

## R741A.1 Definitions

- 1.1. **"Assignable Area"** is the sum of the areas in all rooms that can be used by the building occupants to conduct their responsibilities.
- 1.2. **"Gross Area"** is the sum of all floor areas of a building based on exterior dimensions.
- 1.3. **"Non-assignable Area"** is the sum of the circulation, custodial, mechanical and structural areas or the difference between gross and assignable area.
- 1.4. **"Prioritization"** is the determination as to which projects are most important to do.

## R741A-2. Analysis

2.1. **Step 1: Assemble an Inventory of Institutional Space by Room Type:** Each institution annually prepares and submits a complete inventory of campus physical facilities space by room type. The relationship between types of space on institutional campuses is as follows:

2.1.1. **Types of Space:** The relationship between types of space on institutional campuses is that the gross area (the sum of all floor areas of a building based on exterior dimensions) is made up of two parts: (1) the assignable area (the sum of the areas in all rooms that can be used by the building occupants to conduct their responsibilities, such as classrooms, laboratories, offices, and certain unclassified spaces), plus the (2) non-assignable area (the sum of the circulation, custodial, mechanical and structural areas.) Note: The inventory required by this procedure will be concerned with assignable areas located in campus facilities.

2.1.2. **Categories of Space or "Room Types":** Categories of space, called "room types," for which assignable square feet inventories are submitted include those defined below. For a complete definition and description of these sorts of rooms, see the Revised 1992 Higher Education Facilities Inventory and Classification Manual, published by the National Center for Education Statistics. Institutions shall determine and report total assignable square feet at the institution using the twelve categories of room types listed below.

- a. Classroom Facilities (Room Type Codes 110 and 115):
- b. Laboratory Facilities (Room Type Codes 210, 215, 220, and 225):
- c. Research Laboratories (Room Type Codes 250 and 255):
- d. Office and Conference Space (Room Type Codes 310, 315, 350 and 355):
- e. Study Facilities (Room Type Codes 410, 420, 430, 440 and 455):
- f. Physical Education Facilities (Room Type Codes 520, 523, and 525):
- g. Special Use Facilities (Room Type Codes 510, 515, 530, 535, 540, 545, 550, 555, 560, 570, 575, 580, 585 and 590):
- h. General Use Facilities (Room Type Codes 600 to 699)
- i. Support Facilities (Room Type Codes 700 to 799)
- j. Health Care Facilities (Room Type Codes 800 to 899)

- k. Residential Facilities (Room Type Codes 900 to 999)
- l. All Other Room Type Codes including unclassified, non-assignable, and structural areas.

**2.2. Step 2: Determine Square Feet in Projects Already Approved for Planning or Funded for Construction but not yet Operational (and Other Changes to the Inventory Based on the Proposed Construction Projects):**

**2.2.1. Space to Be Added:** The primary purpose of this step is to incorporate into the inventory an accounting of space which will be added, remodeled or renovated in the future and for which funds have already been specifically allocated.

**2.2.2. Space to Be Demolished:** A second aspect of this step is to provide information on the assignable square feet of campus facilities which are scheduled for demolition either currently or as a part of the proposed construction projects.

**2.2.3. Complete Inventory:** Thus, in order for the Commissioner's Office to have a complete facilities inventory, each institution provides a description of each funded capital facilities project, indicating when such projects will become operational and the amount of space these projects will add to the inventory or the amount of space to be renovated or remodeled in the project. The same information is needed for those campus facilities which are slated for demolition and removal from the inventory. As is the case with the annually submitted inventory, the information is to be provided for those room types and functions specified in the previous step.

**2.3. Step 3: Develop and Adopt Space Factors and Standards:** Space factors and standards for each room type are used in combination with enrollment projections to calculate space requirements for future years, as described later in step 5. This section presents the planning standards and guidelines used in the calculation process. The space standards to be used for each room type are described as follows:

**2.3.1. Standards for Classroom Facilities (Room type codes 110 and 115):** Form of the standard: Assignable square feet (ASF) of classroom facilities per full-time equivalent (FTE) student, which consists of two components:

- a. Assignable square feet (ASF) per weekly student contact hour (WSCH) in classrooms. ["Weekly student contact hours" (WSCH) are synonymous with "weekly student hours" (WSH) and "student contact hours" (SCH)];
- b. Weekly student contact hours (WSCH) in classrooms per full time equivalent (FTE) student.

**2.3.1.1. Classroom Utilization Standards Table:** The following table includes classroom utilization standards adopted by the Division of Facilities, Construction and Management and the State Building Board, utilization standards considered among the most stringent in the nation to achieve. The standards call for 75 percent scheduling of all classrooms during a 45-hour week, with a two-thirds station occupancy rate. They use a WSCH/FTE factor based on institutional type developed among the nine System institutions and the Commissioner's Office.

Type of Institution	ASF/N	RUR	SOR	WSCH/FTE
Research University	18.0	33.75	.667	12.5

Baccalaureate/Masters Degree Granting	18.75	33.75	.667	13.0
Community College	19.5	33.75	.667	13.5

**2.3.1.2. Formulas:** The factors displayed in the table are then used in the following formulas. The first equation (1) is used to determine assignable square feet per weekly student contact hour for classroom space. ASF/WSCH describes a mathematical relationship between space allowed for each station (assignable square feet per station, ASF/N), the usage of rooms (room utilization rate, RUR, defined as the number of hours per week a room is scheduled for use), and occupancy (station occupancy ratio, SOR, defined as the proportion of stations used when the room is scheduled for use). The second equation (2) converts the results of the first equation to total assignable square feet of classroom space required:

- a.  $ASF/WSCH = (ASF/N)/[(RUR)*(SOR)]$
- b.  $ASF = (ASF/WSCH) * (WSCH/FTE) * (\text{Number of FTE Students})$

Note that the equations are based on inventory and enrollment information gathered during the fall term at each institution, i.e., the third week enrollment report for fall term and an institutional space inventory reported and predicted for the same period of time.

**2.3.2. Standards for Laboratories (Room Type Codes 210, 215, 220 and 225):** Form of the Standard: Assignable Square Feet of laboratory facilities (Code 210, 215, 220, and 225) per Full Time Equivalent Student, which consists of two components:

- a. Assignable square feet (ASF) per weekly student contact hour (WSCH) in laboratory facilities, and
- b. Weekly student contact hours in laboratories per full time equivalent student.

**2.3.2.1. Space Utilization Standards:** As was the case with classroom space and for the same reasons, space utilization standards have been established for laboratories as follows:

- a. Assignable square feet per station (ASF/N).
- b. Room utilization rate (defined as the number of hours per week a class laboratory is scheduled for use - RUR).
- c. Station occupancy ratio (defined as the proportion of stations used when the class laboratory is scheduled for use - SOR).
- d. Weekly student contact hours in class and open laboratories per full time equivalent student.

**2.3.2.2. Table of Space Utilization Standards:** The standards call for 50 percent scheduling of all class labs during a 45-hour week, with a station utilization rate of 80 percent. The values of the standards and guidelines for class laboratory space are:

Type of Institution	ASF/N	RUR	SOR	WSCH/FTE
Research University	65	22.5	.80	4.5
Baccalaureate/Masters Degree Granting	65	22.5	.80	5.0
Community College	65	22.5	.80	6.0

In addition to the above standards and coefficients, a vocational education adjustment factor was added to account for differences in institutional roles and missions, as follows: U of U, 1.10; USU and WSU, 1.25; SUU, 1.35; and community colleges, 1.5.

**2.3.2.3. Formulas:** The use of these guidelines in formulas conforms to that described for classrooms in the previous section:

- a.  $ASF/WSCH = (ASF/N)/((RUR)*(SOR))$
- b.  $ASF/FTE = (ASF/WSCH) * (WSCH/FTE)$

**2.3.3. Research Laboratories (Room Type Codes 250 and 255):** Form of the Standard: Assignable square feet per faculty member by type of institution and by broad groupings of disciplines. Note that the planning standards are based on total number of full time equivalent (FTE) faculty in the discipline group. Accordingly, some assumptions have been made about the proportions of faculty engaged in research at each of the types of institutions. These assumptions are reflected in the assignable square feet allowances per FTE faculty for each institutional type.

**2.3.3.1. Planning Standards:** The planning standards are as follows:

Discipline Groupings	ASF/FTE FTE by Type of Institution		
	Research University	Baccalaureate/Masters Granting	Community Colleges
Arts, Letters, Humanities, Behavioral Sciences, Business, Law, Communications	0	0	0
Architecture, Social Work, Education, Special Education	50	5	0
Agriculture, Natural Sciences	500	50	0
Allied Health	500	50	0
Nursing, Health, Math, Geography, Anthropology	300	30	0
Engineering, Natural Science, Pharmacy	1,000	100	0
Psychology, Computer Science	500	50	0
Trades and Technology	0	0	0
DCE, Extension, Other	0	0	0

The preceding standards do not suggest where such space is located. It is common, for example, that space used for theoretical research is located in the faculty member's office area.

**2.3.4. Office and Conference Facilities (Room Type Codes 310, 315, 350 and 355):** Form of the Standard: Assignable square feet of office facilities per full time equivalent (FTE) staff member or faculty requiring such space. In addition there is an allowance for additional square footage per FTE staff member or faculty for office service and conference facilities. The standard does not design individual rooms but allows for all office and conference needs on the campus.

**2.3.4.1. Space Standards:** The space standards are:

Type of Organizational Unit	Type of Institution	ASF/FTE Staff Required Space	Service and Conference Space: ASF/FTE Staff
All Units	All Institutions	130	40

**2.3.5. Study Facilities (Room Type Codes 410, 420, 430, 440 and 455):** NOTE: Study facilities space needs are based on American Library Association (ALA) and American Research Library Association (ARLA) standards and guidelines, as modified and adopted in the 1988 Utah Statewide Library Study commissioned by the State Legislature and conducted by external consultants in cooperation with DFCM and USHE institutions.

**2.3.5.1. Minimum Library Holdings:** With regard to the minimum number of library holdings, the guidelines are:

1. For Universities the minimum collection size should be:

- a. 85,000 volumes.
- b. 100 volumes per FTE Faculty Member.
- c. 15 volumes per FTE Student.
- d. 6,000 volumes per Master's Field when no Doctorate in the field is offered.
- e. 3000 volumes per Master's Field when Doctorate is offered.
- f. 25,000 per Doctorate Field.
- g. 350 per Undergraduate Major or Minor Field.
- h. 6,000 volumes per Sixth Year Specialist Degree Field.

2. For Community Colleges the minimum collection size should be:

- a. 28,000 volumes.
- b. 50 volumes per FTE Faculty Member.
- c. 5 volumes per FTE Student.
- d. 165 volumes per Subject Field of Study.

**2.3.5.2. Study Space:** The standards for study space are: 26 Assignable Square Feet per Station (ASF/N) with stations for 20 percent of the FTE student enrollment and 12.5 percent of the FTE faculty.

**2.3.5.3. Holdings Storage Space:** The space required for storage of library collections decreases as the number of volumes increases, namely: .10 ASF for 0-150,000 volumes; .09 ASF for 150,000-300,000 volumes; .08 ASF for 300,000-600,000 volumes; and .07 ASF for volumes beyond 600,000.

**2.3.6. Physical Education (Room Type Codes 520, 523, and 525):** The guideline for physical education space is 35,000 ASF minimum plus 6 ASF per FTE student beyond the first 1,000 FTE students.

**2.3.7. Special use facilities (Room Type Codes 510, 515, 530, 535, 540, 545, 550, 555, 560, 570, 575, 580, 585 and 590); General use facilities (Room Type Codes 610, 615, 620, 625, 630, 635, 650, 655, 660, 665, 670, 675, 680, 685 and 690); and Support facilities (Room Type Codes 710, 715, 720, 725, 730, 735, 740, 745, 750 and 760).** Within this category are a large number of different types of space. Most of these cannot be related firmly to a readily measurable variable within the institution.

**2.3.7.1. Possible Future Comprehensive Standard for Three Categories of Space:** When grouped together, the combination of these three categories of space (Special, General, and Support) seems to reveal a generally consistent pattern from one institution

to another. However, the formula does not presently address this category of space although a common coefficient or separate coefficients may be proposed in the future.

**2.4. Step 4: Project Enrollments:** Models have been created in the Commissioner's Office to project institution-by-institution enrollments up to 10 years into the future. These projections are used to estimate facility requirements for a 10-year planning horizon.

**2.5. Step 5: Calculate the Required Assignable Square Feet Required by Type of Space:** Space required by room type is calculated using USHE enrollment projections and the space standards discussed in section 4.3.

**2.6. Step 6: Determine the Incremental Assignable Square Feet Required:** Based on space standards and enrollment projections, step 5 determines how many assignable square feet of each given room type generally are required to meet the needs of the institution. Step 6 determines the need or excess capacity for each room type at the institution when compared to the complete space inventory. The determination process compares space required as calculated by step 5 with space available as established by the inventory process, described in steps 1 and 2.

**2.7. Step 7: Assemble and Evaluate the Proposed Capital Projects:** This step gathers space and related information from each institution on the proposed capital facilities development projects for which State Board of Regents and Legislative approval is requested for construction, acquisition or operation and maintenance (O & M). Project descriptions, including a breakout of room types and the effects of renovation on room types, are submitted simultaneously to the Commissioner's Office and DFCM. Each Institution may submit more than one project, but for scoring purposes only the top project will be scored except for research institutions. Each research university may have up to two projects scored each year.

**2.8. Step 8: Conduct a Comparison of the Proposed Projects with Need and Implement the Analytical Process:** This step compares the requested capital facilities projects with the net amount of space required as determined in step 6. This comparison by type of space and by planning year identifies actual percentage needs for space. In the case of remodeling and renovation projects, the procedure is adjusted slightly. The amount of the space to be remodeled in the proposed project will be subtracted from the inventory, prior to processing step 6. Then, the proposed project will be compared with a net space requirement exclusive of the space to be remodeled. Analysis of the remodeling projects is determined in the same way: i.e., is the space to be remodeled or renovated actually needed.

**2.9. Step 9: Prioritization of the Proposed Projects:** Once the analysis has been completed the mission and role projects are ready for prioritization using the "scoring process" described in section 3.3 (Step 3 – Analysis and Prioritization of Needs) of the policy. Projects, whether involving new, remodeled or renovated space, which exceed the calculated net requirements (as determined in step 6) will not qualify for further consideration.