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# 1. FACILITY MANAGEMENT BASICS

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Facility management, commonly abbreviated as FM, is still a fairly new business and management discipline in the private sector. In the public sector, however, it has been practiced as post engineering, public works, or plant administration for many years. In leased property, the profession is called property management or building operating management, although most of the required skills are the same as those needed in owned property. FM functions were often subsumed deep in the administrative structure of both private and public sector organizations, if practiced at all. Growth around the globe has heightened the awareness that sustainment of facilities is required for longevity and efficient use.

## 1.1. What is FM

The most recent definition of facility management is “a profession that encompasses multiple disciplines to ensure functionality of the built environment by integrating people, place, process, and technology.” It is interesting to note that this newest definition highlights the importance of technology, which was lacking previously. Similar definitions from the European Union and other areas point to the need for standardization of the industry. An International Standards Organization (ISO) project is currently underway at this writing, to establish FM standards for use around the world. This attempt should help not only to standardize the definitions and meaning of facility management, but also to bring broader awareness of the field and its value.

Defining the many FM functions becomes very important because they form the framework for maturity in the industry and its professional development, research, and professional competency testing. For example, IFMA has organized the functions into “competencies” around which it designs all of its professional programs. These eleven competencies form the basis of standardization and encapsulate all of the many functions required in FM. These competencies are

- ✓ Communication
- ✓ Emergency preparedness and business
- ✓ Environmental stewardship and sustainability
- ✓ Finance and business
- ✓ Human factors
- ✓ Leadership and strategy
- ✓ Operations and maintenance
- ✓ Project management
- ✓ Quality
- ✓ Real estate and property management
- ✓ Technology

International standardization is one step that may help to bridge understanding and business opportunity. Facility management embraces the concepts of cost-effectiveness, productivity improvement, efficiency, and employee quality of life. In practice, these concepts often seem to be in conflict. For example, many facility managers find themselves sinking in the quicksand of diminishing knowledge worker productivity, placed at the precipice of office air-quality problems,

or embroiled in waste management issues that predate their employments. Providing customer responsive services balanced with unrelenting cost cuts is a monumental challenge. Employee expectations and concerns almost always come before clear-cut technical or financial solutions. Often there are no set answers—only management decisions that must be made. It is this constant yin and yang of FM: to balance the needs of the organization against the financial restrictions required to allow the operational units of the business to expand and grow.

## 1.2. Facility Management Philosophy

Facility managers are so bogged down in their day-to-day work that they fail to grasp the truly important aspects of success. When all facility managers adopt below listed elements of philosophy, or if they adopt their own, the practice of FM will improve immensely.

- ✓ Facility management is a business function, and the actions of facility managers have financial and organizational impacts.
- ✓ Safety is always the first concern followed by legality, cost, and customer service.
- ✓ An FM staff member should be directly responsible for every physical asset and function.
- ✓ There is a cost of ownership of facilities; it is the facility manager's task to ensure that management understands that cost.
- ✓ Facility managers should be cost-conscious in everything they do, and should capture all costs in this analysis.
- ✓ Every physical asset should be under appropriate life-cycle management.
- ✓ Plan with care, and always retain the capability to react.
- ✓ Cultivate long-term relationships. Remember that the successful FM organization is a team (staff, suppliers, contractors, consultants).
- ✓ The facility manager must regularly measure both the effectiveness and the efficiency of the department.
- ✓ The facility manager must be active in public relations outside the department.
- ✓ If the facility manager doesn't promote the department, who will?
- ✓ The best way to save money is to participate in facility business planning. A facility business plan should support the company business plan. Business plans should be the result of long-range facility master plans.
- ✓ The facility manager should prioritize the development of an FM information system with the budget as the base document.
- ✓ Conduct oneself with a high regard for ethics.

## 1.3. Why FM

Most companies that own their buildings have facility management (FM) or corporate real estate (CRE) departments. Companies that lease space but retain responsibility for physical plant maintenance and operations are also likely to have an FM or CRE group. Because facility management involves such a broad range of functions, many companies outsource skills and expertise they do not have in-house. The most typical FM clients manage office or multiuse facilities.

In the past, client organizations were relatively stable, manufacturing the same product or providing the same service for twenty years or more. In that environment the role of the design and construction industry was to respond to change as it related to space. Facility management

consulting services most often addressed planning new space or reconfiguring existing space, as well as tactical assistance with building operations and maintenance and general office services. Most companies viewed their facilities and their FM/CRE departments as an expense.

In the past 10 to 15 years business cycles have shortened, the pace of business has rapidly accelerated, and real estate values have cycled up and down dramatically. More clients have come to understand the need to manage their facilities as an asset or a means to an end. In-house facility managers are challenged to respond instantly to continual company change, whether it stems from innovation, restructuring, or reorganization.

In the current business environment, client organizations must manage change effectively through strategic facility planning. There is a growing need for FM services to help develop facility strategies that can contribute to the achievement of corporate objectives. As an example, the facility objectives of many organizations now include maximizing productivity and flexibility and attracting and retaining personnel, as well as minimizing operations expenses. Flexibility is particularly important, as it permits organizations to respond more efficiently and economically to future demands.

Many clients today are moving away from hiring a number of different consultants for short-term projects. Instead, they are seeking to lower costs and increase efficiency through long-term relationships with consultants who can help them manage their space over time. In this climate, architects have the opportunity to reestablish themselves as integrators and trusted advisors—roles they played in many companies before the demise of the corporate architect and the emergence of predominantly leased business space in the 1980s.

The market for consultants providing strategic facility planning as part of FM services has enormous potential for growth because of the value it can add to client organizations. Architects and architecture firms that offer such planning services will be in a good position to provide clients with related FM services, as they will have an unusually thorough understanding of clients' needs. Related information management services can provide a client with continually updated data that assist in ongoing management decision making. At the same time this new version of facility management is developing, the more traditional market for facility management services is continuing to expand. Opportunities abound for architecture firms offering real estate, building design and construction, building operations, maintenance, and general office services to clients that may or may not have made the transition to strategic FM practices.

The FM field traces its origins to the increased need for interior space planning that came with office automation in the early 1980s. Now the trend toward team-based work processes, and the fact that teams tend to shift with each new project, is driving office planning in many organizations. As one facility manager explained, "Our job is to make it as easy as possible to form teams." According to a 1996 International Facility Management Association survey, other issues of client concern include ergonomics, sustainability, recycling, emergency response, telecommunications, smart buildings, and sick building syndrome.

Services to help a client minimize operating expenses continue to be of great value and in demand. Benchmarking is a service provided by many FM consultants, including both business management and design consultants. Benchmarking evaluates people, processes, systems, and

information flow and makes comparisons to industry benchmarks or to goals set by a particular client. For example, one firm moved its accounting department out of the headquarters complex when it found the cost of headquarters space was more than twice the industry benchmark for an accounting function.

#### **1.4. FM Functions**

The functions of a facility manager can be divided into strategic and tactical level, as

##### **Strategic**

###### **Real Estate Management**

- ✓ Property inventories
- ✓ Property acquisition, leasing, and disposal
- ✓ Feasibility studies
- ✓ Environmental studies

###### **Building Design and Construction**

- ✓ Master site planning
- ✓ Architecture
- ✓ Engineering

###### **Facility Planning**

- ✓ Strategic planning and budgeting
- ✓ Information management

##### **Tactical**

###### **Building Operations and Maintenance**

- ✓ Operations
- ✓ Plant operations
- ✓ Utilities
- ✓ Maintenance
- ✓ Property engineering
- ✓ Space planning
- ✓ Rentals
- ✓ Relocation coordination
- ✓ Office equipment
- ✓ Telecommunications/data distribution
- ✓ Signage

###### **General Office Services**

- ✓ Security
- ✓ Mailroom
- ✓ Housekeeping
- ✓ Shuttle
- ✓ Solid waste
- ✓ Food service
- ✓ Pest control

- ✓ Fitness center
- ✓ Reception
- ✓ Printing services
- ✓ Switchboard
- ✓ Fleet management
- ✓ Plant rental
- ✓ Procurement
- ✓ Receiving/distribution

### 1.5. Building Services

Building services are the systems installed in buildings to make them comfortable, functional, efficient and safe. Building services might include:

- ✓ Building control systems.
- ✓ Energy distribution.
- ✓ Energy supply (gas, electricity and renewable sources such as solar, wind, geothermal and biomass).
- ✓ Escalators and lifts.
- ✓ Facade engineering (such as building shading requirements).
- ✓ Fire safety, detection and protection.
- ✓ Heating, ventilation and air conditioning (HVAC).
- ✓ Information and communications technology (ICT) networks.
- ✓ Lighting (natural and artificial).
- ✓ Lightning protection.
- ✓ Refrigeration.
- ✓ Security and alarm systems.
- ✓ Water, drainage and plumbing (including sustainable urban drainage systems (SUDS)).
- ✓ Carbon emissions calculations and reduction.

Specialist building services might also include systems for bacteria and humidity control, specialist lighting and security, emergency power, specialist gas distribution, fume cupboards, operating theatres and so on.

Building services play a central role in contributing to the design of a building, not only in terms of overall strategies and standards to be achieved, but also in façade engineering, the weights, sizes and location of major plant and equipment, the position of vertical service risers, routes for the distribution of horizontal services, drainage, energy sources, sustainability and so on. This means that building services design must be integrated into the overall building design from a very early stage, particularly on complex building projects such as hospitals. Whilst it is usual for a building design team to be led by an architect, on buildings with very complex building services requirements, a building services engineer might be appointed as the lead designer.

The detection of clashes between building services and other building components is a significant cause of delays and variations on site, not just in terms of the physical services themselves, but also access to allow the builders work in connection with those services. The use of 3D computer aided



design (CAD) systems and building information modeling (BIM) should help reduce the occurrence of such problems.

Increasingly building services engineers are central to the design and assessment of sustainable systems, assessing the life cycle of buildings and their component services to minimise the resources consumed and the impact on the environment during fabrication, construction, operation and dismantling.

According to The Chartered Institute of Building Services Engineers (CIBSE), "In any new construction project, building services typically account for 30 - 40% of the total cost." and buildings account for almost 50% of carbon emissions. As a consequence, many aspects of building services design are regulated (the building regulations, the energy related products regulations and so on), and clients may impose their own standards on top of these regulations or seek certification under schemes such the Building Research Establishment's (BRE) Environmental Assessment Method (BREEAM).

Ensuring that building services meet the standards set can involve the use of sophisticated simulation tools to predict the likely performance of buildings during the design stages (including the assessment and comparison of different options) as well as monitoring actual performance in use.

However clients and designers are becoming increasingly aware of a disparity between the predicted and actual performance of buildings, with many buildings using considerably more energy than had been expected (up to 5 times as much according to the Carbon Trust's Low Carbon Buildings Accelerator and the Low Carbon Buildings Programme). This may be as a result of; a lack of proper understanding of building design and the interaction between components, poor prediction tools, inadequate detailing, discrepancies between specifications and actual construction, poor build quality, the use of idealised performance data for products, improper user behaviour or operation and unexpected power loads (such as additional ICT equipment, external lighting and so on). The collection of more data to feedback information about performance in use will be necessary to rectify this problem.

Building services engineers work closely with other construction professionals such as architects, structural engineers and quantity surveyors. They influence the architecture of a building and play a significant role on the sustainability and energy demand of a building. Within building services engineering, new roles are emerging, for example in the areas of renewable energy, sustainability, low carbon technologies and energy management. With buildings accounting for around 50% of all carbon emissions, building services engineers play a significant role in combating climate change. As such, a typical building services engineer has a wide-ranging career path:

- ✓ Design: designing layouts and requirements for building services for residential or commercial developments.
- ✓ Design Management -Design management is the business side of design, which aims to create the right environment to control and support a culture of creativity and innovation, and to embrace the iterative nature of design involving the many disciplines that, collectively, will deliver design solutions - and all at the same time as ensuring that an organisation's commercial goals and objectives are achieved and that all is done in an ethically sound way. Typically the building services engineering installation is worth 30-

60% of the total value of a contract, Design management is not the same as project management. Project management focuses on a wider range of administrative skills but is not normally sympathetic to the peculiarities of delivering a fully coordinated functioning design, taking into account its unique nature and dealing with the changing requirements of clients and the external factors over which there is little control.

- ✓ Construction: supervising the construction of the building services, commissioning systems and ongoing maintenance and operation of services.
- ✓ Environmental: developing new energy saving methods for construction, designing new and improved energy conservation systems for buildings.
- ✓ Heating, ventilation and air conditioning (HVAC): specialising in the design, development, construction and operation of HVAC systems.
- ✓ Electrical technology: specialising in the design and development of electrical systems required for safe and energy sustaining operation of buildings.

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