

Operations and Maintenance Benchmarks:

International Facility Management Association (IFMA)

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IFMA
FM Research
& Benchmarking
Institute



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The Simplar Institute is a collaborative team of faculty and researchers from universities across the United States who specialize in facility organizational assessment, performance measurement & analytics, process improvement, and advanced procurement delivery systems. Learn more at www.simplar.com.

ABOUT IFMA



IFMA is the world's largest and most widely recognized international association for facility management professionals, supporting 24,000 members in 100 countries. This diverse membership participates in focused component groups equipped to address their unique situations by region (134 chapters), industry (16 councils) and areas of interest (six communities). Together they manage more than 78 billion square feet of property and annually purchase more than US\$526 billion in products and services. Formed in 1980, IFMA certifies professionals in facility management, conducts research, provides educational programs, content and resources, and produces World Workplace, the world's largest series of facility management conferences and expositions. In addition, IFMA's collaboration with the Royal Institution of Chartered Surveyors is transforming the global FM profession by unifying standards, offering comprehensive career advancement resources and magnifying the status of practitioners. For more information, visit www.ifma.org/ricscollaboration. To join and follow IFMA's social media outlets online, visit the association's LinkedIn, Twitter, Facebook, YouTube and Flickr pages. For more information, visit the IFMA press room or www.ifma.org.

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Using this Report

The terms that are often used in today's business environment but are often misunderstood. Benchmarking is a continuous and systematic management process that measures work processes, protocols and services for the purpose of organizational comparison and improvement. When properly applied, benchmarking can identify costly or inefficient practices and quantify your department's overall contribution to the bottom line.

There are several types of benchmarking that an organization can undertake. They include internal, competitive and generic. When conducting an internal benchmarking exercise, a facility manager compares similar functions within his or her own organization. This is typically done when an organization operates multiple sites or units and comparisons can be made. With competitive benchmarking, a facility manager compares costs, processes and practices to other organizations' sites within the same industry. To undertake a generic or process benchmarking exercise, a facility manager analyzes data and best practices regardless of the industry, and concentrates on studying the function or process. This report allows you to make any of these benchmarking comparisons because information is broken down by industry sector, facility use, region and a variety of other factors.

Using this benchmarking data calls for some words of caution. The information contained in the report represents a "self-report" from IFMA members and others. All information was voluntarily provided but was not checked with site visits. When interpreting the data, it is important to remember that every facility is different, and every organization operates using different accounting and measuring practices. The data listed in this report will not provide a perfect comparison of your organization to that of another company, but it should give you a good idea of how your facility fits into a range of performance.

The percentile charts in this report allow you to see how your operation ranks against other organizations. The arrows beside some charts show the "best-in-class" direction. Using your facility's numbers for the performance indicator, determine whether your building is above or below the median (50th percentile). If your facility falls way above or below the median, you may want to examine your cost or procedures on that area. However, your facility may differ from the median due to your type of facility, climate or labor market. The data should help you identify areas where you can improve your facility operation.

Readers will see arrows pointing in an upward or downward direction next to many of the percentile charts in this report. In many cases the arrow points toward the lowest cost; however, the organization with the lowest cost may not profess to have the best practice. There may be an underlying reason why a cost is so low. For example, a building scheduled for decommissioning may not have the same level of maintenance cost outlay compared to those that will continue to be in operation.

Using this report is the first step in benchmarking. After you have identified areas where your facility operations could be improved, you should conduct additional research before reengineering the process. One should not immediately rush to find out which company is "best-in-class" and copy their practice. Instead you should look for a more homogeneous group in which to compare.

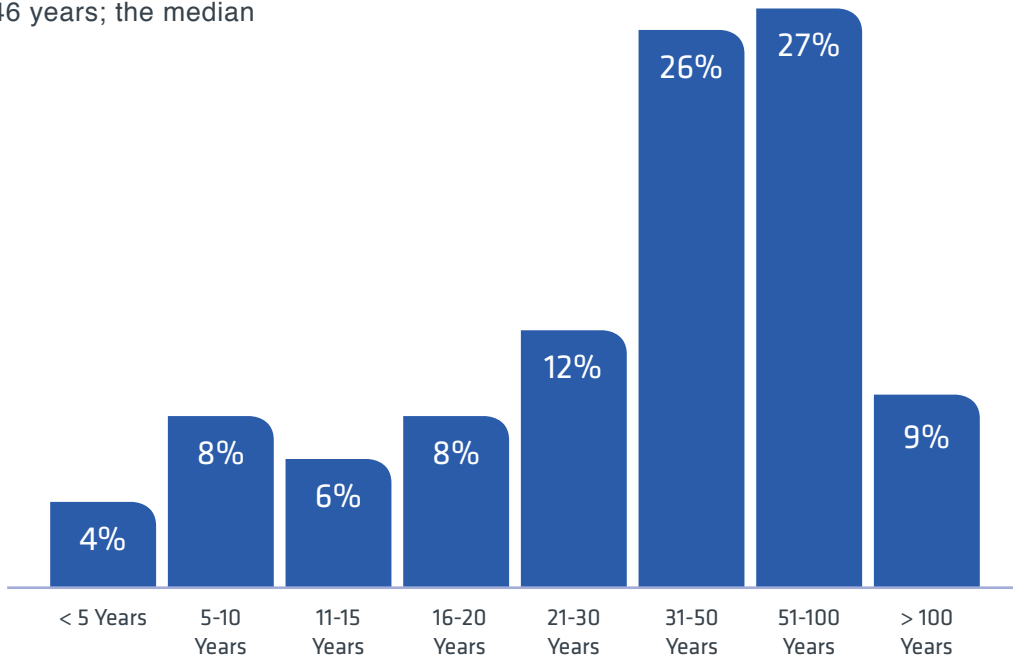
Participating in a local IFMA chapter or council benchmarking study is a good way to explore how to improve your facility operations. IFMA's research department can assist companies in forming benchmarking groups and conducting more detailed, smaller-scaled benchmarking studies.

BENCHMARKING

When properly applied, benchmarking can identify costly or inefficient practices and quantify your department's overall contribution to the bottom line.

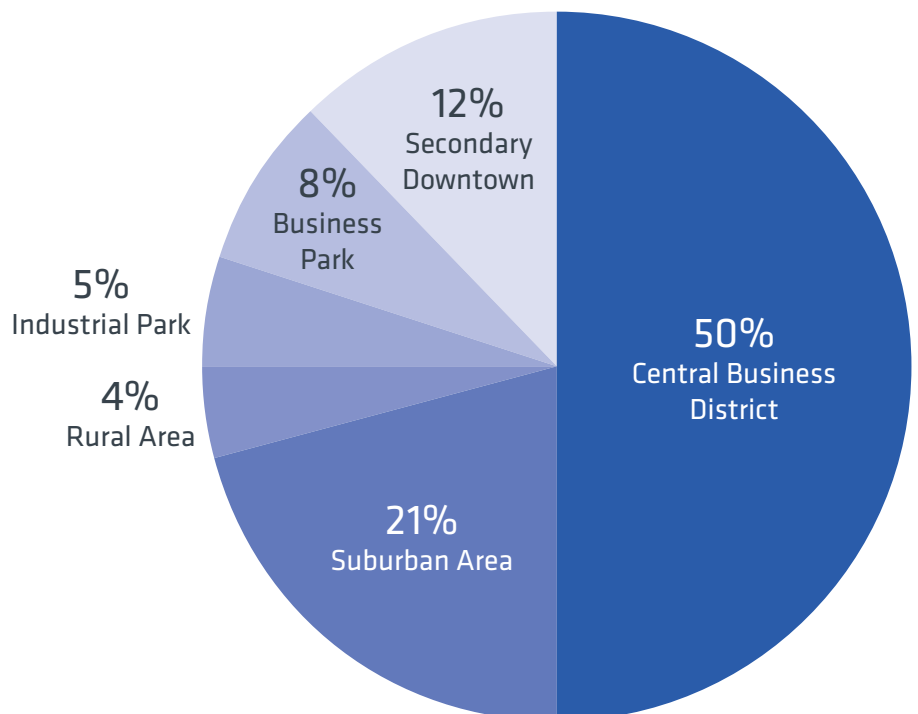
Facility Age

The average age of the facilities in this data set is 46 years; the median is 39 years.



Facility Setting

Given the large number of U.S. federal government buildings included in this data set, the percentage of buildings situated in central business districts is 50 percent. Manufacturing and warehouse facilities are more apt to be located in industrial settings.



Days and Hours of Facility Heating and Cooling

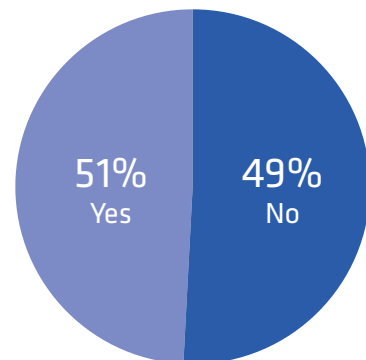
On average, the buildings in this study are cooled and heated for about 16 hours per day, 6 days per week.

FACILITY USE	N	HOURS/DAY	DAYS/WEEK
Headquarter	334	14	6
Mixed Use office	139	15	6
Branch/Regional Office	105	15	6
Education	85	15	7
Manufacturing	80	20	7
Research & Development	51	18	6
Medical Office	20	19	7
Multi-use	33	18	7
Warehouse	25	17	7
Transportation	18	23	7
Museum	18	21	7
Community Center	18	17	7
Biosciences	17	18	7
Lodging & Hospitality	16	21	7
Hospital	13	24	7
Library	11	14	7
Sports & Entertainment	10	20	7
Stadium/Arena/Auditorium	9	18	7
Multi-family	9	23	7
Religious	9	9	6
Convention Center/Exhibit Hall	8	18	7
Courthouse	8	15	6
Big Box/Department Store	7	14	6
Correctional	7	22	7
Data Center	5	24	7
Bank Branch	5	13	6
Military	3	13	7
Senior Housing	2	24	7
TOTAL	1,067	16	6

Central Plant

Facility managers at headquarters, mixed use and educational facilities were most apt to maintain and operate a central plant.

Central Plant Serving One or More Building?



Green Certification Status

As organizations recognize the importance of conducting business in a socially responsible manner, they are scrutinizing how its facilities impact the environment. About 47 percent of the respondents reported they had some green elements, but no certification (compared to 61 percent in the previous report). The respondent was asked whether their buildings had any type of 'green certification.'

Building Green Certification Status - By Industry Served

INDUSTRY TYPE	NO GREEN ELEMENTS	PLANS FOR CERTIFICATION	GREEN ELEMENTS, NO CERTIFICATION	ONE OR MORE BUILDINGS CERTIFIED
SERVICES				
Banking	13%	2%	46%	40%
Health Care	17%	0%	60%	23%
Hospitality	12%	4%	48%	36%
Information Services	10%	3%	55%	31%
Insurance	17%	3%	64%	17%
Investment Services	0%	0%	38%	63%
Media	10%	0%	10%	80%
Professional Services	25%	2%	40%	33%
Research	24%	0%	47%	29%
Telecommunications	80%	0%	0%	20%
Trade	19%	0%	56%	25%
Transportation	0%	0%	50%	50%
Utilities	23%	0%	54%	23%
Other Services (see page 12)	23%	23%	31%	23%
MANUFACTURING				
Aircraft/Industrial	40%	0%	50%	10%
Building/Construction	18%	9%	36%	36%
Chemical/Pharmaceutical	35%	12%	35%	18%
Computer	40%	0%	40%	20%
Consumer Products	9%	9%	48%	35%
Electronics	16%	5%	68%	11%
Energy	17%	11%	44%	28%
Medical Equipment	13%	0%	75%	13%
Motor Vehicles	71%	14%	0%	14%
Other Manufacturing (see page 12)	38%	0%	46%	15%
INSTITUTIONAL				
Association	32%	0%	53%	16%
Charitable Foundation	15%	8%	54%	23%
City/County Government	22%	1%	45%	31%
Corrections	67%	0%	33%	0%
Cultural	44%	19%	31%	6%
Educational	17%	3%	45%	36%
Federal Government	15%	6%	33%	45%
Military	67%	0%	0%	33%
Religious	19%	6%	75%	0%
Special Districts/Quasi-Government	12%	0%	59%	29%
State/Provincial Government	25%	0%	56%	19%
Other Institutions (see page 12)	20%	30%	40%	10%

Energy Management Practices

Energy management practices examined included lighting, equipment and controls, building and envelope, and renewable sources. The energy management practices that are most often implemented, such as the adjustment of thermostats and HVAC operating hours, do not require an outlay of capital.

%	EQUIPMENT & CONTROLS
66%	Adjusted operating hours of HVAC
58%	Installed variable speed drives for pumps and motors
46%	Installed energy efficient motors
39%	Set back thermostat
35%	Installed energy efficient heating equipment
34%	Installed energy efficient ventilation equipment
31%	Installed energy efficient chillers
31%	Increased number of times monitored/controlled w/building automation systems
29%	Require the purchase of energy efficient selections (e.g., Energy Star)
25%	Installed energy efficient air compressors
25%	Repaired compressed air and steam leaks
25%	Change pneumatic controls to digital
22%	Implemented smart metering
21%	Monitor power quality to balance loads and reduce waste heat
19%	Installed electrical sub-metering for usage tracking of sub-units
19%	Implemented smart or automated demand response
7%	Asset direct metering (e.g., pumps, motors, etc.)

%	BUILDING ENVELOPE
17%	Performed thermal imaging study to detect sources of building heat loss
15%	Improved building shell insulation
13%	Installed energy efficient windows

%	LIGHTING
65%	Replaced existing light fixtures with new light fixtures
62%	Installed occupancy sensors
59%	Retrofitted existing light fixtures
38%	Adjusted operating hours of lighting
27%	Selectively reduced the number of lamps in over-lit areas
22%	Implemented daylight harvesting
20%	Installed an Energy Management Systems

%	RENEWABLE
8%	Installed solar systems for electric use
8%	Has electric vehicle charging stations
5%	Purchased green power from an outside source
5%	Uses alternative or renewable energy
5%	Has onsite power generation
3%	Installed solar power for hot water
2%	Installed solar systems for heat use
2%	Installed a geo-thermal system
1%	Installed a wind generation system for electricity
1%	Other:

Janitorial Staffing

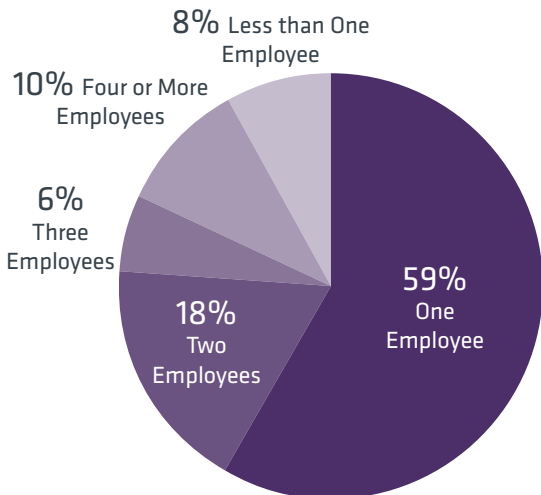
The following chart shows the average number of janitors, janitorial supervisors and project cleaners (special cleaning or floor crew) for different facility sizes. The median amount of floor area cleaned per janitor is about 37,000 rentable square feet. The reported staffing levels are for both in-house and contracted janitorial services.

FACILITY SIZE (RSF)	N	NUMBER OF JANITORIAL FTEs	NUMBER OF JANITORIAL SUPERVISOR FTEs	NUMBER OF PROJECT CLEANERS, SPECIAL CLEANING OR FLOOR CREW FTEs
Less than 50,000	106	5.2	1.2	1.8
50,000-100,000	83	4.0	1.1	1.9
100,001-250,000	108	8.0	1.3	2.6
250,001-500,000	85	13.4	1.7	2.6
500,001-750,000	35	21.8	2.4	4.5
750,001-1,000,000	30	28.2	2.4	5.5
1,000,001-1,500,000	25	33.9	4.6	6.6
1,500,001-2,000,000	6	79.2	5.8	9.8
2,000,001-3,000,000	10	63.4	5.3	9.3
More than 3,000,000	15	102.3	5.9	5.8

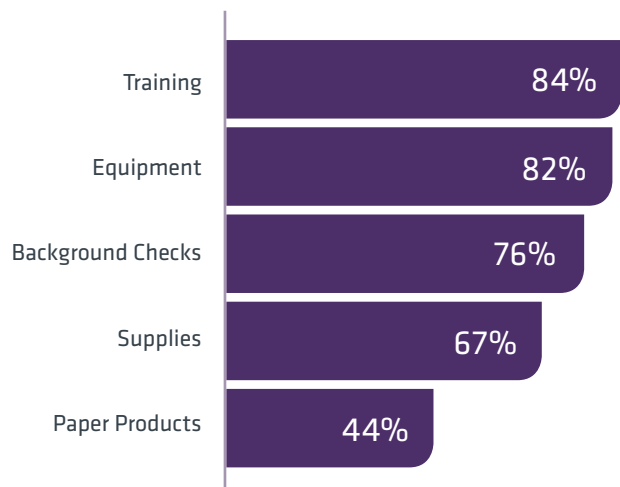
Contractor Practices

The following chart shows the average number of janitors, janitorial supervisors and project cleaners (special cleaning or floor crew) for different facility sizes. The median amount of floor area cleaned per janitor is about 37,000 rentable square feet. The reported staffing levels are for both in-house and contracted janitorial services

Number of In-House Employees Supervising Contract



Contractor Provides



DATA ANALYSIS

Figure 4 was created by first grouping the ages of the buildings into recent construction (less than 10 years old), within expected useful life (10-50 years old), and past expected useful life (over 50 years old). Then the percentage of buildings in each ENERGY STAR score quartile for 2015 was calculated for each age group. Buildings in all age categories more frequently had higher ENERGY STAR scores, i.e., in the 75-100 range. One may have expected older buildings to have lower scores and vice versa; however, there seemed to be little correlation – in fact, buildings older than 50 years most frequently had scores 75 and over. Aging buildings are thus not necessarily high energy consumers.

Why is it so important to compile this data? The data can be used by facility managers to benchmark their facility against similar types and encourage improvement. A database can be especially useful for building types that cannot currently receive an ENERGY STAR score, or do not live in a participating city. For example, a FM in a smaller city such as Lincoln, Nebraska, can compare his or her library to one in Kansas City, a participating city in a similar climate. Commercial buildings collectively consumed over US\$149 billion worth of energy in the United States in 2012 (Commercial Buildings Energy Consumption Survey (CBECS), 2016). By uniting energy data across the country, one can create a robust database that serves to support FMs and their efforts in reducing the cost of operations within the built environment.

As IFMA continues to gather data through the IFMA ENERGY STAR initiative and collaboration with the City Energy Project, the ability to provide data for benchmarking comparison and analysis will improve. For instance, future energy trends could be predicted from past performance as in Figure 5. Greater participation with more complete and higher quality data will enrich the database with greater accuracy.

Figure 4: Distribution of buildings in ENERGY STAR score quartile, by age group

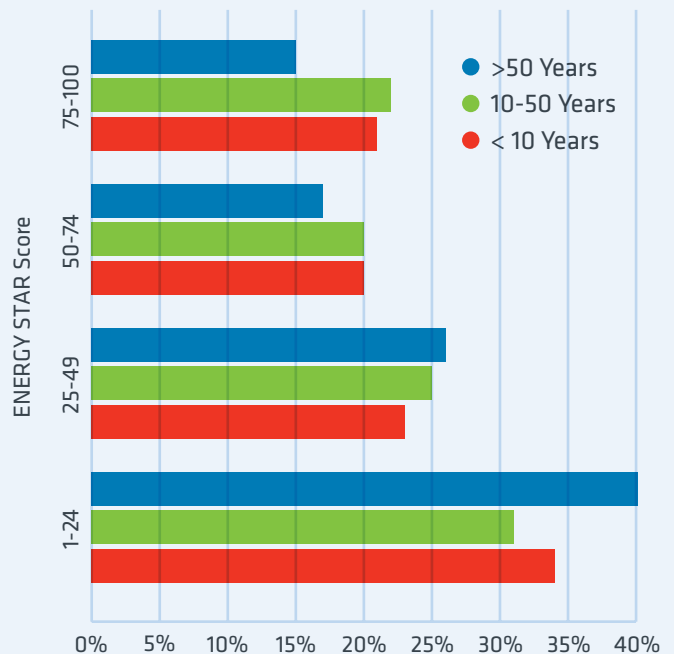


Figure 5: Trendlines for New York City to 2016

