

### 6.0.9 Built-In Equipment

Built-in equipment comprises special purpose equipment or furnishings which are permanently built in or attached to general building construction. It includes such items as laboratory fixtures, kitchen cabinets, commercial laundry equipment, auditorium seating, stage rigging, and so forth. Built-in equipment may be procured in the following ways provided the procurement complies with [Chapter 43, Title 2.2](#) of the *Code of Virginia* (VPPA):

1. Bid the built-in equipment as part of the Construction Contract.
2. Bid prior to receipt of bids on the Construction Contract where the successful bidder agrees to be assigned as a subcontractor to the Construction Contractor. That price and vendor's name are then listed on the Bid Form using wording as shown on the sample "Bid Form (Standard Format)" on the [DGS Forms Center](#) for inclusion in the Construction Contract bids.
3. Bid the built-in equipment to be furnished and installed as a separate contract for both procurement and installation.

## 6.1 GENERAL DESIGN STANDARDS

### 6.1.1 Guidelines for Space Planning

These guidelines are used for evaluating areas of common types of spaces. The guidelines are intended to help in planning space sizes and for calculating and justifying Capital Budget Requests space and area requirements. In the actual design of the project the agency may choose to make some spaces larger than the indicated guideline area and compensate by reducing the area allocated to other spaces. The use of areas greater than those indicated are not considered to be a valid justification for an increase in the authorized project square footage. Spaces which exceed the guidelines, any special space needs or special features required may need further explanation or justification in the Basis of Design.

Space Category & Type of Room or Space	Area Guideline	Remarks
<b>Private Offices</b>		
Agency Head or Department Director (Position requires confirmation by General Assembly)	196 sf	14' x 14'
Agency Head or Department Director	150 sf	10' x 15'
Assistant Director & Confidential Staff (Confidential Staff: describe position & why private office space is needed)	120 sf	10' X 12'
<b>Open Offices</b>		
Professional Staff Supervisor	96 sf	8' x 12'
Professional Staff & Support Admin. Supervisor	64 sf	8' x 8'
Contractors/Auditors	48 sf	6' x 8'
Field Staff, Floating Staff, Recep. & Support Admin.	48 sf	6' x 8'
<b>Special Space Requirements</b>		
Examining/Medical Rooms	100 sf	10' x 10'
Testing, Training, Hearing Rooms: Seminar Seating	15 sf	per person
Testing, Training, Hearing Rooms: Auditorium	10 sf	per person
Interview Areas	80 sf	8' x 10'
Reception Room, 1-5 visitors	144 sf	12' x 12'
Over 5 visitors, add:	10 sf	per person
Conference Room, 1 <sup>st</sup> 10 chairs	25 sf	per person
Over 10 chairs, add:	15 sf	per person

<b>Assembly / Auditorium, Meeting, Theater, Lecture Hall/Room</b>		
Fixed Seats (incl. aisle space)	10 sf	per seat
Chairs, not fixed	10 sf	per person
Tables and Chairs	15 sf	per person
Standing/Observation Space	3 sf	per person
<b>Educational Spaces</b>		
Classroom, 10 - 49 stations	20 sf	per station
Classroom, 50 - 99 stations	15 sf	per station
Lecture, over 100 stations	10 sf	per station
Laboratory, Biology & Chemistry	45 sf	per station
Laboratory, Engineering	60 sf	per station
Laboratory, Physics or Geology	40 sf	per station
Laboratory, Art & Architecture	60 sf	per station
Lab Storage, Biology & Chemistry	10 sf	per station
Lab Storage, Engineering	10 sf	per station
Lab Storage, Physics or Geology	8 sf	per station
Lab Storage, Art & Architecture	10 sf	per station
<b>Dormitory</b>		
Bedroom	115 sf	per bed
Lounge & Recreation Space	25 sf	per bed
Storage Space	10 sf	per bed
<b>Library</b>		
Stack Space	0.08 sf	per book
Reading Space	10 sf	per user
Library Services	2.5 sf	per user
<b>Food Service, Food Courts, Dining Halls</b>		
Dining Areas	15 sf	per seat
Serving Line and Counters	1.5 sf	per seat
Kitchen and Food Preparation	2.5 sf	per seat
Food Storage	1.5 sf	per seat
Dishwashing Area	0.7 sf	per seat
Receiving Area	0.4 sf	per seat
Waste or Garbage Area	0.3 sf	per seat
<b>Recreation Buildings</b>	5 sf	per person
Bleacher Seats	20 sf	per locker
Locker Area	50 sf	per station
Weight Room	20 sf	per person
Exercise and Aerobics Area	20 sf	per person

#### 6.1.1.1 Additional Clarifications

- Field Office Personnel who are routinely out of the office 50% or more of the normal work week shall be restricted to open office space.
- When evaluating conference or reception space, consider the “peak” or highest number of users at any one time on a frequent basis during a weekly period (4-5 times per week.)
- Conference Rooms are not typically sized for full staff meetings.

- File Storage is an area where Agencies may be able to save money by evaluating file storage practices. High density storage options or purging files on a regular basis may significantly reduce the amount of real estate needed over time.
- If the total number of private offices is greater than the total number of open office workstations, add 30 % to the total of all Personnel, Support and Special spaces for circulation.
- If the total number of private offices is less than the total number of open office workstations, add 35% to the total of all Personnel, Support and Special spaces for circulation.

## 6.1.2 Building Efficiency Ratios

### 6.1.2.1 General

Building efficiency is the ratio of Assignable Area to Gross Building Area expressed as a percentage and is determined based on the definitions and calculation procedures shown below. The minimum building efficiency ratios are a composite of the ratios or factors taken from recognized standards and are based on the definitions and procedures shown below. The minimum building efficiency ratios are intended to provide achievable minimum standards for design of an efficient, functional layout.

The definitions and procedures described below shall be used to determine the “Building Efficiency Ratio”. Use the VUSBC definition of Building Area for determining the allowable area for the building for code compliance.

(Higher Education Agencies should note that the SCHEV guidelines for determining space needs or justification considers not only the assignable space (classroom, laboratory, etc.) but also all spaces which directly serve that space as being part of the “program space”. Likewise, the SCHEV area and use factors for “program space” are based on their definitions without regard to actual layout.)

### 6.1.2.2 Definitions

**Gross Area (GSF):** The total area of all floors of a building measured to the exterior face of the exterior walls, or to the horizontal projection of the roof or floor above for areas that are not provided with exterior walls. This is not to be confused with the definition of “Area, Building” in the Virginia Construction Code which is used for building area limitations.

**Assignable Area (ASF):** The area or the sum of all areas on all floors of a building assigned to, or available for assignment to, an occupant, including every type of space functionally usable by an occupant except “Non-assignable Areas” defined below. The area of a closet or private toilet within an office or suite space shall be included in the calculation of the assignable area of that space. Assignable square footage shall include only program-related spaces; however, not all program related spaces are necessarily considered assignable.

**Non-assignable Area:** The area or the sum of all areas on all floors of a building not available for assignment to building occupants but which are necessary for the general operation of the building. Non-assignable space areas include corridors, stairs, lobbies, foyers, atria, entry vestibules, walls, columns, elevators, mechanical shafts, toilets (common and public), janitors closets, custodial, circulation, mechanical, HVAC and utility spaces, structural areas and open (shaft and atrium) spaces.

**Custodial Area:** That portion of the non-assignable area which is the sum of all areas of the building used for its protection, care, and maintenance. These include janitor’s closets, storage areas for custodial supplies and equipment, trash rooms, and custodial locker rooms.

**Circulation Area:** That portion of the non-assignable area which is required for physical access to other spaces, whether directly bounded by partitions or not. Circulation space includes corridors, elevator shafts, stairs, loading platforms, entry vestibules, foyers, atria, lobbies, tunnels and bridges. When determining circulation area, only spaces required for general access should be included. Aisles which are used for circulation within open office suites, auditoriums and other work areas are included in the calculation of the assignable area.

**Mechanical Area:** That portion of the non-assignable area designed to house mechanical/HVAC equipment, mechanical shafts, plumbing and sprinkler risers, electrical equipment rooms / closets, telephone and communications equipment rooms / closets, other utility services, and common or public (non-private) toilet facilities.

**Structural Area:** That portion of the non-assignable area which cannot be occupied or put to use because of the presence of structural features of the building. Included are columns, exterior walls, fire walls, and permanent partitions.

### 6.1.2.3 Calculations

The areas shall be determined from the actual floor plans for the facility. Assignable square feet (ASF) as a percentage of gross square feet (GSF) shall be no less than the ratios listed below. Exceptions to these building efficiency factors must be approved by the Director of the Division of Engineering and Buildings. Requests must be supported by written justification submitted by the agency stating why these ratios cannot be obtained.

### 6.1.2.4 Building Efficiency Ratios

Building Type	Ratio: ASF to GSF
Office Building w/partitioned offices	70%
Office/Classroom Building (where classrooms are 29% or less of the assignable area)	70%
Office Building w/open office layout	90%
Classroom Building	66%
Classroom & Office Building (where classrooms are 70% or more of the assignable area)	66%
Health/Fitness Building with gymnasium & classrooms	85%
Health/Fitness Building (gyms, classrooms, pool, handball courts)	80%
Hospital or Infirmary	60%
Engineering/Laboratory Building	72%
Instructional Shop Building	90%
Library Building	75%
Fine Arts Building	72%
Science Building w/Laboratories	65%
Physical Plant Service Building	85%
Student Union	75%
Dormitory Housing w/ common use toilets	65%
Apartment or Townhouse Style Housing	90%
Suite Style Housing w/ private toilets	80%
Auditorium / Theater	70%
Dining Facility	72%
Warehouse	93%
Maintenance Garage	85%