Allocation and Reallocation of Space: The Use of Standards and Utilization Measures

When circumstances result in newly available space or a need for more space, administrators must make difficult decisions about the reallocation of space. Situations that make space available include program termination or retrenchment; faculty retirement; gifts; and the rental, lease, or acquisition of new space. More frequent and more urgent are the situations that require more space. The need to upgrade facilities is one such pressing demand. Another is the recruitment of faculty and department chairs. New recruits, often more research-productive than outgoing faculty, may bring with them grants that create a need for more space. In order to provide enticements for new recruits, it is often necessary to reallocate from existing space assignments. Another situation resulting in a need for more space is any change in space usage—for example, increases in use of space for research because of changing priorities. A shift toward research often requires more total space, since usage standards for research are usually higher than for other functions.

Some of the most troubling questions of space management arise in connection with decisions about space allocation and reallocation: Are there generally accepted procedures for the fair assignment and reassignment of space? Are there any standards or numerical guidelines that can aid decision-making? How do they apply? Are there ways to assess how well space is being utilized? To validate allocation and reallocation decisions? Who should participate in such decisions? Before addressing these concerns, we need to clarify the terms to be used in the remainder of the chapter.

**Allocation** is a process that assigns space to an academic unit, either a department or a program. The process occurs in an "expanding space envelope"—i.e., it is a way of using newly available space (usually a new building or vacated space in an old building). Allocation does not involve taking space away from others. In making allocation decisions, administrators generally depend on institutional priorities and goals. They use priority reviews and standards to determine how much space is needed to accommodate the personnel and equipment for the desired activities.

**Reallocation** is a process that reassigns space from one academic unit to another. It occurs in a "closed space envelope," where expansion in one area can come only at the expense of another. Reallocation commonly occurs in a land-locked campus and in times of shifts in program direction. In making reallocation decisions, administrators need to determine not only who will receive space but also who will lose the space that is being...
reassigned. They need to decide how well currently assigned space is being used, who needs more space, and how much they need. The tools available to help answer these questions are utilization reviews, utilization measures, and standards.

**Standards** is a term with many meanings and interpretations. It often refers to design standards, used primarily by architects and engineers to regulate technical aspects of site design such as lot area, height limits, frontage, infrastructure, and floor area ratio. **Design standards** are numbers that relate space to technical and support considerations such as number of electrical outlets per lab, volume of air circulation per square foot, and so forth. In this chapter, the term "standards" will refer to allocation standards, which are not as rigidly determined as design standards.

**Allocation standards** relate space to people and activities in a specific and concrete way, and are used in making decisions about allocation and reallocation. They can be defined as the number of assignable square feet necessary per person (e.g., faculty, student, or staff) or per other defined unit, such as research grant or research dollars. The standards vary by type of occupant, type of space (e.g., labs, offices, classrooms, or libraries), function (e.g., research, teaching, administration, or patient care), academic discipline (e.g., clinical or basic sciences), and other factors.

**Guidelines** are more flexible and not as specific as standards. They are statements of general parameters to be considered or steps to be taken in the decision-making process. They can also represent a range of acceptable standards or measures that provide a baseline for allocation and reallocation.

**Utilization reviews** are routine systematic analyses that compare use of space to an institution's utilization goal. The goal is the limiting criterion of the utilization measure. Utilization reviews help administrators determine how productively and efficiently a department is using its assigned space.

**Utilization measures** are numerical assessments of space efficiency and productivity. For classrooms or class labs, utilization is generally measured in weekly student contact hours and percent occupancy. For research space these measures are more likely to evaluate productivity,
which may be determined by the number of grants and research dollars per square foot. The term "standard" is sometimes applied to a utilization measure. To avoid confusion in this chapter, the term "utilization measure"--rather than "standard"--will be used to refer to a measure of productivity or efficiency. Utilization measures can be further categorized as described below. Utilization reviews may involve all or any combination of these elements:

**Productivity Criteria**--a measure of results or benefits. For research space, these can measure research dollars per square foot, number of grants per department, amount of overhead recovery, and/or number of publications.

**Efficiency Criteria**--a measure that compares use and availability of space. These measures are usually applied to teaching space, in the form of weekly student contact hours and percent occupancy of classrooms and class labs.

**Priority Criteria**--a measure that ranks the use of different types of space by function and occupant. The determination of space needs must take into account institutional priorities and the people and activities that require space. The use of priority criteria is one way to assure that institutional goals are considered in the review process. For instance, the first-priority use of a nonclass lab would be research; using it solely as an office would be inappropriate. Adding a productivity factor, funded research would have priority over nonfunded research.

**National Criteria**--a comparative measure that ranks an institution against other institutions in the country in terms of whatever data are available, i.e., research dollars, research faculty, enrollment, etc. These comparisons are interesting, but they usually do not relate directly to problems of space management. They can, however, provide support for an institutional image and program direction that will encourage facilities development.

**Time Criteria**--a comparative measure that looks at forecasted growth compared to the past history of programs, departments, or other institutions. These measures provide a way to determine if space utilization policies have an effect over time.
Intuitive measures assess more aesthetic elements of space, such as appearance, location, and quality. This dimension is one of the factors that are not usually measured quantifiably but that do enter into the allocation/reallocation process. Intuitive factors are often very important in allocating space at multisite campuses.

A Context for the Use of Allocation Standards and Utilization Measures

Administrators who create and apply standards and utilization measures operate on a basic set of assumptions. They assume that there is an objective relationship between certain factors and the need for space, that standards and utilization measures provide a valid comparative gauge to assess need for and/or use of space, that the standards themselves represent a minimum level of quality and have been created objectively and applied fairly, that the standards and measures are in accordance with the institutional goals and mission, and that the institution will be able to meet the standards it has defined. If these implied assumptions are not met, the standards will not only be useless but may cause harm by creating unmet expectations or by being applied when they do not truly represent the correct and critical relationships.

Standards and utilization measures cannot be applied in a vacuum. The institution’s political environment exerts a major influence on the timing and feasibility of certain methods of space allocation and reallocation. Strong leadership and good communication are essential to the process. In particular, administrators applying standards and measures must keep in mind:

- Future trends in education and research. How these fit into institutional priorities will vary, but there should be an awareness of how these trends will affect needs for space. Tradeoffs between immediate needs and long-term needs should be evaluated.

- The broad institutional context. For instance, the degree of centralization of facilities affects space utilization. Decentralization, a fact of life at many multisite campuses, requires more redundancy in facilities and thus is likely to create less efficient utilization scores.
The campus's utilization plan. Utilization zones—which dedicate certain areas of the campus to activities such as research, teaching, or housing—can form real or implied boundaries to options for reallocation.

The relationship between space utilization and the institution's overhead rate. Because indirect cost recovery is based on the total amount of organized research space, it is desirable to have a large volume of research space. But utilization measures can punish departments for using too much space. These appear to be opposing forces. In actuality, though, if we assume continued growth in funding, the efficient and productive use of space may bring in more grants, each with additional indirect recovery.

The need for flexibility in the development and application of utilization measures. Excessive utilization (i.e., greater efficiency and productivity) may tax facilities to the point of counterproductivity and reduced cost-effectiveness. During times of program retrenchment, standards and measures should not be allowed to stifle new initiatives that may not be measurable by existing utilization measures. Standards and measures should be tools in the decision process, not dictators of space allocation.

What are the consequences of having no standards or utilization measures? Whether defined or not, standards are implied whenever space is assigned. If standards are not clearly defined and faculty do not feel that there is any method to decisions about space allocation and reallocation, there will be much dissatisfaction and contention between or within departments. Space is a valuable commodity, and the faculty need to know that careful thought and accurate information go into managing and planning for space. On the other hand, faculty may resist the idea of written standards and utilization measures because of legitimate concerns that productivity criteria measure quantity rather than quality of performance.
Who is Responsible for Decisions About Allocation and Reallocation?

At most medical schools associated with a university, the university maintains a space database and takes responsibility for general decisions about allocation and building. University- and/or state-mandated standards may apply to the allocation and building of space, and university or state utilization reviews may employ their own utilization measures. Such university reviews usually apply to educational and library space. Medical school administrators, however, typically find that their space needs—particularly for research—differ from those of the general campus. They become very involved therefore in the management, allocation, and planning of space.

The dean or vice-president for health affairs (depending on the institution’s organizational structure) should make decisions about space allocation and planning for the medical school. The setting and application of space standards is best accomplished at this level. This is also where utilization reviews and measures are initiated. The dean or vice-president must establish good communication with the university and/or the state to insure cooperation, compatibility, and the reduction of redundant effort.

Flexibility in the implementation of allocation standards allows for local decision-making. For example, even though the dean may make the general space allotment to a department, the department chair should be able to make specific faculty assignments. Contention can arise if there is a separation of decision-making authority and financial support; the decision-maker should have authority to draw on financial resources to implement the space allocation.

While the use of standards and utilization reviews must be supported at the highest organizational level possible in order to be effective, faculty must also accept the criteria and the review process. This is best accomplished through inviting faculty participation—for instance, on a standing space review committee—and through developing consensus on the fairness and objectivity of the standards.

There are a variety of ways to organize the tasks and responsibilities for allocation/reallocation decisions and utilization reviews. Any selected structure should provide the decision-maker with appropriate and valid data and should allow input from faculty. A committee structure may incorporate any or all of the functions described below:
Advisory Committee: a group of faculty and administrators, appointed by the dean or vice-president for health affairs, whose major task is to identify issues and concerns about space. The committee should represent basic and clinical sciences as well as educational and research interests, and probably should include an administrator. Its role is to alert the decision-maker to potential problems in dealing with space, such as demands associated with changing science, lack of faculty acceptance of standards, and conformance of the review process with perceived institutional goals. The committee may also propose allocation standards and utilization measures, or at least participate in the process.

An advisory group is probably the most common and perhaps the most workable type of space committee. Allocation decisions and their incumbent responsibility rest with one person (the dean or vice-president) but incorporate the opinions of the faculty. For this process to be effective, however, the faculty must believe that decision-makers will attend to their concerns.

Judiciary Committee: a group of faculty and administrators, appointed by the dean, whose major task is to review requests for space and make recommendations to the decision-maker. As with the advisory committee, membership should include research and educational interests as well as a mix of basic and clinical sciences. The judiciary committee uses existing standards and utilization reviews to evaluate requests. Members do not make actual allocation and reallocation decisions, but their recommendation carries much weight.

Executive Committee: a group of faculty and administrators, appointed by the dean, whose major task is to review and decide on requests for allocation and reallocation. This group should be composed in a similar fashion to the other two, but it has decision-making authority. This is not a typical arrangement and may have inherent problems of responsibility and accountability. Frequent changes in membership could be disruptive, and infrequent changes could create very powerful committee members.
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**Evaluation of Organizational Structure**

One of the most difficult aspects of developing an organizational structure is the assessment of how well it is working. If there are no major complaints about the space allocation process, administrators might assume that their structure is operating well. But neglecting to evaluate the process formally may hide underlying problems until a major incident occurs. Ideally, the organizational structure supporting space allocation and reallocation should be reviewed whenever there is a turnover in top management or every five years. This evaluation can be done by a specially-formed faculty committee, which might examine criteria including those listed below. Although not comprehensive or exhaustive, this list identifies some characteristics indicative of organizational health, particularly in the area of space management:

**Meaning and Role of the Organization:** An important success factor in any management structure is a clearcut definition of its inherent functions, responsibilities, and relationships. Is there internal agreement on the character and purpose of the organization? If there is much conflict over basic issues, the organization cannot perform adequately and may be in real danger. Is authority commensurate with the responsibilities of any management position? If not, the manager will not have the power necessary to get the job done.

**Communication:** Are the lines of authority and communication clear? Are all parties aware of and in agreement with who is responsible for the review of space allocation and utilization? Do they know how to initiate requests for space or for information about space? Do they know when and how decisions are made? Lack of communication or understanding of lines of authority can lead to confusion and resentment.

**Responsiveness:** Is the organization responsive to faculty concerns about space, to departmental requests for space, and to community concerns about building? Is there a process for grievance and feedback? Is there good coordination between operations and maintenance and the university architects and managers who implement reallocation decisions? How long does it take for renovations? What is the reason for delays in renovation? Do involved parties know these reasons? Absence of good answers to
these questions will cause the organization and its management structure to be perceived as unconcerned with important needs and will thus engender a lack of cooperation.

**Continuity of Policy:** Are the rationales for decisions constantly changing? Are decisions revoked or modified frequently? Arbitrary or unpredictable changes in policy will undermine decisions. Forces within the organization will want to move towards more stability.

**Stability of the Informal Structure:** Does the organizational structure threaten the informal ties of sentiment and self-interest? These ties are the day-to-day working relationships that sustain formal authority and widen communication. Upsetting the informal structure often will be met with considerable direct or indirect resistance.

**The Allocation and Reallocation Process**

The sequence of steps involved in the process of allocating and reallocating space may be summarized as follows:

1. **Identify Who Needs Space**

   Decision-makers can use institutional priorities to identify those needing space when they determine that institutional goals require the provision of more space to certain departments or programs. For example, a dean may plan to recruit new chairs with hopes of expanding research activity or establishing new multidisciplinary programs. Administrators can also use utilization reviews, which compare used space to allowable standards, to identify departments with substandard space as those that need more space.

2. **Determine How Much Space is Needed**

   Administrators can use standards to calculate the amount of square feet necessary to meet needs for space. If a department is 500 square feet below standard allowances for its nonclass labs, for example, it is identified as needing 500 square feet of lab space. If a new chair being recruited plans on bringing three new faculty and
$2 million dollars in additional grants, space needed will be calculated according to institutional standards for offices and nonclass labs.

3. Identify Available Space

In a nonexpanding environment, utilization reviews can determine who is not using their space to capacity. If the reviews reveal that some departments do not meet criteria for efficiency, productivity, or priority, this space may be available for reassignment. Usually the dean tells the chair that a certain amount of space (by type) will be lost, and the chair chooses the specific rooms to be reassigned.

In an expanding environment, new space is identified through site selection and the building process (see the chapter on construction and renovation). A discussion of special concerns surrounding the use of off-campus space appears in the chapter on multisite space management.

An important part of this step is finding space suited to the activity it will house. Space that is underutilized or misutilized may be reallocated to others in need, but extensive renovations may be necessary if the space is not of the appropriate type.

4. Decide Who Will Move

The general decision as to who will move can usually be made through the utilization review—which identifies departments that are underutilizing and productively using space—and by the application of institutional priorities. Specific individual and room reassignments are best left to department chairs.

5. Determine the Costs of the Move

Administrators managing the reassignment of space must consider the costs of renovation required to adapt space to new uses. They must keep in mind long-term needs to avoid, for example, spending large sums for lab renovation when in a few years more offices may be needed. Administrators may face additional costs when the available space is a considerable distance from the department that needs it. Sometimes it is worth planning a "domino move," which
involves moving more than the original parties in order to create contiguous space, but the costs of such a move must be identified and distributed.

6. **Manage the Move**

This aspect of the allocation or reallocation process requires working with architects and with operations and maintenance staff to design and support the renovations. All infrastructure issues must be resolved before a move is begun. Administrators must also provide for coordination in moving individuals and equipment and for any "domino" effects of moving to contiguous space, including the use of surge or swing space if available.

7. **Update the Space Inventory**

After all personnel are relocated, the space inventory must be revised. Updating is often done on a routine timetable, but a structured reallocation and renovation process can include a mechanism for immediate update as soon as the move takes place. Such a process assures current and accurate data.

**Standards and Utilization Measures**

Standards and utilization measures are usually created out of a need for better control of the allocation and uses of space. When times are good and the space resource is plentiful, there is not a great demand for standards. But when space is scarce and administrators need to manage it better, they try to find some objective means of evaluating space comparatively. Thus the development of standards often occurs under political and time pressures that require consensus and approval within a limited time. This scenario can be avoided by developing standards and management processes before a crisis occurs. During times of plenty, it may be too easy to make overcommitments that cannot be kept.

The development and use of allocation standards and utilization measures can be a critical part of the overall scheme of space planning and management. All other planning (e.g., master planning, financial planning, and decisions about renovation and construction) relies to some degree on
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utilization measures and allocation standards, whether these are explicit or implicit. It is important, therefore, to consider in some detail the processes of developing and applying standards and utilization measures.

Development of Standards

The development of standards requires an analysis of current in-house utilization: What are the de facto standards? Are there large variations from the average? What numbers are acceptable at the institution? It is often useful to review other institutions’ standards for space. The dean’s office staff or consultants can do this analysis, but it requires the authority and support of the dean or other individual responsible for allocation and reallocation of space.

Because there must be feedback from faculty and department chairs to test the acceptability and fairness of the standards, a committee structure is useful during the development stage and for periodic review of the standards and changing needs. The committee should represent research as well as teaching interests, but it is not wise to let it be controlled by powerful special interests.

In order to be effective, standards and utilization measures for medical school space should be

- Acceptable within any existing university and state frameworks. Standards developed purely as an academic exercise will probably not be used effectively.

- Perceived as fair by the faculty. Do the standards and measures support the institution’s goals? Are they fairly enforced across all departments? Problems can arise when standards or measures reveal unwarranted favoritism to certain departments or when standards for lower-priority functions (e.g., administration) are unjustifiably higher than those for priority functions (e.g., research and teaching).

- Designed to allow for flexibility under certain circumstances. For example, standards should contain provisions for programs or departments that are experiencing temporary difficulty but are an important part of the institution’s goals.
When space is used as a recruiting tool, standards may also be stretched for limited periods of time when this is in line with the institution’s mission.

Application of Standards and Utilization Measures

Once they are created, space standards can be used to plan for new space and to manage existing space through utilization reviews. A comprehensive allocation methodology uses standards to determine need and to validate allocation decisions. Examples of the application of space standards and utilization measures appear at the end of this chapter.

Utilization reviews can be done as often as the space inventory is updated. They should be done annually as a part of the routine departmental review process. An important factor to keep in mind when applying standards and measures is the timeliness of the data used for analysis. Institutional administrators often work with historical data, which means that allocations sometimes are based on what happened last year rather than what is expected next year. Accordingly, administrators are well-advised to use standards and utilization measures not as rigid rules but as guides in the decision-making process.

Review of Standards and Utilization Measures

Standards and utilization measures that have been established are hard to discard. Therefore, they should be reviewed periodically—especially in these times of changing technology and multiprogrammatic use of space. Reviewers need to ask: Do the standards and utilization measures reflect current institutional goals? Are they still acceptable to the faculty? Do they correspond with existing technology and the institution’s needs for infrastructure? Do some types of research require equipment that uses more space than usual or perhaps less than usual? With the proliferation of multiprogrammatic research, can more support space be shared through the use of core equipment and facilities or shared resources, or through the diminution of departmental boundaries?
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Resources Needed for Space Allocation and Reallocation

As previously discussed, the space allocation and reallocation process requires standards and utilization measures--tools that aid decision-making--and an effective organizational structure. Another important resource is adequate staff support. The dean's office (or other organizational entity responsible for space standards) should assign at least one or two people with responsibility for developing and/or applying standards through utilization reviews. This task does not necessarily require full-time dedication. It can be incorporated into the duties of the planning or facilities staff already in place at most institutions.

Institutions may also need outside help when developing a working system for allocation and reallocation. Consultants may be useful if total design of the utilization review or allocation methodology is needed, but in-house involvement in the process is important. Even if a system of utilization review is in place, administrators may require technical assistance from consultants or other university staff when, for example, developing data links between space information and other sources. Institutions often find it useful to assign a primary contact person to coordinate the work of an outside consultant. This contact person--a staff member knowledgeable in the relevant areas of data needs, academic concerns, and administrative systems--provides institutional data for analysis, reviews the consultant's responses to institutional concerns, and serves as the primary interface between institution and consultant.

Another major resource necessary to develop and implement standards is good data. An accurate and timely database that contains the relevant information is essential. As mentioned earlier, many schools have university support for the database function. The chapter on data management systems for space and facilities provides an in-depth discussion of data definitions, database structures, and staffing requirements. It is important to note here, however, that users should understand clearly what their data represents. Sometimes decision-makers (e.g., chairs, deans, and chancellors) use working definitions that are different from those prescribed by their databases. These individuals should know, for example, whether the total square footage of lab space includes support rooms, and whether "research space" includes offices used entirely for research as well as labs.
Last but not least, funds are needed for the moving expenses and possible renovations necessary to actualize reallocation.

**Special Concerns for Multidisciplinary Research Programs**

There continue to be significant opportunities for multidisciplinary approaches in science. Multidisciplinary research has an apparent edge in competition for funding, and there is a general belief that the use of shared equipment and core facilities can make multidisciplinary activities cost-effective. The many complex issues faced by administrators when dealing with multidisciplinary programs are beyond the scope of this book. We will consider briefly, however, the effect of these programs on the planning, management, and control of space.

In general, organizational structures and methods of space allocation must be flexible enough to respond to the dynamic nature of multidisciplinary programs. Multidisciplinary entities do not usually have a traditional administrative structure. They are often loosely organized, without department or program status. There are no tenure-line positions. Leadership comes from individuals who have responsibility to other organizational units. The purpose of the multidisciplinary program is to share resources, that are usually not integrated, in pursuit of a goal that will benefit from this new arrangement. This means that deployment of resources is out of the hands of traditional decision-makers (usually department chairs). Allocation decisions are usually made by the program director, but decisions on who pays and who determines the allotment to the multidisciplinary program vary according to the program's organizational structure.

Space can be assigned to a multidisciplinary program, if it has an organizational structure (e.g., cancer center), or to a department that will house the program. Space probably should be allocated to multidisciplinary programs on a short-term basis (e.g., for three to five years), and the space should be included in utilization reviews. To ensure productivity, some institutions set "destruct" dates on the allocation of this type of space. Multidisciplinary programs need to maintain academic and administrative flexibility in order to adapt quickly to changing needs. If a multidisciplinary program obtains permanent organizational stature, it will usually strive to maintain itself beyond defensible purposes and may thus outlive its usefulness in terms of its original mission.
The organizational options for multidisciplinary research units are outlined below.

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<tr>
<th>How structured?</th>
<th>Pros</th>
<th>Cons</th>
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<tr>
<td>Separate organizational entity (stand-alone)</td>
<td>Easier administrative channels. More direct control, management, responsibility. Easier to classify space in facilities database.</td>
<td>Loss of flexibility in restructuring to keep up with changing needs. Tendency to maintain life beyond original mission. Duplication of administrative staff and support.</td>
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<tr>
<td>Within departmental space</td>
<td>Reasonable administrative channels. Space remains in department and can be reassigned when funding is over or if mission changes.</td>
<td>Potential friction between chair and director. May cause cramping in remaining department space. If classified with departmental space, may be misleading in utilization reviews.</td>
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<tr>
<td>At level above department (report to deans or chancellors)</td>
<td>Space can be on loan from surge/swing pool and controlled by director, but can easily be reassigned when needed. Space might be classified under dean's office or under temporary organizational title. Good administrative channels.</td>
<td>Surge space is not always available and may not be located in contiguous configuration. Expensive to maintain large pools of surge space. Potential duplication of staff support for administration.</td>
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Administrators should have specific understandings about funds for multidisciplinary research space. This type of space usually depends directly on outside funding. When that dries up, the need for space can also disappear. Multidisciplinary research projects have done well in garnering external funding. But because this type of activity is not easily justified, hard funding (i.e., public and/or permanent endowment) tends to be either continually under attack, difficult to come by, or time-limited.
Institutional Examples

**EXAMPLES OF ORGANIZATIONAL STRUCTURE AND THE USE OF COMMITTEES**

<table>
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<tr>
<th>Institution</th>
<th>Description</th>
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<tr>
<td>University of Maryland School of Medicine</td>
<td>A standing committee appointed by the dean advises him on research space in the School of Medicine. The committee is composed of five senior faculty--two from the basic sciences, two from the clinical sciences, one basic science chair, and one clinical science chair. No more than one member per department is allowed. Members may not be reappointed, and each serves a staggered four-year term. (See abstract of &quot;School of Medicine Guidelines for Managing Research Space,&quot; page 173.)</td>
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<tr>
<td>Oregon Health Sciences University</td>
<td>The School of Medicine uses a peer-review process to conduct utilization reviews of research space. The Research Space Committee evaluates requests for new research space and assigns a priority rating to each room after an onsite inspection. The committee recommendations are submitted to the dean, who makes the decision. Most reallocations occur within departmental space and are reassigned by the department chair. (See abstract of &quot;School of Medicine Space Policy,&quot; page 180.)</td>
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<tr>
<td>University of Texas Health Science Center at San Antonio</td>
<td>The institution places responsibility for space allocation and reallocation in the hands of its Health Science Center Executive Committee. The committee deals with these parameters in assigning space: mission and goals of the various schools and departments, type and nature of extramural funding, and actual needs. (See abstract of &quot;Space Allocation Guidelines for Academic Departments,&quot; page 183.)</td>
</tr>
<tr>
<td>University of Vermont College of Medicine</td>
<td>The College of Medicine used a Space Review Committee to aid in the definition of space issues and development of standards. Committee members' judgements on minimal space requirements and their opinions on areas of concern—such as a need to identify misused or underutilized space—were considered. Staff developed the standards and review mechanisms and provided a forum for reaction. Using the approved methodology of an annual priority utilization review of space, the dean became responsible for allocation and reallocation decisions. (See abstract of &quot;Space Management at the University of Vermont College of Medicine,&quot; page 185.)</td>
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SAMPLE ALLOCATION STANDARDS/GUIDELINES

I. Research Space

| University of Cincinnati College of Medicine | Model assumes wet laboratory space needs of 900 to 1,220 assignable square feet (asf) per principal investigator (PI)-level faculty and 780 asf-900 asf for other faculty, 50 asf-100 asf per professional researcher, and 20 asf-50 asf per lab worker and graduate student. Dry laboratory space is planned using standards of 600 asf-820 asf for PI-equivalent faculty, 580-650 for other faculty, 50-100 for professional researcher, and 20-30 for lab workers and graduate students. Provision for support space, e.g., cold rooms and equipment rooms, is included in these ranges. However, in addition, 20 asf-50 asf per PI-equivalent faculty is allocated for shared laboratory support space. In this guideline methodology, the planner can enter numbers for people and dollars and the model will project a range of different types of space needed. (See abstract, page 170.) |
| University of Maryland School of Medicine | Wet laboratory space needs are calculated at 120 asf for each FTE of faculty, fellows, post docs, graduate students, and technicians, with a 25-percent additional increment for laboratory service space. Total laboratory space is rounded up to 440 asf modules. |
| McMaster University Faculty of Health Sciences | Faculty holding research grants are allocated 250 asf for wet laboratory research. Other occupants and faculty without grants, research assistants or associates, postdoctoral fellows, graduate students, and technicians each may be assigned research space of 125 asf. (See abstract, page 188.) |
| University of Minnesota | A guideline of 220 asf per researcher is used for most medical school departments. (See abstract, page 175.) |

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1 This model was developed by administrators at the University of California, San Francisco, in collaboration with a number of other institutions.
Space planning guidelines are designed to estimate total department research laboratory and laboratory support space requirements using space allowances by HEGIS discipline. For the College of Medicine, 300 asf is used for each FTE faculty, staff, fellow, and graduate student. For other health science colleges, 10 asf-300 asf is used, depending on the HEGIS discipline and the type of faculty and graduate students. (See abstracts, pages 178-179.)

Two research modules, or 550 asf, are provided to unit chairs for each state-funded, FTE faculty. The availability of outside research funds qualifies the unit for additional space at the rate of one module, or 225 asf, per $25,000 in grant-related, direct research costs. (See abstract, page 171.)

A laboratory module of 300 asf is allocated for each $40,000 of research funding (wet research). The dollar figure represents direct costs only and excludes faculty salary support. Bonus space is awarded to departments on the basis of number of FTE faculty involved in research according to formula, from 12.5 percent for less than 25 FTE to 50 percent for greater than 75. Fellows and graduate students requiring laboratory work for their degree are allocated 100 asf each. For other grants and contracts involving dry research, one 300 asf module, the equivalent of three offices, is allocated for every $100,000 of research funding. (See abstract, page 183.)

Laboratory space guidelines are 500 asf plus 100 asf support space per basic science FTE faculty, and 250 asf plus 100 asf support space per clinical FTE faculty.

Estimates of laboratory and laboratory support space needs are based on a formula that, for most of the basic sciences, assigns 484 asf per FTE faculty and 242 asf per non-faculty researcher and FTE graduate student. The standards vary according to discipline. (See abstracts, pages 189-190.)

Research space to support "strong" grants is generally allocated according to the guideline of four space units or 400 asf. The strength of a grant is defined by the level of salary support and indirect cost recovery. "Weak" grants may be allocated just two units or 200 asf. Support and service space is in addition and is allocated at 30 percent of assigned space. (See abstract, page 185.)
## II. Office Space

| Health Sciences Space Planning Model | Guideline of 140 asf-190 asf per FTE faculty includes space for conference rooms, library, and office equipment. (See abstract, page 170.) |
| University of Cincinnati College of Medicine | Office space is allocated as follows: chair--200 asf; division head--140 asf; faculty--110 asf; senior administrative staff--120 asf; administrative staff--60 asf; chief resident--90 asf; fellow/postdoc--60 asf. Support space is allocated as follows: conference/library--140 asf + 18 asf per FTE faculty greater than five; workroom space--100 asf for less than 10 FTE faculty, to 200 asf for greater than 20 FTE faculty; computer room--80 asf per five or greater FTE faculty; audiovisual/storage room--30 asf per department; waiting/reception--80 asf for less than 11 FTE faculty, to 160 asf for greater than 20 FTE faculty. |
| University of Minnesota | Each FTE faculty and staff is allotted 120 asf, plus 30 asf support space, per office. (See abstract, page 175.) |
| Southern Illinois University School of Medicine, Carbondale | Unit chairs are allotted one office module (approximately 100 asf) per state-supported FTE faculty or staff, two office modules (approximately 200 asf) for the unit administrator, and two office modules for support purposes. (See abstract, page 171.) |
| Texas Tech University Health Sciences Center | Office space is assigned as follows: chair/director--187.5 asf, faculty/professional staff--125 asf, secretary/clerical--80 asf + 40 asf for files, department-level administrative assistant--125 asf. Students and residents are assigned space at four per 125 asf room. Department conference/library space is assigned 200 asf minimum, waiting areas 15 asf-20 asf per seat. |

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2 This model was developed by administrators at the University of California, San Francisco, in collaboration with a number of other institutions.
Space is calculated in terms of 100 asf modules. The chair is assigned two modules; faculty and staff one module each; conference/library four modules; and storage, filing, and office equipment two modules.

Larger departments receive additional space for administrative needs on a sliding scale that ranges from 300 asf for a department with five to nine faculty, to 4,500 asf for a department with more than 90 faculty. (See abstract, page 183.)

The formula for faculty offices is: \#FTE faculty \times 1.15 \times 140 \text{ asf.} (The 15-percent increase allows for cross-appointments, visitors, etc., not represented in FTE count.) Standard faculty offices are 129 asf. The remaining asf in the formula becomes part of a pool for offices that are required to be larger than standard, e.g., for department chairs.

The formula for nonacademic staff is the same without the 15 percent increment. The staff count does not include lab technicians or library staff.

Graduate student needs are calculated similarly using a standard of 43 asf.

Office support space needs are calculated as 30 percent of the total office space requirements of faculty, staff, and graduate students. (See abstracts, pages 189-190.)

Office space is allocated as follows: chair--150 asf; faculty/staff--100 asf; graduate student--50 asf.

Support space is allocated at 12 asf per office, with 200 asf per department for administrative core space. (See abstract, page 185.)

III. Instructional Space

The general guideline used for instructional space is 50 asf per student plus 25 asf for students engaged in clinical activities.

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3 This model was developed by administrators at the University of California, San Francisco, in collaboration with a number of other institutions.
For classrooms, the standard is 16 asf per FTE student. Room utilization goals are set at 60-percent occupancy for 30 hours per week, or 18 weekly student contact hours (WSCH). The ratio of asf to WSCH therefore is .89. Class labs are set at 40 asf per station, with room utilization goals of 20 hours per week, 80 percent occupancy (asf/WSCH = 2.5).

Space planning guideline for classroom space is 15 asf per FTE student, with room use of 30 hours per week at 62.5% occupancy (asf/WSCH = .80). For lecture halls, space is 12 asf per FTE student, with room use of 30 hours per week at 65% occupancy (asf/WSCH = .615). For seminar rooms, space is 20 asf per FTE student, with room use of 30 hours per week at 62.5% occupancy (asf/WSCH = 1.067). For class labs, the range is 65-120 asf per station, with utilization goals of 22.5 hours per week at 80% occupancy (asf/WSCH = 3.6-6.6).

Total classroom and instructional lab space needs are estimated at 72 asf per student (based on a fall headcount).

For classrooms, the standard is 15 asf per station, with room utilization goals of 25 to 30 hours per week at 62 percent to 74 percent occupancy (asf/WSCH = .81). For class labs, the calculation is essentially the same with two exceptions: (1) the average station size varies with different academic program groups, and (2) weekly student contact hours are used as the input measure instead of FTE students. (See abstract, page 190.)

Classroom space is planned at 12 asf per FTE student, 35 asf per first-year student. Class labs for first-year students allow 70 asf per student.
IV. Library Space

University of Minnesota

Library space requirements are the total of requirements for reading/study space, stack space, and service space, including processing rooms, reference space, and administrative offices. The average reading-station size is 30 asf. The number of stations required is arrived at by adding 20 percent of FTE students and 10 percent of regular faculty. Stack space is assessed at 12 volumes per asf for central stacks and 10 volumes for satellite stacks. The service requirement is estimated at 20 percent of reading/study and stack space.

University of Oklahoma Health Sciences Center

Library space requirements are determined using a formula similar to that used at the University of Minnesota, with the following exceptions: 1) the number of reading/study stations is determined by adding 30 percent FTE student to 10 percent FTE faculty; 2) stack space is determined uniformly at 10 volumes per asf; and 3) the service space requirement is 25 percent of the reading/study and stack space.

University of Toronto Faculty of Medicine

Reading/study space requirements are estimated at 5.3 asf per FTE undergraduate student, 10.7 asf per FTE professional undergraduate student, and 7.5 asf per FTE graduate student. Stack space needs are determined by a sliding scale formula that allows for .04 asf-.07 asf per volume. Service requirements are set at 25 percent of reading/study and stack space.
SAMPLE UTILIZATION MEASURES
AND UTILIZATION REVIEWS

Oregon Health Sciences University

The School of Medicine uses a peer review process to conduct utilization reviews of research space. A research space committee evaluates requests for new research space and assigns a priority rating to each room after an onsite inspection. The criteria used for research productivity are number of quality publications and continuing financial support. The committee recommendations are submitted to the dean, who makes the decision. Most reallocations occur within departmental space and are reassigned by the department chair. Core space is not subject to reallocation and includes offices for faculty and administration, department conference rooms and libraries, and space for residents, postdoctorates, and graduate students. Any rooms fitted for research and used as offices, however, will be critically reviewed. (See abstract, page 180.)

University of Pennsylvania School of Medicine

The School of Medicine uses a research productivity measure as a tool in reassigning space. The measure is total peer-reviewed research dollars divided by total department research space ($/asf). The acceptable productivity criterion for the ratio is 50 percent of the institutional mean. Space may be taken from a department with a lower ratio. (See abstract, page 181.)

Southern Illinois University School of Medicine, Carbondale

The School of Medicine uses utilization priorities. The categories of space are instructional (classrooms, etc.), research (nonclass labs, etc.), and offices. Priorities in rank order for research space are graduate instruction, sponsored research, unsponsored new research, unsponsored old research, and other uses. (See abstract, page 171.)

University of Texas Health Science Center at San Antonio

Research space utilization and allocation are determined by a dollar measure. Direct costs minus faculty salary support is the total dollar amount used. A wet lab module of 300 asf is allocated for each $40,000 of funding. Dry labs are allocated at 300 square feet per $100,000. There are bonus incentives for departments with higher percentages of wet researchers. Overall, a figure of 12,000 asf of research lab space (including essential support space) is recommended per million dollars of research expenditures. (See abstract, page 183.)
College of Medicine standards are incorporated into a structured method of priority utilization review, which categorizes use of different room types into priority categories. For instance, office space is used by different people; the priority category for faculty will be higher than the priority for graduate students. For nonclass labs, the priority for peer-reviewed and externally-funded research with high overhead recovery is greater than the priority for internally-funded associates research with no overhead recovery. The lowest priority for lab space is old (more than three years) nonfunded research, except for new faculty, who are allowed four units of lab space for three years without funding. (See abstract, page 185.)

An interactive computerized space profile system monitors faculty activity and its relationship to space. A profile of space utilization (number of personnel by title, amount of funding, and assigned square feet) is determined for each faculty member and for each academic unit. (See abstract, page 187.)

A Resource Allocation Model (RAM) analyzes departmental requests for additional space as well as requests for general fund allotments. The model also assists in the analysis of departments for the purpose of recruiting department chairs. The method, an example of a mathematical and deterministic model, integrates financial, space, and personnel data in ratios that are used to measure effective utilization of resources. (See abstract, page 177.)
Additional Sources of Information


2. In 1985, the Council of Educational Facility Planners, International, published *Space Planning Guidelines for Institutions of Higher Education*, "to be used as aids in determining space needs for an institution's organizational units and group of units for the allocation and reallocation of existing space and/or the acquisition and construction of new space." The document includes guidelines for classrooms, teaching and research laboratories (excludes medicine), offices, libraries, recreational/physical education/athletics facilities, audiovisual/television facilities, animal quarters, and general-use facilities. Health professions disciplines included are nursing, dentistry, optometry, pharmacy, and veterinary medicine. Contact Council of Educational Facility Planners, International, 941 Chatham Lane, Suite 217, Columbus, Ohio, 43221, (614) 442-1811.

3. A detailed description of standards is available in a handbook for space developed at the University of Minnesota. Although it does not focus on medical schools, it provides a good example of standards development and presents a systematic method for evaluating need, condition, and use of space for individual disciplines. It also addresses issues of quality of space and provides standards for research, teaching, and library space. (See abstract of "Minnesota Facilities Model," page 175.)

4. The University of Texas System has developed general rules and standards for evaluating the space needs of the state’s health sciences institutions. Texas undertook a national survey of similarly structured institutions while developing their standards. (See abstract of "Final Report of Standards Committee," page 182.)
5. Readers interested in space allocation at multidisciplinary centers may wish to consult the University of Michigan Cancer Center's "Guidelines for Space Allocation and Review." For a copy, contact Horace Bomar, director, facilities management and planning, University of Michigan, 1150 West Medical Center Drive, 1590 MSRB II, Ann Arbor, Michigan 48109-0670. Telephone (313) 747-2788.

6. Readers interested in library space may wish to consult the volume Annual Statistics of Medical School Libraries in the United States and Canada 1988-89, published by the Association of Academic Health Sciences Library Directors. Tables rank academic medical center libraries by total square feet per academic client, by total net assignable square feet, and by amount of seating for study.

7. Georgetown University Medical Center has recently completed the second edition of a document that catalogues space needs and deficiencies and identifies spaces that could be put to alternative use. Readers interested in an example of a space needs analysis may wish to contact John L. Greenbaum, associate vice-president for the health sciences and chief operations officer, Georgetown University Medical Center, Washington, D.C. 20007-2197. Telephone (202) 687-4600.

8. The following bibliography may also be of interest:


