

Real Property Performance Results

2001
2002
2003
2004
2005

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Office of Real Property

Innovative Workplaces Division



Space Use Update 2002

Introduction

In 1997, the Office of Governmentwide Policy (OGP), Office of Real Property conducted a review of office space use in the Federal government and the private sector.¹ The published findings of that study have been “used and useful” to many Federal government agencies. This report provides an update to the 1997 effort.

In the 5 years since publication of the previous review, space allocation trends have shifted. Increased competitiveness in the marketplace, coupled with limited space availability, has resulted in many private sector organizations moving away from strict space standards based on pay level or employee position. Space planners now must weigh space availability, corporate culture, mission, job requirements, cost, and efficiency when determining how to forecast and allocate space usage; however, they continue to monitor space per person to assist with space allocation and space planning.

Management and allocation of office space are a constant challenge for both public and private organizations. Often the issue is complicated by limited space resources coupled with functional space demands. Accommodating these issues in a single organizational standard is difficult.

The Federal government also is shifting away from strict space standards based on pay grade. The Code of Federal Regulations has been updated to encourage space planning based on

organizational needs. To reflect this modification, GSA replies to inquiries regarding space allocation, “Space assignments based on pay grade are no longer mandated by Federal regulations, stipulated by GSA, or recommended by the OGP Office of Real Property.”² This is also reflected in GSA’s policy for an “integrated workplace.”³

To identify new trends, practices and standards in space utilization planning and allocation since the 1997 GSA study, we reviewed literature and searched the Internet to collect new or updated information on industry and government space allocation standards. We also conducted telephone and e-mail surveys of public and private organizations, several of which participated in the 1997 study.

We found that comparison among the organizations is difficult because space measurement is inconsistent among the organizations surveyed. Some of the organizations refer to rentable square feet (RSF); others report usable square feet (USF); and others measure office square feet. Some organizations surveyed report a space-per-person standard based on the position held by a worker. Other organizations base their standard on a set space per person for the overall organization. Even when an organization indicated the type of square-footage measurement in its standard, often the organization neglects to identify the method of measurement.

¹ U.S. General Services Administration, Office of Governmentwide Policy, Office of Real Property, *Office Space Use Review: Current Practices and Emerging Trends*, September 1997.

² U.S. General Services Administration, Office of Governmentwide Policy, Office of Real Property, *Response to Request for Guidance on GSA or Federal Space Requirements*, August 2002.

³ U.S. General Services Administration, Office of Governmentwide Policy, Office of Real Property, *An Overview—The Integrated Workplace: A Comprehensive Approach to Developing Workspace* [online document], [cited November 2002]. Available from www.gsa.gov/attachments/GSA_PUBLICATIONS/pub/Completeiwprt_1.pdf.

Summary of Findings

We found that many organizations focus on organizational mission, job function, space availability, cost, and effectiveness to plan and allocate space in an organization. Most of the organizations surveyed that report using a space-per-person allocation standard designate worker position as a basis for allocating square footage, although some organizations report a single space-per-person target for the overall organization. ***We have based our benchmarking analysis primarily upon those organizations that, as advocated by the original 1997 Office Space Use Review, provided an overall average square feet per person standard.***

Observations and Recommendations

1. Summary data from the government and private sector need careful interpretation to compare like measurement because large-scale data collection gathers from diverse sources.
2. Our research for this study does not show significant differences between government and private space use trends.
3. Regarding the individual case data on space use, we found a wide range of scenarios and space standards depending on individual job functions and organizational mission (or business sector) and culture. Comparison of office space standards must include an in-depth understanding of the type of space measured, the area where the standards apply – overall space or functional areas – and the agency mission or business sector of organizations being used for comparison.

Space Use Update 2002

4. The U.S. Federal Government is itself a collection of diverse agencies with great variation among missions. This makes the task of developing or reconfirming a Governmentwide recommended average for space use – even for a defined space type such as office space – a formidable challenge. While reported averages have trended up, we found no evidence of this being the result of actual trends in how office space is being used that would require organizations to need larger per capita allocations of office space. We benchmarked the Governmentwide standard against those organizations that reported standards based on overall (all inclusive) average space per person. These organizations are all in the private sector, as this type of approach has been slow to catch on in the public sector. In the latter, rigid standards governing solely primary workspace per position or grade level continue to prevail. ***Based on the private sector overall average standards reported, and our analysis of prevailing trends, we continue to recommend 230 rentable square feet per person as the appropriate overall Governmentwide average for office space use.***
5. Based on our own office renovation experience in the GSA Office of Real Property project, we found that the Integrated Workplace planning and design process can result in 8 percent below the recommended average per person square footage. More aggressive alternative workplace strategies – as some organizations in both government and the private sector have demonstrated – can lead to even more dramatic reductions in the overall organizational space per person average.
6. Federal agencies that exceed the recommended overall Governmentwide average for office space use should ensure that agency mission mandates a direct requirement for higher per capita office space allocation. Once this link is established, agencies need to benchmark their office space to the allocation of other Government and private organizations with similar mission and needs. If the higher average cannot be directly linked to agency mission and corroborated by benchmarking with similar organizations, then the agency should seriously consider a strategy to bring office space use per person down closer to the recommended overall average of 230 rentable square feet per person.

Research

This section provided some basic information needed to understand the terminology of the case studies that follow.

Space Measurement Standards

Two major U.S. organizations and affiliated associations have established standards governing how office space is measured. Those organizations are the American National Standards Institute, Inc., (ANSI) in conjunction with the Building Owners and Managers Association International (BOMA) and the American Society for Testing and Materials (ASTM), in conjunction with the International Facility Management Association (IFMA).

In addition to the ANSI/BOMA and ASTM/IFMA standards, some organizations have used their own measurement methodology that may not follow the nationally accepted measurement standards.

ANSI-BOMA

ANSI developed and continually revises a standard for measuring office space. The latest revision, "Standard Method For Measuring Floor Area In Office Buildings, ANSI/BOMA Z65.1-1996,"⁴ was approved in June 1996. The latest revision was a collaborative effort with BOMA, GSA, and other professionals in the building industry.

The revised standard, used in both existing and new office buildings, defines the term "rentable square feet" as the gross square footage minus

vertical penetrations (e.g., stairwells and elevator and pipe shafts). The standard defines the term "usable square feet" as the sum of retail areas, office space used by tenants, and common areas.

Additional information on the ANSI/BOMA standard is contained in the publication, "Standard Method For Measuring Floor Area In Office Buildings," available through the BOMA website: www.boma.org. The publication provides detailed instructions and diagrams for the following space measurements:

- Gross building area
- Gross measured area
- Building rentable area
- Floor rentable area
- Floor usable area
- Usable area
- Floor common area
- Basic rentable area
- Building common area
- Rentable area
- Office area
- Store area

ASTM-IFMA

In 1996, ASTM/IFMA published a different standard methodology for measuring building floor area (E 1836-96), and revised it in December 2001 (E 1836-01).⁵

The ASTM/IFMA standard defines "facility rentable area" as the total facility gross area minus major penetrations, exterior walls, stairs and elevators, interior parking, and void areas. It defines "facility useable area" as the total facility rentable area minus building core and service

⁴ BOMA International, *Standard Method for Measuring Floor Area in Office Buildings*. ANSI/BOMA Z65.1996, June 1996.

⁵ ASTM International, *Standard Classification for Building Floor Area Measurements for Facility Management*. ASTM E1836-01, 2001.

⁶ Federal Register, December 13, 2002. Available from <http://a257.g.akamaitech.net/7/257/2422/14mar20010800/edocket.access.gpo.gov/2002/02-30051.htm>.

Space Use Update 2002

areas such as lobbies, telephone rooms, electrical rooms, mechanical rooms, toilet rooms, and custodial rooms and utility tunnels.

Additional information on the ASTM/IFMA standard is contained in the publication, Standard Classification for Building Floor Area Measurements for Facility Management, available on the ASTM website: www.astm.org. The publication provides detailed instructions and diagrams for the following space measurements:

- Building exterior gross area
- Facility interior gross area
- Facility rentable area
- Facility usable area
- Facility assignable area
- Common support areas.

The Differences in the Standards

The basic difference between the ANSI/BOMA and ASTM/IFMA standards is the way floor area is measured when the external wall is reached. BOMA uses the concept of “dominant portion,” defined as “the portion of the inside finished surface of the permanent outer building which is 50 percent or more of the vertical-to-ceiling dimension.” With the “dominant portion” methodology, if a window takes up more than 50 percent of the wall, then the measurement is taken from the windowpane, therefore including the windowsill space in the rentable and useable square footage calculations. If the window takes up less than 50 percent of the wall, measurement is taken from the finished interior surface, and as a result, the windowsill space is not included in the measurement.

The ASTM/IFMA standard does not use the dominant portion theory; therefore, rentable and useable measurements are taken from the finished interior surface.

Space Allocation Policies And Practices

In addition to the nationally established ANSI/BOMA and ASTM/IFMA standards, space planners must also consider Federal regulations or company policies, the use of alternative work arrangements, and the practices of similar organizations (case studies).

Code of Federal Regulations: Federal Management Regulations 102-79.20

In the December 13, 2002, Federal Register, GSA announced the final rule completing the transfer of all real property policies from the Federal Property Management Regulations and cross references them to the Federal Management Regulations.⁶ The 2002 update to the Code of Federal Regulation, Title 41, Section 102-79, addresses space allocation within the federal government. Following is the text of the updated code pertaining to space assignment and utilization:

Executive agencies must provide a quality workplace environment that supports program operations, preserves the value of real property assets, meets the needs of the occupant agencies, and provides childcare and physical fitness facilities in the workplace when adequately justified. An Executive agency must promote maximum utilization of Federal workspace, consistent with mission requirements, to maximize its value to the Government.

Executive agencies must promote the optimum

use of space for each assignment at the minimum cost to the Government, provide quality workspace that is delivered and occupied in a timely manner, and assign space based on mission requirements.⁷

Alternative Office Solutions

Today, many organizations are seeking methods for using limited space efficiently and effectively to meet the needs of both the organization and its employees. Telework, hoteling, and “hot desking” (two to three employees share a single work-space) are a few of the alternative office solutions that organizations are using to save space and associated costs. Often times these alternative office solutions are “win-win,” benefiting both the organization and the employee. While the employee benefits with a flexible work environment, the organization benefits by saving space as well as the associated real estate savings.

According to the Canadian Telework Association, telework has the potential to save thousands, often millions, of dollars in real estate cost. Because employees are more mobile in their jobs—spending more than half their time away from their offices on travel, in meetings, on vacation, or out sick—valuable office space is underused. Empty office space can be used more efficiently by use of alternative office techniques such as space-sharing, hoteling, or other office space strategies, illustrated in the following list of examples cited on the Canadian Telework Association website⁸:

- AT&T reduced office space costs using telework. The company estimates that since 1995, telecommuting has saved AT&T approximately \$500 million in lease costs. In 1998, about 55 percent of AT&T managers telecommuted at least once a month.
- IBM reduced its need for office space and saves \$56 million per year using telework. By using telework for the past 2 years, IBM has reduced its need for space by 2 million square feet.
- Merrill Lynch reported saving \$5,000 to \$6,000 for each office eliminated through telecommuting.

Comparisons of Space Allocation

When deciding how to allocate office space, it is important to compare the practices of similar organizations. Planners must be cautious when benchmarking for space planning and allocation purposes to ensure comparison of like measurements, established by asking the following questions:

- “How is the square footage expressed (e.g., usable, rentable, gross, or office square footage)?”
- “How is the measurement calculated (e.g., what standard was used to determine square footage)?”
- “Do the organizations have functions similar to the benchmarked organization (e.g., are

⁷ Electronic Code of Federal Regulations, *Title 41 Section 102-79.20* [online document], October 7, 2002, [cited December 17, 2002]. Available from http://www.access.gpo.gov/nara/cfr/waisidx_02/41cfr102-79_02.html.

⁸ Canadian Telework Association, *Office Space and Innovative Office Strategies* [online document], [cited August 2002]. Available at www.ivc.ca/part11.html.

⁹ Johnson Controls, *U.S. Facility Cost Index Briefing* [online document], Summer 2002 [cited August 2002]. Available at www.jci.com/fm/research/JCQ2_20023609_Ir.pdf.

Space Use Update 2002

conference, warehouse, and common area requirements similar)?”

Johnson Controls publishes a semi-annual benchmarking briefing, *U.S. Facility Cost Index*.⁹ The Summer 2002 briefing contains a cost-per-occupant-per-year and a cost-per-rentable-square-foot benchmark for building operation costs. The briefing does not mention a benchmark for allocation of the amount of space per person. The Johnson Controls briefing says “The cost-per-occupant measure is considered to be the more meaningful of the two from a business perspective, as for all services it is that which is most closely aligned to the primary purpose of the facility from the users perspective; i.e., the productive support of people.”

Private Sector Case Studies

In order to update – and as it turned out to revalidate – our recommended Governmentwide overall average of 230 rentable square feet per person, we reviewed dozens of case studies and selected those cases where organizations reported overall standards most directly comparable to the Governmentwide recommended average. The following table summarizes this benchmark information. Organization names have been withheld at the request of the participants. Most of the standards are reported in usable square feet per person, so the appropriate comparison to the Governmentwide standard is 200 usable square feet per person (equivalent of 230 rentable square feet per person).

Summary of Overall Office Space Use

Organization	Overall space per person standard
Insurance company – target	230 usable square feet per person
Insurance company – actual	215 usable square feet per person
Consulting company – actual	320 usable square feet per person
Software engineering firm – actual	220 usable square feet per person
Telecommunications company I - actual w/hoteling	152 – 174 usable square feet per person
Telecommunications company II - actual	325 usable square feet per person
Energy firm – actual “best in class”	200 – 250 usable square feet per person
Range of benchmark averages	152 to 325 usable square feet per person
Mid-point of range	238 usable square feet per person
“Average” of the benchmark averages	239 usable square feet per person
Recommended Governmentwide standard	200 usable square feet per person

The following case studies provide some detailed information breaking down aspects of the overall averages reported in the immediately preceding table. This detailed information is provided for the benefit of practitioners who are trying to develop space standards or actually implementing space projects. Most customers of the original *Office Space Use Review* fall somewhere in this description.

Customers who are struggling with developing or implementing space standards will often look at overall standards such as provided above, or simply divide the total space they are paying rent for by the number of employees, and wonder why they arrive at a result quantified in hundreds of square feet per person on average. After all, the

customer reasons, I look at my immediate cubicle or office and those of my colleagues, and no one seems to have hundreds of square feet of space allocated to him or her.

The tables included in the detailed case studies that follow provide a crosswalk for these customers. They provide “partial space standards” for individual primary work areas based generally on position in the organization. Support space, circulation, collaborative space, amenities, storage and other special spaces all figure into the equation summing up to the overall average office space use per person represented by the recommended Governmentwide standard of 230 rentable (equivalent of 200 usable) square feet per person.

Case Study #1: Insurance Company

Insurance Company is a Fortune-500 company that provides worldwide insurance and diversified financial services. The company indicated it previously assigned space by grade level, but it now assigns space by function. Table 1 shows how the insurance company allocates office and cubical space by category.

Table 1. Insurance Company

Space Allocation by Employee Category

<i>Position</i>	<i>Office dimension (ft.)</i>	<i>Office sq. footage</i>
Customer contact (call centers)	6.8 x 6	41
Managers, directors (mid-management)	6.8 x 10.6	72
Everyone else (excluding top executives)	6.8 x 8	54

There are different space allocations to “operating groups” on a case-by-case basis (to accommodate growth needs). The company charges rent to internal customers. All customers are charged the same rental rate. Customers are allowed to manage their own space, and they can

give back space to save money. As a result, there is a financial incentive for customers to conserve on space use. As an organization, this company uses an average of 215 USF per person, which is 15 USF per person less than the company target of 230 USF per worker.

Space Use Update 2002

In its headquarters, only 0.5 percent of its employees telework, and only then because they are displaced because of major remodeling in the headquarters building. The company is

considering implementing a shift-work system that will affect the amount of space necessary to operate efficiently.

Case Study #2: Consulting Company

This organization provides facilities-related advice and counsel to large public-sector organizations of the Federal government. It has established standards for its own space based on prevailing industry figures. The firm's standards are based on office area. Space allocation depends on an employee's position in the company (see Table 2).

Table 2. Consulting Company

Space Allocation by Employee Position

<i>Position</i>	<i>Office square footage</i>	
Executive	325	(office)
Director	225	(office)
Managerial, supervisory, technical	175	(office)
Support Staff	132	(office)
Telecommuters, hoteling	N/A	

As an organization, the firm uses an average of 368 RSF per person, and 320 USF per person. The main facility contains a significant amount of

conference and meeting space that is considered in these calculations.

Case Study #3: Software Engineering Firm

This large software engineering and consulting company implements information systems and technology solutions to help speed and improve service delivery and give better information to make decisions. The company provides converged voice, video, and data services as well as wireless and e-business solutions. Space allocation depends on an employee's position in the company (see Table 3).

Table 3. Software Engineering Company Space Allocation by Employee Position

<i>Position</i>	<i>USF</i>	
Executive	140	(office)
Director	130	(office)
Managerial, supervisory, technical	120	(office)
Support staff	64	(cubicle)
Telecommuters, hoteling	NA	

The average space requirement in the organization is 220 USF; however, this standard is not enforced on an individual basis. The average

space per person was calculated by dividing the USF by the number of employees. The company does not have hoteling workstations.

Space Use Update 2002

Case Study #4: Telecommunications Company I

This major telecommunications company offers communication services and products, and it provides voice, data, and video telecommunications services to consumers, large and small businesses, and government entities. The company and its subsidiaries furnish regional, domestic, international, and local telecommunication services. The company also provides cellular telephone and wireless services. The space allocation standard depends on an employee's position in the company (see Table 4).

Table 4. Telecommunication Company I Space Allocation by Employee Position

<i>Position</i>	<i>USF</i>	
Executive	150 – 300	(office)
Director	96–150	(office)
Director	82	(cubicle)
Managerial, supervisory, technical	56–64	(cubicle)
Support staff	42–56	(cubicle)
Telecommuters, hoteling	36–42	(cubicle)

The average space allocation per person in the organization is between 175 and 200 RSF. The average space per person was calculated using space metric guidelines established in 1997 after extensive research and participation in pilot programs with leading commercial real estate

firms. The company has established hoteling workstations. These workstations are designed to allow a 3:1 ratio of use within the sales organization; otherwise, they are used for visitors or telecommuters.

Case Study #5: Telecommunications Company II

This large telecommunications company designs, builds, and delivers a wide range of public and private networks, communications systems, software, and data networking systems. The company also designs, builds, and delivers business telephone systems and microelectronic components. Space allocation depends on an employee's position in the company (see Table 5).

Table 5. Telecommunication Company II Space Allocation by Employee Position

Position	USF	
Executive	225	(office)
Director	175	(office)
Managerial, supervisory, technical	150	(office)
Support staff	56–75	(office or cubicle)
Telecommuters/Hoteling	NA	

The average space allocation per person in the organization is 457 USF per person, which includes warehouse, manufacturing, and laboratory space in addition to office space. The average administrative space allocation per person in the organization is approximately 325 USF per person. The average space allocation per person was calculated using space metric guidelines developed through a benchmarking

process and historic usage in the company. Larger locations are calculated based on measured space; smaller locations are calculated based on square footage listed in a lease. All are measured using a monthly headcount provided by the human resources department. The company has very few established hoteling workstations. Information on the allocation of these workstations is not available.

Case Study #6: Energy Firm

This organization determined that "best in class" space in the firm averaged 200 to 250 usable square feet per person, and that 20 to 35 percent of the space provided in the best of class workplaces was in the nature of collaborative workspace. All subsequent new and renovation space projects will use these standards. Individual space allocations per position are not used.



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