

DEPARTMENT OF HIGHER EDUCATION SPACE UTILIZATION PLANNING GUIDELINES April 5, 2007

Part 1 Statutory Authority

Statutory Authority C.R.S. 23-1-106, et. seq., establishes the duties and powers of the Commission with respect to capital construction and long-range planning. C.R.S. 23-1-106(2)(3) gives the Department of Higher Education (DHE) authority to prescribe uniform policies, procedures, and standards of space utilization and to review and approve master planning and program planning for all higher education capital construction projects on state-owned or state-controlled land. Given this authority, these guidelines establish criteria for space utilization for academic space to assist in required higher education facilities planning including program planning master planning.

Space utilization criteria are viewed as guidelines against which program plans for new capital construction, renovation and remodeling plans can be measured. The criteria are intended to be guidelines and do not reflect a standard that if unmet results in automatic denial of a program plan.

Part 2 Facilities Planning Criteria Overview

The planning criteria recognize the uniqueness of each institution of higher education and are not intended for inter-institutional comparisons but to allow for legitimate differences which recognize each institution's unique role and mission.

The guidelines delineate generally agreed upon criteria for facilities planning. Guidelines have been based on historical (DHE) space utilization requirements, recommended higher education space planning guidelines from the Council of Educational Facility Planners (CEFPI) and input from professional facilities planners in Colorado. Currently, these guidelines focus on classroom, laboratory, office and student services space along with building efficiency factors. Generally, this omits many of the types of space used by institutions. DHE recommends classifying space types according to the "Postsecondary Education Facilities Inventory and Classification Manual" (November 1992, U.S. Department of Education). Additionally, as guidelines for spaces not clarified within this document, DHE recommends using "Space Planning for Institutions of Higher Education" (2006, Council of Educational Facility Planners International). Contact information and guidelines are available at <http://www.cefpi.org/>.

These guidelines represent criteria which allow flexibility in institutional application. Adequate opportunity exists in the facilities program planning process for refinement and justification of deviations from the guidelines. As guidelines, they provide a basis for the DHE's evaluation of space requirements, recognizing that space needs of institutions are affected by many variables of program, instructional method, functions to be served, modes of operation, and other factors important to the differences in institutional role and mission.

In evaluating proposals for renovation of existing facilities, the Department will take into consideration that older buildings may not readily conform to these guidelines, because of original function and/or outdated facilities planning and use criteria applied in the original construction.

Part 3 Space Utilization Guidelines

Enrollments

Enrollment figures will be based on specific campus data reported to DHE in regular reporting of full-time equivalent student enrollment reports.

Utilization Criteria for Instructional Spaces

Components of utilization for instructional spaces include room use and station occupancy. Room use refers to the number of hours a room is in use or planned for use of scheduled classes. Student station occupancy rate refers to the percentage of seats (stations) occupied or planned for occupancy during scheduled classes.

For the purpose of establishing guidelines, room use should be calculated based on a 45-hour week, Monday through Friday from 8:00am to 5:00pm. Needed classroom facilities should normally be based on day FTE students since students enrolled in the evening may be accommodated in facilities required for the daytime program. Given this, the Department acknowledges that a 45-hour week will not suit every institution and differing room use assumptions can be made to accommodate space planning needs. For example, Health Sciences and professional schools typically only schedule morning classes to allow for clinical work in the afternoon. In this case classes can be used from 8:00am to 1:00pm, or a 25-hour week. Additionally, it may make more sense for certain institutions to apply room use assumptions based on evening classes for 5:00pm to 11:00pm, resulting in a 24-hour week. Or, if an institution schedules a significant amount of both day and evening classes, a 69-hour week (8:00am to 11:00pm) can be used.

The station occupancy rate is affected by the match between classroom capacities and class sizes. Large institutions may achieve higher occupancy rates than smaller institutions due to a wider range of classroom capacities and class sizes. Certain academic programs may also achieve higher occupancy rates because of fixed entry enrollment and restricted course offerings. This is typically seen in health science and professional schools.

Given the variety of higher education institution types, sizes and academic programs offered in Colorado, it is acknowledged that variance from these guidelines will exist at different institutions and particularly between different academic programs. The following

guidelines serve as a baseline or, overall average, primarily for academic space. Program plans and master plans submitted to DHE should articulate space utilization in the terms set forth by these guidelines and show how proposed additional or reconfigured academic space will affect overall space utilization in terms of classroom or laboratory space.

It has generally been the policy of the Capital Development Committee and the Colorado General Assembly to fund academic space with General Fund dollars or Capital Construction Funds Exempt (CCFE). These guidelines will help better inform the Colorado Commission on Higher Education and the Colorado General Assembly on how Colorado institutions of higher education are utilizing current and planned academic space.

Classroom and Classroom Service Space

Included in this category of space are rooms and auditoriums capable of accommodating lecture or discussion type classes, seminars, or meetings. Also included is accompanying service space such as storage rooms.

The DHE employs an overall guideline for classrooms and related service space which is based on an acceptable level of utilization of rooms and of the seating capacity (student stations) of rooms, and on an assumed average amount of space per student station. The guideline which DHE uses is 1.00 assignable square feet (ASF) per student-station-period occupied (SSPO). A student-station-period is one student seated in a classroom chair for one hour. The guideline assumes an average of 20 assignable square feet per student station (including service space).

The guideline assumes that classrooms will be utilized an average of 30 hours per week and will be filled to 67 percent capacity during the hours they are used. Also, the guideline assumes an average of 20 ASF per student station (including service space), although station size will vary by room type and furniture size.

To illustrate the application of the guideline, assume that an institution has available only one classroom and 100 student stations. If the institution uses the room 30 hours per week and fills it to 67 percent capacity, the room would total 2,010 student-station-periods of occupancy (SSPO) per week. Given the DHE 1.0 ASF per SSPO guideline 2,010 ASF of classroom space would be appropriate for accommodating 100 student stations.

$$100 \text{ student stations} * 30 \text{ hours per week} * 0.67 \text{ capacity} = 2,010 \text{ SSPO}$$

$$2,010 \text{ ASF} / 2,010 \text{ SSPO} = 1.0 \text{ ASF/SSPO}$$

The above-referenced guideline is used by DHE for purposes of making general projections of space requirements on a statewide basis. This guideline should not be followed literally in the process of accomplishing detailed institutional master and program planning. Deviations beyond the guideline can be made insofar as specific projects are concerned so long as campus-wide data are available indicating the campus progress toward meeting the facility utilization goal.

Unconventional classrooms, including computer-aided classrooms, designed to accommodate specific teaching modalities, may justify space in addition to the guidelines. The amount of additional space must be based upon an analysis of teaching methods and classroom equipment types and uses and include relevant justification.

Instructional Laboratory and Related Service Space

Included in this category of space are regularly scheduled laboratories which are organized and equipped for special types of instruction and which are not readily adaptable to general use. Also included is accompanying service space such as storage rooms.

It is expected that instructional laboratories will be used at least an average of 30 hours per week and that they will be filled to at least 80 percent of capacity during the hours they are used. Laboratories in other areas should be planned for an average use of at least 20 hours per week at 80 percent capacity. Individual laboratories might be planned for more or less utilization depending on factors such as the amount of make-up or preparatory time which is required. The guideline of 20 or 30 hours per week room use and 80 per cent station occupancy is based on daytime use as explained for classrooms. The number of ASF/SSPO per week and station sizes for laboratory space can vary greatly based on discipline. Given this variation, program plans should present the academic requirements necessitating planned station sizes including room layout sketches. If an institution would like additional guidance on laboratory space planning by discipline, please contact DHE capital assets staff or industry resources such as CEFPI (www.cefpi.org) or Tradeline (www.tradelineinc.com).

Office Sizes

Program plans requesting new or remodeled space for administrative purposes should include information on the administrative space on the campus and to what use the space is dedicated. The program plan data should reflect all current projects under construction or renovation that include administrative space.

The following table reflects general recommendations for the ASF for specific positions and staffing categories. Job titles and the actual functions that are performed are subject to institutional variations. Workstations should be provided for people who need them based on their function at the institution.

Position/Category	ASF
<i>President</i>	300
<i>Vice-President/Dean</i>	250
<i>Departmental Chair/Manager</i>	200
<i>Faculty</i>	120-160
<i>Supervisor</i>	120-160
<i>Professional/Non-Faculty</i>	120-160
<i>Technical/ Paraprofessional</i>	100-140
<i>Clerical/Secretarial</i>	75-140
<i>Graduate Students</i>	40-80

Building Efficiency Factors (New Construction)

In order to convert assignable square feet (ASF) for all major building types into gross square feet (GSF) the following ratios are considered appropriate. It is recognized that ratios are somewhat dependent upon such influencing elements as building size and definitive statements of functions to be housed. The following factors are guidelines considered to be achievable for more or less normal building configurations. The ratio of ASF to GSF is expressed as a percent and indicates the efficiency of the building. By dividing the ASF computed for a particular building by the ratio for that building type, the GSF required can be determined.

Building Type	Ratio: ASF to GSF
Office Building	58-68%
Classroom Building	58-68%
Classroom/Office Building	58-68%
HPER Building with gymnasium, classrooms, and service space	75-85%
HPER Building with gymnasium, classrooms, service space, swimming pool, and handball courts	70-80%
Hospital or Infirmary	53-63%
Engineering Building	52-62%
Instructional Shop Building	70-80%
Library Building	65-75%
Fine Arts Building	62-72%
Science Building	58-68%
Physical Plant Service Building	80-90%
Student Union	65-75%