Chapter 6. Emerging Issues

This chapter consists of a series of recommendations and suggestions by recognized experts in the field on issues that are becoming increasingly important in tracking institutional physical assets. While not an integral part of a space inventory and classification system, they are often addressed by the same offices and individuals that are responsible for a space inventory. The issues and the principal contributors who address them are the following:

- Infrastructure reporting under Government Accounting Standards Board (GASB) 34/35; Principal Contributor: Eric Ness, Suffolk University, Boston, MA.
- Building preservation and development of capital improvement plans; Principal Contributor: Robert M. Broberg, BldgPreservation.com.
- Maintenance and development of capital and operating budgets for maintenance; Principal Contributor: Henry DePerro, The Ford Foundation.
- Privatization and the need for expanded definitions of ownership; Principal Contributor: William Bowes, University System of Georgia.
- Comparison of the *Facilities Inventory and Classification Manual* (FICM) and commercial space measurement systems; Principal Contributor: Lawrence W. Vanderburgh, BOMI Institute.

6.1 Infrastructure Reporting Under GASB 34/35

6.1.1 Background

The Governmental Accounting Standards Board (GASB), which is responsible for developing standards for state and local governmental accounting and reporting, including public postsecondary institutions, issued new guidelines in 2000 under GASB statements 34 and 35. These guidelines, designed to increase the public's understanding of financial reports and thereby the usefulness of reports in policymaking, fundamentally altered traditional reporting practices for public postsecondary education institutions. Among the many changes introduced under the new guidelines is the requirement that state and local governments report all capital assets, including infrastructure, and depreciation expenses associated with those assets.

Under the new guidelines, capital assets are reported at historical costs. Capital assets include land, land improvements, buildings and improvements to buildings, vehicles, equipment, works of

art and historical treasures, and infrastructure. Infrastructure assets are those with a long useful life. They are normally stationary in nature and can be preserved for a significantly greater number of years than most capital assets. Examples of infrastructure assets include roads, bridges, tunnels, drainage systems, water and sewer systems, dams, and lighting systems.

Infrastructure assets that are part of a network or are a subsystem of a network do not have to be depreciated as long as two requirements are met. First, public postsecondary institutions must manage assets by having an up-to-date inventory; performing regular condition assessments of the assets, which can measure, through an objective set of criteria, the outcome of that assessment; and estimating the annual amount needed to maintain and preserve the asset at the condition level that has been established and disclosed. Second, postsecondary institutions must document that the assets are being preserved at a level at or above the established condition level. Condition assessments must be performed in a consistent manner at least every 3 years and provide assurance that the second requirement is met.

6.1.2 Implications for the FICM

Chapter 2 of this manual encourages institutions to inventory **all** physical plant assets including those that are not within the definition of a building (i.e., infrastructure). Items within the infrastructure inventory represent those campus elements that directly service and support buildings, such as water, electricity, steam, sewage, telephone, and data systems, and those elements that support campus activities, such as roadways, athletic fields, street lighting, spectator stands, plazas, parking lots, signage, walkways, emergency phones, and certain types of vehicles. As suggested in chapter 2, institutions also may want to maintain records on land holdings, capital equipment, and movable equipment. GASB is not prescriptive in stating how these assets and records are to be tracked or maintained.

6.1.3 Recommendations

Given the GASB guideline change creating new requirements for reporting on infrastructure assets, institutions may want to consider developing categories and coding structures for these assets. Appendix D provides a detailed organizational format to consider when inventorying infrastructure assets. Appendix F provides a possible coding scheme for the detailed infrastructure assets in appendix D. Examples of categories might be the following:

- **Athletics - Outdoor.** Items in this category are used in direct support of outdoor athletic activities. These would typically include arenas, baseball fields, basketball courts, bleachers, circuit training courses, climbing walls, dugouts, field light poles, grass playing fields, hard playing surfaces, press boxes (unless they fulfilled the requirements of being considered a building; see chapter 2), ropes, course elements, running tracks, scoreboards, shooting ranges, ski lifts, softball fields, stadiums, outdoor swimming pools, synthetic fields, tennis courts, volleyball courts, etc.

- **Equipment** (that cannot travel on public roads). Items in this category include tractors and attachments; hand-held or worn leaf blowers, weed-wackers or trimmers; riding tractors, mobile carts, or mowers; walk-behind mowers, blowers, grinders, etc.; and other equipment that could not typically be licensed to operate on the public roads.

- **Grounds** (items that grow). Items in this category include various live plantings distributed through the grounds areas that support and enhance the grounds. These would typically include arboretums, fairways, flower beds, hedges, putting greens, shrub beds, trees, forest preserves, general turf, woody shrubs, etc.

- **Land and Land Elements.** Items in this category include any land assets that are not already a part of any other infrastructure element or support element. These would typically include pastures, preserve areas, undeveloped property, water bodies like ponds and lakes, etc.

- **Miscellaneous Structures.** Items in this category are structures that do not have a building envelope per se. These would typically include uncovered amphitheaters, bleachers, pedestrian and vehicular bridges, fences, gates, flagpoles, hazardous waste collection/storage sheds, memorial/donated structures, retaining walls, solid waste transfer stations, statues, fuel tanks, water tanks, towers, waterfront piers/docks, etc.

- **Retired, Demolished Structures.** Items in this category represent past infrastructures that have been demolished, removed, or perhaps renamed. The purpose of this category is to provide a coding for historical infrastructure that existed at one time but has been removed from the inventory. This process helps to keep a historically accurate accounting of infrastructure elements.

- **Site Furnishings** (items that do not grow). Items in this category include various furnishings distributed through the grounds areas that support and enhance the use of grounds but are not living, growing things and/or are not athletic elements. These would typically include ash receptacles/urns, benches, bike racks, roadway bollards, cemeteries, drinking fountains, outdoor grills, hardscape, parking lots, parking meters, picnic tables, plaques, monuments, ramps, roads, exterior signage, trash receptacles, recycling receptacles, etc.

- **Utilities Distribution Systems.** Items in this category include all the traditional utility systems such as steam, domestic water, natural gas, electric high voltage, and sanitary sewer, as well as cable TV, data, electric low voltage, electric secondary, energy management, fire alarm, fuel distribution, fuel storage, street lighting, pedestrian lighting, security, storm water, emergency telephone, general telephone, public telephone, chilled water, fire protection water, heating water, irrigation water, etc.

- **Vehicles (that can travel on public roads).** Items in this category include all those vehicles that are licensed to operate on the public roads. They would include cars, vans, trailers, trucks, fuel trucks, patrol cars, ambulances, and specialty vehicles like backhoes, aerial lifts, cranes, chippers, etc., as long as they are licensed to operate on public roads. It should be noted that some prefer to include these items in their institution's movable equipment inventories for asset tracking and control purposes, and for inclusion in their institution's Indirect Cost Recovery (ICR) proposal to the federal government.

When incorporated into any computerized maintenance management system (CMMS), use of these categories at this broad level allows for the collection and review of work/costs associated with the maintenance and repair of these campus elements. These categories can also be expanded to identify infrastructure types or even specific elements within a particular type of infrastructure by coding the infrastructure type (for example, grounds flower beds, furnishings bike racks, or utility storm water system) and then numbering a specific unique element within that type. Numbering a specific unique element would combine a type code with a serial number or bar code number. This format can be used in as little or as much detail as needed to identify campus assets and meet institutional goals.

6.2 Building Preservation

The purpose of building preservation is to optimize, at minimal cost, the value, performance, functionality, efficiency, and appearance of buildings and sites. It is a comprehensive approach that requires a focused and concerted initial effort to develop. Once established, significantly less effort is necessary to manage, update, and maintain a good program.

Surprisingly, some postsecondary institutions with extensive buildings and facilities portfolios—and consequent exposures—seem to have limited success in establishing and managing a comprehensive building and facilities preservation program. The problem seems to be a lack of understanding of how to establish a program without making a significant initial investment in professional consulting expertise and specialty software and without investing in costly ongoing professional updating and software maintenance. As a result, administrators and boards are reluctant to propose, approve, and support preservation efforts, which leads to depleted values, diminished uses, operational anomalies, and inefficiencies in buildings and facilities that are not well defined, predictable, or understood.

An improved effective and efficient approach is necessary to reverse this trend. The purpose of this section is to suggest a process and approach for creating and managing an ongoing capital plan that can be implemented and maintained for a fraction of the cost of an outsourced proprietary system.

6.2.1 Process Concepts

Components. Buildings, facilities, and sites comprise various components and subcomponents. A building consists of structure/foundation, exterior, interior, and systems components. Typically, exterior subcomponents include the roof system, gutter system, walls, windows, and doors. Interior subcomponents include walls, floors, and ceilings.

System subcomponents may include electric; plumbing; heating, ventilation, and air conditioning (HVAC); and telecommunications/data. These subcomponents are broken down further to coincide with different life cycles of the various major elements of the system.

Life Cycles and Replacement Costs. Each of the various building, site, and facilities subcomponents has an estimated life cycle, which can vary depending on preventive and planned maintenance programs. The replacement cost of the various subcomponents can be determined.

Conditions, Deterioration, and Condition-Related Costs. The condition of the various subcomponents can be evaluated and determined. A relationship between the condition and the replacement cost can be formulated to understand the deterioration of the subcomponent. The **current value of the subcomponent is the replacement cost minus deterioration.** As a result of a deteriorated condition in a subcomponent or an improvement in the efficiency of the subcomponent replacement, there may be a condition-related cost that will be either the:

- incremental annual operating cost attributable to the deteriorated condition or the annual operating cost savings attributable to the improved efficiency of the state-of-the-art replacement, or
- annual loss of program income attributable to the deteriorated condition.

Analysis. With the replacement costs, deterioration, current value, and annual incremental costs attributable to conditions and obsolescence known, a capital program consisting of corrective projects and upgrades can be developed, modeled, presented, and scheduled. Post-project subcomponent conditions can be estimated. Improvements in current values and condition-related costs can be determined and modeled, and projects can be ranked by projecting improvements in operating costs and program income over newly created life cycles.

6.2.2 Implementation

It is important to understand and to subscribe to the process and concepts of a preservation program before undertaking one. In fact, it is a requirement to effectively guide and manage a program. As an alternative to the potentially formidable expenses of using a consulting firm with a proprietary approach (and software), the advantages and disadvantages of using in-house professional staff should be carefully considered.

The advantages of using in-house professional staff include utilizing their extensive experience and knowledge, creating an in-house team that includes building users, identifying strengths and weaknesses of the program, establishing accountability and ownership of the initial effort, improving future management, limiting and defining consulting assistance, and realizing substantial savings.

The tasks involved in implementing a comprehensive building and facilities preservation program include:

- Instructing and training an in-house group;
- Selecting and developing software;
- Identifying and defining life cycles by component and subcomponent;
- Determining replacement costs;
- Evaluating conditions;
- Generating deterioration, current values, and condition-related costs;
- Developing projects, modeling improved conditions and current values;
- Adopting a capital plan with measurable results;
- Re-evaluating conditions and developing projects as necessary; and
- Maintaining an ongoing capital plan.

6.2.3 Ongoing Capital Plan

Understanding building preservation concepts and implementing a building preservation process enables postsecondary institutions to create an ongoing capital plan that requires modest efforts to

maintain and update. As subcomponent conditions change, they can be re-evaluated to generate revised current values and condition-related costs. A corrective project can then be developed, analyzed, modeled, and scheduled.

Buildings, facilities, and sites can be viewed in the aggregate as an institution's facilities portfolio that is periodically measured in terms of replacement cost, deterioration, current value, and operating cost changes reflecting the presumable positive impacts of the ongoing capital program and projects.

6.2.4 The Future

Postsecondary institution administrators should be well informed about their buildings, sites, and facilities. Application and minimal maintenance of the building preservation process provides a decision support system for broad-based understanding and support of a capital program. Management and extensive participation by key in-house staff is an effective way to maintain ownership of the solution to the problem and to minimize initial and ongoing costs.

6.3 Maintenance of Buildings and Infrastructure

While this manual does provide optional categories related to major repairs and renovations of buildings and space (building and space condition), it does not contain specific categories related to maintaining the building infrastructure, operating equipment, and space. Maintenance and refurbishment information is critical to determine the routine cycle and long-term replacement expenses associated with the ongoing care and upkeep of facilities infrastructure, equipment, and space. This information may include data on the age, preventive maintenance schedules, and performance of equipment such as HVAC (boilers, chillers, cooling towers), pumps, drive motors, generators, elevators, escalators, etc., as well as information on the upgrade or replacement of flooring, carpeting, paint, wall covering, furniture, window treatment, and more. Capturing and monitoring critical data of this nature can lead to the more orderly management and control of buildings and space, and the more efficient management and control of the operating and capital expenses related to these assets. It also can ensure that base building equipment and components, which are essential to the efficient and cost-effective operation of facilities, are properly maintained to maximize performance.

This section suggests a general approach to developing a set of equipment maintenance and space refurbishment identifiers and classifications. This multistep process includes identifying the various equipment and infrastructure components, determining the classifications of maintenance and refurbishment appropriate for tracking purposes, and tying the maintenance and refurbishment cycles and costs to the specific buildings and space.

1. Maintenance Categories and Classifications

    a. Identify all base building and infrastructure equipment components to be included in the classification process (possibly a comprehensive list of all elements included in buildings and then tailored specifically to each individual situation).

    b. Develop preventive maintenance standards for each equipment item or items.

    c. Develop maintenance classifications and schedules for each piece of equipment.

    d. Cross-reference the equipment and classification with the specific building identifier, i.e., name, number, etc.

    e. Consider expanding the equipment inventory list beyond the base building to include such items as audio, video, kitchen, laboratory, and other room-specific equipment.

    f. Develop a matrix to include building, equipment type, maintenance schedule, and annual cost.

    g. Utilize the data for evaluation of equipment efficiency and maintenance/repair versus replacement.

    h. Monitor data to assist with expense control and management and budget planning.

2. Refurbishment Categories and Classifications

    a. Identify buildings and spaces to be included in categorization process.

    b. Develop refurbishment standards for each category.

    c. Develop refurbishment classifications for each room (they could include universal or common classifications for all rooms tailored for specific instances).

    d. Cross-reference the classifications with each building and space identifier.

    e. Develop a matrix to include building, space, refurbishment categories, dates of last activity, schedule of next activity, and cost.

    f. Utilize data for evaluation of refurbishment and replacement requirements associated with specific space.

    g. Monitor data to assist with expense control and monitoring and budget planning.

Appendix E presents a suggested classification system for different approaches to facility maintenance. It includes criteria such as the mix of different types of maintenance, response times, level of customer satisfaction, service efficiency, and maintenance operating budget as a percentage of current replacement value.

6.4 Capital Facilities Privatization

6.4.1 Background

During the latter part of the 1990s, though the practice had earlier origins, many public postsecondary institutions began to develop facilities through public/private partnerships. Although most institutions use private financing to support the development of residential facilities, the practice has extended to academic and other support facilities. This trend can be attributed to three factors.

- First, state support for facilities has declined significantly in recent years. The most recent national recession caused many states to pull back funding support for public postsecondary education and especially capital facilities development.
- Second, the recent explosion in student enrollment across the country has left many institutions unable to meet the demand for housing and academic space in the near term.
- Finally, students today expect more amenities in their living and studying environment, including state-of-the-art technology and greater privacy. Residence halls, many of which were constructed during the expansion years of the 1960s and 1970s, simply do not meet today's student expectations. Since a residential life experience has been shown to have a positive impact on academic success, many institutions are eager to provide a quality living environment for students.

Under a typical privatized housing project, an institution will first determine the need for the project through a market analysis, which looks at project viability based, among other things, on student demand, comparisons with local housing rents, and projected occupancy. The institution's foundation, and other affiliated 501(c)3 nonprofit corporations, often a limited liability corporation (LLC) set up specifically for this purpose, or a nonaffiliated entity will assume responsibility for owning, developing, and managing the development project. The nonprofit corporation will establish an agreement with a governmental or public entity (e.g., a local development authority) to issue tax-exempt bonds to finance the project on its behalf. The nonprofit corporation also will contract with a developer to design and build the project, an investment banker to develop a finance plan and underwrite project bonds, and a third party to oversee ongoing operational management of the project. If the project is constructed on the college or university's property rather than adjacent land, the nonprofit corporation will obtain a ground

lease from the institution for the duration of debt service payments. In these circumstances, ownership is usually transferred to the institution at the conclusion of the debt service period, which normally ranges between 20 and 40 years.

There may be several variations of this approach, reflecting the different roles that institutions have chosen to assume in relation to the project. For example, the institution may serve as project manager for the foundation or nonprofit corporation. The institution also may agree to a student rental referral policy with the nonprofit corporation, participate in a cost-sharing agreement based on net project cash flow, play a role in determining project scope, or review agreements with the developer. Increasingly, to exert a greater level of control over projects, some institutions choose to "lease back" facilities through rental agreements with the foundation or nonprofit corporation, which changes both the nature of the relationship between the two entities and the institution's liability. The institution's level of involvement has implications for the financing costs of these arrangements because of its impact on risk and liability as viewed by credit rating agencies and bond underwriters.

There are many benefits to privatization. First, housing projects developed under traditional state methods are subject to extensive rules affecting capital construction and procurement. These requirements can extend project completion time and increase project cost. Privatized housing projects can be completed more rapidly due to the developer's ability to expedite contracts and financing agreements. In addition, institutions that lack the expertise in the construction, operation, and management of housing can call upon experts who have this knowledge and experience, which can lead to improvement in housing services, just as outsourcing other campus services can enhance service and reduce cost. Finally, depending upon the particular circumstances and financing structure adopted by the institution, these transactions can help preserve the debt capacity and credit rating of the institution or state.

There are disadvantages too. As with other outsourced services, the institution may feel a loss of control over the financing or operation of the project. Additionally, despite the fact that these projects are financed with tax-exempt bonds, interest rates will tend to be much higher than what might have been obtained using state general obligation bonds.

6.4.2 Implications for the FICM

This manual was last revised at a time when these types of projects were less common. Although the manual addresses ownership issues through the use of a "building ownership status" code,

this feature does not deal with facilities that are owned, operated, and maintained by an outside entity and not leased to the college or university, even though the project may play a significant role in serving the institution's mission. Under most privatized arrangements, rental agreements are made directly between the student and the foundation or nonprofit corporation, often through its third-party manager.

The question then is whether to include a separate ownership status code that recognizes privatized projects (housing or otherwise) in the institution's inventory. How institutions view the benefit of recognizing privatized housing in their facilities inventory may depend on their role and responsibility with respect to these types of projects. An institution that assumes a minimal role where it may, for example, only refer students to the housing project but take no part in operation or management, nor create a "residential life" program that offers specific services to students, may opt not to include such facilities in its inventory. On the other hand, an institution that assumes a more significant role, by operating and maintaining facilities under contractual agreement and being more directly involved in the relationship between the student and the housing provider, may choose to include these facilities in its inventory.

At the system, state, or national level, the facilities inventory has greater value as a source for making comparisons among institutions. For this reason, there may be greater interest in including data on privatized facilities since they can provide a better measure of total available space for institutional programs based on mission. For example, an institution may have a mission as a residential campus but have its entire housing stock owned, operated, and managed privately. If a system or state wishes to make comparisons of available residential space among its institutions, many of which may own and manage such space directly, the inclusion of privately owned housing, particularly housing situated on campus property, makes sense.

6.5 Space Measurement Systems Compared

Chapter 3 of this manual provides specific definitions, boundaries, and measuring points for each of the critical types of areas to be measured. This section on commercial space measurement is provided for planners and facilities managers who find themselves renting space for institutional purposes from the commercial sector.

The approach to space measurement embodied in the FICM standard differs in several significant aspects from the common approach in commercial office buildings and architectural/ engineering and construction practice. Those differences can result in significant area differentials for

planners and managers trying to track and equitably distribute institutional space among competing educational and research activities. Significant financial differences also occur when determining the pro rata share of space dedicated to certain activities, not the least of which is research at those institutions that seek indirect cost recovery funds for their government-sponsored research activities. In general:

- Landlords leasing or renting space use space measurement mainly as a cost-recovery and income mechanism. They focus on all interior space, including that which is under interior walls and partitions, to maximize the leased or rented space, while ignoring vertical penetrations and exterior walls. They further prorate and allocate all shared or common areas (e.g., public lobbies, lavatories, and corridors) to all tenants in the form of a surcharge on space actually occupied by each tenant.

- Architects, engineers, and builders tend to measure buildings in terms of gross area that often include such items as light wells, overhangs without regard to their "drip areas" over otherwise smaller areas that they protect, exterior wall projections, and open areas in multifloor spaces. This is done to provide the building owner with the age-old design and construction industries' published measures of "project (or construction) cost per gross square foot." One factor that favors this approach is the recognition that the higher a ratio's denominator, the lower the result. In other words, the higher the gross area of a given building, the lower is the resulting project and construction cost per square foot.

- The FICM system is driven by a set of cost recovery factors unlike those of any other group mentioned above; as a result, it has some characteristics in common and some characteristics at variance with each of these approaches. Those commonalities and differences are discussed below.

- Commercial space measurement is a relatively obscure aspect of property and facilities management, but it plays a crucial role in how rental rates and space assignment records are set. There are several space measurement systems in use in North America. Many of them use identical or similar terms but interpret them in different ways. In several systems, language is not precise. All systems strive to ensure the utmost fairness to occupants and building owners, but their rules are quite complex, particularly if one system must be translated to another system. Readers contemplating the use of any particular system are encouraged to study its documentation extremely carefully, especially if it will be referenced in any legal or contractual documents. "Buyer beware" best characterizes a proper approach to this subject.

Six commercial space measurement systems are reviewed here. They are not the only systems used; there are several regional variations in use in major North American urban centers. The information presented here was written to assist readers in selecting, adapting, or translating space measurement systems. The six measurement systems studied are as follows:

- Building Owners and Managers Association (BOMA) – new standard

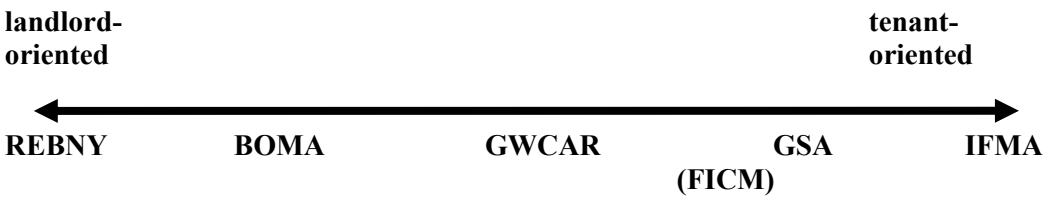
- Building Owners and Managers Association (BOMA) – old standard

- The Real Estate Board of New York (REBNY)

- Greater Washington Commercial Association of Realtors (GWCAR)
- General Services Administration (GSA) – former system
- International Facility Management Association (IFMA)

Some general **comments** about the overall characteristics of each system will help the reader understand the basic nature of each system. The six systems on a scale ranging from most landlord-oriented to most tenant-oriented are shown in figure 6-1.

Figure 6.1. Six commercial space measurement systems and the FICM on a scale from most landlord-oriented to most tenant-oriented



6.5.1 Landlord-Oriented Systems

Landlord-oriented systems are designed from the viewpoint of a property owner renting space to building tenants in the commercial real estate market. They tend to be organized "from the outside in," that is, they are sensitive to market and economic forces and to how property owners organize their charts of accounts and manage their operations. These systems reflect very little of the internal concerns of facilities managers with regard to their own end users. Some salient characteristics of the landlord-oriented systems are as follows:

- Rentable (billable) space comprises a large number of space categories.
- Space accounting and tracking are relatively simple for landlords but are not sensitive to internal churn (reconfiguration) rates of tenants.
- Tenants need to analyze leases very carefully to determine exactly how **billed** space reconciles to **physical** space used exclusively by the tenant.
- Measurements are relatively simple, but calculations of rentable area are becoming more complex as common area features and amenities increase.

6.5.2 Tenant-Oriented Systems

Tenant-oriented systems are designed "from the inside out." These systems are designed from the viewpoint of in-house corporate facilities managers who must be sensitive to the needs and desires of the corporation's internal clients, its end users, and the corporate culture in which they operate. Some salient characteristics of tenant-oriented systems are as follows:

- Rentable (billable) space in a building relates more closely to a tenant's individual quarters; more common areas are deducted from the billable total.
- Space accounting and tracking is more complex because (a) tenants vary considerably, (b) churn rates generate change to tenant space assignment records, and (c) the measurement systems contain more categories and subdivisions.
- Landlords who want to lease space to companies using tenant-oriented standards usually convert space measurements from their customary system to the tenant's system. There is little consistency or standardization, so such conversions may be problematic.
- Measurements may be more complex to obtain and record.

The authors of all six commercial systems discussed here have exercised care in the design and terminology used. However, there are problems of interpretation, and for each one, some subjects are not addressed. Before 1992, there was little attempt to compare the systems. Now, the trend is more toward reconciliation than standardization.

Finally, there is no legal constraint to use any of these systems. Landlords are free to use their own definitions, converting to a tenant's system only when requested to do so during lease negotiations.

6.5.3 Criteria Common to Most or All Six Systems

- Except for retail space, at least some of the area occupied by the exterior building wall construction is excluded from any other type of measurement.
- Mechanical equipment penthouses (unenclosed space) are excluded from any space billed to a tenant except for the REBNY method. The other five systems deduct vertical penetrations for duct shafts, major plumbing and electrical chases, elevator shafts, and public exit stairs. All such costs must be amortized in the basic rental rates charged by the landlord.
- The dominant portion of the inside face of the exterior wall is the anchor point for all systems, although each system differs on exactly where that point is located.

- **Core** or **loss** factors (the percentage of the billable area of each floor that is not part of the tenant's own space) are part of almost every lease negotiation. However, the factors are mentioned only briefly in two standards (REBNY and GWCAR). They are calculated in the new BOMA system but are not specifically mentioned.

- Private stairs, dumbwaiters, toilets, and kitchens are considered part of the rentable space.

6.5.4 Differences Between Commercial Measurement Systems, FICM, and Architectural/ Engineering/Construction (A/E/C) Practice

The measurement approach used in the FICM is, generally, more tenant-oriented than landlord-oriented.

- Like most landlord-oriented systems, FICM does not deduct interior columns and projections.

- Like the old GSA system, FICM measures physical space that is actually usable for a given activity or occupant. For example, FICM measures to the face of interior walls, unlike landlord-oriented systems, which attempt to recoup every interior square foot of area in the form of rent by measuring to the centerline of walls. The result is that the FICM approach results in a smaller square-foot area than typical landlord-oriented systems—often by as much as 10 percent.

- Similar to the above, FICM measures to the face of the exterior wall, or to the face of the front of a convector running along the floor in front of the exterior windows. Most landlord-oriented systems measure to the **dominant portion** of an exterior wall, usually to the glass line in modern buildings.

- "Construction area" is not ignored in FICM. It is measured by subtracting a floor's measured "gross area" from the floor's *net usable area*—the latter determined by the sum of the internally measured *net assignable area* and *nonassignable area*—each measurement term being specifically defined in FICM.

- Like most commercial systems, but unlike what architects and builders often do, FICM counts the area of multistory spaces (such as atriums, large lecture halls, etc.) only once. For example, a six-story atrium measuring 1,000 square feet on its lowest level would be counted as 1,000 square feet in FICM, but perhaps as much as 50 percent higher when accounted by an A/E.

6.5.5 Summary

The subject of space measurement continues to attract increased professional attention. Some groups are developing new approaches to space measurement for use in rough planning exercises,

such as strategic facilities inventory planning or the early stages of project planning. Others have developed software programs customized to automate the complex process of space measurement according to a particular system.

The development of a universal space measurement standard is uncertain. As we move increasingly toward emulation of commercial real estate practice in facilities management operations in the United States, the tenant-oriented space measurement systems are likely to either adapt themselves to landlord-oriented systems (as GSA has) or complement such systems (as the International Facilities Management Association does). However, multinational companies are more likely to experience the influence of efforts by bodies such as the ISO, which tend to be more tenant-oriented. No single measurement system covers every situation for every organization. As with any type of standard, some gray areas will always be present, requiring interpretation and judgment.