

# Pennsylvania State System of Higher Education Facilities Manual

## Volume VI-B Space Guidelines

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### ***Development***

The development of space guidelines for the State System of Higher Education began in 1989 in the Facilities Management Department of the Office of the Chancellor with the examination of facilities planning factors published as institutional standards for educational facilities, followed by a review of published national, state, and local building codes and construction industry standards for educational facilities. The standards used by other similar four-year educational institutions were examined in detail to evaluate their applicability for use by the System. The institutional criteria examined included that developed by the Planning and Management System Division, Western Interstate Commission for Higher Education (WICHE), the Council of Educational Facility Planners International (CEFPI), the Pennsylvania Department of Education (PDE), and the Association of Physical Plant Administrators (APPA) facilities planning guides. The building code requirements examined included those contained in the Basic Building Code (BBC), the Building Officials & Code Administrators (BOCA) code, and the Uniform Building Code (UBC). Title 34 of the Pennsylvania Code was examined to ensure the Labor and Industry standards for Commonwealth buildings were addressed. The construction standards published by R. S. Means Company as composite indices of the industry nationwide were also reviewed in detail. The results of the examination are contained in a paper entitled *State System of Higher Education Facilities Planning Factors Development*. This paper provided the background for general space planning criteria for future development of the space guidelines that are contained in this section.

In October 1993, the Executive Council of the State System chartered a committee of System physical plant administrators to develop a Capital Facilities Planning and Programming Process (CFP<sup>3</sup>) for the System. The CFP<sup>3</sup> process included the requirement for development of space guidelines for planning and programming System facilities. The committee examined the initial planning as outlined above and followed with a detailed examination of the guidelines used by institutions of higher education nationwide. The results of that analysis are contained in a paper entitled *Space Planning Guidelines Comparison by State Systems. The Survey of Space and Utilization Standards and Guidelines in the Fifty States* prepared by MGT Consultants, Inc., and published by the California Postsecondary Education Commission provided invaluable background for the project. Subsequently, the CFP<sup>3</sup> Committee developed and refined the guidelines contained in this section based both on the general space planning criteria and the guidelines adopted by similar institutions.

### ***Application***

The space guidelines contained in this section shall be used to determine the space required to accommodate the mission requirements of each institution of the State System of Higher Education. The guidelines are not to be considered or construed as entitlements of facilities at each institution. Rather, the guidelines establish a reasonable amount of space necessary to accommodate the programs conducted at each institution. When planning additional facilities, each institution should compare the space in its inventory against the guidelines to determine

excess or shortfalls. Whenever feasible, excesses should be converted to satisfy shortfalls. New facilities should be planned only when there are shortfalls that cannot be accommodated within existing usable excesses and/or when the quality of existing space is no longer adequate to satisfy program requirements. These guidelines are intended to serve as a guide for programming space to satisfy the overall total space requirements of System universities and may not be used necessarily as design guidelines for room sizes for renovation or construction projects. These guidelines address the requirements for satisfying the System's primary educational mission and do not include the requirements for grants and community support. Satisfying temporary shortfalls should be accomplished by leasing or other means short of planning new facilities. Factors used in the computations must be contained in the State System's official database, or verifiable from the institution's records.

# Contents

## State System of Higher Education Capital Facilities Planning and Programming Criteria by Assignable Space Categories— (Volume VI-B)

Category	Page
000.....	Unclassified ..... 1
110/115.....	Classroom and Classroom Service ..... 1
210/215/220/225.....	Teaching Laboratory/Open Laboratory and Laboratory Service ..... 1
250/255.....	Research Laboratory and Service..... 1
300.....	Office Facilities ..... 2
400.....	Study Facilities (Inclusive of Categories 410/420/430/440/455) ..... 3
510/515.....	Armory and Armory Service ..... 3
520.....	Athletic/Physical Education ..... 3
525.....	Athletic/Physical Education Service ..... 3
530/535.....	Media Production..... 4
540/545.....	Clinic and Clinic Service ..... 4
550/555.....	Demonstration and Demonstration Service..... 4
560.....	Field Buildings ..... 4
570/575.....	Animal Quarters..... 4
580/585.....	Greenhouse and Service ..... 4
590.....	Other ..... 4
610/615.....	Assembly ..... 4
620/625.....	Exhibition ..... 4
630/635.....	Food Facility and Service (Auxiliary Facilities) ..... 5
640/645.....	Day Care and Service..... 5
650/660, 655/665.....	Lounge/Merchandising and Service (Exclusive of Areas So Designated ..... in Residence Halls ..... 5
670/675.....	Recreational Facilities and Service (Auxiliary Facilities)..... 5
680/685.....	Meeting Rooms and Service ..... 5
700.....	Support Facilities (Inclusive of 700 Series, Except 760/770/775 and 790) .5
760/770/775.....	Hazardous Materials / Waste Storage..... 5
790.....	Utility Production..... 5
800.....	Health Care Facilities (Inclusive of Entire 800 Series)..... 6
900.....	Residence Halls and Student Unions (Auxiliary Facilities) ..... 6
910.....	Sleep/Study Without Bath (Traditional Dorm Room) ..... 6
919.....	Toilet or Bath (Traditional Dorm Bath)..... 6
920.....	Sleep/Study With Toilet or Bath ..... 6
935.....	Sleep/Study Service ..... 6
950.....	Apartment..... 6
955.....	Apartment Service ..... 6
970.....	House ..... 6
980.....	Student Union ..... 6
Definitions.....	..... 7

# Pennsylvania State System of Higher Education Capital Facilities Planning and Programming Criteria By Assignable Space Categories

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## **Category 000 – Unclassified**

None specified. Default value is zero.

## **Category 110/115 - Classroom and Classroom Service**

$$\text{Allocation (ASF)} = \text{FTES} \times 13.7 \text{ WSCH/FTES} \times \text{space factor} \times 1.1$$

$$\text{space factor} = \frac{\text{number of assigned square feet per station}}{(\text{maximum number of hours room used per week} \times \text{room use rate}) \times \text{station occupancy rate}} = .796$$

Where: number of assigned square feet per station = 20 square feet (reference BOCA Code)  
maximum number of hours room is used per week = 50  
room use rate = .75  
station occupancy rate = .67  
classroom service accommodated in 1.1 multiplier  
WSCH = weekly scheduled contact hours = total number of contact hours each week during fall term for classrooms  
ASF = assignable square feet  
FTES = Full time equivalent students for fall term  
WSCH/FTES = assumed ratio of 13.7 based on typical PASSHE university data (Fall 2006)

## **Category 210/215/220/225 - Teaching Laboratory/Open Laboratory and Laboratory Service**

$$\begin{aligned} \text{Allocation Module (ASF)} &= \text{FTES (fall term)} \times \text{weekly lab hr/FTES} \times \text{space factor} \times \text{service factor} \\ &= \text{FTES (fall term)} \times 4.2 \times 3.11 \times 1.25 \\ &= \text{FTES (fall term)} \times 16.328 \end{aligned}$$

$$\text{Space Factor} = \text{average assignable square feet (50)} \div \text{average room use (23)} \times \text{average occupancy (.7)} = 3.11$$

Where: average room use = 23 hours per week  
average occupancy = 70%  
FTES = (fall term)  
average assignable square feet per station = 50 square feet  
weekly lab hours/FTES = 4.2  
space factor = 3.11  
service factor = 1.25

## **Category 250/255 - Research Laboratory and Service**

$$\text{Allocation (ASF)} = \text{FTEF} \times 40 \text{ ASF; with a minimum of 5,000 ASF}$$

Source: CEFPI using assumption for comprehensive liberal arts institutions with more than 3,000 FTE.

**Category 300 - Office Facilities**

Category	Organizational Element	Space Allocation* ASF/FTE	Additive per FTE
305/310	FTEF (Faculty)	150	40
315/320	FTEN (Executive, Administrative, and Managerial Employee)	150	40
325/330	FTEN (Clerical and Secretarial Employee)	150	N/A
326/332	Doctoral Student	140	N/A
335/340	Student Worker, Graduate Assistant	120	N/A
336/342	Student Worker, Undergraduate	70	N/A
345/350	Teaching Assistant	N/A	N/A
355/360	Student Activities	N/A	N/A

\* Space allocation includes 40 square feet for service and conference (360) space.

ASF space allocation (305/310) = FTEF X (150 + 40) sq. ft.

ASF space allocation (315/320) = FTEN(Executive, Administrative, and Managerial Employee) X (150 + 40) sq. ft.

ASF space allocation (325/330) = FTEN (clerical and secretarial employee) x 150

ASF space allocation (326/332) = no. enrolled doctoral candidates x 140

ASF space allocation (335/340)

$$= \left(\frac{2}{3}\right) \left(\frac{\text{graduate student hours worked during fall semester}}{(15 \text{ weeks per semester})(37.5 \text{ work hours per week})}\right) (120 \text{ ASF/FTE})$$

$$= (0.14)(\text{graduate student hours worked during fall semester})$$

ASF space allocation (336/342)

$$= \left(\frac{1}{3}\right) \left(\frac{\text{undergraduate student hours worked during fall semester}}{(15 \text{ weeks per semester})(37.5 \text{ work hours per week})}\right) (70 \text{ ASF/FTE})$$

$$= (0.04)(\text{graduate student hours worked during fall semester})$$

**Category 400 - Study Facilities (Inclusive of Categories 410/420/430/440/455)**

Total Category 400 allocation (ASF) = study space (410) + stack space (420) + open - stack study space (430) + processing space (440) + study service space (455)

Where:

study space (410) = 15% (FTE students + FTE faculty) x 30 ASF

stack space (420) = 10 ASF (0-150,000 bound volume equivalent) + .09 ASF(150,001-300,000 bound volume equivalent) + .08 ASF (300,001-600,000 bound volume equivalent) + .07 ASF (600,001 and above)

open-stack study space (430) = 10% of stack space (420)

processing space (440) = 12.5% [study space (410) + stack space (420) + open-stack study space (430)]

study service space (455) = 10% of study space (410)

"bound volume equivalent"* =	
1	bound volume book stock and bound periodicals
80	microforms (include reels and duplicate titles)
5	audiovisual materials (audio recording, filmstrips, slides, overhead transparencies, video discs, compact discs, multimedia kits; motion pictures and video tapes)

\* Data for bound volume equivalent calculation is from the annual library report submitted to the PASSHE System Research Office.

**Category 510/515 - Armory and Armory Service**

None specified. Default value is the current inventory.

**Category 520 - Athletic/Physical Education**

Allocation (ASF) = core + 6 ASF per FTES (fall term) above core

Core = 50,000 ASF per first 1,500 FTES

**Category 523 – Athletic Spectator Seating (covered)**

None specified. Default value is the current inventory.

**Category 525 - Athletic/Physical Education Service**

Allocation (ASF) = 10,000 ASF for first 2,000 FTES (fall term) + 6 ASF per FTES above core

Core = 10,000 ASF for first 2,000 FTES

### **Category 530/535 - Media Production**

Allocation (ASF) = 1.0 ASF per FTES (fall term); minimum 5,000 ASF

Source: CEFPI using assumption for four year institutions with less than 10,000 FTE.

### **Category 540/545 - Clinic and Clinic Service**

Allocation (ASF) = 0.4 ASF per FTES (fall term)

Source: CEFPI using assumption for four year institutions.

### **Category 550/555 - Demonstration and Demonstration Service**

Use the criteria for the function for which the room is used, i.e., classroom (100), day care (640), laboratory (200), open lab (220), research/nonclass laboratory (250), or clinical space (540).

### **Category 560 - Field Buildings**

None specified. Default value is the current inventory.

**Category 570/575 - Animal Quarters** (Must comply with National Institute of Health statutes for minimum requirements for animals.)

Allocation (ASF) = 0.2 ASF per FTES (fall term)

Source: CEFPI using assumption for four year institutions.

### **Category 580/585 - Greenhouse and Service**

Allocation (ASF) = 0.5 ASF per FTES (fall term)

Source: CEFPI using assumption for four year institutions.

### **Category 590 - Other (all purpose)**

None specified. This is a category of last resort; see Inventory Definitions.  
Default value is the current inventory.

### **Category 610/615 - Assembly**

Allocation (ASF) = core 14,500 ASF + 6 ASF per FTES over 2,000 FTES + 6 ASF (FTEN + FTEF) +  
(5,000 ASF if University has an approved Music Program.)

### **Category 620/625 - Exhibition**

Allocation (ASF) = Core + 1 ASF per FTES over 2,000 + 1 ASF (FTEN + FTEF)

Core = 1,500 ASF for first 2,000 FTES

### **Category 630/635 - Food Facility and Service (Auxiliary Facilities)**

Food services are auxiliary facilities that are addressed primarily as a function of market demand. Allocation does not include vending areas in lounge space.

$$\text{Allocation ASF} = 9 \text{ ASF} \times [(\text{FTES} + \text{FTEN}) \text{ fall semester} + \text{FTE faculty}]$$

### **Category 640/645 - Day Care and Service**

Comply with state statutory requirements and/or local building codes. Default value is the current inventory.

### **Category 650/660, 655/665 - Lounge/Merchandising and Service (Exclusive of Areas So Designated in Residence Halls)**

$$\text{Allocation (ASF)} = 1 \text{ ASF} \times (\text{FTES} + \text{FTEF} + \text{FTEN (administrative and clerical employee)}) \\ + 4 \text{ ASF per FTEN (all other employees, except doctoral, graduate, and student workers)}$$

### **Category 670/675 - Recreational Facilities\* and Service (Auxiliary Facilities)**

$$\text{Allocation (ASF)} = (20,000 \text{ ASF for the first 1,000 FTES} + 5 \text{ ASF for each additional FTES}) \times 1.15^{**}$$

\* Does not include recreational spaces in residence halls.

\*\* 15% additive for future growth.

### **Category 680/685 - Meeting Rooms\* and Service**

$$\text{Allocation (ASF)} = \text{Core 5,000 SF} + 1 \text{ ASF for each FTES over 5,000}$$

\* Does not include meeting space in auxiliary facilities or student unions.

### **Category 700 - Support Facilities (Inclusive of 700 Series, Except 790)**

$$\text{Allocation (ASF)} = 5\% \text{ of total ASF}^*$$

\* Total ASF = total calculated for all other categories as indicated in these space guidelines determined after all other categories are completed to obtain total building ASF for both academic and auxiliary facilities. Universities may request an additional allowance as justified for local considerations as indicated by space guidelines.

### **Category 760/770/775 – Hazardous Materials / Waste Storage**

None specified. Default value is the current inventory.

### **Category 790 - Utility Production**

None specified. Default value is the current inventory.



## **Category 800 - Health Care Facilities (Inclusive of Entire 800 Series)**

Allocation (ASF) = 2,000 ASF core + 0.3 ASF per FTES over 3,000 FTES

## **Category 900 - Residence Halls and Student Unions (Auxiliary Facilities)**

Category 900 assignable space allocations are generally accepted quantities. Actual size must be supported by actual market conditions based on professionally prepared market analysis.

### **910 - Sleep/Study Without Bath (Traditional Dorm Room)**

Allocation (ASF) = 150 ASF x (number of residents as justified by local conditions) x 1.1\*

\* Factor for administrative services.

### **919 - Toilet or Bath (Traditional Dorm Bath)**

Allocation (ASF) = 30 ASF x (number of residents as justified by local conditions)

### **920 - Sleep/Study with Toilet or Bath**

Allocation (ASF) = 190 ASF x (number of residents as justified by local conditions)

### **935 - Sleep/Study Service**

None specified. (See asterisk in Category 910 above.)

### **950 - Apartment**

Student Occupied (ASF) = 180 ASF x (number of residents as justified by local conditions)

Residence Hall Director (ASF) = up to 750 ASF per director

### **955 - Apartment Service**

None specified.

### **970 – House / Official Residence**

Guideline is per Volume IX-A of the Facility Manual. This section estimates total gross square feet for an official residence at 6,125 gross square feet including public and private living space, and garage. Assuming a 1.23 net to gross ratio (average for PASSHE Official Residences), the ASF for this category is 5,000 square feet.

### **980 - Student Union**

Allocation\* (ASF) = 10 ASF x FTES

\* This does not include other categories which may be incorporated within or as part of a student union facility, such as category 670/675 - Recreational Facilities and Service, or category 680/685 - Meeting Rooms and Service. However, it does include other categories of space in the facility occupied by students, such as student government offices, snack bar, lounges, theaters, etc.

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## Definitions

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The terms, abbreviations, and room use code definitions, descriptions, and limitations used in this section are defined in the State System of Higher Education *Data Definitions Manual*, or Volume VI-A of this Manual. Following are the applicable definitions from the draft *Data Definitions Manual* for ease in preparing the space guidelines computations.

### ***Administrative Employee***

An employee of the State System of Higher Education working in an administrative unit. Linkage: administrative unit and employee.

### ***Assignable Square Feet***

Space measured within the interior walls of a room and expressed in square feet.

### ***Auxiliary Facility***

A facility that is financially supported from an operation that exists to furnish goods or services to students, faculty, or staff, and charges a fee directly to the users that is intended to cover the cost of providing the goods or services. Residence halls, dining halls and snack bars, student centers, and student recreational centers are considered auxiliary facilities. Linkage: facility.

### ***Classification of Instructional Program (CIP) Code***

A six-digit cost in the form xx.xxxx that identifies instructional program specialties within educational institutions. Linkage: classification of instructional programs.

### ***Clerical Employee***

An employee of the State System of Higher Education working in the clerical field in an administrative unit (including faculty administrative units). Linkage: administrative unit and employee.

### ***Contact Hour***

A unit of measurement representing the amount of time a faculty member spends in direct personal contact with students during a week. Typically, one contact hour equals one hour (50 minutes) of scheduled instruction.

### ***Credit Hour***

A unit of measurement representing progress made toward completion of the requirements of a degree, diploma, certificate, or other formal award. Typically, one credit hour roughly equals 15 contact hours, and represents an hour (50 minutes) of instruction over a 15-week period in a semester or trimester or a 10-week quarter.

### ***Doctoral Student***

A post-baccalaureate student enrolled in a graduate program that leads to a Doctoral degree. Linkage: doctoral degree.

### ***Employee***

Person on the payroll of the State System of Higher Education. Types: faculty, staff, student, wage, salary (temporary and permanent).

### ***Full-Time Equivalent Faculty (FTEF)***

The total number of semester credit hours or their equivalent (release time) in an academic year that equals one FTEF—24 for undergraduate faculty, and 18 semester credit hours or their

equivalent for graduate faculty.

**Full-Time Equivalent Non-faculty (FTEN)**

Number of hours worked by each non-faculty salaried employee in a fiscal year divided by the number of normal yearly hours for that position. For example,  $37.5 \times 52 = 1$  FTEN for a 12-month employee.

**Full-Time Equivalent Students (FTES), Term**

Total credit hours generated within any semester or inter-session, divided by 15 for undergraduate, and 12 for graduate students. Credit hours generated are calculated based on the academic program in which the student is enrolled and is taken within the official enrollment reporting date for a defined period (e.g., semester and/or inter-session). Context: FTES is a measure of student enrollment, comparable to the former FTES by unit. The former FTES by program, which is a measure of departmental productivity, will be defined as Full-Time Equivalent Student Generated (FTESG). Linkages: See definition of credit hours, graduate and undergraduate, official enrollment reporting dates.

**Full-Time Equivalent Students Generated (FTESG), Term**

Total credit hours generated within any semester or inter-session, divided by 15 for undergraduate, and 12 for graduate students. Credit hours generated are calculated based on an organizational unit from which the credit hours were generated and will be taken the official enrollment reporting date for a defined period (e.g., semester and/or inter-session). Context: FTESG is a measure of departmental productivity, comparable to the former Full-Time Equivalent Student (FTES) by program. The former FTES by discipline, which is a measure of enrollment, is defined as FTES.

**Graduate Student Worker**

A part-time staff member of the State System of Higher Education who is enrolled as a graduate student in a graduate program. Linkage: part-time staff and graduate student.

**Library**

An organized collection of printed, microform, electronic, and audiovisual materials which (a) is administered as one or more units, (b) is located in one or more designated places, and (c) makes printed, microform, and audiovisual materials, as well as necessary equipment and services of a staff, accessible to students and to faculty. Includes units meeting the above definition which are part of a learning resource center.

**Room Use Code**

Numerical designation assigned to rooms within a State System of Higher Education facility based on the primary functional use of the space. Linkage: facility and *State System of Higher Education Facilities Manual, Volume VI-A*.

**Student Worker**

A student employed as a part-time staff member of the State System of Higher Education. Linkage: student and part-time staff.

**Weekly Scheduled Contact Hour (WSCH)**

See definition for Contact Hour. For the PASSHE facilities inventory, the WSCH only relates to contact hours in classrooms – contact hours for lab time must be extracted for an accurate space guideline calculation.