The Internet and new software make room for architects in facilities management.

By Eric Tischolz

Facilities management is the art of juggling the people, places, and equipment that constitute a company’s real estate holdings. It is, in the words of one architect, what happens after the building is done. People who are facilities management practitioners may be part of a division within the company, members of a property management firm, or, more recently, architects themselves.

Designers entered the world of facilities management about 30 years ago when vendors of property-related software found ways to link a company’s real estate databases to the CAD drawings generated by architects. Computer-aided facilities management, or CAFM, is a generic term used to define any software applied to facility management tasks. Examples include programs used to track space availability and physical assets, such as furniture and equipment; schedule shop personnel; maintain occupancy plans; or analyze and manage relocations, such as space planning and forecasting, help desk and maintenance work management, furniture layout, asset management, room scheduling, energy management, and construction project management.

Facilities management tasks vary among different architecture firms and change over time. The size of the client also determines what services are needed. In general, clients with real estate holdings less than 75,000 square feet don’t need facilities management or are too small to generate a profit for architects with facilities management divisions.

CAFM is, in many ways, a natural extension of an architecture firm’s work because architects not only create and maintain the drawings, but they also understand the building systems and programs. "Disconnecting architecture from what facilities managers do is inefficient," says Susan Mosby, principal-in-charge of facilities management for CDFM in Kansas City, Mo., an architecture firm that generates about 10 percent of its revenues by providing CAFM services.

Design and construction—the fun part for most architects—account for only 15 percent of the life-cycle costs of a building. But designers who offer their clients CAFM have an opportunity to participate in, and generate revenue from, ongoing maintenance and services required during the remaining 85 percent of the building’s existence. CAFM also may serve as the basis for a better, more lasting client relationship. "One of our clients wanted a 50,000-square-foot addition. Using CAFM software, we did a study that proved they could reconfigure the offices within the existing envelope and forgo the addition," Mosby says. "For less than $10,000—the cost of the study—they saved $5 million. It seems that we also lost that design business, but just a few years later, the client needed that addition and more. We’ve done all their subsequent design work."


Performing a company’s facilities management tasks forges a different type of relationship between client and architect, one that is more of a partnership. "We have such an intimate knowledge of our clients’ business and how they use their space," Mosby adds. "Our solutions are much different and, I think, much better as a result."

The evolution of CAFM

When facilities management tasks were first computerized, software vendors wrote stand-alone applications using office automation software, including spreadsheet, database, and word-processing programs. As computers became more powerful, these vendors started linking graphic software—principally CAD and database software—to offer integrated management applications that shared data.

Software developers evolved along two paths, which remain today: either they create software for new applications, or they build links from CAD or other graphic programs to third-party software packages that perform various facilities management functions. An architect acting as facilities manager might, for example, use a CAFM package for generating CAD drawings and tracking space occupancy, but use a specialized...
third-party software package for forecasting space needs or for generating stacking and blocking diagrams for space planning.

Most CAFM vendors, such as FIS (www.fisinc.com), Peregrine (www.peregrine.com), FM:Systems (www.fm-systems.com), and Archibus (www.archibus.com), build facilities management applications on top of existing CAD software, such as AutoCAD and Microstation. Others, such as Drawbase (www.drawbase.com) and Aperture (www.aperture.com), develop their own CAD capabilities by linking to external CAD software.

In the early 1990s, powerful database software from companies such as Oracle or Sybase was introduced. These let the user pull in information as needed from various programs located on a corporation's server instead of retaining all the information on the desktop. Suddenly, it was possible to disburse software applications and databases throughout an organization, eliminating much data redundancy, speeding up processing time, and making it easier to access a broader base of information.

"DISCONNECTING ARCHITECTURE FROM FACILITIES MANAGEMENT IS INEFFICIENT."

For example, CAFM software, operating on a manager's desk, might extract human-resource information or financial data from different departments within a network. This data could then be used for occupancy reviews or project management purposes.

Enter the Internet

In the mid-1990s, Internet access gave software vendors an opportunity to link disparate and multiple sites to provide users with ready access to database queries, CAD views, financial reports, work schedules, occupancy analyses, and other aspects of CAFM. With the Internet came intranets and, more recently, extranets, both of which carried additional implications for facilities management.

The Internet is used by facilities managers in many of the same ways architects use it: to seek information on materials, services, and products; to make purchases; to communicate with others; and to download software or plug-ins. Individual software applications are easy and inexpensive to obtain on the Web. An architect needing, for instance, a graphics program to draw a specialized space can pick up what is needed online. For example, VISIO 2000 (www.visio.com) offers facilities man-
CASE STUDY

Little & Associates
Architects, Charlotte
Employees: 550
Employees in facilities management: 38
Revenue from facilities management: 10 percent

About seven years ago, a client of Little & Associates asked the architects to track the company’s occupancy. Because Little was already doing most of the financial institution’s interior upfits, maintaining the occupancy information was easy.

The client wanted “more and more” help in managing its properties, says Susan Hensey, director of Little’s facilities management division. Soon the firm was involved in space tracking, real estate portfolio management, lease and internal rent management, strategic facility planning, asset management, property maintenance, and area calculations. Today, the division, the fastest growing within the firm, has architects who specialize in facilities management and provide these services on-site in cities up and down the East Coast.

The company hosts its own project extranets with Framework Technologies software (www.frame-tech.com), and rents extranet space from Bidcom (www.bidcom.com), depending on the needs of the customers. When construction is complete, the contents of the extranet are moved onto a CAFM internet site that the client can access as needed.

The facilities management division is still an adjunct to Little’s main focus: architecture. “The CAFM service creates ongoing relationships. With some of these clients, we still have to compete for work, but we have an ‘in,’” Hensey says. “When you know more about the client’s wants and needs, you can provide better architectural solutions.”

First Union Bank (above right) is one of Little & Associates largest design and CAFM clients.

agement software modules that are used for designing rooms, linking to databases, generating reports, or inputting information. These facilities management applications are available at very low cost.

Susan Hensey, director of facilities management for Little & Associates, an architecture firm in Charlotte that specializes in serving retail and financial clients, uses these Web-based products frequently. “I download what I need, then throw it away when I’m done. It’s quick and usually free,” she says. “I can also subscribe to a new program for the term of the contract with the client.”

But not all packages link easily and run well together. In fact, most CAFM software vendors try to control online access to their software and do not link to other Web-based software programs very efficiently. The new Web-based products are likely to pose a threat to traditional CAFM vendors, unless these vendors change their Internet software architecture, too.

The Internet also threatens to fragment the practice of facilities management. Functions that were traditionally the domain of facilities-managers are increasingly performed by others within and outside the company. Business units don’t have to go through facilities personnel to make purchases of things like workstations. They can go to the Web and, using standards set by the company, place the order directly. That means less paperwork and faster delivery. It also siphons facilities management functions and disbands them through the organization. For architects, it offers, once again, an opportunity to sell services throughout an organization, not just to a facilities management department.

Intranets are valuable, too

Corporate intranets were—and continue to be—the primary venue for sharing the reports generated by CAFM software. Initially, these were generated in HTML. The problem was that the data was only as current as the last posting. For example, a member of the facilities management team might post an occupancy analysis, which looks at the physical location of people within a building. That report would have to be manually updated on a regular basis or it would quickly become obsolete, especially at a flexible company where team structures rapidly change.

Reports can now be generated in real time, thanks to technology that interacts with the CAFM software directly. Someone using a corporate intranet can download the latest version of the data when it is required by a particular application.

There are other advantages of having intranet access to facilities management reports. It allows department heads to check the status of their furniture orders, for instance, or to verify the company’s design requirements and specified vendors before ordering certain components. These reports can be used to schedule conference room space, check the construction status of a new facility, schedule a move, or even find a caterer to supply food for a corporate event. Access to all this information may be limited, or there may be graduated tiers of security.

Extranet Impact

The next leap in facilities management is using project Web sites or extranets for facilities management. Extranets offer document management services and track project data in the form of drawings, specifications, and change orders. The secured extranet site links the design consultants with clients, engineers, contractors, subcontractors, and other members of the design and construction team.

Within the past 18 months, more than 60 software vendors began offering project Web site software. If an architecture firm is large enough, this software can be loaded on its computers, offering greater control over the information generated. Another option is to rent access
CASE STUDY

CDFM², Kansas City, Mo.

Employees: 45

Employees in facilities management: 8 to 10

Revenue from facilities management: 6 percent

"We think of ourselves as strategic partners with our clients. We not only develop the real estate, we keep it going for its life cycle," says Susan Mosby, principal-in-charge of facilities management for CDFM².

The architecture firm, which does about 60 percent of its business in corporate and public-sector work, with the balance in interior design, launched its facilities management division about seven years ago when a major client asked for help in managing its real estate department. "Taking this on proved that we did know how to manage major square footage," Mosby says.

Among the services the firm offers are property management, lease administration, space management, data and telecommunications, cabling, tracking of work orders, and move orders. It uses AutoCAD for design drawings and Archibus to connect the drawings to the databases. CDFM² also uses Microsoft Access to get information in and out of Archibus and tie into the client's software. The latter includes specialized systems for work orders, leasing, and roof management.

There are reasons why other architecture firms avoid facilities management: it's not as glamorous as design work and it's a substantial business commitment. Mosby, however, is convinced that facilities management has made CDFM² a better firm. "When we are doing architecture, we look at it in the mindset of property management. That leads to better solutions—we understand details that are easier to maintain, by dimensions that will benefit changing use patterns, and other more practical aspects."

Projects designed and managed by CDFM² include a renovated office building and interiors for DST Systems Inc., a mutual funds services firm in Kansas City, Mo.

to software hosted on the vendor's computers. Some software vendors offer free project Web site access. Autodesk spent about $50 million developing a site, Buzzsaw.com, that provides complimentary project Web site access in an effort to get the design industry to use the Autodesk portal.

Despite the apparent ease of access, clients, consultants, contractors, subs, and others have been slow to adapt to this technology. This is likely to change and extranets, by controlling who is accessing, using, and managing facilities management data, will continue to change the relationship between architect and client. "We're finding the client is more involved up front in a new project and in every step of a renovation," Hensley says. For example, human resources might want to know how a move will affect staff members, finance might want to track project costs for budgeting and capital planning purposes, and business unit managers might want access to floor plans to configure offices.

Hensley sees extranets as increasingly important for client communications. Information is gathered as the project progresses and then transferred to an ongoing CAFM system for analysis, maintenance, and reporting. Extranaet. which serves as repositories for documents and communications during construction, are ready-made archives. Instead of shutting extranets down when a project is finished, the architect can host the information on a local server and provide the building's facilities managers access. Posting this information—as well as reports, schedules, and other information generated by CAFM software—on the Internet gives the illusion that the facilities management service is located in the client's office.

The promise of E-commerce

To use Internet parlance, we are entering a B2B world; business-to-business sales via the Internet are expected to increase tenfold in the next four years. Project Web sites, for example, let remote users share documents, and construction materials and services will most certainly be purchased on the Internet, with manufacturers bidding online for the business.

The Internet will continue to exert an ever-increasing influence on how facilities are managed. Meanwhile, the number of architects offering facilities management services is likely to grow as more clients request this service. And software vendors will respond with flexible programs that are available via the Web to accomplish facilities management tasks.

WHAT CAFM IS USED FOR

<table>
<thead>
<tr>
<th>Service</th>
<th>Rating</th>
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<tr>
<td>Space Forecasting</td>
<td>High</td>
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<tr>
<td>Space Inventory</td>
<td>Medium</td>
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<tr>
<td>Architectural Planning</td>
<td>Low</td>
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<tr>
<td>Construction Project Management</td>
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<td>Furniture Inventory</td>
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<td>Asset Management</td>
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<td>Lease Management</td>
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<td>Building Cost Accounting</td>
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<td>Telecommunications</td>
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<td>Security</td>
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<td>Document Management</td>
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While managing space inventory and assets makes up the largest percentage of CAFM applications today, growth in project Web sites promises to shift this focus.

PHOTOGRAPHY: © COURTESY FIRST UNION BANK, GRAPHIC SYSTEMS INC. (CHART)
Facilities Management: Recession-proof Market

IN AN ERA OF MERGERS, ACQUISITIONS, CONSOLIDATIONS, and employee turnover, businesses and institutions are recognizing that offices and equipment are assets to be modified in response to changing personnel and space needs. As a result, the field of facilities management has grown more sophisticated, from operation and maintenance schedules to complex strategies for assessing the best use of a company's resources. Because the requirements for such services is constant, whether a potential client is building or not, facilities management is a virtually recession-proof market. And more potential clients are now looking for outside help. In the current recession, more businesses are inclined to contract out facilities management services in order to minimize permanent staff, opening a wider door of opportunity for architects to provide consulting services and refine the relatively new discipline.

Because facilities management is a new and rapidly changing market, few firms can offer the edge of experience over those architects hoping to enter the specialty. Gensler & Associates, HOK, SOM, and CRSS have been visibly marketing facilities management as a distinct service since the early 1980s, but large firm size is not a requirement. For example, architect Michael Irvine formed Irvine Architects Associates, a one-person corporate-internets planning and design firm in 1983. Recognizing the potential of facilities management, the Houston-based practice grew to a staff of 30, largely by serving corporate clients within the region's notoriously depressed real estate market.

Facilities management is highly dependent on the computer. CADD, however, is only the backbone for attaching interactive databases that make up a complete computer-aided facilities management system (ARCHITECTURE, June 1991, pages 114-121), according to architect Bruce Forbes, creator of Jung/Branen's Archibus CAFM system. Forbes also recommends that architects considering facilities management services undertake the certification programs now offered by the Houston-based International Facilities Management Association (IFMA) before attempting to "hang out their shingles."

Facilities management typically begins once the architect's traditional involvement is completed: after a building is finished and occupied. Working drawings and construction documents can then be expanded into a facilities database, and workplace standards for equipment, furnishings, and programming can evolve into a forecasting tool for future space requirements. By nature, this service is a logical outgrowth of the training and experience architects have developed as building designers. And as architect Michael Schley, president of the consulting firm FM:Systems, indicates, the information generated as a byproduct of design is also a valuable management asset. "If it is packaged correctly, facilities management can be provided as an additional service," Schley maintains.

But trying to supply a client with a comprehensive package of services, from schematics to management of the finished building, has its stumbling blocks. Once a company occupies its new headquarters, its operations staff may become involved with correcting deficiencies that they attribute to the initial design. The architect must then convince the client that future facilities management services will promote the company's best interest in the long run.

In addition to providing expertise that extends previous design work, architects are also offering completely separate, standalone facilities management on a continuing retainer basis or as a one-time service. The Memphis-based architecture firm Askew Nixon Ferguson & Wolfe, for example, has taken the idea one step further. This year it formed On-Line, a separate facilities management company, after having provided such services within the firm for several years. Principal Lee Askew explains that creating a separate facilities group overcame client suspicions that architects were angling for future building commissions. The formation of On-Line also provided confidence that facilities management was not "another tacked-on service" beyond the architecture firm's genuine interests, Askew says. And if IFMA's growth from eight founding members in 1980 to more than 11,000 today is any indicator of the increased market demand for facilities management services, many architects would be wise to expand their interests in the field, rather than limit their focus to new construction projects.

—M.S.H.

Facilities management efficiently organizes space and equipment, often through open-plan workstations (top right). For example, HOK's interactive computer databases allocate departments (second from top) to their best locations (third from top) in response to forecast changes in personnel (right).
Facility Managers’ Growing Clout

As facility management gains wider recognition, architects seize new opportunities.

In more extravagant times, facility managers stood by while an out-of-house architect sculpted a bold image for a corporate headquarters. After the new building was occupied, the managers quietly cleaned up the areas of the interiors that didn’t work.

Today, facility managers have gained a stronghold in all types of organizations, as postrecession CEOs discover that space ranks second only to personnel as their leading expense. In a recent issue of the Harvard Business Review, consultant Mahlon Apgar IV notes that the typical service business in the 1980s “saw its ratio of occupancy costs to revenues more than double, its real rents increase by 50 percent, and its space use per employee grow by 80 percent.” Everywhere, the cost of headquartering an organization soared out of proportion to people or productivity.

Slamming the brakes on construction has not necessarily remedied the situation. Computers, reorganization, regulation, competition, growth cycles, and firings have all motivated top executives to find smart, qualified people who can handle the costs of housing their operations on a continuing basis.

Evolution of facility management

The 107-chapter, 12,000-member International Facility Management Association (IFMA) was founded in 1980 in response to the growth of office automation and more complex furniture systems. Today, the focus on controlling operating expenses and the bottom line is propelling facility management (FM) far beyond furniture. Facility managers’ various titles—from vice president of real estate to manager of facilities engineering—reflect diverse credentials. In response to the discipline’s growing clout, IFMA has taken steps to define FM as a distinct profession.

Education and certification

Twenty-six universities, from Cornell to Grand Valley State, already offer FM degrees or associate programs. Despite resistance from several of these schools, IFMA is seeking U.S. Department of Education recognition for its own authority to set accreditation standards for all FM programs. Meanwhile, last fall, IFMA launched a national certification program, comprising education and experience requirements plus a written exam.

This Certified Facility Manager program admits professionals who hold degrees in architecture, engineering, construction, business, property management, and institutional or hotel management, and have at least four years of experience. The exam includes parts on operations and maintenance, real estate, human and environmental factors, planning and project management, facility function, communications, finance, and quality assessment and innovation. Personal and educational accreditation actions follow recommendations from IFMA’s study of the field, beginning with a 1988 survey of members’ roles and a 1991 education survey.
While the International Facility Management Association insists certification is not meant to exclude architects, its exam favors those with hands-on experience gained at the operations level. "It aims to set a baseline of competence" among members with diverse backgrounds, explains IFMA President Diane MacKnight, director of facility operations for Gannett/USA Today. A liberal arts major, MacKnight credits her ability to read floor plans to a course in cartography.

Chris Nims, vice president of Gensler and Associates and a leader in the firm's nationwide FM practice, is one IFMA member who supports certification, but notes that he has no immediate plans to become certified himself: "I don't discount the possibility that it will be useful in the future, but it's not essential to my practice now. I already have a profession as an architect."

Defining FM's practitioners
The Library of Congress defines facility management as "the practice of coordinating the physical workplace with the people and work of the organization; integrates the principles of business administration, architecture, and the behavioral and engineering sciences." For IFMA President MacKnight, it is this support of a particular organization that sets facility managers apart, philosophically if not always functionally, from the property managers represented by the Building Owners and Managers Association International. Asserts MacKnight, "We see ourselves as a helping profession, like teaching or social work."

According to IFMA's most recent survey, conducted in 1988, the typical IFMA member is a "generalist manager," who supervises two tiers of specialists plus outside consultants. Over half of IFMA members claim general management backgrounds, compared with 20 percent from the fields of engineering and construction, and only 15 percent from architecture and interior design combined.

In contrast, a 1991 AIA Practice Management survey of 633 AIA firms found that at least 25 percent claimed to offer facility management services. The same poll found that 12 percent planned to add FM within three years, making it by far the most popular market choice for expanded services. More evidence is the AIA's recently created Facility Management Professional Interest Area (FPIA). This AIA group already claims 400 members, despite overlapping Corporate Architects and Interior Design PIA's. It appears that IFMA and AIA see the same turf from different points of view, a situation further confused by the fast-changing nature of FM itself.

Crossing boundaries
Computers have often led architects to facility management, but too many firms that have taken this approach to FM view it only as territory to be colonized. To be sure, architects' computer-aided facility management (CAFM) has often served "irrelevant construc-
In today's rapidly changing workplace, companies are striving to consolidate operations, take advantage of advances in technology, and improve the productivity of their workers and their environments. An initial, strategic analysis of departmental interrelationships helps companies plan for such changes.

**Operations**
- New business
- Reinsurance actuarial claims
- Deferred annuities
- Life operations

**Financial Services**
- Finance and accounting
- Agency service
- Agency compensation commission
- Treasury
- Audit
- Taxes

**Corporate Services**
- Reception
- Office services
- Training rooms
- Human resources
- Word processing
- Corporate communication
- Mail room and reproduction
- Records management
- Supply and facilities storage

**Information Services**
- New business
- Telecom staff
- Data center

*ABOVE:* Plotting a departmental diagram helps to design workplaces that encourage maximum staff productivity and operational efficiency.

*Architects' FM advantages*

Where do architects really fit in, given this new wave of facility managers? Although architects may be handicapped by association with '80s glitz, their generalist understanding—ranging from building codes to broad social and cultural concerns—and training as business-to-business communicators suggest they can become a strong, positive competitor in this market, whether as an in-house FM specialist or on a consulting basis.

As a discipline, facility management spans three main areas of expertise: building operations, long-range planning, and special projects. These broad areas encompass such functions as controlling daily and yearly energy, labor, materials, and other costs; avoiding real estate, tax, labor, and government regulatory pitfalls; guarding against building...
Above: With a computer-aided facility management program, Gensler reconfigured a typical floor (left) into a universal plan (right), improving building efficiency by 30 percent and decreasing maintenance costs by 150 percent.

obsolescence; and minimizing the need for more and different spaces and systems.

Beyond knowing how to build, architects can bring special strengths to each of these areas. For example, the computer database itself is no longer the marketing master key to FM. More essential is what the database may represent—a long-standing, empathetic relationship with a client organization. Swanke Hayden Connell Architects’ (SHCA’s) recent work for a reorganizing and downsizing IBM, for instance, has included consolidating, on short notice, a variety of the company’s world trade operations in space originally built for a single, expanding Latin American division. Rapport between SHCA’s project manager, Richard L. Sewell, and IBM’s in-house advisory architectural designer, Joseph A. Rossi, proved just as important during the project as SHCA’s on-line access to client data.

Architect as consultant
A trend to “outsourcing” gives consultant services new fiscal respectability. Some FM departments have shrunk, and architecture firms can propose filling in. “The pendulum swings back and forth on this,” says Gensler’s Nims. “Right now, facility management is more critical than ever, but at the same time, in-house departments are downsizing; fewer people with more responsibilities.” Architects should prepare to compete with credentialed FM consultants, however. The Hillier Group Chairman J. Robert Hillier foresees archi-
tects’ role as an “implant.” Architecture firm staff will be farmed out to an organization’s FM department at minimum cost to the client, giving the firm an inside edge when large, new construction projects come up.

Architects also bring specifying and problem-solving skills to short-term operations. “Architects need to understand that facility management is very much of a short-order, fast-response business,” counsels Hillier. Again, drawing on wide-ranging experience and education covering many kinds of buildings, the architect can propose legitimate quick fixes that can yield long-term savings and lead to more substantive commissions.

Today’s consultative management style is not necessarily at odds with the traditional architect’s role. Concepts such as value engineering, TQM, and partnering have often been pioneered or anticipated by architectural firms. In the mid-1950s, for example, Eero Saarinen and SOM convinced corporate clients to listen to employees, build full-scale prototypes to be tested and modified, and work intensively in teams.

Sustainable design principles promise architects an important FM “product.” As embodied in a project like the Croxton Collaborative’s National Audubon Society headquarters (ARCHITECTURE, June 1993, pages 62-69), these tenets overlap much of FM’s cost-cutting, productivity-raising repertoire in a sophisticated and socially conscious package. An added dimension is today’s
"green" approach to urban design, applicable from office parks to college campuses. The pluses range from bottom-line savings to environmental benefits, better employee health reduced regulatory hassles.

Although the building industry as a whole underfunds research and development, it is often design professionals’ research (and not, for the present, IFMA’s) that is developing better data on occupant needs, energy use, and improved technologies and materials.

**FM’s new frontiers**

Finally, while the “virtual office” represents the glamorous frontier of FM, surveys show that acceptance remains limited. In theory, automated companies can already dispense with office walls and street addresses and turn employees (and consultants) loose to work at a shared table, on the road, at the customer’s place, or at home. The hope is that rethinking the workplace as virtual reality will enable freer and more creative use of space, give workers more control, and improve productivity. The fear is that too much open-endedness can become a trendy excuse for mean, cheap buildings.

For now, however, architects are discovering ad hoc markets in programming or designing for a changing corporate culture. Intriguingly, they are developing new areas for shared and shifting workstations; “hoteling,” time-share private offices reserved like hotel rooms; flextime schedules; and portable communications tools that can be taken home or on the road. The Hillier Group, for example, claims to be cutting space 40 percent by a “strategic deployment” of carrels, worktables, and lounge chairs, inspired by the cushy but compact executive work environment of a first-class airport lounge.

In the past, a major weakness for the architectural profession in understanding and profiting from facility management’s growth was the fear and condescension directed at in-house corporate architects by architects in private practice. The in-house subordinate expected to clean up after the “name” architect’s expression of corporate image was, too often, another architect. Thanks to economic realities, such attitudes seem to be waning.

In this light, a current study, titled “Future Beginnings: Directions in Officing,” involving the AIA’s Corporate Architects and Public Architects Professional Interest Areas, is encouraging as much for its format as for its content. Although its conclusions are tentative, the first report of this group is worth ordering from the AIA (800-365-2724). In addition, IFMA principals have been invited to Facility Management PIA focus groups at the AIA regional conventions in Illinois and Boston this fall. Maybe if architects are more congenial, IFMA will invite us to one of their conventions.—Robert L. Miller

Robert L. Miller, AIA, is an advisor to the AIA’s Facility Management Professional Interest Area.
The Architect as FM Contractor

Corporate America’s outsourcing of facilities management functions is creating an enormous opportunity for architects to offer clients a host of computer-based FM services.

by Eric Teicholz

Abstract

Companies contracting out for facilities management services represent a new market for expanded architectural services. This article discusses the relative costs of different facilities-management activities, use of computers for space management, and how to sell these services to a client.

One of the results of the recent recession for corporate America has been the loss of millions of white-collar jobs. Organizations today are reducing the number of full-time staff — no matter what the cost, the loss of employee expertise, or the increased management load. The primary targets of cutbacks are overhead staff — particularly facility management departments (facility operations typically account for 8 to 12 percent of corporate budgets) and corporate technology groups (accounting for another 2 to 4 percent of budgets).

Organizations usually want to “outsource” the entire facility management function, or “outtask” specific FM services such as maintenance/operations, space planning, security, and cleaning. Corporate management is turning to technology to replace the knowledge base that is lost when employees are let go.

Companies interested in computer-aided facility management (CAFM) demand that it handle corporate “charge backs.” Management wants to know what assets are consumed by the various business units of the company in order to charge back these assets (such as rent, utility costs, furniture, and equipment) to the groups that consume them. In large organizations, with hundreds of cost centers, only computer technology can handle tracking and charge-back functions.

Corporations, for better or for worse, will continue to outsource FM tasks in the foreseeable future, and here is a new business opportunity for architects. CAFM is a sophisticated and complex function and FM departments in general do not have the expertise or time to create the required databases (up to 70 percent of the life cycle costs of CAFM) and the ongoing management required for effective CAFM implementation and churn (space turnover). It has been estimated that at least 50 percent of the integrated CAFM systems now sold end up as “shelfware” — software not used at all or dramatically under-utilized in terms of its potential. Architects who develop the expertise to offer CAFM services can establish and maintain an ongoing business relationship with corporate clients.

Current Use of Technology

I was recently involved in conducting a CAFM survey that indicated, among other things, the tasks performed by FM staff and how they were using technology. The graph on page 101 ranks, in terms of importance, the various tasks performed. At one extreme, various maintenance and operations functions (such as maintenance, facility accounting, construction project management) were considered most important. This is not surprising since these functions usually account for more than 50 percent of the life-cycle costs of a building (initial design and construction accounting for only 25 percent). At the other extreme, fixed asset management (building acquisition and disposal) is often not even performed by the FM staff but by the corporate real estate arm of the organization.

Interestingly, when we examined the use of technology by these organizations, we found that most CAFM is used for functions associated with the middle of the bar chart, for applications associated with space inventory, planning, architectural and interior planning, and space forecasting. This is because of the widespread use of CAD by close to 70 percent of the organizations polled in the survey.

Most organizations are technically literate enough to make use of CAD and database technology. But with dwindling FM staffs, the need is growing for companies to employ computers not so much for maintenance of as-built drawings, but to create and maintain

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graphic and nongraphic databases to track assets and personnel for charge-back purposes. The challenge for the architect is to understand this process, marry the technology and database needs of the client with those of the design consulting firm, and to make a solid financial case for the client to outsource to the architect various space management tasks.

**Space Management**

The largest cost savings with CAFM automation are in space management, the software for which can also be used for asset tracking and space and asset charge back. There are many functions the architect can perform relative to this process. The process itself can be schematically illustrated by the diagram on this page. The client starts with an electronic database of floor plans along with occupant and organizational information located in an associated database. From this, density and vacancy analyses and space utilization drawings can be developed. In some cases, moves can be forecast and scheduled, but in general little notice is given to the facility staff about when moves and associated space churn must occur. As a result, the space and assets required for a move must be compared to the existing space inventory (which in turn must be kept current and accurate) and project requirements mapped to available space (generating schematic stacking and block plans). Based on this available space or space made available by reshuffling staff (which can be expensive if new furniture or construction is required), new floor plans are generated and appropriate databases updated.

Consulting architects must make many decisions related to the space management process. For example, they must first decide what information should be tracked by the system and at what scale (e.g., by room or by organizational unit). Does the client need to track furniture, equipment, personnel, organizational structure, adjacency information, occupancy information, space standards associated with staff levels, or all of the above? Each piece of data tracked must be linked in the database to the graphic record, which in turn has a significant effect on the cost of creating and maintaining the relevant databases.

The consulting architect must also set up procedures for maintaining the graphic and nongraphic databases so that information is at all times current and accurate. This can become logistically complex if the client has more than one building and if other staff are involved in updating drawings and nongraphic databases to represent as-is occupancy conditions.

Procedures must be established for generating requirements associated with space, adjacencies, furniture, and equipment. Space standards must be created and updated to represent desired working procedures. If furniture is tracked, there is the possibility of linking the graphic and nongraphic data to third-party databases that provide a wealth of electronic information on various furniture manufacturers. It must be determined
whether it is economical to track furniture and equipment down to the individual piece or to the class level. Next, there are issues associated with forecasting, budgeting, and project management. Business units of the organization must be polled to determine future plans and their space implications. Costs associated with construction and moves must be tied to capital budgets and to charge-back accounting. Contractors (internal and external) performing the move and construction must be managed.

Outsourcing technology such as CAFM is best performed in the corporation itself rather than in the architect’s office.

In general, space management is a task involving many variables and complex procedures. The process also evolves as business procedures and strategies do. However, automating and managing this process by computer results in dramatic cost savings for the organization in an area that is increasingly strategic for most companies, enabling management to better respond to new business opportunities. The challenge for architects is to understand this process, to help facility staff implement space management technology, and to provide professional design services to ensure the best possible use of space.

Selling these Services to Your Client

The marketing of such services to your client involves not only professional design skills, but an understanding of your client’s space-management needs and of how technology will affect their “bottom line.” Understanding the process, the data requirements, the required technology, and the appropriate standards is usually more difficult than justifying the cost of the technology.

The cost benefits model for CAFM services usually shows a return on investment in one to three years, depending on the amount of data being tracked. Cost categories include:

- Acquisition (capital-related), including hardware and maintenance (usually a large PC such a Pentium or a workstation will be required for medium and large facilities);
- Acquisition (noncapital-related), including CAFM and space-management software (an integrated CAFM system with space management modules costs about $10,000, including CAD);
- Recurring Expenses, including continuing and new training, ongoing space management or churn costs;
- Database/Conversion Expenses, including initial creation of graphic/nongraphic databases and linking of data to CAD;
- One-Time Expenses, which are any start-up and nonrecurring expenses such as initial training, customization, set-up, etc.

The benefits include:

- Direct Savings, such as internal labor affected by technology;
- Contract Savings, which result from decreased use of outside contractors (drafting, cleaning, asset management, design, purchasing consultants, etc.).
- Indirect Savings through better use of space, reduction of space turnover, less construction, better scheduling of personnel, and cost reduction of moves.

The Bottom Line

Outsourcing technology such as CAFM is best performed in the corporation itself rather than in the architect’s office. Thus designers must be prepared to provide staff to work at the client’s facility. To successfully provide outsourcing services, the consultant architect must understand the business, organizational, and technology needs of that organization and be prepared to make a business argument for outsourcing a particular task. When it comes to a task such as space management (which typically accounts for 5 percent of a company’s operating budget) the procedures and issues are complex, but the financial benefits to the client (and, subsequently, to the architect) can be enormous.

Further Information

Sample dedicated CAFM software vendors:

- Archibus, Inc., producer of Archibus/FM, 177 Milk Street, Boston, MA 02109.
- CADworks, Inc., producer of Drawbase, 222 Third Street, Cambridge, MA.
- ITS, producer of Span, 1250 Easton Road, Suite 250, Horsham, PA 19044.
- Sofdesk, producer of AutoFM, 7 Liberty Hill Road, Henniker, NH 03242.

Sample automatic stacking and blocking space management vendors:

- CAFM Works, Inc., producer of Stack & Block, 1815 Massachusetts Ave., Cambridge, MA 02140.