | .      | 3,000   | 2,149   | 1,470   | 18,778    | .       | .       | 295     | 31,605    |
| SHASTA          | .         | .        | .         | .      | .      | 200     | 100     | 228     | 1,404     | .       | .       | .       | 1,932     |
| SIERRA          | .         | .        | .         | .      | .      | .       | .       | .       | .         | .       | .       | .       | 0         |
| SISKIYOU        | .         | .        | .         | .      | .      | 250     | .       | 730     | 638       | .       | 2,347   | .       | 3,965     |
| SOLANO          | 2,869     | 573      | .         | .      | 154    | .       | 8,880   | 4,033   | 6,833     | 202     | 1,778   | 5,139   | 30,461    |
| SONOMA          | 1,013     | .        | .         | 209    | 632    | 150     | 7,435   | 6,794   | 31,352    | .       | 4,010   | 3,378   | 54,973    |
| STANISLAUS      | 2,107     | .        | .         | 708    | .      | .       | 889     | 90      | 1,827     | .       | .       | 1,526   | 7,147     |
| SUTTER          | .         | .        | .         | .      | .      | .       | .       | .       | .         | .       | .       | .       | 0         |
| TEHAMA          | .         | .        | .         | .      | .      | .       | .       | .       | 1,520     | .       | .       | .       | 1,520     |
| TRINITY         | .         | .        | .         | .      | .      | .       | .       | .       | .         | .       | .       | .       | 0         |
| TULARE          | 188       | .        | .         | 3,704  | .      | 418     | .       | .       | 5,968     | .       | .       | 157     | 10,435    |
| TUOLUMNE        | .         | .        | .         | .      | .      | .       | 549     | .       | 285       | .       | .       | 150     | 984       |
| VENTURA         | 1,330     | 795      | 475       | 755    | 500    | 526     | 12,811  | 5,944   | 57,703    | 773     | 4,126   | 8,670   | 94,408    |
| YOLO            | 648       | .        | .         | .      | .      | 160     | 731     | 3,064   | 8,805     | .       | .       | 378     | 13,786    |
| YUBA            | .         | .        | .         | 1,750  | .      | .       | .       | .       | .         | .       | .       | .       | 1,750     |
| CALIFORNIA      | 361,837   | 31,172   | 92,516    | 53,872 | 83,766 | 61,206  | 944,610 | 318,558 | 1,122,046 | 41,254  | 112,714 | 216,628 | 3,440,179 |
| <b>UTILITY</b>  |           |          |           |        |        |         |         |         |           |         |         |         |           |
| SCE             | 38,947    | 6,148    | 2,695     | 14,669 | 32,731 | 13,654  | 171,674 | 86,856  | 314,816   | 8,335   | 19,045  | 52,958  | 762,528   |
| PG&E            | 87,649    | 15,867   | 79,598    | 25,336 | 28,331 | 27,161  | 503,624 | 103,917 | 501,802   | 14,690  | 40,168  | 91,149  | 1,519,292 |
| SDG&E           | 34,279    | 3,927    | 7,038     | 2,903  | 19,400 | 3,687   | 126,920 | 36,255  | 114,559   | 9,128   | 19,348  | 46,149  | 423,593   |
| Non-IOU         | 200,962   | 5,230    | 3,185     | 10,964 | 3,304  | 16,704  | 142,392 | 91,530  | 190,869   | 9,101   | 34,153  | 26,372  | 734,766   |



**Table 4.2 F.W. Dodge Number of Nonresidential Alteration Project Starts in PY2000  
by Building Type, County and Service Territory**

| COUNTY          | AMUSEMENT | ASSEMBLY | EDUCATION | GOVT | HOTEL | MEDICAL | OFFICE | RETAIL | SCHOOL | SERVICE | STORAGE | OTHER | TOTAL |
|-----------------|-----------|----------|-----------|------|-------|---------|--------|--------|--------|---------|---------|-------|-------|
| ALAMEDA         | 12        | 3        | 1         | 2    | 1     | 7       | 104    | 36     | 68     | 3       | 7       | 18    | 262   |
| ALPINE          | .         | .        | .         | .    | .     | .       | .      | .      | .      | .       | .       | 1     | 1     |
| AMADOR          | 1         | .        | .         | .    | .     | .       | .      | .      | .      | 1       | .       | .     | 2     |
| BUTTE           | .         | .        | .         | .    | .     | .       | 2      | 1      | 4      | .       | .       | .     | 7     |
| CALAVERAS       | .         | .        | .         | .    | .     | .       | .      | .      | .      | .       | .       | .     | 0     |
| COLUSA          | .         | .        | .         | .    | .     | .       | .      | .      | 1      | .       | .       | .     | 1     |
| CONTRA COSTA    | 4         | 1        | 1         | .    | 1     | 5       | 27     | 24     | 14     | 1       | .       | 4     | 82    |
| DEL NORTE       | .         | .        | .         | .    | .     | .       | .      | .      | .      | .       | .       | .     | 0     |
| EL DORADO       | 1         | 1        | .         | .    | 1     | .       | 7      | 3      | 6      | 5       | .       | .     | 24    |
| FRESNO          | 3         | 1        | 1         | 2    | .     | 2       | 8      | 11     | 21     | 1       | 5       | 2     | 57    |
| GLENN           | .         | .        | .         | .    | .     | .       | .      | .      | 1      | .       | 1       | .     | 2     |
| HUMBOLDT        | .         | .        | .         | .    | .     | .       | .      | 1      | 5      | .       | .       | .     | 6     |
| IMPERIAL        | 1         | .        | .         | .    | .     | 1       | .      | 1      | 4      | 2       | .       | 2     | 11    |
| INYO            | .         | .        | .         | .    | .     | .       | .      | .      | 1      | .       | .       | .     | 1     |
| KERN            | 6         | 3        | .         | 1    | .     | 3       | 21     | 12     | 8      | .       | 3       | 3     | 60    |
| KINGS           | .         | .        | .         | .    | .     | .       | .      | .      | 5      | .       | .       | 1     | 6     |
| LAKE            | .         | .        | .         | .    | .     | .       | .      | 1      | .      | .       | .       | 1     | 2     |
| LASSEN          | .         | .        | .         | .    | .     | .       | .      | .      | .      | .       | .       | .     | 0     |
| LOS ANGELES     | 69        | 13       | 6         | 6    | 13    | 30      | 484    | 209    | 166    | 27      | 38      | 57    | 1,118 |
| MADERA          | .         | .        | 1         | .    | .     | .       | .      | 1      | .      | .       | .       | .     | 3     |
| MARIN           | .         | .        | 1         | .    | .     | 1       | 11     | 5      | 16     | .       | .       | 2     | 36    |
| MARIPOSA        | .         | .        | .         | .    | .     | .       | 1      | .      | .      | .       | .       | .     | 1     |
| MENDOCINO       | .         | .        | .         | .    | .     | .       | .      | .      | .      | .       | .       | .     | 0     |
| MERCED          | 1         | .        | .         | .    | .     | .       | 2      | 2      | 1      | .       | .       | 1     | 7     |
| MODOC           | .         | .        | .         | .    | .     | .       | .      | .      | .      | .       | .       | .     | 0     |
| MONO            | .         | .        | .         | .    | .     | .       | .      | .      | .      | .       | .       | .     | 0     |
| MONTEREY        | 4         | .        | .         | 3    | 2     | 2       | 7      | 11     | 3      | 2       | .       | 2     | 36    |
| NAPA            | 2         | .        | .         | 1    | 1     | 1       | 10     | 5      | 7      | .       | 1       | 2     | 30    |
| NEVADA          | .         | .        | .         | .    | .     | .       | .      | 1      | 1      | .       | .       | 1     | 3     |
| ORANGE          | 16        | 4        | 1         | 5    | 5     | 9       | 188    | 78     | 20     | 2       | 7       | 19    | 354   |
| PLACER          | 2         | .        | .         | 1    | .     | 6       | 38     | 60     | 3      | .       | .       | 5     | 115   |
| PLUMAS          | .         | .        | .         | .    | .     | .       | 1      | .      | .      | .       | .       | .     | 1     |
| RIVERSIDE       | 8         | .        | 3         | 1    | 2     | 7       | 41     | 40     | 13     | 2       | 5       | 6     | 128   |
| SACRAMENTO      | 8         | 1        | .         | 4    | .     | 3       | 69     | 41     | 36     | 3       | 8       | 4     | 177   |
| SAN BENITO      | 1         | .        | .         | .    | .     | .       | .      | 2      | .      | .       | .       | .     | 3     |
| SAN BERNARDINO  | 5         | 1        | 1         | 2    | 1     | 2       | 31     | 22     | 15     | 1       | 6       | 6     | 93    |
| SAN DIEGO       | 29        | 14       | 6         | 2    | 4     | 11      | 325    | 85     | 60     | 9       | 24      | 32    | 601   |
| SAN FRANCISCO   | 10        | 6        | 3         | 2    | 14    | 5       | 251    | 60     | 26     | 8       | 6       | 3     | 394   |
| SAN JOAQUIN     | 2         | .        | .         | .    | .     | .       | 3      | 2      | 20     | .       | 2       | 2     | 31    |
| SAN LUIS OBISPO | 3         | 2        | .         | 1    | .     | 2       | 10     | 6      | 3      | 1       | 1       | 4     | 33    |
| SAN MATEO       | 2         | 2        | .         | 1    | 1     | 4       | 78     | 11     | 24     | 1       | .       | 7     | 131   |
| SANTA BARBARA   | 8         | 2        | 1         | .    | 2     | 3       | 30     | 36     | 12     | 1       | 1       | 4     | 100   |
| SANTA CLARA     | 19        | 5        | 5         | 1    | 2     | 10      | 220    | 50     | 41     | 6       | 5       | 19    | 383   |
| SANTA CRUZ      | 4         | .        | 1         | 2    | .     | 1       | 5      | 5      | 16     | .       | .       | 2     | 36    |
| SHASTA          | .         | .        | .         | .    | .     | 1       | 1      | 2      | 3      | .       | .       | .     | 7     |
| SIERRA          | .         | .        | .         | .    | .     | .       | .      | .      | .      | .       | .       | .     | 0     |
| SISKIYOU        | .         | .        | .         | .    | .     | 1       | .      | 1      | 3      | .       | 1       | .     | 6     |
| SOLANO          | 1         | 1        | .         | .    | 1     | .       | 11     | 7      | 7      | 2       | 3       | 4     | 37    |
| SONOMA          | 3         | .        | .         | 2    | 2     | 1       | 23     | 10     | 21     | .       | 1       | 4     | 67    |
| STANISLAUS      | 2         | .        | .         | 2    | .     | .       | 1      | 1      | 6      | .       | .       | 2     | 14    |
| SUTTER          | .         | .        | .         | .    | .     | .       | .      | .      | .      | .       | .       | .     | 0     |
| TEHAMA          | .         | .        | .         | .    | .     | .       | .      | .      | 1      | .       | .       | .     | 1     |
| TRINITY         | .         | .        | .         | .    | .     | .       | .      | .      | .      | .       | .       | .     | 0     |
| TULARE          | 2         | .        | .         | 1    | .     | 1       | .      | .      | 5      | .       | .       | 1     | 10    |
| TUOLUMNE        | .         | .        | .         | .    | .     | .       | 1      | .      | 1      | .       | .       | 1     | 3     |
| VENTURA         | 8         | 2        | 4         | 3    | 1     | 6       | 35     | 36     | 26     | 4       | 9       | 14    | 148   |
| YOLO            | 2         | .        | .         | .    | .     | 1       | 4      | 4      | 9      | .       | .       | 2     | 22    |
| YUBA            | .         | .        | .         | 1    | .     | .       | .      | .      | .      | .       | .       | .     | 1     |
| CALIFORNIA      | 239       | 62       | 36        | 46   | 54    | 126     | 2,050  | 883    | 703    | 82      | 134     | 239   | 4,654 |
| <b>UTILITY</b>  |           |          |           |      |       |         |        |        |        |         |         |       |       |
| SCE             | 70        | 14       | 10        | 16   | 14    | 32      | 491    | 246    | 158    | 19      | 44      | 72    | 1,186 |
| PG&E            | 86        | 24       | 15        | 21   | 26    | 50      | 806    | 324    | 346    | 30      | 32      | 89    | 1,849 |
| SDG&E           | 33        | 8        | 6         | 2    | 5     | 12      | 291    | 79     | 57     | 9       | 22      | 31    | 555   |
| Non-IOU         | 50        | 16       | 5         | 7    | 9     | 32      | 462    | 234    | 142    | 24      | 36      | 47    | 1,064 |

**Table 4.3 F.W. Dodge Number of Nonresidential Alteration Project Starts in PY2000 by Quarter, County and Service Territory**

|                 | Q1, 2000 | Q2, 2000 | Q3, 2000 | Q4, 2000 | Total 2000 |
|-----------------|----------|----------|----------|----------|------------|
| <b>COUNTY</b>   |          |          |          |          |            |
| ALAMEDA         | 34       | 68       | 96       | 64       | 262        |
| ALPINE          | 0        | 1        | 0        | 0        | 1          |
| AMADOR          | 1        | 0        | 1        | 0        | 2          |
| BUTTE           | 2        | 1        | 3        | 1        | 7          |
| CALAVERAS       | 0        | 0        | 0        | 0        | 0          |
| COLUSA          | 0        | 1        | 0        | 0        | 1          |
| CONTRA COSTA    | 14       | 13       | 39       | 16       | 82         |
| DEL NORTE       | 0        | 0        | 0        | 0        | 0          |
| EL DORADO       | 3        | 5        | 9        | 7        | 24         |
| FRESNO          | 10       | 26       | 4        | 17       | 57         |
| GLENN           | 1        | 1        | 0        | 0        | 2          |
| HUMBOLDT        | 0        | 5        | 0        | 1        | 6          |
| IMPERIAL        | 0        | 2        | 6        | 3        | 11         |
| INYO            | 0        | 0        | 1        | 0        | 1          |
| KERN            | 5        | 15       | 22       | 18       | 60         |
| KINGS           | 0        | 3        | 2        | 1        | 6          |
| LAKE            | 1        | 1        | 0        | 0        | 2          |
| LASSEN          | 0        | 0        | 0        | 0        | 0          |
| LOS ANGELES     | 276      | 272      | 327      | 243      | 1,118      |
| MADERA          | 0        | 0        | 1        | 2        | 3          |
| MARIN           | 4        | 4        | 16       | 12       | 36         |
| MARIPOSA        | 1        | 0        | 0        | 0        | 1          |
| MENDOCINO       | 0        | 0        | 0        | 0        | 0          |
| MERCED          | 1        | 1        | 3        | 2        | 7          |
| MODOC           | 0        | 0        | 0        | 0        | 0          |
| MONO            | 0        | 0        | 0        | 0        | 0          |
| MONTEREY        | 7        | 8        | 7        | 14       | 36         |
| NAPA            | 3        | 8        | 9        | 10       | 30         |
| NEVADA          | 1        | 1        | 1        | 0        | 3          |
| ORANGE          | 108      | 75       | 89       | 82       | 354        |
| PLACER          | 11       | 22       | 68       | 14       | 115        |
| PLUMAS          | 0        | 0        | 0        | 1        | 1          |
| RIVERSIDE       | 32       | 32       | 34       | 30       | 128        |
| SACRAMENTO      | 23       | 40       | 49       | 65       | 177        |
| SAN BENITO      | 3        | 0        | 0        | 0        | 3          |
| SAN BERNARDINO  | 14       | 19       | 31       | 29       | 93         |
| SAN DIEGO       | 145      | 123      | 183      | 150      | 601        |
| SAN FRANCISCO   | 80       | 95       | 133      | 86       | 394        |
| SAN JOAQUIN     | 5        | 14       | 8        | 4        | 31         |
| SAN LUIS OBISPO | 6        | 9        | 12       | 6        | 33         |
| SAN MATEO       | 23       | 32       | 39       | 37       | 131        |
| SANTA BARBARA   | 20       | 27       | 27       | 26       | 100        |
| SANTA CLARA     | 66       | 84       | 116      | 117      | 383        |
| SANTA CRUZ      | 10       | 9        | 8        | 9        | 36         |
| SHASTA          | 3        | 1        | 3        | 0        | 7          |
| SIERRA          | 0        | 0        | 0        | 0        | 0          |
| SISKIYOU        | 1        | 2        | 2        | 1        | 6          |
| SOLANO          | 8        | 8        | 9        | 12       | 37         |
| SONOMA          | 4        | 23       | 17       | 23       | 67         |
| STANISLAUS      | 4        | 4        | 3        | 3        | 14         |
| SUTTER          | 0        | 0        | 0        | 0        | 0          |
| TEHAMA          | 0        | 1        | 0        | 0        | 1          |
| TRINITY         | 0        | 0        | 0        | 0        | 0          |
| TULARE          | 2        | 1        | 3        | 4        | 10         |
| TUOLUMNE        | 0        | 0        | 1        | 2        | 3          |
| VENTURA         | 46       | 40       | 34       | 28       | 148        |
| YOLO            | 5        | 4        | 9        | 4        | 22         |
| YUBA            | 0        | 0        | 0        | 1        | 1          |
| CALIFORNIA      | 983      | 1,101    | 1,425    | 1,145    | 4,654      |
| <b>UTILITY</b>  |          |          |          |          |            |
| SCE             | 311      | 293      | 292      | 290      | 1,186      |
| PG&E            | 300      | 458      | 620      | 471      | 1,849      |
| SDG&E           | 140      | 106      | 176      | 133      | 555        |
| Non-IOU         | 232      | 244      | 337      | 251      | 1,064      |

**Table 4.4 F.W. Dodge Number of Nonresidential Alteration Project Starts in PY2000  
by Quarter, Building Type and Service Territory**

|                   | AMUSEMENT | ASSEMBLY | EDUCATION | GOVT | HOTEL | MEDICAL | OFFICE | RETAIL | SCHOOL | SERVICE | STORAGE | OTHER | TOTAL |
|-------------------|-----------|----------|-----------|------|-------|---------|--------|--------|--------|---------|---------|-------|-------|
| <b>CALIFORNIA</b> |           |          |           |      |       |         |        |        |        |         |         |       |       |
| Q1, 2000          | 57        | 18       | 5         | 10   | 13    | 36      | 430    | 200    | 107    | 15      | 38      | 54    | 983   |
| Q2, 2000          | 72        | 7        | 10        | 8    | 13    | 20      | 408    | 180    | 291    | 16      | 31      | 45    | 1,101 |
| Q3, 2000          | 53        | 23       | 10        | 13   | 13    | 39      | 659    | 307    | 189    | 21      | 24      | 74    | 1,425 |
| Q4, 2000          | 57        | 14       | 11        | 15   | 15    | 31      | 553    | 196    | 116    | 30      | 41      | 66    | 1,145 |
| Total 2000        | 239       | 62       | 36        | 46   | 54    | 126     | 2,050  | 883    | 703    | 82      | 134     | 239   | 4,654 |
| <b>SCE</b>        |           |          |           |      |       |         |        |        |        |         |         |       |       |
| Q1, 2000          | 20        | 5        | 1         | 6    | .     | 10      | 129    | 79     | 34     | 5       | 9       | 13    | 311   |
| Q2, 2000          | 17        | 2        | 5         | 3    | 4     | 6       | 115    | 53     | 53     | 4       | 14      | 17    | 293   |
| Q3, 2000          | 17        | 5        | 3         | 3    | 6     | 5       | 121    | 65     | 36     | 4       | 6       | 21    | 292   |
| Q4, 2000          | 16        | 2        | 1         | 4    | 4     | 11      | 126    | 49     | 35     | 6       | 15      | 21    | 290   |
| Total 2000        | 70        | 14       | 10        | 16   | 14    | 32      | 491    | 246    | 158    | 19      | 44      | 72    | 1,186 |
| <b>PG&amp;E</b>   |           |          |           |      |       |         |        |        |        |         |         |       |       |
| Q1, 2000          | 15        | 4        | 1         | 3    | 9     | 12      | 129    | 51     | 41     | 7       | 9       | 19    | 300   |
| Q2, 2000          | 26        | 2        | 3         | 3    | 4     | 4       | 158    | 64     | 164    | 3       | 8       | 19    | 458   |
| Q3, 2000          | 22        | 12       | 4         | 7    | 5     | 24      | 285    | 135    | 87     | 7       | 8       | 24    | 620   |
| Q4, 2000          | 23        | 6        | 7         | 8    | 8     | 10      | 234    | 74     | 54     | 13      | 7       | 27    | 471   |
| Total 2000        | 86        | 24       | 15        | 21   | 26    | 50      | 806    | 324    | 346    | 30      | 32      | 89    | 1,849 |
| <b>SDG&amp;E</b>  |           |          |           |      |       |         |        |        |        |         |         |       |       |
| Q1, 2000          | 12        | 4        | .         | .    | .     | 4       | 67     | 26     | 11     | 1       | 8       | 7     | 140   |
| Q2, 2000          | 8         | .        | 2         | 1    | 3     | 2       | 49     | 11     | 22     | 3       | 2       | 3     | 106   |
| Q3, 2000          | 5         | 1        | 3         | .    | 1     | 3       | 99     | 29     | 16     | 3       | 3       | 13    | 176   |
| Q4, 2000          | 8         | 3        | 1         | 1    | 1     | 3       | 76     | 13     | 8      | 2       | 9       | 8     | 133   |
| Total 2000        | 33        | 8        | 6         | 2    | 5     | 12      | 291    | 79     | 57     | 9       | 22      | 31    | 555   |
| <b>Non-IOU</b>    |           |          |           |      |       |         |        |        |        |         |         |       |       |
| Q1, 2000          | 10        | 5        | 3         | 1    | 4     | 10      | 105    | 44     | 21     | 2       | 12      | 15    | 232   |
| Q2, 2000          | 21        | 3        | .         | 1    | 2     | 8       | 86     | 52     | 52     | 6       | 7       | 6     | 244   |
| Q3, 2000          | 9         | 5        | .         | 3    | 1     | 7       | 154    | 78     | 50     | 7       | 7       | 16    | 337   |
| Q4, 2000          | 10        | 3        | 2         | 2    | 2     | 7       | 117    | 60     | 19     | 9       | 10      | 10    | 251   |
| Total 2000        | 50        | 16       | 5         | 7    | 9     | 32      | 462    | 234    | 142    | 24      | 36      | 47    | 1,064 |

#### **4.2 SBD R&R PROGRAM PARTICIPATION IN PY2000**

SBD program activity for nonresidential customers that have a first tenant improvement/renovation/remodel project (R&R customers), and for whom the IOUs have committed funds in PY2000, is summarized below. Program commitment indicates that the customer has filed an application, that the utility has reviewed it and found that it fits within the scope of the SBD program, and that an agreement was signed between the utility and the customer, detailing the conditions of participation in the program. Program commitment was established using the following dates from the tracking systems maintained by the IOUs: the “coupon issue date” for SCE participants, the “acceptance date” for PG&E participants, and the “sign date” for SDG&E participants.

Table 4.5 presents the number of nonresidential R&R participants to the SBD program for which funds were committed in PY2000.

Table 4.6 shows the number of square feet of R&R construction committed as of PY2000.

Table 4.7 summarizes the estimated annual MWh savings attributable to R&R measures committed in PY2000.

Table 4.8 presents the frequency with which classes of measures were installed in R&R SBD projects committed in PY2000. A glossary of measures classes is presented in Appendix F.

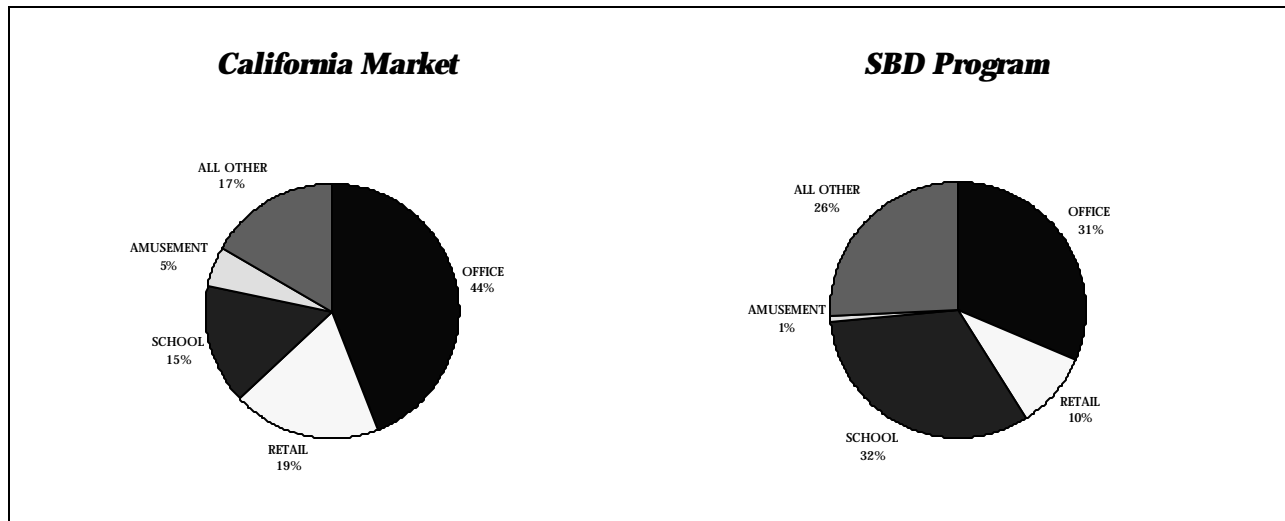
Table 4.9 shows the estimated annual MWh savings by measure class, for R&R projects committed in PY2000.

**Table 4.5 Number of Nonresidential R&R SBD Participants in PY2000  
in PY2000**

|                         | AMUSEMENT | ASSEMBLY | EDUCATION | GOVT | HOTEL | MEDICAL | OFFICE | RETAIL | SCHOOL | SERVICE | STORAGE | OTHER | TOTAL |
|-------------------------|-----------|----------|-----------|------|-------|---------|--------|--------|--------|---------|---------|-------|-------|
| <b>CALIFORNIA</b>       |           |          |           |      |       |         |        |        |        |         |         |       |       |
| Whole Building Approach | .         | .        | .         | .    | 1     | .       | 3      | .      | .      | .       | .       | 9     | 13    |
| Systems Approach        | 1         | 4        | .         | .    | .     | 2       | 55     | 18     | 60     | 1       | 15      | 16    | 172   |
| Total                   | 1         | 4        | .         | .    | 1     | 2       | 58     | 18     | 60     | 1       | 15      | 25    | 185   |
| <b>SCE</b>              |           |          |           |      |       |         |        |        |        |         |         |       |       |
| Whole Building Approach | .         | .        | .         | .    | .     | .       | 1      | .      | .      | .       | .       | 8     | 9     |
| Systems Approach        | .         | 1        | .         | .    | .     | 2       | 11     | 6      | 23     | .       | 10      | 11    | 64    |
| Total                   | .         | 1        | .         | .    | .     | 2       | 12     | 6      | 23     | .       | 10      | 19    | 73    |
| <b>PG&amp;E</b>         |           |          |           |      |       |         |        |        |        |         |         |       |       |
| Whole Building Approach | .         | .        | .         | .    | .     | .       | 1      | .      | .      | .       | .       | .     | 1     |
| Systems Approach        | 1         | .        | .         | .    | .     | .       | 21     | 8      | 6      | 1       | .       | .     | 37    |
| Total                   | 1         | .        | .         | .    | .     | .       | 22     | 8      | 6      | 1       | .       | .     | 38    |
| <b>SDG&amp;E</b>        |           |          |           |      |       |         |        |        |        |         |         |       |       |
| Whole Building Approach | .         | .        | .         | .    | 1     | .       | 1      | .      | .      | .       | .       | 1     | 3     |
| Systems Approach        | .         | 3        | .         | .    | .     | .       | 23     | 4      | 31     | .       | 5       | 5     | 71    |
| Total                   | .         | 3        | .         | .    | 1     | .       | 24     | 4      | 31     | .       | 5       | 6     | 74    |

The number of R&R participants is approximately half the number of new construction SBD participants (Table 3.8). The school and office building types are the largest segments participating in the program, which reflects the high number of alteration projects reported by F.W. Dodge for these building segments (Exhibit 4.3 below). Similar to new construction participants, R&R participants in PY2000 do not include any government buildings, possibly due to differences between the SBD program requirements and FEMP regulations. There are also no participants from the education segment (libraries, museums), probably due to the small number of project starts in this segment in PY2000.

**Exhibit 4.3  
R&R Building Segments with the Highest Number of Projects in PY2000**



**Table 4.6 Area for Nonresidential R&R SBD Participants  
in PY2000 (1,000 sqft)**

|                         | AMUSEMENT | ASSEMBLY | EDUCATION | GOVT | HOTEL | MEDICAL | OFFICE | RETAIL | SCHOOL | SERVICE | STORAGE | OTHER | TOTAL  |
|-------------------------|-----------|----------|-----------|------|-------|---------|--------|--------|--------|---------|---------|-------|--------|
| <b>CALIFORNIA</b>       |           |          |           |      |       |         |        |        |        |         |         |       |        |
| Whole Building Approach | .         | .        | .         | .    | 23    | .       | 121    | .      | .      | .       | .       | 861   | 1,005  |
| Systems Approach        | 11        | 110      | .         | .    | .     | 105     | 2,611  | 1,007  | 4,843  | 33      | 2,767   | 779   | 12,266 |
| Total                   | 11        | 110      | .         | .    | 23    | 105     | 2,733  | 1,007  | 4,843  | 33      | 2,767   | 1,640 | 13,272 |
| <b>SCE</b>              |           |          |           |      |       |         |        |        |        |         |         |       |        |
| Whole Building Approach | .         | .        | .         | .    | .     | .       | 12     | .      | .      | .       | .       | 841   | 853    |
| Systems Approach        | .         | 10       | .         | .    | .     | 105     | 683    | 733    | 879    | .       | 2,568   | 386   | 5,366  |
| Total                   | .         | 10       | .         | .    | .     | 105     | 695    | 733    | 879    | .       | 2,568   | 1,227 | 6,218  |
| <b>PG&amp;E</b>         |           |          |           |      |       |         |        |        |        |         |         |       |        |
| Whole Building Approach | .         | .        | .         | .    | .     | .       | 93     | .      | .      | .       | .       | .     | 93     |
| Systems Approach        | 11        | .        | .         | .    | .     | .       | 937    | 204    | 175    | 33      | .       | .     | 1,360  |
| Total                   | 11        | .        | .         | .    | .     | .       | 1,029  | 204    | 175    | 33      | .       | .     | 1,453  |
| <b>SDG&amp;E</b>        |           |          |           |      |       |         |        |        |        |         |         |       |        |
| Whole Building Approach | .         | .        | .         | .    | 23    | .       | 17     | .      | .      | .       | .       | 20    | 60     |
| Systems Approach        | .         | 100      | .         | .    | .     | .       | 991    | 69     | 3,788  | .       | 199     | 393   | 5,540  |
| Total                   | .         | 100      | .         | .    | 23    | .       | 1,008  | 69     | 3,788  | .       | 199     | 413   | 5,600  |

The majority of SBD R&R program activity in terms of area committed in PY2000 belongs to the school, office, and storage building types. The same trend holds for estimated MWh savings.

**Table 4.7 Estimated Annual MWh Savings for R&R SBD Participants  
in PY2000**

|                         | AMUSEMENT | ASSEMBLY | EDUCATION | GOVT | HOTEL | MEDICAL | OFFICE | RETAIL | SCHOOL | SERVICE | STORAGE | OTHER | TOTAL  |
|-------------------------|-----------|----------|-----------|------|-------|---------|--------|--------|--------|---------|---------|-------|--------|
| <b>CALIFORNIA</b>       |           |          |           |      |       |         |        |        |        |         |         |       |        |
| Whole Building Approach | .         | .        | .         | .    | 13    | .       | 292    | .      | .      | .       | .       | 2,558 | 2,862  |
| Systems Approach        | 43        | 96       | .         | .    | .     | 2,596   | 6,416  | 2,371  | 4,295  | 57      | 5,091   | 3,044 | 24,009 |
| Total                   | 43        | 96       | .         | .    | 13    | 2,596   | 6,708  | 2,371  | 4,295  | 57      | 5,091   | 5,602 | 26,871 |
| <b>SCE</b>              |           |          |           |      |       |         |        |        |        |         |         |       |        |
| Whole Building Approach | .         | .        | .         | .    | .     | .       | 35     | .      | .      | .       | .       | 2,510 | 2,545  |
| Systems Approach        | .         | 36       | .         | .    | .     | 2,596   | 1,931  | 1,357  | 1,058  | .       | 4,773   | 1,959 | 13,709 |
| Total                   | .         | 36       | .         | .    | .     | 2,596   | 1,966  | 1,357  | 1,058  | .       | 4,773   | 4,469 | 16,254 |
| <b>PG&amp;E</b>         |           |          |           |      |       |         |        |        |        |         |         |       |        |
| Whole Building Approach | .         | .        | .         | .    | .     | .       | 211    | .      | .      | .       | .       | .     | 211    |
| Systems Approach        | 43        | .        | .         | .    | .     | .       | 2,844  | 877    | 231    | 57      | .       | .     | 4,051  |
| Total                   | 43        | .        | .         | .    | .     | .       | 3,055  | 877    | 231    | 57      | .       | .     | 4,262  |
| <b>SDG&amp;E</b>        |           |          |           |      |       |         |        |        |        |         |         |       |        |
| Whole Building Approach | .         | .        | .         | .    | 13    | .       | 46     | .      | .      | .       | .       | 48    | 106    |
| Systems Approach        | .         | 61       | .         | .    | .     | .       | 1,641  | 137    | 3,006  | .       | 318     | 1,085 | 6,249  |
| Total                   | .         | 61       | .         | .    | 13    | .       | 1,687  | 137    | 3,006  | .       | 318     | 1,133 | 6,355  |

**Table 4.8 Classes of Measures Installed by R&R SBD Participants in PY2000**

|                         | WHOLE BUILDING | DAY-LIGHTING | SKYLIGHT | HVAC CHILLER | HVAC PACKAGE | HVAC CONTROLS | HVAC OTHER | MOTORS | LIGHTING | ENVELOPE | OTHER | TOTAL |
|-------------------------|----------------|--------------|----------|--------------|--------------|---------------|------------|--------|----------|----------|-------|-------|
| <b>CALIFORNIA</b>       |                |              |          |              |              |               |            |        |          |          |       |       |
| Whole Building Approach | 13             | .            | .        | .            | .            | .             | .          | .      | .        | .        | .     | 13    |
| Systems Approach        | .              | 16           | .        | 10           | 281          | 2             | 19         | 6      | 211      | 5        | 45    | 595   |
| Total                   | 13             | 16           | .        | 10           | 281          | 2             | 19         | 6      | 211      | 5        | 45    | 608   |
| <b>SCE</b>              |                |              |          |              |              |               |            |        |          |          |       |       |
| Whole Building Approach | 9              | .            | .        | .            | .            | .             | .          | .      | .        | .        | .     | 9     |
| Systems Approach        | .              | 16           | .        | 4            | 12           | .             | 16         | 6      | 37       | .        | 16    | 107   |
| Total                   | 9              | 16           | .        | 4            | 12           | .             | 16         | 6      | 37       | .        | 16    | 116   |
| <b>PG&amp;E</b>         |                |              |          |              |              |               |            |        |          |          |       |       |
| Whole Building Approach | 1              | .            | .        | .            | .            | .             | .          | .      | .        | .        | .     | 1     |
| Systems Approach        | .              | .            | .        | 1            | 19           | 2             | 3          | .      | 24       | 5        | 2     | 56    |
| Total                   | 1              | .            | .        | 1            | 19           | 2             | 3          | .      | 24       | 5        | 2     | 57    |
| <b>SDG&amp;E</b>        |                |              |          |              |              |               |            |        |          |          |       |       |
| Whole Building Approach | 3              | .            | .        | .            | .            | .             | .          | .      | .        | .        | .     | 3     |
| Systems Approach        | .              | .            | .        | 5            | 250          | .             | .          | .      | 150      | .        | 27    | 432   |
| Total                   | 3              | .            | .        | 5            | 250          | .             | .          | .      | 150      | .        | 27    | 435   |

Similar to new construction SBD participants, the measures installed by each participant were established using the following fields from the tracking systems maintained by the IOUs: the “meas\_desc” for SCE participants, the “description” for PG&E participants, and the “msr\_desc” for SDG&E participants. Each entry into the tracking system was then assigned to one of the measure segments presented in Table 4.8, and counted as one instance in which that particular class of measures was installed through the SBD Program. Each participant that selected the whole building approach counted as one instance in which the whole building approach was adopted, regardless of the number and types of measures installed. As Table 4.8 indicates, R&R participants installed unitary HVAC and lighting measures most often, and HVAC controls and envelope measures very rarely.

**Table 4.9 Estimated Annual MWh Savings by Measure Class for R&R SBD Participants in PY2000**

|                         | WHOLE BUILDING | DAY-LIGHTING | SKYLIGHT | HVAC CHILLER | HVAC PACKAGE | HVAC CONTROLS | HVAC OTHER | MOTORS | LIGHTING | ENVELOPE | OTHER | TOTAL  |
|-------------------------|----------------|--------------|----------|--------------|--------------|---------------|------------|--------|----------|----------|-------|--------|
| <b>CALIFORNIA</b>       |                |              |          |              |              |               |            |        |          |          |       |        |
| Whole Building Approach | 2,862          | .            | .        | .            | .            | .             | .          | .      | .        | .        | .     | 2,862  |
| Systems Approach        | .              | 6,011        | .        | 2,729        | 2,247        | 102           | 2,053      | 33     | 5,914    | 218      | 4,701 | 24,009 |
| Total                   | 2,862          | 6,011        | .        | 2,729        | 2,247        | 102           | 2,053      | 33     | 5,914    | 218      | 4,701 | 26,871 |
| <b>SCE</b>              |                |              |          |              |              |               |            |        |          |          |       |        |
| Whole Building Approach | 2,545          | .            | .        | .            | .            | .             | .          | .      | .        | .        | .     | 2,545  |
| Systems Approach        | .              | 6,011        | .        | 342          | 287          | .             | 1,910      | 33     | 1,825    | .        | 3,303 | 13,709 |
| Total                   | 2,545          | 6,011        | .        | 342          | 287          | .             | 1,910      | 33     | 1,825    | .        | 3,303 | 16,254 |
| <b>PG&amp;E</b>         |                |              |          |              |              |               |            |        |          |          |       |        |
| Whole Building Approach | 211            | .            | .        | .            | .            | .             | .          | .      | .        | .        | .     | 211    |
| Systems Approach        | .              | .            | .        | 177          | 498          | 102           | 143        | .      | 1,980    | 218      | 932   | 4,051  |
| Total                   | 211            | .            | .        | 177          | 498          | 102           | 143        | .      | 1,980    | 218      | 932   | 4,262  |
| <b>SDG&amp;E</b>        |                |              |          |              |              |               |            |        |          |          |       |        |
| Whole Building Approach | 106            | .            | .        | .            | .            | .             | .          | .      | .        | .        | .     | 106    |
| Systems Approach        | .              | .            | .        | 2,211        | 1,462        | .             | .          | .      | 2,110    | .        | 466   | 6,249  |
| Total                   | 106            | .            | .        | 2,211        | 1,462        | .             | .          | .      | 2,110    | .        | 466   | 6,355  |

Daylighting, lighting, and whole building design account for the highest estimated MWh savings in the R&R SBD program in PY2000.

## **5. SBD PROGRAM PENETRATION INTO THE NRNC MARKET IN PY2000**

This chapter presents SBD program penetration into the NRNC market statewide and by utility territory, in PY2000.

Program penetration for new construction participants was evaluated based on both construction area (square feet) and number of projects. As the area of alteration projects is not tracked by F.W. Dodge, program penetration for R&R participants was evaluated only based on number of projects.

When summarizing market activity by utility territory, project zip codes were used in conjunction with California Energy Commission's zip code-to-utility territory mapping to allocate projects to IOU and non-IOU utilities.

Table 5.1 presents the statewide SBD program penetration.

Table 5.2 presents SBD program penetration in the SCE service territory.

Table 5.3 shows SBD program penetration in the PG&E service territory.

Table 5.4 summarizes SBD program penetration in the SDG&E service territory.

In terms of square feet committed, the statewide new construction market penetration of the SBD program is 12.7%. This number is lower than in individual utility territories due to the fact that non-IOU areas are included in the statewide market. If only the IOU territories are considered, program penetration by square footage is 15.1%. SBD committed square feet account for 14.5% market penetration in the SCE territory; 13.4% penetration in the PG&E territory; 22.6% penetration in the SDG&E territory.

In terms of number of projects committed, the statewide new construction market penetration of the SBD program is 6.7%. In the three IOU service territories, program penetration by number of projects is 8.4%. SBD committed projects account for 6.0% market penetration in the SCE territory; 7.9% penetration in the PG&E territory; 17.2% penetration in the SDG&E territory.

Note that SBD program penetration by number of projects is lower than penetration by square footage, indicating that the SBD program is reaching relatively large buildings.

Among R&R participants, the statewide market penetration of the SBD program is 4.0%. In the three IOU service territories, program penetration by number of projects is 5.2%. SBD committed projects account for 6.2% market penetration in the SCE territory; 2.1% penetration in the PG&E territory; 13.3% penetration in the SDG&E territory.

Due to the higher number of projects selecting the systems approach, SBD program penetration is consistently higher for these projects than for those selecting the whole building approach. Significant opportunities remain for increased program penetration into the market, through sustained networking with the most active designers (Chapter 7) and with building officials.



**Table 5.1 Statewide SBD Program Penetration in PY2000**

| Program Type             | Year/Quarter | Source               | Value (\$ billions) | Area (millions of sqft) | %Area Penetration | Number of Projects | %Projects Penetration |
|--------------------------|--------------|----------------------|---------------------|-------------------------|-------------------|--------------------|-----------------------|
| New and Additions        | 2000 QTR 1-4 | F. W. Dodge          | 13.249              | 180.15                  |                   | 4,674              |                       |
|                          |              | SBD Whole Building   | -                   | 8.25                    | 4.6%              | 48                 | 1.0%                  |
|                          |              | SBD Systems Approach | -                   | 14.55                   | 8.1%              | 267                | 5.7%                  |
|                          |              | SBD Total            | -                   | 22.80                   | 12.7%             | 315                | 6.7%                  |
| Alterations (R&R and TI) | 2000 QTR 1-4 | F. W. Dodge          | 3.440               | -                       |                   | 4,654              |                       |
|                          |              | SBD Whole Building   | -                   | 1.01                    | -                 | 13                 | 0.3%                  |
|                          |              | SBD Systems Approach | -                   | 12.27                   | -                 | 172                | 3.7%                  |
|                          |              | SBD Total            | -                   | 13.27                   | -                 | 185                | 4.0%                  |

**Table 5.2 SBD Program Penetration in the SCE Service Territory in PY2000**

| Program Type             | Year/Quarter | Source               | Value (\$ billions) | Area (millions of sqft) | %Area Penetration | Number of Projects | %Projects Penetration |
|--------------------------|--------------|----------------------|---------------------|-------------------------|-------------------|--------------------|-----------------------|
| New and Additions        | 2000 QTR 1-4 | F. W. Dodge          | 3.641               | 62.03                   |                   | 1,428              |                       |
|                          |              | SBD Whole Building   | -                   | 2.68                    | 4.3%              | 10                 | 0.7%                  |
|                          |              | SBD Systems Approach | -                   | 6.31                    | 10.2%             | 75                 | 5.3%                  |
|                          |              | SBD Total            | -                   | 8.99                    | 14.5%             | 85                 | 6.0%                  |
| Alterations (R&R and TI) | 2000 QTR 1-4 | F. W. Dodge          | 0.763               | -                       |                   | 1,186              | -                     |
|                          |              | SBD Whole Building   | -                   | 0.85                    | -                 | 9                  | 0.8%                  |
|                          |              | SBD Systems Approach | -                   | 5.37                    | -                 | 64                 | 5.4%                  |
|                          |              | SBD Total            | -                   | 6.22                    | -                 | 73                 | 6.2%                  |

**Table 5.3 SBD Program Penetration in the PG&E Service Territory in PY2000**

| Program Type             | Year/Quarter | Source               | Value (\$ billions) | Area (millions of sqft) | %Area Penetration | Number of Projects | %Projects Penetration |
|--------------------------|--------------|----------------------|---------------------|-------------------------|-------------------|--------------------|-----------------------|
| New and Additions        | 2000 QTR 1-4 | F. W. Dodge          | 5.671               | 67.98                   |                   | 1,831              |                       |
|                          |              | SBD Whole Building   | -                   | 4.57                    | 6.7%              | 20                 | 1.1%                  |
|                          |              | SBD Systems Approach | -                   | 4.54                    | 6.7%              | 124                | 6.8%                  |
|                          |              | SBD Total            | -                   | 9.11                    | 13.4%             | 144                | 7.9%                  |
| Alterations (R&R and TI) | 2000 QTR 1-4 | F. W. Dodge          | 1.519               | -                       |                   | 1,849              |                       |
|                          |              | SBD Whole Building   | -                   | 0.09                    | -                 | 1                  | 0.1%                  |
|                          |              | SBD Systems Approach | -                   | 1.36                    | -                 | 37                 | 2.0%                  |
|                          |              | SBD Total            | -                   | 1.45                    | -                 | 38                 | 2.1%                  |

**Table 5.4 SBD Program Penetration in the SDG&E Service Territory in PY2000**

| Program Type                | Year/Quarter    | Source               | Value<br>(\$ billions) | Area<br>(millions of sqft) | %Area<br>Penetration | Number of<br>Projects | %Projects<br>Penetration |
|-----------------------------|-----------------|----------------------|------------------------|----------------------------|----------------------|-----------------------|--------------------------|
| New<br>and Additions        | 2000<br>QTR 1-4 | F. W. Dodge          | 1.543                  | 20.79                      |                      | 501                   |                          |
|                             |                 | SBD Whole Building   | -                      | 1.00                       | 4.8%                 | 18                    | 3.6%                     |
|                             |                 | SBD Systems Approach | -                      | 3.70                       | 17.8%                | 68                    | 13.6%                    |
|                             |                 | SBD Total            | -                      | 4.70                       | 22.6%                | 86                    | 17.2%                    |
| Alterations<br>(R&R and TI) | 2000<br>QTR 1-4 | F. W. Dodge          | 0.424                  | -                          |                      | 555                   |                          |
|                             |                 | SBD Whole Building   | -                      | 0.06                       | -                    | 3                     | 0.5%                     |
|                             |                 | SBD Systems Approach | -                      | 5.54                       | -                    | 71                    | 12.8%                    |
|                             |                 | SBD Total            | -                      | 5.60                       | -                    | 74                    | 13.3%                    |

## **6. NRNC MARKET AND PROGRAM TRACKING SUMMARY**

This chapter provides a summary of the NRNC market and SBD program activity since SBD program inception (July 1999).

Tables 6.1 – 6.4 summarize the market activities quarterly, statewide and by utility territory, starting with Quarter 3, 1999. Consistent with the data reported in the previous chapters, F.W. Dodge project zip codes were used in conjunction with California Energy Commission's zip code-to-utility territory mapping to allocate projects to IOU and non-IOU utilities.

As discussed in Chapters 3 and 4, there is little variation in market activity from quarter to quarter. Quarter 3, 1999, presents the largest volume of project starts, while Quarter 4, 1999, presents the lowest volume of project starts statewide. According to CIRB, this result may be due to changes in building codes that went into effect on July 1, 1999, and which contributed to an increase in permit activity prior to the effective date of those changes. Declines in subsequent months, and especially towards the end of 1999, may have resulted in part from permits being issued in June 1999 that would otherwise have been issued later in the year.

Tables 6.5 – 6.8 summarize SBD program activity quarterly, statewide and by utility territory, starting with Quarter 3, 1999.

Tables 6.9 – 6.12 summarize SBD program penetration quarterly, statewide and by utility territory, starting with Quarter 3, 1999.

**Table 6.1 F.W. Dodge Market Summary for Project Starts in California**

| Program Type         | Year | Quarter | Value<br>(\$ billions) | Area<br>(millions of sqft) | Number of<br>Projects |
|----------------------|------|---------|------------------------|----------------------------|-----------------------|
| New and<br>additions | 1999 | 3       | 3.492                  | 50.23                      | 1,443                 |
|                      | 1999 | 4       | 2.474                  | 38.16                      | 1,068                 |
|                      | 2000 | 1       | 3.004                  | 48.08                      | 1,160                 |
|                      | 2000 | 2       | 2.855                  | 39.77                      | 1,096                 |
|                      | 2000 | 3       | 3.890                  | 46.31                      | 1,227                 |
|                      | 2000 | 4       | 3.500                  | 45.99                      | 1,191                 |
| Alterations          | 1999 | 3       | 1.102                  | -                          | 1,374                 |
|                      | 1999 | 4       | 0.851                  | -                          | 1,026                 |
|                      | 2000 | 1       | 0.710                  | -                          | 983                   |
|                      | 2000 | 2       | 0.958                  | -                          | 1,101                 |
|                      | 2000 | 3       | 0.959                  | -                          | 1,425                 |
|                      | 2000 | 4       | 0.813                  | -                          | 1,145                 |

**Table 6.2 F.W. Dodge Market Summary for Project Starts within the SCE Service Territory**

| Program Type         | Year | Quarter | Value<br>(\$ billions) | Area<br>(millions of sqft) | Number of<br>Projects |
|----------------------|------|---------|------------------------|----------------------------|-----------------------|
| New and<br>additions | 1999 | 3       | 0.951                  | 17.68                      | 486                   |
|                      | 1999 | 4       | 0.731                  | 13.84                      | 340                   |
|                      | 2000 | 1       | 1.177                  | 23.25                      | 416                   |
|                      | 2000 | 2       | 0.836                  | 14.15                      | 384                   |
|                      | 2000 | 3       | 0.891                  | 13.00                      | 325                   |
|                      | 2000 | 4       | 0.736                  | 11.63                      | 303                   |
| Alterations          | 1999 | 3       | 0.239                  | -                          | 429                   |
|                      | 1999 | 4       | 0.156                  | -                          | 343                   |
|                      | 2000 | 1       | 0.214                  | -                          | 311                   |
|                      | 2000 | 2       | 0.173                  | -                          | 293                   |
|                      | 2000 | 3       | 0.208                  | -                          | 292                   |
|                      | 2000 | 4       | 0.167                  | -                          | 290                   |

**Table 6.3 F.W. Dodge Market Summary for Project Starts within the PG&E Service Territory**

| Program Type         | Year | Quarter | Value<br>(\$ billions) | Area<br>(millions of sqft) | Number of<br>Projects |
|----------------------|------|---------|------------------------|----------------------------|-----------------------|
| New and<br>additions | 1999 | 3       | 1.528                  | 17.77                      | 566                   |
|                      | 1999 | 4       | 0.992                  | 13.17                      | 387                   |
|                      | 2000 | 1       | 1.087                  | 13.00                      | 371                   |
|                      | 2000 | 2       | 0.965                  | 13.05                      | 392                   |
|                      | 2000 | 3       | 1.948                  | 21.36                      | 536                   |
|                      | 2000 | 4       | 1.671                  | 20.56                      | 532                   |
| Alterations          | 1999 | 3       | 0.513                  | -                          | 466                   |
|                      | 1999 | 4       | 0.390                  | -                          | 291                   |
|                      | 2000 | 1       | 0.289                  | -                          | 300                   |
|                      | 2000 | 2       | 0.430                  | -                          | 458                   |
|                      | 2000 | 3       | 0.428                  | -                          | 620                   |
|                      | 2000 | 4       | 0.373                  | -                          | 471                   |

**Table 6.4 F.W. Dodge Market Summary for Project Starts within the SDG&E Service Territory**

| Program Type         | Year | Quarter | Value<br>(\$ billions) | Area<br>(millions of sqft) | Number of<br>Projects |
|----------------------|------|---------|------------------------|----------------------------|-----------------------|
| New and<br>additions | 1999 | 3       | 0.412                  | 5.28                       | 132                   |
|                      | 1999 | 4       | 0.362                  | 5.06                       | 136                   |
|                      | 2000 | 1       | 0.297                  | 5.29                       | 141                   |
|                      | 2000 | 2       | 0.451                  | 5.54                       | 110                   |
|                      | 2000 | 3       | 0.453                  | 5.33                       | 141                   |
|                      | 2000 | 4       | 0.342                  | 4.63                       | 109                   |
| Alterations          | 1999 | 3       | 0.074                  | -                          | 139                   |
|                      | 1999 | 4       | 0.142                  | -                          | 126                   |
|                      | 2000 | 1       | 0.105                  | -                          | 140                   |
|                      | 2000 | 2       | 0.116                  | -                          | 106                   |
|                      | 2000 | 3       | 0.099                  | -                          | 176                   |
|                      | 2000 | 4       | 0.103                  | -                          | 133                   |

**Table 6.5 Statewide SBD Program Participation Summary**

| Program Type            | Year | Quarter | Area (millions of sqft) | Energy Impacts GWh | Number of Participants |
|-------------------------|------|---------|-------------------------|--------------------|------------------------|
| <b>NEW CONSTRUCTION</b> |      |         |                         |                    |                        |
| Whole Building Approach | 1999 | 3       | 0.10                    | 0.29               | 2                      |
|                         | 1999 | 4       | 3.96                    | 11.69              | 24                     |
|                         | 2000 | 1       | 0.33                    | 2.55               | 3                      |
|                         | 2000 | 2       | 2.51                    | 8.07               | 21                     |
|                         | 2000 | 3       | 1.01                    | 4.95               | 5                      |
|                         | 2000 | 4       | 4.40                    | 8.86               | 19                     |
| Systems Approach        | 1999 | 3       | 3.86                    | 8.01               | 29                     |
|                         | 1999 | 4       | 7.45                    | 17.06              | 77                     |
|                         | 2000 | 1       | 1.67                    | 3.59               | 16                     |
|                         | 2000 | 2       | 3.36                    | 7.38               | 49                     |
|                         | 2000 | 3       | 4.21                    | 6.58               | 69                     |
|                         | 2000 | 4       | 5.31                    | 15.15              | 133                    |
| Total                   | 1999 | 3       | 3.96                    | 8.30               | 31                     |
|                         | 1999 | 4       | 11.41                   | 28.75              | 101                    |
|                         | 2000 | 1       | 2.00                    | 6.14               | 19                     |
|                         | 2000 | 2       | 5.86                    | 15.45              | 70                     |
|                         | 2000 | 3       | 5.22                    | 11.53              | 74                     |
|                         | 2000 | 4       | 9.71                    | 24.01              | 152                    |
| <b>R&amp;R</b>          |      |         |                         |                    |                        |
| Whole Building Approach | 1999 | 3       | 0.00                    | 0.00               | 0                      |
|                         | 1999 | 4       | 0.19                    | 1.10               | 2                      |
|                         | 2000 | 1       | 0.02                    | 0.01               | 1                      |
|                         | 2000 | 2       | 0.13                    | 0.30               | 3                      |
|                         | 2000 | 3       | 0.00                    | 0.00               | 0                      |
|                         | 2000 | 4       | 0.85                    | 2.54               | 9                      |
| Systems Approach        | 1999 | 3       | 1.39                    | 5.56               | 16                     |
|                         | 1999 | 4       | 1.71                    | 3.44               | 34                     |
|                         | 2000 | 1       | 3.99                    | 3.31               | 25                     |
|                         | 2000 | 2       | 2.56                    | 5.01               | 33                     |
|                         | 2000 | 3       | 1.82                    | 5.40               | 37                     |
|                         | 2000 | 4       | 3.90                    | 10.28              | 77                     |
| Total                   | 1999 | 3       | 1.39                    | 5.56               | 16                     |
|                         | 1999 | 4       | 1.90                    | 4.54               | 36                     |
|                         | 2000 | 1       | 4.01                    | 3.33               | 26                     |
|                         | 2000 | 2       | 2.69                    | 5.32               | 36                     |
|                         | 2000 | 3       | 1.82                    | 5.40               | 37                     |
|                         | 2000 | 4       | 4.75                    | 12.83              | 86                     |

**Table 6.6 SBD Program Participation Summary for SCE Territory**

| Program Type               | Year           | Quarter | Area<br>(millions of sqft) | Energy Impacts<br>GWh | Number of<br>Participants |
|----------------------------|----------------|---------|----------------------------|-----------------------|---------------------------|
| <b>NEW CONSTRUCTION</b>    |                |         |                            |                       |                           |
| Whole Building<br>Approach | 1999           | 3       | .                          | .                     | .                         |
|                            | 1999           | 4       | 0.27                       | 1.57                  | 1                         |
|                            | 2000           | 1       | 0.09                       | 1.75                  | 1                         |
|                            | 2000           | 2       | 0.65                       | 1.59                  | 1                         |
|                            | 2000           | 3       | 0.78                       | 4.43                  | 3                         |
| Systems<br>Approach        | 2000           | 4       | 1.15                       | 2.57                  | 5                         |
|                            | 1999           | 3       | 3.78                       | 7.98                  | 27                        |
|                            | 1999           | 4       | 5.50                       | 13.14                 | 48                        |
|                            | 2000           | 1       | 1.21                       | 3.13                  | 7                         |
|                            | 2000           | 2       | 1.98                       | 5.18                  | 18                        |
| Total                      | 2000           | 3       | 1.95                       | 2.79                  | 25                        |
|                            | 2000           | 4       | 1.16                       | 8.65                  | 25                        |
|                            | 1999           | 3       | 3.78                       | 7.98                  | 27                        |
|                            | 1999           | 4       | 5.77                       | 14.71                 | 49                        |
|                            | 2000           | 1       | 1.30                       | 4.89                  | 8                         |
| Total                      | 2000           | 2       | 2.63                       | 6.77                  | 19                        |
|                            | 2000           | 3       | 2.74                       | 7.22                  | 28                        |
|                            | 2000           | 4       | 2.31                       | 11.22                 | 30                        |
|                            | <b>R&amp;R</b> |         |                            |                       |                           |
| Whole Building<br>Approach | 1999           | 3       | .                          | .                     | .                         |
|                            | 1999           | 4       | .                          | .                     | .                         |
|                            | 2000           | 1       | .                          | .                     | .                         |
|                            | 2000           | 2       | .                          | .                     | .                         |
|                            | 2000           | 3       | .                          | .                     | .                         |
| Systems<br>Approach        | 2000           | 4       | 0.85                       | 2.54                  | 9                         |
|                            | 1999           | 3       | 1.23                       | 5.34                  | 11                        |
|                            | 1999           | 4       | 1.10                       | 2.35                  | 15                        |
|                            | 2000           | 1       | 0.41                       | 0.44                  | 5                         |
|                            | 2000           | 2       | 1.58                       | 2.65                  | 10                        |
| Total                      | 2000           | 3       | 0.77                       | 3.87                  | 12                        |
|                            | 2000           | 4       | 2.61                       | 6.75                  | 37                        |
|                            | 1999           | 3       | 1.23                       | 5.34                  | 11                        |
|                            | 1999           | 4       | 1.10                       | 2.35                  | 15                        |
|                            | 2000           | 1       | 0.41                       | 0.44                  | 5                         |
| Total                      | 2000           | 2       | 1.58                       | 2.65                  | 10                        |
|                            | 2000           | 3       | 0.77                       | 3.87                  | 12                        |
|                            | 2000           | 4       | 3.46                       | 9.30                  | 46                        |

**Table 6.7 SBD Program Participation Summary for PG&E Territory**

| Program Type            | Year | Quarter | Area (millions of sqft) | Energy Impacts GWh | Number of Participants |
|-------------------------|------|---------|-------------------------|--------------------|------------------------|
| <b>NEW CONSTRUCTION</b> |      |         |                         |                    |                        |
| Whole Building Approach | 1999 | 3       | .                       | .                  | .                      |
|                         | 1999 | 4       | 2.73                    | 7.10               | 17                     |
|                         | 2000 | 1       | .                       | .                  | .                      |
|                         | 2000 | 2       | 1.11                    | 2.42               | 5                      |
|                         | 2000 | 3       | 0.23                    | 0.52               | 2                      |
|                         | 2000 | 4       | 3.23                    | 6.22               | 13                     |
| Systems Approach        | 1999 | 3       | .                       | .                  | .                      |
|                         | 1999 | 4       | 1.33                    | 1.74               | 18                     |
|                         | 2000 | 1       | 0.07                    | 0.18               | 1                      |
|                         | 2000 | 2       | 0.63                    | 0.63               | 15                     |
|                         | 2000 | 3       | 1.09                    | 1.54               | 28                     |
|                         | 2000 | 4       | 2.75                    | 4.48               | 80                     |
| Total                   | 1999 | 3       | 0.00                    | 0.00               | 0                      |
|                         | 1999 | 4       | 4.06                    | 8.84               | 35                     |
|                         | 2000 | 1       | 0.07                    | 0.18               | 1                      |
|                         | 2000 | 2       | 1.75                    | 3.05               | 20                     |
|                         | 2000 | 3       | 1.32                    | 2.06               | 30                     |
|                         | 2000 | 4       | 5.98                    | 10.71              | 93                     |
| <b>R&amp;R</b>          |      |         |                         |                    |                        |
| Whole Building Approach | 1999 | 3       | .                       | .                  | .                      |
|                         | 1999 | 4       | .                       | .                  | .                      |
|                         | 2000 | 1       | .                       | .                  | .                      |
|                         | 2000 | 2       | 0.09                    | 0.21               | 1                      |
|                         | 2000 | 3       | .                       | .                  | .                      |
|                         | 2000 | 4       | .                       | .                  | .                      |
| Systems Approach        | 1999 | 3       | .                       | .                  | .                      |
|                         | 1999 | 4       | 0.34                    | 0.56               | 6                      |
|                         | 2000 | 1       | 0.04                    | 0.06               | 2                      |
|                         | 2000 | 2       | 0.34                    | 1.23               | 8                      |
|                         | 2000 | 3       | 0.16                    | 0.13               | 3                      |
|                         | 2000 | 4       | 0.82                    | 2.64               | 24                     |
| Total                   | 1999 | 3       | 0.00                    | 0.00               | 0                      |
|                         | 1999 | 4       | 0.34                    | 0.56               | 6                      |
|                         | 2000 | 1       | 0.04                    | 0.06               | 2                      |
|                         | 2000 | 2       | 0.43                    | 1.44               | 9                      |
|                         | 2000 | 3       | 0.16                    | 0.13               | 3                      |
|                         | 2000 | 4       | 0.82                    | 2.64               | 24                     |



**Table 6.8 SBD Program Participation Summary for SDG&E Territory**

| Program Type            | Year | Quarter | Area (millions of sqft) | Energy Impacts GWh | Number of Participants |
|-------------------------|------|---------|-------------------------|--------------------|------------------------|
| <b>NEW CONSTRUCTION</b> |      |         |                         |                    |                        |
| Whole Building Approach | 1999 | 3       | 0.10                    | 0.29               | 2                      |
|                         | 1999 | 4       | 0.96                    | 3.02               | 6                      |
|                         | 2000 | 1       | 0.24                    | 0.80               | 2                      |
|                         | 2000 | 2       | 0.74                    | 4.06               | 15                     |
|                         | 2000 | 3       | .                       | .                  | .                      |
|                         | 2000 | 4       | 0.02                    | 0.06               | 1                      |
| Systems Approach        | 1999 | 3       | 0.08                    | 0.03               | 2                      |
|                         | 1999 | 4       | 0.61                    | 2.18               | 11                     |
|                         | 2000 | 1       | 0.39                    | 0.28               | 8                      |
|                         | 2000 | 2       | 0.74                    | 1.57               | 16                     |
|                         | 2000 | 3       | 1.16                    | 2.25               | 16                     |
|                         | 2000 | 4       | 1.40                    | 2.02               | 28                     |
| Total                   | 1999 | 3       | 0.18                    | 0.32               | 4                      |
|                         | 1999 | 4       | 1.57                    | 5.20               | 17                     |
|                         | 2000 | 1       | 0.63                    | 1.08               | 10                     |
|                         | 2000 | 2       | 1.48                    | 5.63               | 31                     |
|                         | 2000 | 3       | 1.16                    | 2.25               | 16                     |
|                         | 2000 | 4       | 1.42                    | 2.08               | 29                     |
| <b>R&amp;R</b>          |      |         |                         |                    |                        |
| Whole Building Approach | 1999 | 3       | .                       | .                  | .                      |
|                         | 1999 | 4       | 0.19                    | 1.10               | 2                      |
|                         | 2000 | 1       | 0.02                    | 0.01               | 1                      |
|                         | 2000 | 2       | 0.04                    | 0.09               | 2                      |
|                         | 2000 | 3       | .                       | .                  | .                      |
|                         | 2000 | 4       | .                       | .                  | .                      |
| Systems Approach        | 1999 | 3       | 0.16                    | 0.22               | 5                      |
|                         | 1999 | 4       | 0.27                    | 0.53               | 13                     |
|                         | 2000 | 1       | 3.54                    | 2.81               | 18                     |
|                         | 2000 | 2       | 0.64                    | 1.14               | 15                     |
|                         | 2000 | 3       | 0.89                    | 1.41               | 22                     |
|                         | 2000 | 4       | 0.47                    | 0.89               | 16                     |
| Total                   | 1999 | 3       | 0.16                    | 0.22               | 5                      |
|                         | 1999 | 4       | 0.46                    | 1.63               | 15                     |
|                         | 2000 | 1       | 3.56                    | 2.82               | 19                     |
|                         | 2000 | 2       | 0.68                    | 1.23               | 17                     |
|                         | 2000 | 3       | 0.89                    | 1.41               | 22                     |
|                         | 2000 | 4       | 0.47                    | 0.89               | 16                     |

**Table 6.9. Summary of Statewide SBD Program Penetration**

| Program Type         | Year | Quarter | Dodge Area<br>(millions of sqft) | SBD Area<br>(millions of sqft) | %Area<br>Penetration | F.W. Dodge<br>Projects | SBD<br>Participants | %Projects<br>Penetration |
|----------------------|------|---------|----------------------------------|--------------------------------|----------------------|------------------------|---------------------|--------------------------|
| New<br>Construction  | 1999 | 3       | 50.23                            | 3.96                           | 7.9%                 | 1,443                  | 31                  | 2.1%                     |
|                      | 1999 | 4       | 38.16                            | 11.41                          | 29.9%                | 1,068                  | 101                 | 9.5%                     |
|                      | 2000 | 1       | 48.08                            | 2.00                           | 4.2%                 | 1,160                  | 19                  | 1.6%                     |
|                      | 2000 | 2       | 39.77                            | 5.86                           | 14.7%                | 1,096                  | 70                  | 6.4%                     |
|                      | 2000 | 3       | 46.31                            | 5.22                           | 11.3%                | 1,227                  | 74                  | 6.0%                     |
|                      | 2000 | 4       | 45.99                            | 9.71                           | 21.1%                | 1,191                  | 152                 | 12.8%                    |
| Alterations<br>(R&R) | 1999 | 3       | -                                | 1.39                           | -                    | 1,374                  | 16                  | 1.2%                     |
|                      | 1999 | 4       | -                                | 1.90                           | -                    | 1,026                  | 36                  | 3.5%                     |
|                      | 2000 | 1       | -                                | 4.01                           | -                    | 983                    | 26                  | 2.6%                     |
|                      | 2000 | 2       | -                                | 2.69                           | -                    | 1,101                  | 36                  | 3.3%                     |
|                      | 2000 | 3       | -                                | 1.82                           | -                    | 1,425                  | 37                  | 2.6%                     |
|                      | 2000 | 4       | -                                | 4.75                           | -                    | 1,145                  | 86                  | 7.5%                     |

**Table 6.10. Summary of SBD Program Penetration within the SCE Service Territory**

| Program Type         | Year | Quarter | Dodge Area<br>(millions of sqft) | SBD Area<br>(millions of sqft) | %Area<br>Penetration | F.W. Dodge<br>Projects | SBD<br>Participants | %Projects<br>Penetration |
|----------------------|------|---------|----------------------------------|--------------------------------|----------------------|------------------------|---------------------|--------------------------|
| New<br>Construction  | 1999 | 3       | 17.68                            | 3.78                           | 21.4%                | 486                    | 27                  | 5.6%                     |
|                      | 1999 | 4       | 13.84                            | 5.77                           | 41.7%                | 340                    | 49                  | 14.4%                    |
|                      | 2000 | 1       | 23.25                            | 1.30                           | 5.6%                 | 416                    | 8                   | 1.9%                     |
|                      | 2000 | 2       | 14.15                            | 2.63                           | 18.6%                | 384                    | 19                  | 4.9%                     |
|                      | 2000 | 3       | 13.00                            | 2.74                           | 21.0%                | 325                    | 28                  | 8.6%                     |
|                      | 2000 | 4       | 11.63                            | 2.31                           | 19.9%                | 303                    | 30                  | 9.9%                     |
| Alterations<br>(R&R) | 1999 | 3       | -                                | 1.23                           | -                    | 429                    | 11                  | 2.6%                     |
|                      | 1999 | 4       | -                                | 1.10                           | -                    | 343                    | 15                  | 4.4%                     |
|                      | 2000 | 1       | -                                | 0.41                           | -                    | 311                    | 5                   | 1.6%                     |
|                      | 2000 | 2       | -                                | 1.58                           | -                    | 293                    | 10                  | 3.4%                     |
|                      | 2000 | 3       | -                                | 0.77                           | -                    | 292                    | 12                  | 4.1%                     |
|                      | 2000 | 4       | -                                | 3.46                           | -                    | 290                    | 46                  | 15.9%                    |

**Table 6.11. Summary of SBD Program Penetration within the PG&E Service Territory**

| Program Type         | Year | Quarter | Dodge Area<br>(millions of sqft) | SBD Area<br>(millions of sqft) | %Area<br>Penetration | F.W. Dodge<br>Projects | SBD<br>Participants | %Projects<br>Penetration |
|----------------------|------|---------|----------------------------------|--------------------------------|----------------------|------------------------|---------------------|--------------------------|
| New<br>Construction  | 1999 | 3       | 17.77                            | 0.00                           | 0.0%                 | 566                    | 0                   | 0.0%                     |
|                      | 1999 | 4       | 13.17                            | 4.06                           | 30.9%                | 387                    | 35                  | 9.0%                     |
|                      | 2000 | 1       | 13.00                            | 0.07                           | 0.5%                 | 371                    | 1                   | 0.3%                     |
|                      | 2000 | 2       | 13.05                            | 1.75                           | 13.4%                | 392                    | 20                  | 5.1%                     |
|                      | 2000 | 3       | 21.36                            | 1.32                           | 6.2%                 | 536                    | 30                  | 5.6%                     |
|                      | 2000 | 4       | 20.56                            | 5.98                           | 29.1%                | 532                    | 93                  | 17.5%                    |
| Alterations<br>(R&R) | 1999 | 3       | -                                | 0.00                           | -                    | 466                    | 0                   | 0.0%                     |
|                      | 1999 | 4       | -                                | 0.34                           | -                    | 291                    | 6                   | 2.1%                     |
|                      | 2000 | 1       | -                                | 0.04                           | -                    | 300                    | 2                   | 0.7%                     |
|                      | 2000 | 2       | -                                | 0.43                           | -                    | 458                    | 9                   | 2.0%                     |
|                      | 2000 | 3       | -                                | 0.16                           | -                    | 620                    | 3                   | 0.5%                     |
|                      | 2000 | 4       | -                                | 0.82                           | -                    | 471                    | 24                  | 5.1%                     |

**Table 6.12. Summary of SBD Program Penetration within the SDG&E Service Territory**

| Program Type         | Year | Quarter | Dodge Area<br>(millions of sqft) | SBD Area<br>(millions of sqft) | %Area<br>Penetration | F.W. Dodge<br>Projects | SBD<br>Participants | %Projects<br>Penetration |
|----------------------|------|---------|----------------------------------|--------------------------------|----------------------|------------------------|---------------------|--------------------------|
| New<br>Construction  | 1999 | 3       | 5.28                             | 0.18                           | 3.5%                 | 132                    | 4                   | 3.0%                     |
|                      | 1999 | 4       | 5.06                             | 1.57                           | 31.1%                | 136                    | 17                  | 12.5%                    |
|                      | 2000 | 1       | 5.29                             | 0.63                           | 12.0%                | 141                    | 10                  | 7.1%                     |
|                      | 2000 | 2       | 5.54                             | 1.48                           | 26.8%                | 110                    | 31                  | 28.2%                    |
|                      | 2000 | 3       | 5.33                             | 1.16                           | 21.9%                | 141                    | 16                  | 11.3%                    |
|                      | 2000 | 4       | 4.63                             | 1.42                           | 30.6%                | 109                    | 29                  | 26.6%                    |
| Alterations<br>(R&R) | 1999 | 3       | -                                | 0.16                           | -                    | 139                    | 5                   | 3.6%                     |
|                      | 1999 | 4       | -                                | 0.46                           | -                    | 126                    | 15                  | 11.9%                    |
|                      | 2000 | 1       | -                                | 3.56                           | -                    | 140                    | 19                  | 13.6%                    |
|                      | 2000 | 2       | -                                | 0.68                           | -                    | 106                    | 17                  | 16.0%                    |
|                      | 2000 | 3       | -                                | 0.89                           | -                    | 176                    | 22                  | 12.5%                    |
|                      | 2000 | 4       | -                                | 0.47                           | -                    | 133                    | 16                  | 12.0%                    |

## **7. MOST ACTIVE MARKET PLAYERS IN PY2000**

This chapter presents the most active market players in PY2000, by utility territory and statewide, as reported in the F.W. Dodge “Players” database. The most active market players are defined as the architectural and engineering firms who either contributed to the highest number of projects, or contributed to projects that added up to the highest total value in PY2000. Knowledge about the players who are most active in new construction design offers targeted marketing opportunities for the SBD program.

Our experience with the F.W. Dodge Reports indicates that, while most projects are associated with at least one market actor, that actor is not necessarily an architect or an engineer (the F.W. Dodge database also tracks owners and contractors). The data reported below are therefore subject to the limitations intrinsic to reporting within the F.W. Dodge Reports.

In preparing these results, all entries containing the same address, zip code, and similar names for the market actors, were considered to correspond to the same firm. Civil engineering, structural engineering, and landscape architecture firms were excluded only if their name included the words “civil”, “structural” or “landscape” (the F.W. Dodge database does not contain information regarding the specialty of an actor).

The mapping of market actors by utility service territory was done using the zip code associated with the *project* location, not that associated with the address of the *market actor*.

Table 7.1 presents the most active market players statewide, during PY2000.

Table 7.2 presents the most active market players in SCE territory during PY2000.

Table 7.3 shows the most active market players in PG&E territory during PY2000.

Table 7.4 summarizes the most active market players in SDG&E territory during PY2000.

**Table 7.1 Most Active Market Players in California in PY2000  
according to F.W. Dodge**

| Firm Name                            | Firm Location  |       | Project Value (in \$millions) |                  |            | Number of Projects |                  |            |
|--------------------------------------|----------------|-------|-------------------------------|------------------|------------|--------------------|------------------|------------|
|                                      | City           | State | Total                         | New Construction | Alteration | Total              | New Construction | Alteration |
| <b>ARCHITECTS</b>                    |                |       |                               |                  |            |                    |                  |            |
| <b>Top 10 by Project Value</b>       |                |       |                               |                  |            |                    |                  |            |
| Hill Pinckert Architects             | NEWPORT BEACH  | CA    | 587.129                       | 586.249          | 0.880      | 33                 | 32               | 1          |
| Hellmuth Obata + Kassabaum Inc.      | SAN FRANCISCO  | CA    | 264.720                       | 114.720          | 150.000    | 6                  | 4                | 2          |
| Carrier Johnson Architect            | SAN DIEGO      | CA    | 243.417                       | 231.280          | 12.137     | 18                 | 10               | 8          |
| Gruen Associates                     | LOS ANGELES    | CA    | 228.691                       | 225.600          | 3.091      | 5                  | 1                | 4          |
| Hornberger & Worstell Inc            | SAN FRANCISCO  | CA    | 223.000                       | 223.000          | -          | 4                  | 4                | -          |
| Hoover Associates                    | PALO ALTO      | CA    | 212.800                       | 203.000          | 9.800      | 11                 | 8                | 3          |
| Michael Willis & Associates          | SAN FRANCISCO  | CA    | 202.311                       | 194.250          | 8.061      | 4                  | 3                | 1          |
| Kwan Henmi Architecture/Planning Inc | SAN FRANCISCO  | CA    | 193.493                       | 178.840          | 14.653     | 11                 | 2                | 9          |
| DES Architects + Engineers           | REDWOOD CITY   | CA    | 179.893                       | 165.591          | 14.302     | 19                 | 10               | 9          |
| Cini-Little International            | SAN FRANCISCO  | CA    | 169.940                       | 169.940          | -          | 1                  | 1                | -          |
| <b>Top 10 by Number of Projects</b>  |                |       |                               |                  |            |                    |                  |            |
| Hill Pinckert Architects             | NEWPORT BEACH  | CA    | 587.129                       | 586.249          | 0.880      | 33                 | 32               | 1          |
| Greenberg Farrow Architecture        | TUSTIN         | CA    | 136.842                       | 132.842          | 4.000      | 31                 | 30               | 1          |
| Perkowitz & Ruth Architects          | LONG BEACH     | CA    | 119.684                       | 96.809           | 22.875     | 31                 | 24               | 7          |
| Ware & Malcomb Architects            | IRVINE         | CA    | 139.404                       | 127.008          | 12.396     | 24                 | 9                | 15         |
| Nadel Architects Inc.                | LOS ANGELES    | CA    | 95.646                        | 91.146           | 4.500      | 23                 | 19               | 4          |
| LPA                                  | IRVINE         | CA    | 126.706                       | 116.491          | 10.215     | 20                 | 9                | 11         |
| DES Architects + Engineers           | REDWOOD CITY   | CA    | 179.893                       | 165.591          | 14.302     | 19                 | 10               | 9          |
| Carrier Johnson Architect            | SAN DIEGO      | CA    | 243.417                       | 231.280          | 12.137     | 18                 | 10               | 8          |
| Stafford King Wiese Architects AIA   | SACRAMENTO     | CA    | 99.885                        | 92.484           | 7.401      | 16                 | 13               | 3          |
| Williams & Paddon Architects         | ROSEVILLE      | CA    | 80.536                        | 74.782           | 5.754      | 15                 | 13               | 2          |
| <b>ENGINEERS</b>                     |                |       |                               |                  |            |                    |                  |            |
| <b>Top 10 by Project Value</b>       |                |       |                               |                  |            |                    |                  |            |
| Flack & Kurtz Consulting Engineers   | SAN FRANCISCO  | CA    | 373.039                       | 369.274          | 3.765      | 12                 | 11               | 1          |
| Middlebrook & Louie                  | SAN FRANCISCO  | CA    | 342.560                       | 342.000          | 0.560      | 11                 | 9                | 2          |
| Capital Engineering Consultants Inc  | SACRAMENTO     | CA    | 323.289                       | 201.875          | 121.414    | 83                 | 32               | 51         |
| John A Martin & Associates           | LOS ANGELES    | CA    | 251.201                       | 250.701          | 0.500      | 10                 | 9                | 1          |
| Ajmani & Pamidi Inc.                 | SAN FRANCISCO  | CA    | 247.477                       | 247.477          | -          | 4                  | 4                | -          |
| Frederick Brown & Associates         | NEWPORT BEACH  | CA    | 243.537                       | 203.235          | 40.302     | 35                 | 20               | 15         |
| The Engineering Enterprise           | ALAMEDA        | CA    | 219.690                       | 191.319          | 28.371     | 11                 | 3                | 8          |
| Forell-Elsesser Engineers Inc        | SAN FRANCISCO  | CA    | 203.078                       | 118.650          | 84.428     | 7                  | 2                | 5          |
| Faye Bernstein & Associates          | SAN FRANCISCO  | CA    | 175.531                       | 169.940          | 5.591      | 6                  | 1                | 5          |
| AGS Inc.                             | SAN FRANCISCO  | CA    | 169.940                       | 169.940          | -          | 1                  | 1                | -          |
| <b>Top 10 by Number of Projects</b>  |                |       |                               |                  |            |                    |                  |            |
| Capital Engineering Consultants Inc  | SACRAMENTO     | CA    | 323.289                       | 201.875          | 121.414    | 83                 | 32               | 51         |
| Palmieri & Associates Inc            | SOUTH PASADENA | CA    | 121.826                       | 111.826          | 10.000     | 52                 | 41               | 11         |
| Dasse Design Inc                     | SAN FRANCISCO  | CA    | 161.070                       | 102.777          | 58.293     | 42                 | 17               | 25         |
| F T Andrews Inc                      | ANAHEIM        | CA    | 135.442                       | 86.325           | 49.117     | 40                 | 16               | 24         |
| OMB Electrical Engineers Inc         | IRVINE         | CA    | 169.092                       | 156.792          | 12.300     | 40                 | 37               | 3          |
| Frederick Brown & Associates         | NEWPORT BEACH  | CA    | 243.537                       | 203.235          | 40.302     | 35                 | 20               | 15         |
| Zucco Fagent Associates              | SANTA ROSA     | CA    | 100.529                       | 54.461           | 46.068     | 34                 | 12               | 22         |
| TMAD Engineers Inc.                  | ONTARIO        | CA    | 111.612                       | 54.828           | 56.784     | 32                 | 14               | 18         |
| Harry Yee & Associates               | SACRAMENTO     | CA    | 114.907                       | 86.852           | 28.055     | 27                 | 10               | 17         |
| Barry Levin & Associates             | IRVINE         | CA    | 122.992                       | 118.992          | 4.000      | 26                 | 25               | 1          |

**Table 7.2 Most Active Market Players in SCE Territory in PY2000  
according to F.W. Dodge**

| Firm Name                            | Firm Location    |       | Project Value (in \$millions) |                  |            | Number of Projects |                  |            |
|--------------------------------------|------------------|-------|-------------------------------|------------------|------------|--------------------|------------------|------------|
|                                      | City             | State | Total                         | New Construction | Alteration | Total              | New Construction | Alteration |
| <b>ARCHITECTS</b>                    |                  |       |                               |                  |            |                    |                  |            |
| <b>Top 10 by Project Value</b>       |                  |       |                               |                  |            |                    |                  |            |
| Hill Pinckert Architects             | NEWPORT BEACH    | CA    | 485.569                       | 485.569          | -          | 27                 | 27               | -          |
| R K Z Architects                     | TUSTIN           | CA    | 146.520                       | 146.270          | 0.250      | 12                 | 11               | 1          |
| RG A Architectural Design            | LONG BEACH       | CA    | 145.000                       | 145.000          | -          | 6                  | 6                | -          |
| Ware & Malcomb Architects            | IRVINE           | CA    | 114.587                       | 105.500          | 9.087      | 17                 | 6                | 11         |
| GAA Architects Inc                   | IRVINE           | CA    | 102.075                       | 102.075          | -          | 4                  | 4                | -          |
| LPA                                  | IRVINE           | CA    | 80.065                        | 69.850           | 10.215     | 16                 | 5                | 11         |
| Thomas Blurock Architects Inc.       | COSTA MESA       | CA    | 76.907                        | 70.607           | 6.300      | 6                  | 5                | 1          |
| Perkowitz & Ruth Architects          | LONG BEACH       | CA    | 73.799                        | 71.924           | 1.875      | 19                 | 17               | 2          |
| Cannon Dworsky                       | LOS ANGELES      | CA    | 67.280                        | 67.280           | -          | 3                  | 3                | -          |
| NTD-Neptune Thomas Davis             | GLENDORA         | CA    | 65.011                        | 49.044           | 15.967     | 9                  | 3                | 6          |
| <b>Top 10 by Number of Projects</b>  |                  |       |                               |                  |            |                    |                  |            |
| Hill Pinckert Architects             | NEWPORT BEACH    | CA    | 485.569                       | 485.569          | -          | 27                 | 27               | -          |
| HMC Group                            | ONTARIO          | CA    | 59.947                        | 26.128           | 33.819     | 22                 | 4                | 18         |
| Perkowitz & Ruth Architects          | LONG BEACH       | CA    | 73.799                        | 71.924           | 1.875      | 19                 | 17               | 2          |
| W L C Architects                     | RANCHO CUCAMONGA | CA    | 52.948                        | 27.815           | 25.133     | 19                 | 9                | 10         |
| Ware & Malcomb Architects            | IRVINE           | CA    | 114.587                       | 105.500          | 9.087      | 17                 | 6                | 11         |
| LPA                                  | IRVINE           | CA    | 80.065                        | 69.850           | 10.215     | 16                 | 5                | 11         |
| R K Z Architects                     | TUSTIN           | CA    | 146.520                       | 146.270          | 0.250      | 12                 | 11               | 1          |
| Dougherty + Dougherty                | COSTA MESA       | CA    | 31.180                        | 7.313            | 23.867     | 11                 | 3                | 8          |
| Nadel Architects Inc.                | LOS ANGELES      | CA    | 33.973                        | 33.223           | 0.750      | 10                 | 9                | 1          |
| Greenberg Farrow Architecture        | TUSTIN           | CA    | 43.588                        | 39.588           | 4.000      | 9                  | 8                | 1          |
| <b>ENGINEERS</b>                     |                  |       |                               |                  |            |                    |                  |            |
| <b>Top 10 by Project Value</b>       |                  |       |                               |                  |            |                    |                  |            |
| Frederick Brown & Associates         | NEWPORT BEACH    | CA    | 150.269                       | 114.967          | 35.302     | 24                 | 13               | 11         |
| Ajit Randhava Engineers              | LA MIRADA        | CA    | 110.000                       | 110.000          | -          | 6                  | 6                | -          |
| F T Andrews Inc                      | ANAHEIM          | CA    | 105.435                       | 72.565           | 32.870     | 24                 | 9                | 15         |
| TMAD Engineers Inc.                  | ONTARIO          | CA    | 78.150                        | 49.621           | 28.529     | 21                 | 10               | 11         |
| Martin Chow & Nakabara Inc           | NEWPORT BEACH    | CA    | 73.124                        | 54.267           | 18.857     | 10                 | 7                | 3          |
| John Denton & Associates             | LOS ANGELES      | CA    | 73.005                        | 52.414           | 20.591     | 18                 | 6                | 12         |
| GLP Karjala Associates               | COSTA MESA       | CA    | 64.568                        | 39.762           | 24.806     | 29                 | 16               | 13         |
| Culp & Tanner                        | LAKE FOREST      | CA    | 64.000                        | 64.000           | -          | 6                  | 6                | -          |
| Palmieri & Associates Inc            | SOUTH PASADENA   | CA    | 63.744                        | 62.244           | 1.500      | 27                 | 25               | 2          |
| OMB Electrical Engineers Inc         | IRVINE           | CA    | 60.338                        | 48.838           | 11.500     | 14                 | 12               | 2          |
| <b>Top 10 by Number of Projects</b>  |                  |       |                               |                  |            |                    |                  |            |
| GLP Karjala Associates               | COSTA MESA       | CA    | 64.568                        | 39.762           | 24.806     | 29                 | 16               | 13         |
| Palmieri & Associates Inc            | SOUTH PASADENA   | CA    | 63.744                        | 62.244           | 1.500      | 27                 | 25               | 2          |
| Mechanical Building Systems Eng. Inc | WEST HILLS       | CA    | 57.644                        | 43.445           | 14.199     | 26                 | 16               | 10         |
| Frederick Brown & Associates         | NEWPORT BEACH    | CA    | 150.269                       | 114.967          | 35.302     | 24                 | 13               | 11         |
| F T Andrews Inc                      | ANAHEIM          | CA    | 105.435                       | 72.565           | 32.870     | 24                 | 9                | 15         |
| TMAD Engineers Inc.                  | ONTARIO          | CA    | 78.150                        | 49.621           | 28.529     | 21                 | 10               | 11         |
| ANF and Associates                   | EL MONTE         | CA    | 47.474                        | 46.724           | 0.750      | 19                 | 18               | 1          |
| John Denton & Associates             | LOS ANGELES      | CA    | 73.005                        | 52.414           | 20.591     | 18                 | 6                | 12         |
| OMB Electrical Engineers Inc         | IRVINE           | CA    | 60.338                        | 48.838           | 11.500     | 14                 | 12               | 2          |
| Johnson & Nielsen Associates         | RIVERSIDE        | CA    | 36.119                        | 26.569           | 9.550      | 13                 | 8                | 5          |

**Table 7.3 Most Active Market Players in PG&E Territory in PY2000  
according to F.W. Dodge**

| Firm Name                                | Firm Location |       | Project Value (in Millions) |                  |            | Number of Projects |                  |            |
|--|---------------|-------|-----------------------------|------------------|------------|--------------------|------------------|------------|
|  | City          | State | Total                       | New Construction | Alteration | Total              | New Construction | Alteration |
| <b>ARCHITECTS</b>                        |               |       |                             |                  |            |                    |                  |            |
| <b>Top 10 by Project Value</b>           |               |       |                             |                  |            |                    |                  |            |
| Hellmuth Obata + Kassabaum Inc.          | SAN FRANCISCO | CA    | 232.500                     | 82.500           | 150.000    | 5                  | 3                | 2          |
| Hoover Associates                        | PALO ALTO     | CA    | 212.800                     | 203.000          | 9.800      | 11                 | 8                | 3          |
| Michael Willis & Associates              | SAN FRANCISCO | CA    | 202.311                     | 194.250          | 8.061      | 4                  | 3                | 1          |
| Kwan Henmi Architecture/Planning Inc     | SAN FRANCISCO | CA    | 193.493                     | 178.840          | 14.653     | 11                 | 2                | 9          |
| DES Architects + Engineers               | REDWOOD CITY  | CA    | 179.893                     | 165.591          | 14.302     | 19                 | 10               | 9          |
| Cini-Little International                | SAN FRANCISCO | CA    | 169.940                     | 169.940          | -          | 1                  | 1                | -          |
| Paolletti Associates                     | SAN FRANCISCO | CA    | 169.940                     | 169.940          | -          | 1                  | 1                | -          |
| Korth Sunseri Hagey Architects           | SAN FRANCISCO | CA    | 136.499                     | 125.700          | 10.799     | 8                  | 5                | 3          |
| RMW Architecture and Interior Design     | SAN FRANCISCO | CA    | 115.575                     | 115.000          | 0.575      | 5                  | 3                | 2          |
| Ware and Malcomb Architecture            | SAN RAMON     | CA    | 114.507                     | 114.507          | -          | 7                  | 7                | -          |
| <b>Top 10 by Number of Projects</b>      |               |       |                             |                  |            |                    |                  |            |
| DES Architects + Engineers               | REDWOOD CITY  | CA    | 179.893                     | 165.591          | 14.302     | 19                 | 10               | 9          |
| Aedis/PJHM Architecture & Planning       | SAN JOSE      | CA    | 66.109                      | 47.110           | 18.999     | 16                 | 10               | 6          |
| Deems Lewis McKinley                     | SAN FRANCISCO | CA    | 55.971                      | 28.139           | 27.832     | 15                 | 6                | 9          |
| TLCD Architecture                        | SANTA ROSA    | CA    | 48.672                      | 29.382           | 19.290     | 14                 | 2                | 12         |
| Greenberg Farrow Architecture            | TUSTIN        | CA    | 44.543                      | 44.543           | -          | 12                 | 12               | -          |
| Hoover Associates                        | PALO ALTO     | CA    | 212.800                     | 203.000          | 9.800      | 11                 | 8                | 3          |
| Kwan Henmi Architecture/Planning Inc     | SAN FRANCISCO | CA    | 193.493                     | 178.840          | 14.653     | 11                 | 2                | 9          |
| Gensler & Associates                     | SAN FRANCISCO | CA    | 103.600                     | 70.000           | 33.600     | 9                  | 2                | 7          |
| Kenneth Rodrigues Associates Inc         | SAN JOSE      | CA    | 82.510                      | 77.650           | 4.860      | 9                  | 7                | 2          |
| Rainforth Grau Architects                | SACRAMENTO    | CA    | 45.266                      | 41.693           | 3.573      | 9                  | 6                | 3          |
| <b>ENGINEERS</b>                         |               |       |                             |                  |            |                    |                  |            |
| <b>Top 10 by Project Value</b>           |               |       |                             |                  |            |                    |                  |            |
| Middlebrook & Louie                      | SAN FRANCISCO | CA    | 342.560                     | 342.000          | 0.560      | 11                 | 9                | 2          |
| Flack & Kurtz Consulting Engineers       | SAN FRANCISCO | CA    | 264.682                     | 260.917          | 3.765      | 10                 | 9                | 1          |
| Ajmani & Pamidi Inc.                     | SAN FRANCISCO | CA    | 247.477                     | 247.477          | -          | 4                  | 4                | -          |
| Capital Engineering Consultants Inc      | SACRAMENTO    | CA    | 232.095                     | 120.966          | 111.129    | 65                 | 21               | 44         |
| The Engineering Enterprise               | ALAMEDA       | CA    | 219.690                     | 191.319          | 28.371     | 11                 | 3                | 8          |
| Forell-Esesser Engineers Inc             | SAN FRANCISCO | CA    | 203.078                     | 118.650          | 84.428     | 7                  | 2                | 5          |
| Faye Bernstein & Associates              | SAN FRANCISCO | CA    | 175.531                     | 169.940          | 5.591      | 6                  | 1                | 5          |
| AGS Inc.                                 | SAN FRANCISCO | CA    | 169.940                     | 169.940          | -          | 1                  | 1                | -          |
| Dasse Design Inc                         | SAN FRANCISCO | CA    | 154.698                     | 102.777          | 51.921     | 41                 | 17               | 24         |
| Nishkian Menninger                       | SAN FRANCISCO | CA    | 148.700                     | 111.200          | 37.500     | 5                  | 4                | 1          |
| <b>Top 10 by Number of Projects</b>      |               |       |                             |                  |            |                    |                  |            |
| Capital Engineering Consultants Inc      | SACRAMENTO    | CA    | 232.095                     | 120.966          | 111.129    | 65                 | 21               | 44         |
| Dasse Design Inc                         | SAN FRANCISCO | CA    | 154.698                     | 102.777          | 51.921     | 41                 | 17               | 24         |
| Zucco Fagent Associates                  | SANTA ROSA    | CA    | 94.414                      | 53.086           | 41.328     | 30                 | 10               | 20         |
| Pete O Lapid & Associates                | SAN FRANCISCO | CA    | 114.966                     | 26.360           | 88.606     | 25                 | 9                | 16         |
| Belden Incorporated                      | DUBLIN        | CA    | 54.408                      | 39.419           | 14.989     | 23                 | 11               | 12         |
| American Consulting Engineers Inc        | SANTA CRUZ    | CA    | 75.567                      | 43.639           | 31.928     | 22                 | 10               | 12         |
| Fard Engineers Inc/Chamberlain & Painter | WALNUT CREEK  | CA    | 95.757                      | 74.572           | 21.185     | 22                 | 8                | 14         |
| Lencioni Associates                      | CLOVIS        | CA    | 61.454                      | 47.645           | 13.809     | 21                 | 15               | 6          |
| Lawrence Nye Anderson Associates         | FRESNO        | CA    | 59.482                      | 42.096           | 17.386     | 20                 | 7                | 13         |
| Costa Engineers Inc                      | NAPA          | CA    | 64.648                      | 39.608           | 25.040     | 19                 | 6                | 13         |

**Table 7.4 Most Active Market Players in SDG&E Territory in PY2000  
according to F.W. Dodge**

| Firm Name                            | Firm Location |       | Project Value (in Millions) |                  |            | Number of Projects |                  |            |
|--------------------------------------|---------------|-------|-----------------------------|------------------|------------|--------------------|------------------|------------|
|                                      | City          | State | Total                       | New Construction | Alteration | Total              | New Construction | Alteration |
| <b>ARCHITECTS</b>                    |               |       |                             |                  |            |                    |                  |            |
| <b>Top 10 by Project Value</b>       |               |       |                             |                  |            |                    |                  |            |
| Carrier Johnson Architect            | SAN DIEGO     | CA    | 141.017                     | 128.880          | 12.137     | 15                 | 7                | 8          |
| Hornberger & Worstell Inc            | SAN FRANCISCO | CA    | 90.000                      | 90.000           | -          | 1                  | 1                | -          |
| NBBJ Architects                      | SAN FRANCISCO | CA    | 66.209                      | 66.209           | -          | 2                  | 2                | -          |
| Nowell & Associates                  | SAN DIEGO     | CA    | 63.835                      | 57.973           | 5.862      | 10                 | 6                | 4          |
| Brian Paul & Associates              | SAN DIEGO     | CA    | 60.039                      | 53.539           | 6.500      | 7                  | 6                | 1          |
| Lee & Sakahara                       | IRVINE        | CA    | 54.029                      | 54.029           | -          | 3                  | 3                | -          |
| SGPA Architecture & Planning         | SAN DIEGO     | CA    | 50.623                      | 50.623           | -          | 4                  | 4                | -          |
| Klai Juba Architects                 | LAS VEGAS     | NV    | 50.000                      | 50.000           | -          | 1                  | 1                | -          |
| Pacific Cornerstone Architects       | SAN DIEGO     | CA    | 49.718                      | 47.914           | 1.804      | 14                 | 11               | 3          |
| LPA                                  | IRVINE        | CA    | 46.641                      | 46.641           | -          | 4                  | 4                | -          |
| <b>Top 10 by Number of Projects</b>  |               |       |                             |                  |            |                    |                  |            |
| Carrier Johnson Architect            | SAN DIEGO     | CA    | 141.017                     | 128.880          | 12.137     | 15                 | 7                | 8          |
| Austin Veum Robbins Parshalle        | SAN DIEGO     | CA    | 26.250                      | 12.151           | 14.099     | 14                 | 4                | 10         |
| Pacific Cornerstone Architects       | SAN DIEGO     | CA    | 49.718                      | 47.914           | 1.804      | 14                 | 11               | 3          |
| Kenneth Smith Architects             | EL CAJON      | CA    | 37.636                      | 36.934           | 0.702      | 12                 | 11               | 1          |
| Smith Consulting Architects          | SAN DIEGO     | CA    | 31.088                      | 16.003           | 15.085     | 11                 | 4                | 7          |
| Nowell & Associates                  | SAN DIEGO     | CA    | 63.835                      | 57.973           | 5.862      | 10                 | 6                | 4          |
| McGraw Baldwin Architect             | SAN DIEGO     | CA    | 17.181                      | 12.917           | 4.264      | 9                  | 3                | 6          |
| Brian Paul & Associates              | SAN DIEGO     | CA    | 60.039                      | 53.539           | 6.500      | 7                  | 6                | 1          |
| KMA Architects                       | SAN DIEGO     | CA    | 37.224                      | 36.467           | 0.757      | 6                  | 5                | 1          |
| Fehlman LaBarre Architects           | SAN DIEGO     | CA    | 24.583                      | 24.583           | -          | 6                  | 6                | -          |
| <b>ENGINEERS</b>                     |               |       |                             |                  |            |                    |                  |            |
| <b>Top 10 by Project Value</b>       |               |       |                             |                  |            |                    |                  |            |
| Project Design Consultants           | SAN DIEGO     | CA    | 114.000                     | 114.000          | -          | 3                  | 3                | -          |
| Skilling Ward Magnuson Barkshire Inc | SEATTLE       | WA    | 94.850                      | 94.850           | -          | 2                  | 2                | -          |
| Flack & Kurtz Consulting Engineers   | SAN FRANCISCO | CA    | 90.000                      | 90.000           | -          | 1                  | 1                | -          |
| McParlane & Associates               | SAN DIEGO     | CA    | 84.000                      | 84.000           | -          | 5                  | 5                | -          |
| TKG (Tsuchiyama/Kaino/Gibson)        | SAN DIEGO     | CA    | 83.948                      | 80.397           | 3.551      | 7                  | 4                | 3          |
| Hope Engineering                     | SAN DIEGO     | CA    | 82.375                      | 80.375           | 2.000      | 4                  | 3                | 1          |
| ILA + Zammit Engineering Group       | SAN DIEGO     | CA    | 77.832                      | 65.780           | 12.052     | 10                 | 6                | 4          |
| Burkett & Wong                       | SAN DIEGO     | CA    | 77.643                      | 76.509           | 1.134      | 9                  | 8                | 1          |
| Bechard - Long & Associates          | SAN DIEGO     | CA    | 69.603                      | 68.887           | 0.716      | 5                  | 3                | 2          |
| Ove Arup & Partners                  | SAN FRANCISCO | CA    | 65.000                      | 65.000           | -          | 1                  | 1                | -          |
| <b>Top 10 by Number of Projects</b>  |               |       |                             |                  |            |                    |                  |            |
| Johnson Consulting Engineers         | POWAY         | CA    | 39.319                      | 27.718           | 11.601     | 13                 | 3                | 10         |
| Merrick & Associates                 | SAN DIEGO     | CA    | 44.757                      | 30.518           | 14.239     | 13                 | 5                | 8          |
| Nowak-Meulmester & Associates        | SAN DIEGO     | CA    | 45.444                      | 39.488           | 5.956      | 12                 | 6                | 6          |
| ILA + Zammit Engineering Group       | SAN DIEGO     | CA    | 77.832                      | 65.780           | 12.052     | 10                 | 6                | 4          |
| Burkett & Wong                       | SAN DIEGO     | CA    | 77.643                      | 76.509           | 1.134      | 9                  | 8                | 1          |
| Stuart Engineering                   | SAN DIEGO     | CA    | 57.706                      | 57.656           | 0.050      | 8                  | 7                | 1          |
| TKG (Tsuchiyama/Kaino/Gibson)        | SAN DIEGO     | CA    | 83.948                      | 80.397           | 3.551      | 7                  | 4                | 3          |
| Turpin & Rattan Engineering          | SAN DIEGO     | CA    | 20.222                      | 14.500           | 5.722      | 7                  | 3                | 4          |
| Nasland Engineering                  | SAN DIEGO     | CA    | 37.655                      | 33.497           | 4.158      | 6                  | 4                | 2          |
| Bechard - Long & Associates          | SAN DIEGO     | CA    | 69.603                      | 68.887           | 0.716      | 5                  | 3                | 2          |



**APPENDIX A**

**GLOSSARY OF BUILDING TYPES RECORDED BY F.W. DODGE**

|            |   |
|------------|---|
| Amusement  | amusement and recreational buildings                |
| Assembly   | religious and worship buildings                     |
| Education  | libraries, museums                                  |
| Government | government services                                 |
| Hotel      | hotels and motels                                   |
| Medical    | hospitals and other health-related buildings        |
| Office     | office and laboratory buildings                     |
| Retail     | retail stores and shopping centers                  |
| School     | schools, colleges and universities, including dorms |
| Service    | service stations                                    |
| Storage    | warehouses and storage facilities                   |
| Other      | other nonresidential buildings                      |

## APPENDIX B

### CIRB NONRESIDENTIAL NEW CONSTRUCTION PERMIT VALUE IN PY2000

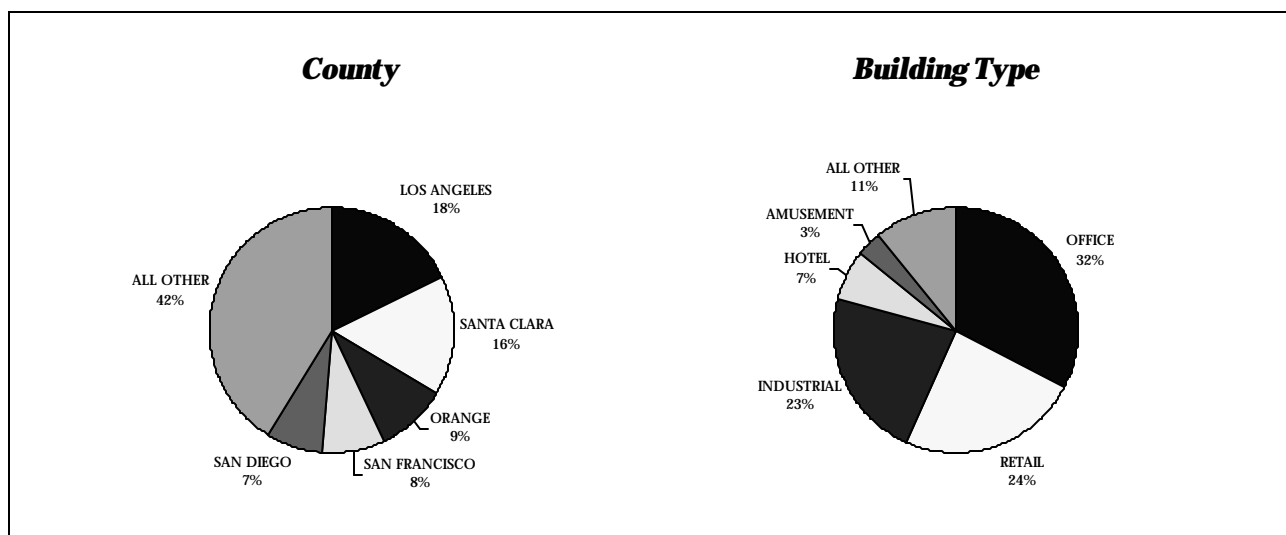
This Appendix presents information on the value of nonresidential new construction permits that were filed in PY2000 in the State of California. The data were collected by the Construction Industry Research Board from the more than 515 city and county building departments in California.

The CIRB database separates new construction projects from additions and alterations. New construction projects are then reported by building type, while additions and alteration projects are reported together, with no indication regarding building type. Moreover, CIRB reports only building-related projects, while leaving out permits for heating, HVAC, electrical, and other remodeling/renovation projects. A glossary of building/project types recorded by CIRB is provided at the end of this Appendix.

Table B.1 summarizes the value of nonresidential *permits filed* in PY2000, by building type. As shown in Exhibit B.1 below, Los Angeles, Santa Clara, Orange, San Francisco and San Diego Counties account for the highest value of permits filed in the State during PY2000. Conversely, Plumas, Lassen, Alpine and Sierra Counties had the lowest volume of permit activity in PY2000. Among building types, the highest permit value was recorded in the office, retail and industrial segments, but the hotel and amusement segments also show relatively high activity. The lowest permit value was recorded in the service segment.

A breakdown of project valuation by utility territory was not possible, because the CIRB reports permit activity by city and county, not by zip code.

**Exhibit B.1**  
**Market Segments with the Highest Permit Value in PY2000**



**Table B.1 CIRB Statewide Nonresidential Permit Valuation in PY2000  
by Building Type and County (\$1,000)**

| COUNTY          | AMUSEMENT | CHURCH  | HOTEL   | MEDICAL | OFFICE    | OTHER   | EDUCATION | RETAIL    | SERVICE | INDUSTRIAL | TOTAL NEW | ALTERATION | TOTAL      |
|-----------------|-----------|---------|---------|---------|-----------|---------|-----------|-----------|---------|------------|-----------|------------|------------|
| ALAMEDA         | 10,754    | 3,002   | 29,346  | 13,614  | 176,845   | 10,847  | .         | 78,927    | 4,957   | 130,378    | 458,669   | 496,724    | 955,392    |
| ALPINE          | .         | .       | .       | .       | .         | 105     | 689       | .         | .       | .          | 794       | 370        | 1,164      |
| AMADOR          | 414       | .       | 1,809   | .       | .         | 2,922   | .         | 393       | 267     | 244        | 6,050     | 1,099      | 7,149      |
| BUTTE           | 769       | 219     | 1,021   | 14,972  | 9,496     | 1,925   | .         | 10,119    | 104     | 4,258      | 42,884    | 22,500     | 65,385     |
| CALAVERAS       | .         | .       | 1,662   | 5,303   | .         | 740     | .         | 1,312     | .       | .          | 9,017     | 3,064      | 12,082     |
| COLUSA          | .         | .       | .       | .       | 253       | 4,672   | .         | 2,165     | .       | .          | 7,090     | 265        | 7,355      |
| CONTRA COSTA    | 12,326    | 534     | .       | 3,000   | 111,511   | 10,755  | 332       | 59,536    | 5,393   | 16,488     | 219,875   | 190,525    | 410,400    |
| DEL NORTE       | .         | .       | .       | .       | .         | 844     | 430       | 380       | .       | .          | 1,653     | 1,775      | 3,428      |
| EL DORADO       | 3,373     | .       | .       | .       | 18,531    | 2,617   | 622       | 14,544    | 190     | 464        | 40,340    | 11,109     | 51,449     |
| FRESNO          | 330       | 5,292   | 1,510   | 258     | 43,890    | 3,785   | 1,989     | 52,153    | 2,571   | 76,131     | 187,910   | 101,022    | 288,932    |
| GLENN           | .         | .       | .       | .       | .         | 2,831   | .         | 176       | .       | .          | 3,007     | 485        | 3,492      |
| HUMBOLDT        | .         | .       | .       | .       | 965       | 1,557   | .         | 3,546     | 210     | 657        | 6,936     | 14,426     | 21,362     |
| IMPERIAL        | .         | 2,152   | 3,682   | .       | 1,919     | 3,723   | .         | 2,589     | 393     | 39,373     | 53,851    | 3,893      | 57,723     |
| INYO            | .         | .       | .       | .       | .         | 57      | .         | 2,000     | .       | .          | 2,057     | 1,001      | 3,058      |
| KERN            | 771       | 4,750   | 990     | 936     | 18,265    | 17,752  | 1,367     | 14,810    | 4,565   | 11,696     | 75,903    | 51,575     | 127,478    |
| KINGS           | .         | .       | .       | .       | 6,436     | 1,368   | .         | 2,127     | .       | 9,437      | 19,368    | 8,818      | 28,186     |
| LAKE            | .         | 1,590   | .       | 1,980   | 134       | 666     | .         | 1,371     | .       | .          | 5,741     | 1,151      | 6,892      |
| LASSEN          | .         | .       | .       | .       | .         | 283     | .         | 669       | .       | .          | 952       | 275        | 1,227      |
| LOS ANGELES     | 93,435    | 35,263  | 80,782  | 39,691  | 270,700   | 62,364  | 75,493    | 449,533   | 10,471  | 359,829    | 1,477,561 | 1,493,003  | 2,970,564  |
| MADERA          | .         | .       | .       | .       | .         | 2,376   | .         | 5,248     | .       | 3,004      | 10,628    | 5,947      | 16,576     |
| MARIN           | 7,800     | .       | 3,600   | 8,231   | 33,741    | 2,085   | 1,114     | 4,604     | 960     | .          | 62,135    | 50,271     | 112,405    |
| MARIPOSA        | .         | 1,478   | .       | .       | .         | 419     | .         | 142       | 200     | .          | 2,239     | 218        | 2,456      |
| MENDOCINO       | .         | 254     | 2,743   | .       | 379       | 2,951   | .         | 666       | .       | 751        | 7,744     | 4,781      | 12,525     |
| MERCED          | 3,800     | .       | .       | .       | 3,437     | 14,080  | 200       | 3,800     | .       | 6,754      | 32,072    | 11,472     | 43,544     |
| MODOC           | .         | .       | .       | .       | .         | 542     | .         | .         | 128     | 1,400      | 2,069     | 613        | 2,682      |
| MONO            | .         | .       | .       | .       | .         | 116     | .         | .         | .       | 4,596      | 4,712     | 718        | 5,430      |
| MONTEREY        | 2,207     | .       | 5,950   | 2,221   | 18,381    | 10,452  | 2,050     | 13,552    | 740     | 26,144     | 81,697    | 43,133     | 124,831    |
| NAPA            | 46        | .       | 2,500   | .       | 5,949     | 13,504  | 599       | 21,090    | 130     | 6,857      | 50,675    | 44,487     | 95,162     |
| NEVADA          | 691       | 195     | 153     | .       | 4,829     | 6,228   | .         | 1,472     | .       | 3,602      | 17,170    | 552        | 17,722     |
| ORANGE          | 36,939    | 6,068   | 166,074 | 23,391  | 341,149   | 13,145  | 8,975     | 224,160   | 6,055   | 74,895     | 900,851   | 658,159    | 1,559,009  |
| PLACER          | 3,052     | 5,539   | .       | 2,603   | 21,161    | 4,267   | 2,224     | 49,413    | 887     | 25,144     | 114,290   | 87,169     | 201,458    |
| PLUMAS          | .         | .       | 495     | .       | .         | 212     | .         | .         | .       | .          | 706       | 671        | 1,377      |
| RIVERSIDE       | 33,781    | 4,430   | 11,218  | 1,687   | 31,020    | 17,270  | 3,202     | 315,679   | 1,811   | 98,622     | 518,719   | 156,667    | 675,386    |
| SACRAMENTO      | 7,693     | 16,818  | 34,389  | .       | 127,502   | 4,963   | 2,473     | 81,829    | 1,771   | 16,192     | 293,629   | 206,909    | 500,538    |
| SAN BENITO      | .         | .       | .       | .       | .         | 2,016   | .         | 2,739     | .       | 6,222      | 10,977    | 3,003      | 13,979     |
| SAN BERNARDINO  | 2,308     | 3,364   | 1,203   | 3,758   | 15,369    | 20,012  | 1,527     | 131,570   | 2,587   | 393,493    | 575,192   | 123,800    | 698,993    |
| SAN DIEGO       | 13,279    | 24,960  | 78,127  | 59,983  | 153,591   | 27,420  | 24,621    | 176,015   | 3,266   | 165,036    | 726,298   | 502,009    | 1,228,307  |
| SAN FRANCISCO   | .         | 1,516   | 109,000 | 10,000  | 566,632   | 6,548   | 5,200     | 52,176    | 1,493   | 16,800     | 769,365   | 636,187    | 1,405,552  |
| SAN JOAQUIN     | 3,495     | 3,338   | 1,647   | 4,629   | 5,121     | 8,041   | 1,898     | 125,215   | 2,401   | 61,647     | 217,431   | 71,377     | 288,808    |
| SAN LUIS OBISPO | 1,494     | 114     | 1,564   | 2,662   | 6,113     | 11,016  | .         | 42,629    | 946     | 17,588     | 84,127    | 23,825     | 107,952    |
| SAN MATEO       | 31,500    | .       | 10,291  | 707     | 305,141   | 7,523   | 4,894     | 22,322    | 1,270   | 27,891     | 411,539   | 247,918    | 659,456    |
| SANTA BARBARA   | .         | 2,900   | 3,058   | 1,100   | 14,846    | 9,939   | 4,165     | 14,229    | .       | 16,497     | 66,733    | 55,730     | 122,463    |
| SANTA CLARA     | 10,812    | 5,181   | 57,802  | .       | 698,315   | 9,893   | 14,623    | 79,148    | 2,773   | 310,012    | 1,188,559 | 1,500,594  | 2,689,153  |
| SANTA CRUZ      | 150       | 843     | .       | .       | 431       | 1,367   | .         | 4,098     | 263     | 512        | 7,663     | 31,648     | 39,311     |
| SHASTA          | 186       | 1,430   | .       | 1,873   | 3,224     | 2,828   | 688       | 16,891    | .       | 29,106     | 56,226    | 9,586      | 65,811     |
| SIERRA          | .         | .       | .       | .       | .         | 91      | .         | .         | .       | .          | 91        | 2          | 93         |
| SISKIYOU        | 362       | .       | 811     | .       | 1,268     | 4,075   | .         | 8,866     | 414     | .          | 15,796    | 3,204      | 19,000     |
| SOLANO          | 3,797     | 5,915   | 5,959   | 5,751   | 11,239    | 5,147   | .         | 24,025    | 787     | 28,495     | 91,115    | 41,447     | 132,562    |
| SONOMA          | 3,798     | .       | 14,608  | .       | 21,700    | 11,833  | 1,831     | 27,761    | .       | 29,460     | 110,991   | 75,934     | 186,925    |
| STANISLAUS      | 4,597     | 12,393  | 1,147   | 9,179   | 30,107    | 16,913  | 3,341     | 63,129    | 1,566   | 37,810     | 180,183   | 50,867     | 231,050    |
| SUTTER          | 108       | 650     | .       | .       | 2,000     | 2,075   | 118       | 2,597     | 1,708   | 20,709     | 29,966    | 5,313      | 35,279     |
| TEHAMA          | 165       | 152     | .       | .       | 380       | 2,600   | .         | 2,077     | .       | 698        | 6,072     | 2,407      | 8,480      |
| TRINITY         | .         | 1,109   | .       | .       | 570       | 436     | .         | 63        | .       | .          | 2,178     | 364        | 2,542      |
| TULARE          | 149       | 892     | 4,769   | 7,096   | 7,392     | 15,328  | 40        | 32,722    | .       | 11,844     | 80,233    | 26,739     | 106,972    |
| TUOLUMNE        | 2,482     | 655     | .       | .       | 666       | 1,806   | .         | 2,050     | .       | 1,284      | 8,943     | 2,099      | 11,043     |
| VENTURA         | 5,036     | 1,640   | .       | 18,017  | 32,098    | 18,446  | 3,199     | 23,309    | 3,080   | 42,094     | 146,919   | 97,654     | 244,573    |
| YOLO            | 3,380     | .       | .       | 1,210   | 12,403    | 6,094   | 1,580     | 9,520     | 1,091   | 35,029     | 70,306    | 42,229     | 112,535    |
| YUBA            | 2,304     | .       | .       | .       | 2,350     | 2,362   | .         | 592       | 345     | .          | 7,953     | 4,088      | 12,042     |
| CALIFORNIA      | 307,583   | 154,635 | 637,912 | 243,850 | 3,137,452 | 416,232 | 169,483   | 2,281,749 | 65,791  | 2,169,144  | 9,583,832 | 7,232,873  | 16,816,704 |

Tables B.2 and B.3 present quarterly permit activity, by county and building type. According to these data, there is little variation from quarter to quarter in the volume of permit activity for the entire market, as well as geographically and by building type.

**Table B.2 CIRB Nonresidential Permit Valuation in PY2000  
by Quarter and County (\$1,000)**

| COUNTY          | NEW CONSTRUCTION |           |           |           |            | ADDITIONS AND ALTERATIONS |           |           |           |            | TOTAL<br>2,000 |
|-----------------|------------------|-----------|-----------|-----------|------------|---------------------------|-----------|-----------|-----------|------------|----------------|
|                 | Q1, 2000         | Q2, 2000  | Q3, 2000  | Q4, 2000  | Total 2000 | Q1, 2000                  | Q2, 2000  | Q3, 2000  | Q4, 2000  | Total 2000 |                |
| ALAMEDA         | 113,952          | 104,612   | 102,245   | 137,860   | 458,669    | 129,271                   | 127,685   | 130,520   | 109,247   | 496,724    | 955,392        |
| ALPINE          | 0                | 40        | 65        | 689       | 794        | 264                       | 3         | 65        | 38        | 370        | 1,164          |
| AMADOR          | 2,437            | 964       | 662       | 1,987     | 6,050      | 160                       | 274       | 563       | 103       | 1,099      | 7,149          |
| BUTTE           | 6,776            | 9,516     | 14,467    | 12,125    | 42,884     | 6,332                     | 4,456     | 5,627     | 6,086     | 22,500     | 65,385         |
| CALAVERAS       | 1,277            | 1,816     | 762       | 5,163     | 9,017      | 630                       | 888       | 582       | 964       | 3,064      | 12,082         |
| COLUSA          | 1,826            | 1,940     | 1,007     | 2,317     | 7,090      | 50                        | 68        | 74        | 73        | 265        | 7,355          |
| CONTRA COSTA    | 39,610           | 47,580    | 52,773    | 79,911    | 219,875    | 61,535                    | 51,431    | 38,855    | 38,704    | 190,525    | 410,400        |
| DEL NORTE       | 282              | 657       | 633       | 81        | 1,653      | 494                       | 102       | 1,094     | 85        | 1,775      | 3,428          |
| EL DORADO       | 3,418            | 9,800     | 10,659    | 16,464    | 40,340     | 2,383                     | 3,396     | 3,129     | 2,200     | 11,109     | 51,449         |
| FRESNO          | 27,544           | 61,321    | 64,062    | 34,983    | 187,910    | 38,643                    | 12,629    | 18,217    | 31,533    | 101,022    | 288,932        |
| GLENN           | 450              | 860       | 1,349     | 347       | 3,007      | 35                        | 16        | 335       | 98        | 485        | 3,492          |
| HUMBOLDT        | 1,620            | 1,051     | 3,310     | 955       | 6,936      | 3,790                     | 6,145     | 3,290     | 1,202     | 14,426     | 21,362         |
| IMPERIAL        | 6,217            | 6,017     | 11,827    | 29,769    | 53,831     | 1,305                     | 799       | 1,263     | 526       | 3,893      | 57,723         |
| INYO            | 57               | 2,000     | 0         | 0         | 2,057      | 652                       | 161       | 50        | 138       | 1,001      | 3,058          |
| KERN            | 9,834            | 24,412    | 23,199    | 18,459    | 75,903     | 9,923                     | 19,920    | 10,680    | 11,051    | 51,575     | 127,478        |
| KINGS           | 960              | 1,812     | 486       | 16,111    | 19,368     | 4,330                     | 3,190     | 455       | 842       | 8,818      | 28,186         |
| LAKE            | 28               | 2,459     | 2,259     | 995       | 5,741      | 359                       | 378       | 126       | 288       | 1,151      | 6,892          |
| LASSEN          | 71               | 771       | 105       | 5         | 952        | 35                        | 145       | 66        | 28        | 275        | 1,227          |
| LOS ANGELES     | 397,324          | 439,974   | 320,582   | 319,680   | 1,477,561  | 374,270                   | 374,431   | 401,044   | 343,258   | 1,493,003  | 2,970,564      |
| MADERA          | 2,363            | 3,386     | 2,965     | 1,914     | 10,628     | 1,310                     | 258       | 3,242     | 1,137     | 5,947      | 16,576         |
| MARIN           | 9,853            | 24,506    | 23,275    | 4,500     | 62,135     | 7,260                     | 7,912     | 15,143    | 19,955    | 50,271     | 112,405        |
| MARIPOSA        | 1,497            | 113       | 381       | 248       | 2,239      | 148                       | 10        | 34        | 26        | 218        | 2,456          |
| MENDOCINO       | 1,634            | 2,172     | 3,294     | 644       | 7,744      | 1,073                     | 795       | 954       | 1,959     | 4,781      | 12,525         |
| MERCED          | 5,764            | 7,650     | 9,659     | 8,998     | 32,072     | 2,884                     | 2,057     | 3,057     | 3,473     | 11,472     | 43,544         |
| MODOC           | 48               | 1,573     | 112       | 337       | 2,069      | 70                        | 485       | 37        | 22        | 613        | 2,682          |
| MONO            | 0                | 242       | 4,374     | 96        | 4,712      | 18                        | 68        | 123       | 509       | 718        | 5,430          |
| MONTEREY        | 9,349            | 20,502    | 19,972    | 31,874    | 81,697     | 10,134                    | 9,232     | 14,143    | 9,625     | 43,133     | 124,831        |
| NAPA            | 8,414            | 17,908    | 15,515    | 8,838     | 50,675     | 3,583                     | 4,014     | 24,477    | 12,413    | 44,487     | 95,162         |
| NEVADA          | 2,612            | 6,714     | 4,791     | 3,052     | 17,170     | 97                        | 210       | 145       | 100       | 552        | 17,722         |
| ORANGE          | 270,211          | 254,308   | 217,246   | 159,086   | 900,851    | 162,457                   | 171,134   | 177,954   | 146,614   | 658,159    | 1,559,009      |
| PLACER          | 24,550           | 17,428    | 34,626    | 37,686    | 114,290    | 17,210                    | 34,505    | 20,410    | 15,044    | 87,169     | 201,458        |
| PLUMAS          | 400              | 192       | 0         | 114       | 706        | 48                        | 324       | 99        | 0         | 671        | 1,377          |
| RIVERSIDE       | 161,197          | 105,498   | 112,616   | 139,408   | 518,719    | 32,179                    | 44,233    | 42,032    | 38,223    | 156,667    | 675,386        |
| SACRAMENTO      | 68,096           | 70,141    | 66,655    | 88,738    | 293,629    | 37,178                    | 46,865    | 56,863    | 66,070    | 206,909    | 500,538        |
| SAN BENITO      | 1,063            | 1,836     | 6,955     | 1,123     | 10,977     | 683                       | 1,168     | 673       | 479       | 3,003      | 13,979         |
| SAN BERNARDINO  | 190,928          | 140,853   | 135,186   | 108,226   | 575,192    | 29,101                    | 32,218    | 32,312    | 30,170    | 123,800    | 698,993        |
| SAN DIEGO       | 164,472          | 270,363   | 130,712   | 160,751   | 726,298    | 114,105                   | 155,425   | 124,878   | 107,600   | 502,009    | 1,228,307      |
| SAN FRANCISCO   | 9,493            | 136,174   | 388,195   | 235,503   | 769,365    | 106,070                   | 204,055   | 166,196   | 159,866   | 636,187    | 1,405,552      |
| SAN JOAQUIN     | 48,976           | 74,226    | 48,938    | 45,291    | 217,431    | 24,008                    | 14,137    | 18,644    | 14,588    | 71,377     | 288,808        |
| SAN LUIS OBISPO | 31,903           | 19,624    | 19,632    | 12,968    | 84,127     | 6,931                     | 5,532     | 7,033     | 4,329     | 23,825     | 107,952        |
| SAN MATEO       | 36,101           | 127,939   | 107,078   | 140,420   | 411,539    | 67,233                    | 56,076    | 51,390    | 73,218    | 247,918    | 659,456        |
| SANTA BARBARA   | 23,793           | 14,399    | 16,297    | 12,245    | 66,733     | 17,657                    | 10,125    | 12,207    | 15,741    | 55,730     | 122,463        |
| SANTA CLARA     | 178,582          | 226,821   | 431,057   | 352,098   | 1,188,559  | 319,513                   | 311,874   | 432,806   | 436,401   | 1,500,594  | 2,689,153      |
| SANTA CRUZ      | 957              | 604       | 1,724     | 4,378     | 7,663      | 4,182                     | 11,331    | 9,693     | 6,442     | 31,648     | 39,311         |
| SHASTA          | 31,550           | 8,382     | 12,192    | 4,102     | 56,226     | 1,534                     | 2,106     | 4,496     | 1,450     | 9,586      | 65,811         |
| SIERRA          | 50               | 19        | 0         | 22        | 91         | 0                         | 2         | 0         | 0         | 2          | 93             |
| SISKIYOU        | 2,666            | 2,376     | 2,298     | 8,455     | 15,796     | 275                       | 1,263     | 322       | 1,345     | 3,204      | 19,000         |
| SOLANO          | 25,491           | 27,628    | 18,966    | 19,030    | 91,115     | 8,609                     | 9,823     | 7,471     | 15,545    | 41,447     | 132,562        |
| SONOMA          | 24,227           | 25,534    | 45,479    | 15,751    | 110,991    | 16,200                    | 29,199    | 16,084    | 14,451    | 75,934     | 186,925        |
| STANISLAUS      | 58,275           | 49,155    | 35,384    | 37,368    | 180,183    | 12,518                    | 14,336    | 14,297    | 9,716     | 50,867     | 231,050        |
| SUTTER          | 327              | 4,186     | 3,695     | 21,757    | 29,966     | 3,133                     | 861       | 888       | 432       | 5,313      | 35,279         |
| TEHAMA          | 230              | 2,658     | 1,938     | 1,246     | 6,072      | 1,313                     | 571       | 464       | 60        | 2,407      | 8,480          |
| TRINITY         | 79               | 715       | 1,177     | 207       | 2,178      | 6                         | 163       | 159       | 37        | 364        | 2,542          |
| TULARE          | 10,451           | 20,343    | 37,340    | 12,099    | 80,233     | 4,261                     | 7,199     | 11,583    | 3,696     | 26,739     | 106,972        |
| TUOLUMNE        | 1,128            | 4,544     | 1,381     | 1,890     | 8,943      | 396                       | 472       | 884       | 348       | 2,099      | 11,043         |
| VENTURA         | 23,494           | 48,941    | 40,393    | 34,091    | 146,919    | 21,315                    | 30,439    | 22,985    | 22,916    | 97,654     | 244,573        |
| YOLO            | 10,426           | 18,389    | 17,799    | 23,692    | 70,306     | 4,139                     | 16,682    | 7,082     | 14,326    | 42,229     | 112,535        |
| YUBA            | 4,354            | 1,437     | 1,300     | 862       | 7,953      | 153                       | 1,504     | 1,576     | 856       | 4,088      | 12,042         |
| CALIFORNIA      | 2,058,690        | 2,477,082 | 2,631,052 | 2,417,008 | 9,583,832  | 1,673,445                 | 1,844,982 | 1,918,869 | 1,795,577 | 7,232,873  | 16,816,704     |

**Table B.3 CIRB Nonresidential Permit Valuation in PY2000  
by Quarter and Building Type (\$1,000)**

|                   | AMUSEMENT | CHURCH  | HOTEL   | MEDICAL | OFFICE    | OTHER   | EDUCATION | RETAIL    | SERVICE | INDUSTRIAL | TOTAL NEW | ALTERATION | TOTAL      |
|-------------------|-----------|---------|---------|---------|-----------|---------|-----------|-----------|---------|------------|-----------|------------|------------|
| <b>CALIFORNIA</b> |           |         |         |         |           |         |           |           |         |            |           |            |            |
| Q1, 2000          | 118,538   | 27,785  | 140,686 | 60,437  | 462,785   | 98,271  | 34,842    | 620,891   | 17,322  | 477,132    | 2,058,690 | 1,673,445  | 3,732,135  |
| Q2, 2000          | 90,917    | 47,589  | 210,193 | 28,023  | 673,878   | 120,648 | 69,559    | 596,884   | 16,382  | 623,008    | 2,477,082 | 1,844,982  | 4,322,064  |
| Q3, 2000          | 36,526    | 58,338  | 104,193 | 55,932  | 1,097,633 | 108,520 | 26,487    | 524,660   | 12,743  | 606,019    | 2,631,052 | 1,918,869  | 4,549,921  |
| Q4, 2000          | 61,602    | 20,923  | 182,840 | 99,458  | 903,156   | 88,793  | 38,595    | 539,314   | 19,344  | 462,984    | 2,417,008 | 1,795,577  | 4,212,585  |
| Total 2000        | 307,583   | 154,635 | 637,912 | 243,850 | 3,137,452 | 416,232 | 169,483   | 2,281,749 | 65,791  | 2,169,144  | 9,583,832 | 7,232,873  | 16,816,704 |

**GLOSSARY OF BUILDING/PROJECT TYPES RECORDED BY CIRB**

|             |   |
|-------------|---|
| Amusement   | amusement and recreational buildings  |
| Church      | churches and religious buildings  |
| Hotel       | hotels and motels   |
| Medical     | hospitals and institutional buildings   |
| Office      | office and bank buildings   |
| Other       | other nonresidential buildings  |
| Education   | schools, colleges, universities, libraries, museums   |
| Retail      | stores and other mercantile buildings   |
| Service     | service stations  |
| Industrial  | manufacturing plants and affiliated buildings   |
| Alterations | alterations, additions, and conversions to nonresidential structures (excludes special installation permits for electrical, plumbing, heating, AC, or similar mechanical work, or installation of fire escapes, elevators, signs, etc.) |

## **APPENDIX C**

### **TITLE 24 CONSTRUCTION SPECIFICATIONS FROM QUARTERS 3-4, 1999**

The results reported in this Appendix were obtained by analyzing electronic Title 24 documentation for nonresidential new construction and R&R projects filed during the Second Half of 1999. The sample represents a “snapshot” of the electronic projects filed during this period; the number of projects analyzed is equal to approximately 10% of the new construction and R&R market, which constitutes a robust sample. Note that, because higher efficiency substitutes can be made without code compliance consequences, results obtained by analyzing this documentation tend to be biased toward lower efficiency measures.

The following results are representative of those nonresidential new construction designs for which compliance documentation was prepared *electronically*. The distribution of project square footage is presented in Table C.1. Note that not all projects include lighting, HVAC and envelope specifications.

Lighting fixture features are shown in Tables C.2-C.5.<sup>1</sup> The results indicate that efficient lighting fixtures (CFL, T8 and T5) account for a significantly higher percentage of the total wattage than standard efficiency lighting fixtures (incandescent, T12 and T12ES). HID fixtures account for a large fraction of the installed wattage. Magnetic ballasts continue to be specified frequently, mostly in conjunction with HID fixtures, but also for approximately 10% of T8 fixtures and 85% of T12 fixtures.

In designs where lighting controls are specified, occupancy sensors and manual dimming equipment control most of the controlled space and the wattage installed. However, these results are inconclusive due to sample constraints.

Cooling, heating and ventilation features are presented in Tables C.6-C.8. Unitary systems account for almost the entire cooling capacity specified, and gas furnaces and boilers account for over three quarters of the heating capacity specified. Air handling units powered by standard efficiency motors provide three quarters of the air supply.

Envelope features are presented in Tables C.9-C.14. Almost half of the designs examined have metal framing, the remaining designs being equally distributed between wood framing and concrete block structures. Tinted glass accounts for over half of the glazing area in the projects examined; only 22% of the glazing area is single clear glass.

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<sup>1</sup> Note that the average lighting power densities reported are calculated across building types.

**Table C.1 Square Footage Distribution of Electronic Title 24 Sample  
Second Half 1999**

| New or R&R | Performance or Prescriptive | Number of Projects | Percent of Total Number |                 |                  |                   |          | Total Square Footage | Percent of Total Square Footage |                 |                  |                   |          |
|------------|-----------------------------|--------------------|-------------------------|-----------------|------------------|-------------------|----------|----------------------|---------------------------------|-----------------|------------------|-------------------|----------|
|            |                             |                    | <10,000                 | 10,000 - 50,000 | 50,000 - 100,000 | 100,000 - 200,000 | >200,000 |                      | <10,000                         | 10,000 - 50,000 | 50,000 - 100,000 | 100,000 - 200,000 | >200,000 |
| New        | Performance                 | 276                | 58%                     | 29%             | 5%               | 4%                | 3%       | 7,655,176            | 8%                              | 21%             | 14%              | 22%               | 36%      |
| R&R        | Performance                 | 33                 | 70%                     | 24%             | 6%               | -                 | -        | 368,196              | 18%                             | 41%             | 41%              | -                 | -        |
| New        | Prescriptive                | 288                | 64%                     | 29%             | 4%               | 2%                | 1%       | 5,066,570            | 12%                             | 36%             | 16%              | 21%               | 15%      |
| R&R        | Prescriptive                | 186                | 88%                     | 11%             | -                | 1%                | -        | 1,117,390            | 42%                             | 31%             | -                | 13%               | -        |
| All        | All                         | 783                | 68%                     | 25%             | 4%               | 3%                | 1%       | 14,207,332           | 12%                             | 28%             | 15%              | 20%               | 25%      |

**Table C.2 Lighting Fixture Features from Electronic Title 24 Files  
Second Half 1999**

| New or R&R | Performance or Prescriptive | Building Area (sqft) | Average Lighting Density (Watts/sqft) | No. of Contributing Buildings | Percent of Total Installed Wattage |              |                    |                        |                            |              |                |
|------------|-----------------------------|----------------------|---------------------------------------|-------------------------------|------------------------------------|--------------|--------------------|------------------------|----------------------------|--------------|----------------|
|            |                             |                      |                                       |                               | Incandescent fixtures              | CFL fixtures | T8 and T5 fixtures | T12 and T12ES fixtures | Other fluorescent fixtures | HID fixtures | Other fixtures |
| New        | Performance                 | 1,812,398            | 1.39                                  | 141                           | 4%                                 | 26%          | 31%                | 2%                     | 2%                         | 34%          | 0%             |
| R&R        | Performance                 | 161,902              | 1.20                                  | 17                            | 9%                                 | 2%           | 48%                | 1%                     | 6%                         | 34%          | 0%             |
| New        | Prescriptive                | 496,891              | 2.80                                  | 76                            | 3%                                 | 1%           | 18%                | 6%                     | 2%                         | 70%          | 1%             |
| R&R        | Prescriptive                | 303,395              | 1.46                                  | 94                            | 23%                                | 2%           | 52%                | 13%                    | 2%                         | 7%           | 0%             |
| All        | All                         | 2,774,586            | 1.64                                  | 328                           | 6%                                 | 15%          | 30%                | 4%                     | 2%                         | 42%          | 0%             |

**Table C.3 Ballast Features from Electronic Title 24 Files  
Second Half 1999**

| New or R&R | Performance or Prescriptive | Building Area (sqft) | Average Lighting Density (Watts/sqft) | No. of Contributing Buildings | Percent of Total Installed Wattage |                  |               |            |
|------------|-----------------------------|----------------------|---------------------------------------|-------------------------------|------------------------------------|------------------|---------------|------------|
|            |                             |                      |                                       |                               | Electronic Ballast                 | Magnetic Ballast | Other Ballast | No Ballast |
| New        | Performance                 | 1,812,398            | 1.39                                  | 141                           | 58%                                | 37%              | 0%            | 4%         |
| R&R        | Performance                 | 161,902              | 1.20                                  | 17                            | 31%                                | 59%              | -             | 10%        |
| New        | Prescriptive                | 496,891              | 2.80                                  | 76                            | 17%                                | 79%              | 0%            | 3%         |
| R&R        | Prescriptive                | 303,395              | 1.46                                  | 94                            | 53%                                | 24%              | -             | 23%        |
| All        | All                         | 2,774,586            | 1.64                                  | 328                           | 44%                                | 50%              | 0%            | 6%         |

**Table C.4 Lighting Fixtures by Ballast Type from Electronic Title 24 Files  
Second Half 1999**

|                            | Connected Load (kW) | Percent of Total Installed Wattage |                  |               |            |
|----------------------------|---------------------|------------------------------------|------------------|---------------|------------|
|                            |                     | Electronic Ballast                 | Magnetic Ballast | Other Ballast | No Ballast |
| Incandescent fixtures      | 266.8               | 1%                                 | 0%               | 2%            | 97%        |
| CFL fixtures               | 690.2               | 96%                                | 4%               | 0%            | 0%         |
| T8 and T5 fixtures         | 1,349.1             | 91%                                | 9%               | 0%            | 0%         |
| T12 and T12 ES fixtures    | 202.9               | 16%                                | 84%              | 0%            | 0%         |
| Other fluorescent fixtures | 94.5                | 72%                                | 21%              | 0%            | 6%         |
| HID fixtures               | 1,921.0             | 0%                                 | 100%             | 0%            | 0%         |
| Other fixtures             | 14.8                | 6%                                 | 0%               | 0%            | 94%        |
| All fixtures               | 4,539.3             | 44%                                | 50%              | 0%            | 6%         |

**Table C.5 Lighting Control Features (where specified) from Electronic Title 24 Files  
Second Half 1999**

| New or R&R | Performance or Prescriptive | No. of Contributing Buildings | Average Lighting Density Controlled (Watts/sqft) | Percent of Controlled Wattage |                |                   |             | Percent of Area Controlled |                |                   |             |
|------------|-----------------------------|-------------------------------|--|-------------------------------|----------------|-------------------|-------------|----------------------------|----------------|-------------------|-------------|
|            |                             |                               |  | Daylighting Controls          | Manual Dimming | Occupancy Sensors | Time Switch | Daylighting Controls       | Manual Dimming | Occupancy Sensors | Time Switch |
| New        | Performance                 | 14                            | 0.28   | -                             | 34%            | 66%               | -           | -                          | 30%            | 70%               | -           |
| R&R        | Performance                 | 3                             | 0.46   | 7%                            | 1%             | 91%               | -           | 5%                         | 23%            | 73%               | -           |
| New        | Prescriptive                | 10                            | 0.23   | 6%                            | 26%            | 53%               | 14%         | 9%                         | 10%            | 72%               | 9%          |
| R&R        | Prescriptive                | 18                            | 0.27   | -                             | 48%            | 52%               | -           | -                          | 69%            | 31%               | -           |
| All        | All                         | 45                            | 0.29   | 3%                            | 29%            | 66%               | 3%          | 3%                         | 34%            | 61%               | 2%          |

**Table C.6 Cooling Equipment Features from Electronic Title 24 Files  
Second Half 1999**

| New or R&R | Performance or Prescriptive | Conditioned Area (sqft) | Average Conditioned Area to Cooling Capacity (sqft/ton) | No. of Contributing Buildings | Percent of Total Cooling Capacity |                              |                       |                     |                  | Average Efficiency                  |                                    |                                |                              |                        |
|------------|-----------------------------|-------------------------|---|-------------------------------|-----------------------------------|------------------------------|-----------------------|---------------------|------------------|-------------------------------------|------------------------------------|--------------------------------|------------------------------|------------------------|
|            |                             |                         |   |                               | Unitary Systems <65,000 Btuh      | Unitary Systems >65,000 Btuh | Water-cooled Chillers | Air-Cooled Chillers | Room AC and PTAC | Unitary Systems <65,000 Btuh (SEER) | Unitary Systems >65,000 Btuh (EER) | Water-cooled Chillers (kW/ton) | Air-Cooled Chillers (kW/ton) | Room AC and PTAC (EER) |
| New        | Performance                 | 3,581,772               | 413   | 216                           | 30.1%                             | 68.4%                        | -                     | 0.9%                | 0.6%             | 10.51                               | 9.59                               | -                              | 1.000                        | 10.19                  |
| R&R        | Performance                 | 176,325                 | 363   | 26                            | 58.0%                             | 42.0%                        | -                     | -                   | -                | 10.82                               | 8.97                               | -                              | -                            | -                      |
| New        | Prescriptive                | 1,107,943               | 330   | 119                           | 42.4%                             | 57.3%                        | -                     | -                   | 0.3%             | 10.60                               | 9.72                               | -                              | -                            | 10.50                  |
| R&R        | Prescriptive                | 518,871                 | 271   | 78                            | 24.4%                             | 67.7%                        | -                     | -                   | 7.9%             | 11.18                               | 9.75                               | -                              | -                            | 10.20                  |
| All        | All                         | 5,384,911               | 374   | 439                           | 33.2%                             | 64.8%                        | 0.0%                  | 0.6%                | 1.5%             | 10.62                               | 9.63                               | -                              | 1.000                        | 10.21                  |



**Table C.7 Heating Equipment Features from Electronic Title 24 Files  
Second Half 1999**

| New or R&R | Performance or Prescriptive | Conditioned Area (sqft) | Average Conditioned Area to Heating Capacity (sqft/MBtu) | No. of Contributing Buildings | Percent of Total Heating Capacity |                  |              |                           |                            | Average Efficiency       |                               |                       |                  |                   |
|------------|-----------------------------|-------------------------|--|-------------------------------|-----------------------------------|------------------|--------------|---------------------------|----------------------------|--------------------------|-------------------------------|-----------------------|------------------|-------------------|
|            |                             |                         |  |                               | Gas Boilers                       | Electric Boilers | Gas Furnaces | Heat Pumps Rated with COP | Heat Pumps Rated with HSPF | Gas Boilers (Efficiency) | Electric Boilers (Efficiency) | Gas Furnaces (% AFUE) | Heat Pumps (COP) | Heat Pumps (HSPF) |
| New        | Performance                 | 5,689,436               | 35   | 239                           | 36.1%                             | -                | 45.9%        | 4.9%                      | 13.2%                      | 0.80                     | -                             | 81                    | 3.87             | 7.08              |
| R&R        | Performance                 | 179,304                 | 26   | 27                            | 15.4%                             | -                | 68.1%        | -                         | 16.6%                      | 0.81                     | -                             | 81                    | -                | 7.43              |
| New        | Prescriptive                | 1,077,483               | 25   | 112                           | 4.1%                              | -                | 63.4%        | 6.6%                      | 25.9%                      | 0.81                     | -                             | 81                    | 3.87             | 7.13              |
| R&R        | Prescriptive                | 463,667                 | 19   | 69                            | 10.3%                             | -                | 54.2%        | 14.6%                     | 20.9%                      | 0.79                     | -                             | 80                    | 3.77             | 7.23              |
| All        | All                         | 7,409,890               | 31   | 447                           | 27.0%                             | -                | 50.6%        | 6.1%                      | 16.4%                      | 0.80                     | -                             | 81                    | 3.85             | 7.13              |

**Table C.8 Ventilation System Features from Electronic Title 24 Files  
Second Half 1999**

| New or R&R | Performance or Prescriptive | Conditioned Area (sqft) | Average Supply CFM to Conditioned Area (CFM/sqft) | No. of Contributing Buildings | Percent of Supply CFM      |                           | Average Efficiency                 |                                   |
|------------|-----------------------------|-------------------------|---|-------------------------------|----------------------------|---------------------------|------------------------------------|-----------------------------------|
|            |                             |                         |   |                               | Standard Efficiency Motors | Premium Efficiency Motors | Standard Efficiency Motors (W/CFM) | Premium Efficiency Motors (W/CFM) |
| New        | Performance                 | 5,741,453               | 1.3   | 243                           | 67.7%                      | 32.3%                     | 0.73                               | 0.97                              |
| R&R        | Performance                 | 244,491                 | 0.9   | 27                            | 82.0%                      | 18.0%                     | 0.62                               | 1.81                              |
| New        | Prescriptive                | 1,107,943               | 1.2   | 119                           | 100.0%                     | -                         | 0.51                               | -                                 |
| R&R        | Prescriptive                | 518,871                 | 1.5   | 78                            | 99.3%                      | 0.7%                      | 0.60                               | 0.27                              |
| All        | All                         | 7,612,758               | 1.3   | 467                           | 74.8%                      | 25.2%                     | 0.68                               | 0.99                              |

**Table C.9 Exterior Wall Features from Electronic Title 24 Files  
Second Half 1999**

| New or R&R | Performance or Prescriptive | Conditioned Area (sqft) | Wall Area to Conditioned Area Ratio | No. of Contributing Buildings | Percent of Wall Areas (%) |               |                                | Average Wall Insulation (R-value) |               |                                |
|------------|-----------------------------|-------------------------|-------------------------------------|-------------------------------|---------------------------|---------------|--------------------------------|-----------------------------------|---------------|--------------------------------|
|            |                             |                         |                                     |                               | Wood Framing              | Metal Framing | Concrete Block, Concrete, etc. | Wood Framing                      | Metal Framing | Concrete Block, Concrete, etc. |
| New        | Performance                 | 6,991,467               | 0.31                                | 260                           | 29%                       | 43%           | 28%                            | 12.1                              | 5.4           | 1.9                            |
| R&R        | Performance                 | 334,956                 | 0.29                                | 32                            | 33%                       | 15%           | 52%                            | 9.0                               | 3.2           | 1.8                            |
| New        | Prescriptive                | 3,951,937               | 0.38                                | 200                           | 22%                       | 27%           | 51%                            | 12.3                              | 5.9           | 1.8                            |
| R&R        | Prescriptive                | 434,381                 | 0.44                                | 59                            | 44%                       | 8%            | 48%                            | 8.4                               | 5.4           | 1.9                            |
| All        | All                         | 11,712,741              | 0.34                                | 551                           | 27%                       | 35%           | 38%                            | 11.7                              | 5.5           | 1.8                            |

**Table C.10 Exterior Door Features from Electronic Title 24 Files  
Second Half 1999**

| New or R&R | Performance or Prescriptive | Conditioned Area (sqft) | Door Area to Conditioned Area Ratio | No. of Contributing Buildings | Average Door Insulation (R-value) |
|------------|-----------------------------|-------------------------|-------------------------------------|-------------------------------|-----------------------------------|
| New        | Performance                 | 4,336,285               | 0.01                                | 128                           | 1.4                               |
| R&R        | Performance                 | 157,472                 | 0.01                                | 12                            | 1.3                               |
| New        | Prescriptive                | 2,865,582               | 0.01                                | 93                            | 1.1                               |
| R&R        | Prescriptive                | 98,407                  | 0.02                                | 17                            | 1.7                               |
| All        | All                         | 7,457,746               | 0.01                                | 250                           | 1.3                               |

**Table C.11 Window Features from Electronic Title 24 Files\*  
Second Half 1999**

| New or R&R | Performance or Prescriptive | Conditioned Area (sqft) | Window Area to Conditioned Area Ratio | Window Area to Wall Area Ratio | No. of Contributing Buildings | Average Percent of Glazing Area |                    |                   |                    |
|------------|-----------------------------|-------------------------|---------------------------------------|--------------------------------|-------------------------------|---------------------------------|--------------------|-------------------|--------------------|
|            |                             |                         |                                       |                                |                               | Single Pane Clear               | Single Pane Tinted | Double Pane Clear | Double Pane Tinted |
| New        | Performance                 | 6,970,755               | 0.13                                  | 0.44                           | 252                           | 20%                             | 43%                | 11%               | 26%                |
| R&R        | Performance                 | 330,035                 | 0.08                                  | 0.29                           | 31                            | 37%                             | 45%                | 5%                | 14%                |
| New        | Prescriptive                | 3,844,234               | 0.09                                  | 0.24                           | 186                           | 24%                             | 43%                | 18%               | 15%                |
| R&R        | Prescriptive                | 429,213                 | 0.12                                  | 0.29                           | 54                            | 27%                             | 45%                | 22%               | 6%                 |
| All        | All                         | 11,574,237              | 0.12                                  | 0.35                           | 523                           | 22%                             | 43%                | 13%               | 22%                |

\*Title 24 documents report only the solar heat gain coefficient and the U-value of glass. The following criteria were used to classify

glass into the categories used in these Exhibits:

- .. single pane clear glass: U-value > 0.88 and solar heat gain coefficient > 0.8
- .. single pane tinted glass: U-value > 0.88 and solar heat gain coefficient <= 0.8
- .. double pane clear glass: U-value <= 0.88 and solar heat gain coefficient > 0.65
- .. double pane tinted glass: U-value <= 0.88 and solar heat gain coefficient <= 0.65

**Table C.12 Window Features from Electronic Title 24 Files – Continued  
Second Half 1999**

| New or R&R | Performance or Prescriptive | Average Glass Heat Gain Coefficient |                    |                   |                    |           | Average Glass U-value (Btu/hr-sqft-F) |                    |                   |                    |           |
|------------|-----------------------------|-------------------------------------|--------------------|-------------------|--------------------|-----------|---------------------------------------|--------------------|-------------------|--------------------|-----------|
|            |                             | Single Pane Clear                   | Single Pane Tinted | Double Pane Clear | Double Pane Tinted | Composite | Single Pane Clear                     | Single Pane Tinted | Double Pane Clear | Double Pane Tinted | Composite |
| New        | Performance                 | 0.81                                | 0.47               | 0.70              | 0.36               | 0.53      | 1.24                                  | 1.12               | 0.75              | 0.68               | 0.99      |
| R&R        | Performance                 | 0.83                                | 0.60               | 0.73              | 0.41               | 0.70      | 1.23                                  | 1.26               | 0.72              | 0.46               | 1.11      |
| New        | Prescriptive                | 0.82                                | 0.60               | 0.71              | 0.48               | 0.66      | 1.19                                  | 1.16               | 0.62              | 0.68               | 1.00      |
| R&R        | Prescriptive                | 0.83                                | 0.64               | 0.70              | 0.55               | 0.70      | 1.20                                  | 1.21               | 0.72              | 0.76               | 1.07      |
| All        | All                         | 0.82                                | 0.51               | 0.71              | 0.38               | 0.58      | 1.22                                  | 1.14               | 0.70              | 0.68               | 1.00      |

**Table C.13 Roof Features from Electronic Title 24 Files  
Second Half 1999**

| New or R&R | Performance or Prescriptive | Conditioned Area (sqft) | Roof Area to Conditioned Area Ratio | No. of Contributing Buildings | Average Roof Insulation (R-value) |
|------------|-----------------------------|-------------------------|-------------------------------------|-------------------------------|-----------------------------------|
| New        | Performance                 | 6,932,809               | 0.50                                | 253                           | 16.6                              |
| R&R        | Performance                 | 262,880                 | 0.71                                | 28                            | 18.7                              |
| New        | Prescriptive                | 3,918,106               | 0.53                                | 191                           | 15.0                              |
| R&R        | Prescriptive                | 385,188                 | 0.66                                | 53                            | 12.6                              |
| All        | All                         | 11,498,983              | 0.52                                | 525                           | 15.9                              |

**Table C.14 Skylight Features from Electronic Title 24 Files  
Second Half 1999**

| New or R&R | Performance or Prescriptive | Conditioned Area (sqft) | Skylight Area to Conditioned Area Ratio | No. of Contributing Buildings | Average Skylight Features      |                                  |                             |
|------------|-----------------------------|-------------------------|---|-------------------------------|--------------------------------|----------------------------------|-----------------------------|
|            |                             |                         |   |                               | Mean Skylight Area (sqft/site) | Mean Solar Heat Gain Coefficient | Mean U-value (Btu/h-sqft-F) |
| New        | Performance                 | 503,121                 | 0.02                                    | 29                            | 410                            | 0.54                             | 0.93                        |
| R&R        | Performance                 | 150,732                 | 0.01                                    | 7                             | 140                            | 0.74                             | 0.96                        |
| New        | Prescriptive                | 1,301,528               | 0.01                                    | 37                            | 276                            | 0.70                             | 1.17                        |
| R&R        | Prescriptive                | 103,527                 | 0.01                                    | 8                             | 160                            | 0.77                             | 1.59                        |
| All        | All                         | 2,058,908               | 0.01                                    | 81                            | 301                            | 0.63                             | 1.06                        |

## **APPENDIX D**

### **TITLE 24 CONSTRUCTION SPECIFICATIONS FROM QUARTERS 3-4, 2000**

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The following results are representative of those nonresidential new construction designs for which compliance documentation was prepared *electronically*. The distribution of project square footage is presented in Table D.1. Note that not all projects include lighting, HVAC and envelope specifications.

Lighting fixture features are shown in Tables D.2-D.5.<sup>2</sup> The results indicate that efficient lighting fixtures (CFL, T8 and T5) continue to account for a significantly higher percentage of the total wattage than traditional lighting fixtures (incandescent, T12 and T12ES). HID fixtures account for almost one-third of the wattage installed. Magnetic ballasts are specified as frequently as electronic ballasts. Magnetic ballasts continue to be specified mostly in conjunction with HID fixtures, but also for approximately 8% of T8 fixtures and 65% of T12 fixtures.

In designs where lighting controls are specified, time switches control a larger fraction of the controlled space and wattage installed than in the sample of 1999 projects examined. However, due to sample constraints, these results are inconclusive.

Cooling, heating and ventilation features are presented in Tables D.6-D.8. Unitary systems continue to account for a large fraction of the cooling capacity specified, and gas furnaces and boilers account for almost all of the heating capacity specified. Air handling units powered by standard efficiency motors provide a large fraction of the air supply.

Envelope features are presented in Tables D.9-D.14. The designs examined are almost equally distributed among wood framing, metal framing and concrete block structures. Tinted glass continues to account for most of the glazing area in the projects examined; only 10% of the specified glazing area is single clear glass.

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<sup>2</sup> Note that the average lighting power densities reported are calculated across building types.

**Table D.1 Square Footage Distribution of Electronic Title 24 Sample  
Second Half 2000**

| New or R&R | Performance or Prescriptive | Number of Projects | Percent of Total Number |                 |                  |                   |          | Total Square Footage | Percent of Total Square Footage |                 |                  |                   |          |
|------------|-----------------------------|--------------------|-------------------------|-----------------|------------------|-------------------|----------|----------------------|---------------------------------|-----------------|------------------|-------------------|----------|
|            |                             |                    | <10,000                 | 10,000 - 50,000 | 50,000 - 100,000 | 100,000 - 200,000 | >200,000 |                      | <10,000                         | 10,000 - 50,000 | 50,000 - 100,000 | 100,000 - 200,000 | >200,000 |
| New        | Performance                 | 273                | 49%                     | 32%             | 5%               | 6%                | 7%       | 13,307,600           | 4%                              | 14%             | 8%               | 18%               | 57%      |
| R&R        | Performance                 | 49                 | 69%                     | 18%             | 6%               | -                 | 2%       | 1,115,132            | 9%                              | 17%             | 22%              | -                 | 29%      |
| New        | Prescriptive                | 321                | 64%                     | 24%             | 3%               | 7%                | 1%       | 7,307,690            | 11%                             | 22%             | 11%              | 39%               | 18%      |
| R&R        | Prescriptive                | 193                | 85%                     | 13%             | 2%               | -                 | -        | 1,218,293            | 42%                             | 42%             | 16%              | -                 | -        |
| All        | All                         | 836                | 64%                     | 24%             | 4%               | 5%                | 3%       | 22,948,715           | 8%                              | 18%             | 10%              | 24%               | 40%      |

**Table D.2 Lighting Fixture Features from Electronic Title 24 Files  
Second Half 2000**

| New or R&R | Performance or Prescriptive | Building Area (sqft) | Average Lighting Density (Watts/sqft) | No. of Contributing Buildings | Percent of Total Installed Wattage |              |                    |                        |                            |              |                |
|------------|-----------------------------|----------------------|---------------------------------------|-------------------------------|------------------------------------|--------------|--------------------|------------------------|----------------------------|--------------|----------------|
|            |                             |                      |                                       |                               | Incandescent fixtures              | CFL fixtures | T8 and T5 fixtures | T12 and T12ES fixtures | Other fluorescent fixtures | HID fixtures | Other fixtures |
| New        | Performance                 | 724,693              | 1.36                                  | 116                           | 5%                                 | 3%           | 37%                | 3%                     | -                          | 52%          | -              |
| R&R        | Performance                 | 128,084              | 1.10                                  | 24                            | 7%                                 | 6%           | 52%                | 7%                     | 1%                         | 28%          | -              |
| New        | Prescriptive                | 372,885              | 1.14                                  | 82                            | 14%                                | 10%          | 51%                | 17%                    | 1%                         | 7%           | 0%             |
| R&R        | Prescriptive                | 342,420              | 1.26                                  | 88                            | 16%                                | 6%           | 64%                | 5%                     | 1%                         | 8%           | -              |
| All        | All                         | 1,568,082            | 1.27                                  | 310                           | 9%                                 | 5%           | 47%                | 7%                     | 1%                         | 31%          | 0%             |

**Table D.3 Ballast Features from Electronic Title 24 Files  
Second Half 2000**

| New or R&R | Performance or Prescriptive | Building Area (sqft) | Average Lighting Density (Watts/sqft) | No. of Contributing Buildings | Percent of Total Installed Wattage |                  |               |            |
|------------|-----------------------------|----------------------|---------------------------------------|-------------------------------|------------------------------------|------------------|---------------|------------|
|            |                             |                      |                                       |                               | Electronic Ballast                 | Magnetic Ballast | Other Ballast | No Ballast |
| New        | Performance                 | 724,693              | 1.36                                  | 116                           | 38%                                | 57%              | -             | 6%         |
| R&R        | Performance                 | 128,084              | 1.10                                  | 24                            | 35%                                | 57%              | -             | 8%         |
| New        | Prescriptive                | 372,885              | 1.14                                  | 82                            | 62%                                | 23%              | -             | 15%        |
| R&R        | Prescriptive                | 342,420              | 1.26                                  | 88                            | 63%                                | 20%              | 1%            | 16%        |
| All        | All                         | 1,568,082            | 1.27                                  | 310                           | 48%                                | 41%              | 0%            | 10%        |

**Table D.4 Lighting Fixtures by Ballast Type from Electronic Title 24 Files  
Second Half 2000**

|                            | Connected Load (kW) | Percent of Total Installed Wattage |                  |               |            |
|----------------------------|---------------------|------------------------------------|------------------|---------------|------------|
|                            |                     | Electronic Ballast                 | Magnetic Ballast | Other Ballast | No Ballast |
| Incandescent fixtures      | 187.4               | 5%                                 | 2%               | 0%            | 93%        |
| CFL fixtures               | 103.6               | 39%                                | 53%              | 3%            | 5%         |
| T8 and T5 fixtures         | 929.9               | 92%                                | 8%               | 0%            | 0%         |
| T12 and T12 ES fixtures    | 135.3               | 35%                                | 65%              | 0%            | 0%         |
| Other fluorescent fixtures | 10.8                | 10%                                | 22%              | 0%            | 67%        |
| HID fixtures               | 615.3               | 0%                                 | 98%              | 0%            | 2%         |
| Other fixtures             | 1.4                 | 100%                               | 0%               | 0%            | 0%         |
| All fixtures               | 1,983.6             | 48%                                | 41%              | 0%            | 10%        |

**Table D.5 Lighting Control Features (where specified) from Electronic Title 24 Files  
Second Half 2000**

| New or R&R | Performance or Prescriptive | No. of Contributing Buildings | Average Lighting Density Controlled (Watts/sqft) | Percent of Controlled Wattage |                |                   |             | Percent of Area Controlled |                |                   |             |
|------------|-----------------------------|-------------------------------|--|-------------------------------|----------------|-------------------|-------------|----------------------------|----------------|-------------------|-------------|
|            |                             |                               |  | Daylighting Controls          | Manual Dimming | Occupancy Sensors | Time Switch | Daylighting Controls       | Manual Dimming | Occupancy Sensors | Time Switch |
| New        | Performance                 | 17                            | 1.34   | 1%                            | 4%             | 13%               | 82%         | 7%                         | 8%             | 25%               | 60%         |
| R&R        | Performance                 | 1                             | 0.43   | -                             | 1%             | 99%               | -           | -                          | 27%            | 73%               | -           |
| New        | Prescriptive                | 9                             | 0.59   | -                             | 15%            | 85%               | -           | -                          | 13%            | 87%               | -           |
| R&R        | Prescriptive                | 11                            | 0.24   | 16%                           | 58%            | 26%               | -           | 3%                         | 61%            | 36%               | -           |
| All        | All                         | 38                            | 0.90   | 1%                            | 7%             | 28%               | 63%         | 4%                         | 20%            | 46%               | 31%         |

**Table D.6 Cooling Equipment Features from Electronic Title 24 Files  
Second Half 2000**

| New or R&R | Performance or Prescriptive | Conditioned Area (sqft) | Average Conditioned Area to Cooling Capacity (sqft/ton) | No. of Contributing Buildings | Percent of Total Cooling Capacity |                              |                       |                     |                  | Average Efficiency                  |                                    |                                |                              |                        |
|------------|-----------------------------|-------------------------|---|-------------------------------|-----------------------------------|------------------------------|-----------------------|---------------------|------------------|-------------------------------------|------------------------------------|--------------------------------|------------------------------|------------------------|
|            |                             |                         |   |                               | Unitary Systems <65,000 Btuh      | Unitary Systems >65,000 Btuh | Water-cooled Chillers | Air-Cooled Chillers | Room AC and PTAC | Unitary Systems <65,000 Btuh (SEER) | Unitary Systems >65,000 Btuh (EER) | Water-cooled Chillers (kW/ton) | Air-Cooled Chillers (kW/ton) | Room AC and PTAC (EER) |
| New        | Performance                 | 5,164,119               | 345   | 199                           | 17.3%                             | 73.1%                        | 8.9%                  | -                   | 0.6%             | 10.51                               | 10.29                              | 0.600                          | -                            | 8.76                   |
| R&R        | Performance                 | 515,259                 | 425   | 34                            | 17.1%                             | 82.8%                        | -                     | -                   | 0.2%             | 10.29                               | 10.42                              | -                              | -                            | 9.90                   |
| New        | Prescriptive                | 2,527,276               | 314   | 185                           | 35.6%                             | 64.3%                        | -                     | -                   | 0.1%             | 10.89                               | 10.14                              | -                              | -                            | 9.54                   |
| R&R        | Prescriptive                | 543,689                 | 215   | 96                            | 37.6%                             | 62.3%                        | -                     | -                   | 0.2%             | 11.38                               | 9.25                               | -                              | -                            | 9.58                   |
| All        | All                         | 8,750,343               | 327   | 514                           | 24.7%                             | 69.9%                        | 5.0%                  | 0.0%                | 0.4%             | 10.78                               | 10.16                              | 0.600                          | -                            | 8.86                   |

**Table D.7 Heating Equipment Features from Electronic Title 24 Files  
Second Half 2000**

| New or R&R | Performance or Prescriptive | Conditioned Area (sqft) | Average Conditioned Area to Heating Capacity (sqft/MBtu/h) | No. of Contributing Buildings | Percent of Total Heating Capacity |                  |              |                           |                            | Average Efficiency       |                               |                       |                  |                   |
|------------|-----------------------------|-------------------------|--|-------------------------------|-----------------------------------|------------------|--------------|---------------------------|----------------------------|--------------------------|-------------------------------|-----------------------|------------------|-------------------|
|            |                             |                         |  |                               | Gas Boilers                       | Electric Boilers | Gas Furnaces | Heat Pumps Rated with COP | Heat Pumps Rated with HSPF | Gas Boilers (Efficiency) | Electric Boilers (Efficiency) | Gas Furnaces (% AFUE) | Heat Pumps (COP) | Heat Pumps (HSPF) |
| New        | Performance                 | 800,270                 | 4  | 230                           | 43.7%                             | -                | 49.3%        | 0.7%                      | 6.4%                       | 0.83                     | -                             | 68                    | 3.82             | 7.18              |
| R&R        | Performance                 | 687,558                 | 62   | 36                            | 27.8%                             | 13.7%            | 39.7%        | -                         | 18.8%                      | 0.81                     | 0.84                          | 80                    | -                | 7.18              |
| New        | Prescriptive                | 960,724                 | 11   | 168                           | 5.8%                              | -                | 60.0%        | 0.1%                      | 34.1%                      | 0.80                     | -                             | 81                    | 4.04             | 7.26              |
| R&R        | Prescriptive                | 527,816                 | 16   | 89                            | 0.3%                              | -                | 81.2%        | -                         | 18.5%                      | 0.53                     | -                             | 81                    | -                | 7.25              |
| All        | All                         | 2,976,368               | 8  | 523                           | 30.1%                             | 0.4%             | 54.5%        | 0.5%                      | 14.5%                      | 0.83                     | 0.84                          | 73                    | 3.83             | 7.23              |

**Table D.8 Ventilation System Features from Electronic Title 24 Files  
Second Half 2000**

| New or R&R | Performance or Prescriptive | Conditioned Area (sqft) | Average Supply CFM to Conditioned Area (CFM/sqft) | No. of Contributing Buildings | Percent of Supply CFM      |                           | Average Efficiency                 |                                   |
|------------|-----------------------------|-------------------------|---|-------------------------------|----------------------------|---------------------------|------------------------------------|-----------------------------------|
|            |                             |                         |   |                               | Standard Efficiency Motors | Premium Efficiency Motors | Standard Efficiency Motors (W/CFM) | Premium Efficiency Motors (W/CFM) |
| New        | Performance                 | 9,236,185               | 1.1   | 236                           | 86.1%                      | 13.9%                     | 0.76                               | 0.92                              |
| R&R        | Performance                 | 918,578                 | 0.7   | 39                            | 69.5%                      | 30.5%                     | 0.53                               | 1.05                              |
| New        | Prescriptive                | 2,563,476               | 1.2   | 186                           | 76.8%                      | 23.2%                     | 0.64                               | 0.70                              |
| R&R        | Prescriptive                | 587,886                 | 1.9   | 97                            | 95.5%                      | 4.5%                      | 0.78                               | 0.57                              |
| All        | All                         | 13,306,125              | 1.1   | 558                           | 84.2%                      | 15.8%                     | 0.73                               | 0.85                              |

**Table D.9 Exterior Wall Features from Electronic Title 24 Files  
Second Half 2000**

| New or R&R | Performance or Prescriptive | Conditioned Area (sqft) | Wall Area to Conditioned Area Ratio | No. of Contributing Buildings | Percent of Wall Areas (%) |               |                                | Average Wall Insulation (R-value) |               |                                |
|------------|-----------------------------|-------------------------|-------------------------------------|-------------------------------|---------------------------|---------------|--------------------------------|-----------------------------------|---------------|--------------------------------|
|            |                             |                         |                                     |                               | Wood Framing              | Metal Framing | Concrete Block, Concrete, etc. | Wood Framing                      | Metal Framing | Concrete Block, Concrete, etc. |
| New        | Performance                 | 11,107,839              | 0.28                                | 262                           | 19%                       | 55%           | 27%                            | 8.7                               | 5.2           | 1.9                            |
| R&R        | Performance                 | 743,834                 | 0.27                                | 42                            | 56%                       | 2%            | 41%                            | 9.9                               | 3.5           | 1.6                            |
| New        | Prescriptive                | 6,314,473               | 0.33                                | 254                           | 25%                       | 49%           | 27%                            | 11.0                              | 5.0           | 1.9                            |
| R&R        | Prescriptive                | 519,751                 | 0.33                                | 61                            | 31%                       | 11%           | 57%                            | 8.8                               | 3.9           | 2.2                            |
| All        | All                         | 18,685,897              | 0.30                                | 619                           | 23%                       | 49%           | 28%                            | 9.6                               | 5.1           | 1.9                            |

**Table D.10 Exterior Door Features from Electronic Title 24 Files  
Second Half 2000**

| New or R&R | Performance or Prescriptive | Conditioned Area (sqft) | Door Area to Conditioned Area Ratio | No. of Contributing Buildings | Average Door Insulation (R-value) |
|------------|-----------------------------|-------------------------|-------------------------------------|-------------------------------|-----------------------------------|
| New        | Performance                 | 5,228,098               | 0.01                                | 124                           | 1.2                               |
| R&R        | Performance                 | 344,183                 | 0.01                                | 27                            | 1.6                               |
| New        | Prescriptive                | 1,943,681               | 0.01                                | 115                           | 1.4                               |
| R&R        | Prescriptive                | 233,643                 | 0.01                                | 26                            | 1.9                               |
| All        | All                         | 7,749,605               | 0.01                                | 292                           | 1.2                               |

**Table D.11 Window Features from Electronic Title 24 Files\*  
Second Half 2000**

| New or R&R | Performance or Prescriptive | Conditioned Area (sqft) | Window Area to Conditioned Area Ratio | Window Area to Wall Area Ratio | No. of Contributing Buildings | Average Percent of Glazing Area |                    |                   |                    |
|------------|-----------------------------|-------------------------|---------------------------------------|--------------------------------|-------------------------------|---------------------------------|--------------------|-------------------|--------------------|
|            |                             |                         |                                       |                                |                               | Single Pane Clear               | Single Pane Tinted | Double Pane Clear | Double Pane Tinted |
| New        | Performance                 | 11,038,706              | 0.16                                  | 0.59                           | 254                           | 7%                              | 39%                | 10%               | 45%                |
| R&R        | Performance                 | 731,641                 | 0.07                                  | 0.26                           | 41                            | 10%                             | 20%                | 4%                | 66%                |
| New        | Prescriptive                | 6,222,782               | 0.18                                  | 0.54                           | 225                           | 12%                             | 41%                | 6%                | 41%                |
| R&R        | Prescriptive                | 491,045                 | 0.15                                  | 0.45                           | 56                            | 46%                             | 30%                | 11%               | 13%                |
| All        | All                         | 18,484,174              | 0.16                                  | 0.56                           | 576                           | 10%                             | 39%                | 9%                | 43%                |

\*Title 24 documents report only the solar heat gain coefficient and the U-value of glass. The following criteria were used to classify

glass into the categories used in these Exhibits:

- .. single pane clear glass: U-value > 0.88 and solar heat gain coefficient > 0.8
- .. single pane tinted glass: U-value > 0.88 and solar heat gain coefficient <= 0.8
- .. double pane clear glass: U-value <= 0.88 and solar heat gain coefficient > 0.65
- .. double pane tinted glass: U-value <= 0.88 and solar heat gain coefficient <= 0.65

**Table D.12 Window Features from Electronic Title 24 Files – Continued  
Second Half 2000**

| New or R&R | Performance or Prescriptive | Average Glass Heat Gain Coefficient |                    |                   |                    |           | Average Glass U-value (Btu/hr-sqft-F) |                    |                   |                    |           |
|------------|-----------------------------|-------------------------------------|--------------------|-------------------|--------------------|-----------|---------------------------------------|--------------------|-------------------|--------------------|-----------|
|            |                             | Single Pane Clear                   | Single Pane Tinted | Double Pane Clear | Double Pane Tinted | Composite | Single Pane Clear                     | Single Pane Tinted | Double Pane Clear | Double Pane Tinted | Composite |
| New        | Performance                 | 0.82                                | 0.51               | 0.70              | 0.40               | 0.50      | 1.18                                  | 1.17               | 0.80              | 0.50               | 0.83      |
| R&R        | Performance                 | 0.81                                | 0.51               | 0.69              | 0.50               | 0.57      | 1.24                                  | 1.25               | 0.64              | 0.50               | 0.73      |
| New        | Prescriptive                | 0.82                                | 0.51               | 0.75              | 0.42               | 0.52      | 1.19                                  | 1.22               | 0.71              | 0.61               | 0.93      |
| R&R        | Prescriptive                | 0.83                                | 0.61               | 0.74              | 0.59               | 0.72      | 1.19                                  | 1.20               | 0.62              | 0.73               | 1.07      |
| All        | All                         | 0.82                                | 0.52               | 0.72              | 0.41               | 0.52      | 1.18                                  | 1.19               | 0.77              | 0.54               | 0.87      |



**Table D.13 Roof Features from Electronic Title 24 Files  
Second Half 2000**

| New or R&R | Performance or Prescriptive | Conditioned Area (sqft) | Roof Area to Conditioned Area Ratio | No. of Contributing Buildings | Average Roof Insulation (R-value) |
|------------|-----------------------------|-------------------------|-------------------------------------|-------------------------------|-----------------------------------|
| New        | Performance                 | 11,105,648              | 0.37                                | 259                           | 14.9                              |
| R&R        | Performance                 | 672,778                 | 0.44                                | 39                            | 8.3                               |
| New        | Prescriptive                | 6,250,418               | 0.47                                | 244                           | 15.5                              |
| R&R        | Prescriptive                | 491,625                 | 0.72                                | 57                            | 13.8                              |
| All        | All                         | 18,520,469              | 0.42                                | 599                           | 14.6                              |

**Table D.14 Skylight Features from Electronic Title 24 Files  
Second Half 2000**

| New or R&R | Performance or Prescriptive | Conditioned Area (sqft) | Skylight Area to Conditioned Area Ratio | No. of Contributing Buildings | Average Skylight Features      |                                  |                             |
|------------|-----------------------------|-------------------------|---|-------------------------------|--------------------------------|----------------------------------|-----------------------------|
|            |                             |                         |   |                               | Mean Skylight Area (sqft/site) | Mean Solar Heat Gain Coefficient | Mean U-value (Btu/h-sqft-F) |
| New        | Performance                 | 1,288,258               | 0.01                                    | 39                            | 228                            | 0.72                             | 1.08                        |
| R&R        | Performance                 | 194,250                 | 0.02                                    | 7                             | 526                            | 0.53                             | 0.91                        |
| New        | Prescriptive                | 831,735                 | 0.01                                    | 33                            | 372                            | 0.47                             | 0.71                        |
| R&R        | Prescriptive                | 86,449                  | 0.02                                    | 8                             | 259                            | 0.68                             | 1.21                        |
| All        | All                         | 2,400,692               | 0.01                                    | 87                            | 309                            | 0.58                             | 0.90                        |

## **APPENDIX E**

### **CEC ZIP CODE-TO-UTILITY TERRITORY MAPPING**

California Energy Commission's zip code-to-utility territory mapping consists of a list of 2,671 zip codes corresponding to 1,410 cities in California. In this list, each zip code is mapped to one of 16 territory zones. In turn, the territory zones correspond to utility territories as follows.

Zones 1 – 5 are in PG&E territory

Zone 6 is in SMUD territory

Zones 7 – 10 are in SCE territory

Zones 11 and 12 are in LADWP territory

Zone 13 is in SDG&E territory

Zones 14 – 16 comprise the Other Service area

To identify the utility territory based on zip code, the zip code must be first used to identify the territory zone, which then corresponds to a utility territory.

Note that the territory zones defined for this purpose by the CEC are not the same as the California Climate Zones.

## **APPENDIX F**

### **GLOSSARY OF MEASURES IMPLEMENTED BY SBD PARTICIPANTS**

|                    |   |
|--------------------|---|
| Whole building     | Measures installed as part of the whole building approach   |
| Daylighting        | Daylighting measures  |
| Skylight           | Skylights   |
| HVAC chiller       | High-efficiency chillers  |
| HVAC package       | High-efficiency unitary systems   |
| HVAC controls      | Controls for HVAC systems   |
| HVAC other         | Other measures labeled as “HVAC”, including air handling units, pumps, variable speed drives, and other measures specifically labeled “HVAC”.   |
| Motors<br>“motors” | High-efficiency motors and other measures labeled as  |
| Lighting           | Lighting measures, including lighting power density reduction   |
| Envelope           | Envelope measures, including insulation and windows   |
| Other              | Refrigeration, process cooling and pumps, variable frequency drives and adjustable speed drives that are not specifically labeled “HVAC” or “motors”, controls that are not specifically labeled “HVAC” or “motors”, and measures labeled “other” or “miscellaneous”. |